

**THE UNIVERSITY OF TENNESSEE  
HEALTH SCIENCE CENTER**

**CATALOG 2012 - 2013**



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## GENERAL INFORMATION

In 1911, the University of Tennessee first launched its Memphis campus, dedicating it solely to health science education and research. Seed programs in medicine, dentistry and pharmacy quickly flourished, and within a few short years, new programs were initiated in allied health sciences, graduate health sciences, and nursing. Each of those programs grew to become a college in its own right. In 1963, the UT Graduate School of Medicine in Knoxville became part of the UT Health Science Center, and in 1974, the UT College of Medicine, Chattanooga, joined the UTHSC system.

Today, the University of Tennessee Health Science Center comprises six colleges – Allied Health Sciences, Dentistry, Graduate Health Sciences, Medicine, Nursing and Pharmacy – training the health care scientists and caregivers of tomorrow. Approximately 2,800 students are enrolled at UTHSC, which also offers a broad range of postgraduate training opportunities. Accredited by the Southern Association of Colleges and Schools as a component of the University of Tennessee, UTHSC offers over 30 undergraduate, graduate or professional degrees.

Statewide, nearly 1000 residents and fellows receive training in 75 ACGME (Accreditation Council for Graduate Medical Education) accredited training programs through the UTHSC Graduate Medical Education Program. Fifteen of these programs are in Knoxville; 10 are located in and around Chattanooga; and 50 programs are organized from Memphis, including a family practice residency in Jackson, Tenn., and an internal medicine residency in Nashville. A total of 15 teaching hospitals and clinical facilities across the state have a formal affiliation with UTHSC supporting the mission of the institution.

### The University of Tennessee Mission Statement

The mission of The University of Tennessee is to provide the people of Tennessee with access to quality higher education, economic development and enhanced quality-of-life opportunities.

### UT Health Science Center Mission Statement

The mission of the University of Tennessee Health Science Center is to bring the benefits of the health sciences to the achievement and maintenance of human health, with a focus on the citizens of Tennessee and the region, by pursuing an integrated program of education, research, clinical care, and public service.

### Location and Facilities

The UT Health Science Center administrative offices are located on the Memphis Campus, Hyman Building, at 62 South Dunlap, Memphis, TN. The administrative offices for each of the six colleges are also located on the Memphis Campus. Beyond the main campus located in Memphis, UTHSC programs are supported on clinical campuses in Chattanooga, Knoxville, and Nashville as well as in a myriad of health-care-related facilities across Tennessee. For more detailed information regarding UTHSC facilities, refer to *CenterScope* (<https://www.uthsc.edu/centerscope/>).

## ACADEMIC POLICIES

All institution-wide policies and procedures guiding the academic programs offered through the UTHSC are available in one of two places: (1) the official student handbook, *CenterScope* (available at <https://www.uthsc.edu/centerscope/>); and, (2) on the UTHSC Academic Affairs website (at <https://academic.uthsc.edu/policy.php>). *CenterScope*, the official student handbook for the institution, provides important information on student government, academic and student support services, technology support services, available health services, financial aid, emergency procedures, institution-wide policies and procedures of particular relevance for students, rights and responsibilities of students, the Student Code of Conduct, the judicial system governing student actions, and a summary of a variety of organizations and opportunities for students. Policies and procedures governing academic, faculty and student affairs are available at the website provided above and are updated routinely. Students are strongly encouraged to review the information provided in *CenterScope*, and in the present catalog, upon acceptance into one of the UTHSC programs. In addition, students are encouraged to review the following policies as they directly relate to successful progression and completion of the degree programs offered at UTHSC.

## Attendance

[https://academic.uthsc.edu/policy\\_docs/attendance.php](https://academic.uthsc.edu/policy_docs/attendance.php)

## Awarding of Degrees and Attendance at Commencement

[https://academic.uthsc.edu/policy\\_docs/awarding\\_degrees.php](https://academic.uthsc.edu/policy_docs/awarding_degrees.php)

## Accommodations for Religious Beliefs, Practices and Observances

[https://academic.uthsc.edu/policy\\_docs/religious\\_beliefs.php](https://academic.uthsc.edu/policy_docs/religious_beliefs.php)

## Credit Hour Policy

[https://academic.uthsc.edu/policy\\_docs/credit\\_hour.php](https://academic.uthsc.edu/policy_docs/credit_hour.php)

## Student Status During Academic Appeals within a College

[https://academic.uthsc.edu/policy\\_docs/student\\_status\\_appeals.php](https://academic.uthsc.edu/policy_docs/student_status_appeals.php)

## Transfer Credit

[https://academic.uthsc.edu/policy\\_docs/transfer\\_credit.php](https://academic.uthsc.edu/policy_docs/transfer_credit.php)

## DEGREES, MAJORS, AND CONCENTRATIONS OFFERED

DEGREE	MAJOR	DESIGNATION	CONCENTRATION
<b>Bachelor of Science</b>			
	Dental Hygiene	BSDH	
	Medical Laboratory Science	BSMLS <sup>1</sup>	
<b>Master</b>			
	Cytopathology Practice	MCP	
	Dental Hygiene	MDH	
	Health Informatics & Information Management	MHIIM	Entry-level; post-graduate
	Occupational Therapy	MOT	
	Physical Therapy	MPT	
<b>Master of Science</b>			
	Audiology <sup>2</sup>	MS	
	Biomedical Engineering <sup>3</sup>	MS	Biomechanics; Biomaterial and Regenerative Technology; Bioimaging; Biosensors & Electrophysiology; Interdisciplinary
	Biomedical Sciences	MS	Cancer and Developmental Biology; Cell Biology & Physiology; Microbiology, Immunology, and Biochemistry; Molecular & Systems Pharmacology; Neuroscience
	Clinical Laboratory Science	MSCLS	

<sup>1</sup> Previously the Bachelor of Science in Medical Technology (BSMT)

<sup>2</sup> Only available to those enrolled in the AuD or PhD in Speech and Hearing Science programs

<sup>3</sup> Joint degree offered with University of Memphis

DEGREE	MAJOR	DESIGNATION	CONCENTRATION
<b>Master of Science</b>			
	Dental Science	MDS	Endodontics; Orthodontics; Pediatric Dentistry; Periodontology; Prosthodontics
	Epidemiology	MS	
	Health Outcomes & Policy Research	MS	Health Policy/Health Services Research; Health Systems Pharmacy Management
	Nursing	MSN	Clinical Nurse Leader
	Pharmaceutical Sciences	MS	Medicinal Chemistry; Pharmaceutics
	Pharmacology	MS	
	Speech-Language Pathology	MS-SLP	Speech Pathology
	Physical Therapy	MSPT	Musculoskeletal; Neurological
<b>Doctor</b>			
	Doctor of Audiology	AuD	Aural Habilitation
	Doctor of Dental Surgery	DDS	
	Medicine	MD	
	Nursing Practice	DNP	Acute Care NP – Adult/Gerontology; Family Nurse Practitioner; Family Psych/Mental Health; Neonatal NP Nurse; Nurse Anesthesia; Public Health Nursing; Forensic Nursing
	Pharmacy	PharmD	
	Doctor of Physical Therapy	DPT	Entry-level; Transition
<b>Doctor of Science</b>			
	Physical Therapy	ScDPT	
<b>Doctor of Philosophy</b>			
	Biomedical Engineering <sup>4</sup>	PhD	Biomechanics; Biomaterial and Regenerative Technology; Bioimaging; Biosensors & Electrophysiology; Interdisciplinary
	Biomedical Sciences	PhD	Cancer and Developmental Biology; Cell Biology & Physiology; Microbiology, Immunology, and Biochemistry; Molecular & Systems Pharmacology; Neuroscience
	Health Outcomes & Policy Research	PhD	Health Policy/Health Services Research; Pharmacoeconomics
	Nursing Sciences	PhD	
	Pharmaceutical Sciences	PhD	Medicinal Chemistry; Pharmaceutics
	Speech and Hearing Science	PhD	Audiology; Hearing Science; Speech and Language Pathology; Speech-Language Science

<sup>4</sup> Joint degree offered with University of Memphis

## CATALOG FUNCTION AND ORGANIZATION

This catalog serves as the official institutional document summarizing all of the educational and training programs offered at the University of Tennessee Health Science Center (UTHSC). This catalog is not to be construed as a contract. The UTHSC reserves the right to change fees, tuition or other charges; add or delete courses; revised academic programs; or alter regulations and requirements as deemed necessary and appropriate. For current information regarding fees and tuition, refer to [http://www.uthsc.edu/finance/bursar/colleges\\_fee\\_information.php](http://www.uthsc.edu/finance/bursar/colleges_fee_information.php).

This catalog contains separate sections for each of the six colleges within the UTHSC, summarizing their mission and organizational structure, degrees offered, academic calendar, admissions processes, policies and procedures related to their academic programs (including those related to progression and graduation), student organizations, and scholarships and awards available through the college. In addition, curriculum summarizes and course descriptions are provided for each program.

General campus information, as well as general policies that are applicable to all students enrolled at the UTHSC, are available in *CenterScope*, the official student handbook for the institution. CenterScope can be found at <http://www.uthsc.edu/centerscope/Centerscope.pdf>.

## AUTHORIZATION AND ACCREDITATION

The University of Tennessee is authorized by the Tennessee Higher Education Commission as a postsecondary institution of higher education (<http://www.state.tn.us/thec/index.html>). Authorization is renewed each year and is based on an evaluation by minimum standards concerning quality of education, ethical business practices, health and safety, and fiscal responsibility.

The University of Tennessee is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award baccalaureate, masters, and doctoral degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of The University of Tennessee.

### Professional Program Accreditation

<b>Program</b>	<b>Agency</b>	<b>Next site visit</b>
Medicine (7 years)	Liaison Committee on Medical Education	2014
Graduate Med Ed (5 years)	Accreditation Council for Graduate Medical Education	2012
Dentistry (7 years)	Commission on Dental Accreditation	2017
Pharmacy (6 years)	American Council on Pharmaceutical Education	2015
Nursing (10 years)	Commission on Collegiate Nursing Education (MS)	2019
Occupational Therapy (7 years)	The American Occupational Therapy Association	2013
Cytotechnology	American Society of Cytopathology	2016
Dental Hygiene (7 years)	American Dental Association	2017
Physical Therapy	The Commission on Accreditation in Physical Therapy Education	2013



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**COLLEGE OF ALLIED HEALTH SCIENCES**

**930 Madison Ave, 6<sup>th</sup> Floor • Memphis, TN 38163 • Tel: (901) 448-5581**

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## **GENERAL INFORMATION**

### **Administrative Structure**

The College of Allied Health Sciences is led by the Dean of the College and four assistant deans. It is organized into seven (7) departments which are the administrative bases for educational programs in ten allied health disciplines: the Department of Clinical Laboratory Sciences, with programs in medical technology/medical laboratory sciences, cytotechnology, and histotechnology; the Department of Dental Hygiene; the Department of Health Informatics and Information Management; the Department of Physical Therapy; the Department of Physician Assistant Studies; the Department of Occupational Therapy; and the Department of Audiology and Speech Pathology. Each department is led by a chair.

### **Dean's Biography**

Noma Bennett Anderson, Ph.D., began serving as the dean of the UTHSC College of Allied Health Sciences in the summer of 2010. She is the immediate past chair in the Department of Communication Sciences and Disorders at Florida International University (FIU) in Miami. She was previously a dean and professor in the School of Health Sciences at FIU for five years. Prior to that, Dr. Anderson was a chair for 10 years and on the faculty for 16 years in the Department of Communication Sciences and Disorders at Howard University in Washington, D.C. She was on the board of directors for the American Speech- Language-Hearing Association for three years and served as president in 2007. Dr. Anderson holds a Ph.D. in speech-language pathology from the University of Pittsburgh, Pittsburgh, Pa., and an M.S. in speech pathology from Emerson College in Boston, Mass.

### **History**

The College of Allied Health Sciences was founded as the College of Community and Allied Health Professions in 1972 to provide an administrative base for allied health programs from a variety of departments and institutions. Initial departments included Clinical Laboratory Sciences (which included programs in medical technology, cytotechnology, histotechnology and blood banking) then within the College of Medicine's Department of Pathology; dental hygiene, then in the College of Dentistry; medical record administration (now health informatics and information management) then a part of Baptist Memorial Hospital; physical therapy, then within the College of Medicine's Department of Medicine; and radiologic technology, then within the College of Medicine's Department of Radiology. Start-up funding for the College came from a Veterans Administration Grant. The Departments of Occupational Therapy and Audiology and Speech Pathology from the University of Tennessee Knoxville were later added. The blood banking program was discontinued, and the Department of Radiologic Technology and the histotechnology program were transferred to Southwest Tennessee Community College.

### **Mission**

The mission of the College of Allied Health Sciences shall be consistent with the mission of the University of Tennessee that is, to provide the people of Tennessee with access to quality higher education, economic development and enhanced quality-of-life opportunities. The UTHSC mission is to bring the benefits of the health sciences to the achievement and maintenance of human health, with a focus on the citizens of Tennessee and the region, by pursuing an integrated program of education, research, clinical care, and public services. The College will educate competent health professionals to provide services that address the health care needs of the people of Tennessee, provide leadership in the respective allied health professions, contribute to the knowledge bases of the respective allied health disciplines and promote lifelong learning through continuing education.

### **Organization of Faculty**

All appointed faculty in the College of Allied Health Sciences are members of the Allied Health Faculty Organization (AHFO). Officers, including a president, a president-elect, and a recording secretary are elected by the members. The Organization meets once every three months or more often as business may dictate. It serves as an advisory group to the dean and provides faculty input on curriculum, other items of interest to the faculty and the dean as well as providing educational seminars of interest to allied health faculty.

The faculty of the College of Allied Health Sciences possesses the advanced experiential and academic credentials required in a major health sciences center. In addition to being accomplished teachers and scholars, faculty in the College of Allied Health Sciences have a tradition of distinguished professional leadership at the regional and national levels. Scientists and clinical faculty from the Colleges of Medicine, Dentistry, Graduate Health Sciences, Nursing and Pharmacy enrich the instructional environment for allied health students. Volunteer faculty and preceptors from a wide variety of health care institutions, contribute a real life perspective through their mentorship of students enrolled in the clinical educational experiences offered by the College. Faculty members consistently update their knowledge by engaging in scholarly activity and clinical service in areas related to the courses they teach.

### **Location and Facilities**

The College's administrative offices as well as those of most of the departments are located on the sixth floor of the 930 Madison Building. The Department of Health Informatics and Information Management offices and the Occupational Therapy student classroom and laboratory are located in the 920 Madison Building. Most student classes and laboratories are held in the UTHSC General Education Building. The Department of Audiology and Speech Pathology is located on the campus of the University of Tennessee, Knoxville.

### **Alumni Affairs**

Graduates of the College officially become members of the University of Tennessee Alumni Association upon graduation, and receive publications of the Office of Alumni Affairs. Alumni also receive the College alumni newsletter, The Allied Health Update.

### **Academic Calendar**

See college web site [http://www.uthsc.edu/registrar/documents/calendar/Academic\\_Calendar\\_2012-13\\_CAHS.pdf](http://www.uthsc.edu/registrar/documents/calendar/Academic_Calendar_2012-13_CAHS.pdf)

### **Accreditation**

All programs are fully accredited by the appropriate accrediting body. The programs in Audiology and Speech Pathology are accredited by the Council on Academic Accreditation in Audiology and Speech Pathology. The Program in Cytotechnology is accredited by the Commission on Accreditation of Allied Health Education Programs; the Program in Dental Hygiene is accredited by the Commission on Dental Accreditation; the entry-level and post-graduate Programs in Health Informatics and Information Management are accredited by the Commission on Accreditation of Health Informatics and Information Management Education; the Programs in Medical Technology and Histotechnology are accredited by the National Accrediting Agency for Clinical Laboratory Sciences; the Program in Occupational Therapy is accredited by the Accreditation Council for Occupational Therapy Education; and the Program in Physical Therapy is accredited by the Commission on Accreditation in Physical Therapy Education. Programs in the college have a long and distinguished accreditation history, several being among the oldest of their kind in the nation. Faculty and administrators from the college provide service to these specialized accrediting bodies as members and surveyors.

Please see additional accreditation information in the individual programmatic sections of this catalog. The College is an institutional member of the Association of Schools of Allied Health Professions.

## **ADMISSIONS AND SELECTION**

### **College Admission Policy**

The College of Allied Health Sciences conducts, through its programmatic admissions committees, appropriate and timely review of student applications and supporting credentials. The resulting decisions and recommendations reflect high academic standards and observance of applicable legal statutes, as well as policies of the University of Tennessee System, the University of Tennessee Health Science Center, the College of Allied Health Sciences, and the individual programs. Admissions procedures, processes and recommendations afford equal educational opportunity to all applicants without regard to race, color, national origin, sex, religion, age, handicap or veteran status.

Details of program admission criteria may be found in the departmental sections of this catalog and may be accessed through the college's website at: <http://www.uthsc.edu/allied/>.

## Technical Standards

The Committees on Admissions for the professional programs of the College maintain that certain minimal technical standards must be present in applicants. Candidates for practice in entry level degree programs and graduate education programs must have the following essential skills: motor; sensory/observational; communication; intellectual, conceptual, integrative, and quantitative; and behavioral/social and professionalism. The Committees on Admissions, in accordance with Section 504 of the 1973 Vocational Rehabilitation Act and the Americans with Disabilities Act (PL101-336) have established the aforementioned essential functions of students in the educational programs offered by the CAHS. Specific Technical Standards for each of the programs are available upon request and at the website links provided in the departmental sections of this catalog.

## Student Status Options

College policies related to student status such as Advanced Standing and Transfer of Credits may be found on the College website under Academic and Student Affairs at <http://www.uthsc.edu/allied/academic.php>.

## Student Health and Professional Liability Insurance

All allied health science students are required to have health care and medical insurance while enrolled in the College. All students in the College are also required to purchase professional liability insurance through the University at a nominal cost payable at registration time.

## Criminal Background Checks

All students are required to have a background check prior to enrolling in the programs in the College of Allied Health Sciences. Students should be aware that additional criminal background checks along with drug screens and fingerprinting may be required by clinical sites, certification committees and state licensure boards. Students are responsible for these costs. Information discovered in criminal background searches may delay or prevent enrollment, clinical education opportunities, graduation and entry into the profession. Failure to comply may prohibit students from entering programs, completing clinical assignments or graduating from the program. If a student needs further information about criminal background checks, the student should contact their department chair or program director.

## TUITION, FEES, AND EXPENSES

Information about tuition and fees for the individual programs in the College of Allied Health Sciences may be found at [http://www.uthsc.edu/finance/bursar/pdfs/AHS\\_Costs\\_Financial\\_Aid.pdf](http://www.uthsc.edu/finance/bursar/pdfs/AHS_Costs_Financial_Aid.pdf) with additional information regarding estimated cost of attendance at <http://www.uthsc.edu/finaid/AlliedHealth.php>.

## Required Textbooks

Students may access the required books for any and all the courses in their professional program by going to the following link to the Bookstore on the UTHSC website:

<http://www.uthsc.edu/purchasing/bookstore.php>

A customized textbook list can be generated for each student by entering the following information on the website page: program/department, semester and course numbers.

## SCHOLARSHIPS AND FUNDING

### Financial Aid

Information about financial aid available to students entering the programs in the College of Allied Health Sciences is available on the website at: <http://www.uthsc.edu/finaid/AlliedHealth.php>

### Scholarships

There are a number of college wide and program specific scholarships available to students in the College of Allied Health Sciences. A list and description of these scholarships can be found at the following link:

[https://www.uthsc.edu/allied/documents/Scholarship\\_List.pdf](https://www.uthsc.edu/allied/documents/Scholarship_List.pdf).

## **Loans**

### ***Allied Health Student Emergency Loan***

Any allied health student with a documented need for a short-term loan may apply for assistance from the Allied Health Student Emergency Loan Fund. Loans must be repaid within 30 days with repayment, including interest, calculated at six percent per annum. The maximum loan amount that can be authorized is determined by funds available in the account at the time the request is submitted. Applications for loans must be made through the Office of Student Financial Aid.

## **POLICIES**

### **Attendance Requirement**

Because of the intensity of all educational programs in the College of Allied Health Sciences, students should not miss any planned learning experience except under the most unusual circumstances. Students are, therefore, required to participate in all planned learning experiences including lectures, laboratories, clinical assignments, discussion boards etc. The department chair, program director, or appropriate faculty member in each program will inform students in writing of the consequences of failure to adhere to this general College requirement.

### **Student Identification and Dress Code**

All students are required to wear the UT identification badges that are made during registration. Such cards are to be worn in a visible fashion and must be presented to UT police officers, administration, or faculty upon request. If a Student's identification badge is lost or misplaced, a new one must be acquired from the Campus Police office for a fee. Students, upon graduation, may retain their ID badge since it contains an expiration date. Students, upon withdrawal, must return their ID badge to the Campus Police office. Students are expected to adhere to the dress code of the program in which they are enrolled. Dress requirements are explained during each program's orientation.

### **Grades**

The grading scale used by each program is established at the departmental level and is discussed with incoming students during new student orientation. Specific grading scales for each program can be found in the departmental sections of this publication.

## **COMMUNICATION**

The official method of communication between students and their respective departments, programs or the dean's office is through the UTHSC email system. Students must check their email at least once each day to avoid missing vital information.

## **PROGRESS, PROMOTION, AND GRADUATION**

The following guidelines pertain to full time as well as part time students. Promotion is the process by which a student progresses through an academic program and graduates. Promotion and graduation require positive action by the Dean based upon recommendations of each program's progress and promotion committee. While progress and promotion committees generally act at the end of a semester, they can act any time a student is deemed to be making inadequate progress toward degree objectives and/or is demonstrating unacceptable performance in the key areas of personal and professional behavior. Committee recommendations regarding a particular student are based upon input by each faculty member or course director who has teaching responsibility for that student during a given instructional period.

**Committee Guidelines.** All committees follow specific guidelines related to required student performance and the kinds of recommended actions that may be made.

## 1. Student Performance

- a. (1) **For all undergraduate entry-level programs:** Students must attain a semester grade point average of 2.0 to progress to the subsequent semester or to graduate. Any student who earns a grade of “D” (indicates marginal progress), “F” (failing), or “I” (incomplete) is reviewed in depth by the appropriate committee.  
(2) **For graduate entry-level programs:** Students must attain the minimum semester grade point average designated by the specific degree program to progress to the subsequent semester or to graduate. Students may be expected to complete all courses with a grade of “B” or higher and may be placed on probation or dismissed for earning a grade of “C” or lower in one or more courses as stipulated by the specific degree program. Students must demonstrate a minimal competency level, as determined by the faculty and made known to students in advance. Students not reaching minimal competency may be required by the faculty to complete additional exams and/or class assignments until they reach the required minimal competence, or final course grades are recorded. The decision to permit this option is handled on a case-by-case basis by the appropriate progress and promotion committee. An explanation of the calculation of the final grade will be made known to students in advance.
- b. Students enrolled in **post-professional programs** must complete all courses with grades of “B” or above in core and clinical concentration courses, and “C” or above in other courses. No more than two grades of “C” may be applied toward a post-professional graduate degree. Students must maintain an overall grade point average of 3.0 (“B”). A student may be dismissed from the program upon earning more than two (2) grades of “C”, or a grade below “C.” Grades in courses earned at another university will not be computed in the cumulative GPA.
- c. A student must demonstrate satisfactory behavior in personal and professional characteristics deemed by faculty as being necessary for academic success and competency in clinical practice. Such areas may include ability to establish rapport with clients, ability to work effectively with members of the health care team, dependability, judgment, integrity, initiative, and interest.
- d. Students must meet the College and program technical standards to continue in the various curricula and graduate. Copies of these standards are provided to students by their respective programs.

## 2. Recommended actions:

Progress and Promotion Committees may recommend any of the following actions to the Assistant/Associate Dean for Student or Academic Affairs:

### a. **Promotion**

Promotion of the student to the subsequent semester or to graduation.

### b. **Academic Probation**

i. *Entry-level undergraduate students* - Academic probation may result from a student’s earning a cumulative grade point average of less than 2.0 during the semester, from earning a grade of “D” in any course, or from failure to meet stated objectives associated with professional behavior or technical standards. Committee recommendations must include delineation of specific conditions that must be met for removal of the student from academic probation, and the time by which such conditions must be met.

ii. *Entry-level graduate students* – Academic probation may result from a student earning a cumulative grade point average that falls below the minimum required by the specific degree program or by earning a grade of “C” or lower in one or more courses as stipulated by the specific degree program or by failing to meet expected levels of clinical competencies or professional behaviors.

iii. *Post-professional students* – Students enrolled in post-professional programs must earn a grade of “C” or higher in all course work and maintain a cumulative grade point average of 3.0 or higher. Any student earning a grade of “D” or “F” in any course, or falling below a 3.0 cumulative grade point average will be dismissed from the program of study.

c. **Dismissal**

Dismissal may result from any of the following.

- i. Entry-level students - A student earning a grade of "F" in any course, earning a grade of "D" in two or more courses;
- ii. Post-professional students – A student earning a grade of "D" or "F" in any course;
- iii. A student failing to meet the minimum grade point average requirement as stipulated by the specific degree program.
- iv. A student failing to meet the requirements of a course(s) as stipulated in the course syllabus;
- v. A student demonstrating serious deficiencies in personal or professional behavior;
- vi. A student failing to meet technical standards;
- vii. A student failing to meet stipulated conditions for removal of academic probation within the designated time period.

d. **Repeating Curriculum**

Recommending that a student repeat all or part of the curriculum may be made only if **all** of the following conditions are present:

- i. the presence of specific nonacademic circumstance(s) judged by the committee as having an adverse effect on the student's academic performance;
- ii. committee judgment that the identified specific circumstance(s) show probability of resolution within a reasonable period of time; and,
- iii. committee judgment that resolution of the identified circumstance(s) will subsequently result in satisfactory performance by the student.

## Notification of Student

Any student who is dismissed from a program or placed on academic probation is notified by email from the Assistant/Associate Dean for Academic or Student Affairs. A student placed on academic probation is given a written statement of conditions that must be met for removal of academic probation, and the time period allowed.

## Appeal Process

### Reconsideration of Progress and Promotions Committee Decisions

A student has the right to request reconsideration before an ad hoc appeals committee in the event of a negative recommendation. Such a request must be submitted in writing and received by the Dean within five (5) calendar days of receipt of notification of the intended action. The student will meet with the *ad hoc* committee and may bring any person(s), excluding legal counsel, whom the student believes can contribute to the presentation. After hearing all persons who appear on behalf of the student or in support of the action taken by the progress and promotion committee, the committee sends a recommendation for resolution of the appeal along with supporting documentation to the Dean. The Dean will notify the student in writing of the final decision made regarding the appeal. The communication from the Dean will also outline any actions necessary for the student to take.(e.g. the terms of probation.)

The ad hoc appeals committee is chaired by the Assistant/Associate Dean for Student or Academic Affairs who also appoints the committee composed of faculty from the college. If the original negative recommendation made by the Progress and Promotions Committee is sustained by the Dean, the student has the right of appeal to the Chancellor. Such an appeal must be in writing and received by the Chancellor within five (5) calendar days of receipt of notification from the Dean. The decision by the Chancellor is final.

During the appeal process, a student may continue to participate in classroom activities but will be suspended from clinical activities.

## Leaves of Absence, Withdrawal and Readmission

Leaves of absence with anticipated readmission may be granted by the Dean upon recommendation of the department chair or program director according to the process at <http://www.uthsc.edu/allied/documents/Change%20of%20Student%20Status.pdf>

Such recommendations must be based upon demonstration by the student of a compelling nonacademic reason for granting such a leave. A “Student Status Change Form” ([http://www.uthsc.edu/registrar/documents/student\\_status\\_change.pdf](http://www.uthsc.edu/registrar/documents/student_status_change.pdf).) must be completed to assure the appropriate administrative offices are notified of the leave or withdrawal of the student.

Readmission to any program after voluntary withdrawal, or readmission after dismissal can occur only upon demonstration by the student of a compelling nonacademic reason for consideration for readmission. (See “Progress & Promotions.” 2.d.)

## Clinical Activities

All students in the College are required to engage in clinical activities as prescribed by their respective programs and are assigned to these activities during the course of their programs according to the needs of the educational programs, the students and clinical sites. Clinical experiences for allied health science students are available both within the Health Science Center and through agreements with many community agencies, public and private. With the exception of the B.S. program in dental hygiene, which provides clinical education on campus, programs in the College maintain a large number of affiliations with external clinical sites throughout the state and country in order to provide appropriate clinical experiences for their students. Listings of out-of-city sites may be obtained from the appropriate chairman or program director.

Occasionally, a scheduled clinical experience at an external site is unavailable due to circumstances beyond the control of the University; however, because the experience is required for graduation the College programs exercise a number of options and usually successfully substitute one site for another. On rare occasions, such a substitution is not possible and graduation may be temporarily delayed for a student until the required experience can be scheduled by the program and successfully completed by the student.

## Graduation Requirements

In order to be recommended for a degree in any of the programs offered by the College, a candidate must comply with the following conditions:

1. The candidate must present evidence of having satisfactorily completed all prerequisite coursework, if applicable;
2. The candidate must complete all required courses of the professional curriculum with a minimum grade point average stipulated by the specific degree program and, in the case of clinical education or field work, at a level of proficiency that is satisfactory to the departmental faculty;
3. The candidate must demonstrate professionalism expected of a student in the particular discipline which is acceptable to the faculty;
4. The candidate must discharge all financial obligations to the University and affiliated organizations;
5. The candidate must meet college residency requirements;
6. The candidate must meet the technical standards for the college and the respective program.

## Attendance at Graduation

Participation in graduation exercises is mandatory for all graduating students. Any student who is unable to attend graduation exercises must request permission from the Dean to graduate in absentia. Such a request must be submitted in writing and must clearly state the student’s reason(s) for making the request. A student may graduate in absentia only if the Dean of the college has approved the request. The Dean will notify the Chancellor and the Registrar when the request is approved.



## Honors

Honors graduates of the undergraduate entry-level programs in the College are so designated in recognition of academic distinction achieved in their respective professional curricula. Honors designations receive special mention in the graduation program and on diplomas, and are based on the following cumulative grade point averages for the **undergraduate degree programs**:

- 3.50 - 3.69 Graduation With Honors
- 3.70 - 3.89 Graduation With High Honors
- 3.90 - 4.00 Graduation With Highest Honors

The criteria for honors designation in **some graduate entry-level programs** include:

- Those students whose overall grade point average is the highest 10% of the class are recommended for graduation with “highest honors”.
- Those students whose overall grade point average is in the next 10% are recommended for graduation with “high honors”.

No honors designations are awarded for post-graduate programs or for graduate entry-level programs in Audiology or Speech-Language Pathology.

## Licensure

A license to practice audiology, dental hygiene, cytotechnology, medical technology, or physical therapy, and speech-language pathology is required by Tennessee state law. Graduates of programs in dental hygiene and physical therapy are eligible to sit for the appropriate state licensing examination. Medical technology, cytotechnology, audiology and speech pathology graduates are eligible for Tennessee licensure upon acquiring national certification.

## SPECIAL AWARDS AND HONORS

### Alpha Eta Honor Society

The national allied health science honor society, Alpha Eta, recognizes graduating allied health science students who exhibit superior academic achievement and potential for leadership in their chosen professions. No more than twenty percent of each graduating class may be selected for membership. The names of newly elected members are announced as part of the college observance of graduation.

### Sigma Xi Allied Health Science Student Excellence in Research Award

This award is presented by Sigma-Xi, The Society of Scientific Research to the graduating Allied Health Science student(s) submitting the best original paper based upon mentored research.

### Departmental Awards

Outstanding students are recognized for their achievements during the College observance of graduation held before each May commencement. Program-specific awards given in recognition of academic excellence, professional competence, and leadership are described in the specific department or program sections of this catalog.

## STUDENT ORGANIZATIONS AND ACTIVITIES

### Allied Health Student Government Association

All currently enrolled allied health science students are members of the Allied Health Student Government Association (AHSGA). The AHSGA Executive Council, composed of student class presidents elected in the college each year, meets regularly with the Assistant Dean for Student Affairs to discuss issues and advise the college regarding student views and concerns. The president of the AHSGA Executive Council is elected annually from the allied health science programs, and represents allied health science students in the campus level Student Government Association Executive Council (SGAEC). The SGAEC represents views of UTHSC students, studies matters of importance to students, and makes recommendations to UTHSC administration and faculty. The AHSGA president reports on activities of the campus student government association at meetings of the AHSGA Executive Council.

## Student Professional Associations

Allied health students are eligible for student membership in the professional association(s) of each discipline. Audiology and Speech Pathology students qualify for student membership in The National Student Speech-Language-Hearing Association, and Audiology students also qualify for membership in The Student Academy of Audiology. Cytotechnology/Histotechnology students may become student members of several associations including the American Society for Cytotechnology, the American Society of Cytopathology and the National Society for Histotechnology; dental hygiene students qualify as student members of the American Dental Hygienists' Association (ADHA) and the National Dental Hygienists' Association (NDHA); MDH students may also qualify for student membership in ADHA and NDHA as well as the American Dental Education Association; health informatics and information management students may join the American Health Information Management Association and can be student members of the Healthcare Information and Management Systems Society; medical technology students are required to join the American Society for Clinical Laboratory Science as student members; occupational therapy students may join the American Occupational Therapy Association and the Tennessee Occupational Therapy Association; and physical therapy students may become student members of the American Physical Therapy Association.

## DEGREES, MAJORS, AND CONCENTRATIONS

<i>DEGREE</i>	<i>MAJOR/CONCENTRATION</i>	<i>DESIGNATION</i>	<i>CONCENTRATION</i>
<b>Bachelor of Science</b>	Dental Hygiene	BSDH	
	Medical Laboratory Science	BSMLS <sup>5</sup>	
<b>Master</b>	Cytopathology Practice	MCP	
	Dental Hygiene	MDH	
	Health Informatics & Information Management	MHIIM	
	Occupational Therapy	MOT	
<b>Master of Science</b>	Audiology	MS	
	Clinical Laboratory Science	MSCLS	
	Physical Therapy	MSPT	Musculoskeletal or Neurological
	Speech-Language Pathology	MS	Aural Re/Habilitation
<b>Doctor</b>	Doctor of Physical Therapy	DPT	
	Doctor of Physical Therapy Transitional	DPT	
	Doctor of Audiology	AuD	Aural Re/Habilitation
<b>Doctor of Science</b>	Physical Therapy	ScDPT	

<sup>5</sup> Previously the Bachelor of Science in Medical Technology (BSMT)

## AUDIOLOGY AND SPEECH PATHOLOGY

Ashley W. Harkrider, Ph.D., Associate Professor and Department Chair  
Patrick N. Plyer, Ph.D., Associate Professor and Program Director  
Ilsa Schwarz, Ph.D., Professor and Program Director

### Location and Facilities

The Department of Audiology and Speech Pathology is located on the campus of the University of Tennessee, Knoxville. Most student classes, laboratories, and on-campus clinical practicum are held in the Silverstein-Luper Speech and Hearing Center at 1600 Peyton Manning Pass, the third through fifth floors of South Stadium Hall, and/or the Pediatric Language Clinic at 909 Mountcastle Street.

## DOCTORATE IN AUDIOLOGY (A.U.D.)

### Program Objectives

The Au.D. Program is clinically oriented with primary emphasis on academic and practical experience with normal and disordered hearing. The program fosters development of individuals seeking professional careers in clinical practice in audiology and provides a well-rounded academic and clinical training experience. This program is designed for students to meet the academic and practicum requirements for clinical certification from the American Speech-Language-Hearing Association (ASHA) upon graduation.

### Admissions

The UTHSC Program in Audiology utilizes the Council of Academic Programs in Communication Sciences and Disorders Centralized Application Service (CSDCAS). Prospective applicants may apply by accessing the Audiology Applicant website at <https://portal.csdcas.org/>.

### Requirements for Admission

1. Bachelor's degree from an accredited university
2. A minimum GPA of 3.0 on a 4.0 scale in the Bachelor's Degree
3. A satisfactory score on the Verbal and Quantitative scales of the Graduate Record Examination (GRE).
4. Three letters of recommendation preferably completed by 3 professors who had the student in class.
5. A personal statement of intent.
6. Foreign applicants whose native language is not English must submit results of TOEFL with a minimum score of 550.

Applicants who accept an offer of admission will be required to complete UTHSC's Pre-Admissions Requirement System (PARS).

### Health Requirements

Audiology students are required to show proof of current health insurance prior to enrollment. Students are required to be immunized against the Hepatitis B virus and to have an annual skin test for Tuberculosis. Information about meeting these requirements is presented via email prior to the first day of class and, again, during orientation. Some clinical education sites require affiliating audiology students to have one or more of the following: rubella titer or vaccine, general physical examination. Students are responsible for these costs.

### Technical Standards

Audiology students must have or acquire certain essential skills, functions, and professional attitudes and behavior as described in the Technical Standards document. All students who enroll must be prepared to understand and abide by these requirements. Information about meeting these requirements is presented during orientation and can be found on our website at: <http://www.uthsc.edu/allied/asp/aud/>

## Criminal Background Check

A criminal background check through Verified Credential Services is required after acceptance and prior to enrollment. Upon receipt of an adverse criminal background check, an explanation by the student will be required and a decision will be made by the Chair and Dean as to whether the incident(s) would be a problem for the student when seeking internship placements or licensure to practice. Admission may be denied in some cases. Students should be aware that additional criminal background checks along with drug screens and fingerprinting may be required by clinical sites, certification committees, and state licensure boards. Students are responsible for these costs.

## Accreditation

The program in audiology is accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology.

## Curriculum

### Typical Course Schedule

The Au.D. program is designed for full-time students and typically requires three years of study on campus and one year of clinical externship, for a total of four years. Core courses are offered one time per academic year. Elective/Supplementary courses are offered as needed. Clinical practicum experiences (e.g., 512 ASP, 515 ASP, 613 ASP) and directed research or independent study courses (e.g., 656 ASP, 658 ASP, 660 ASP) are offered every semester.

#### First Year (Fall)

	Semester Hours
510 ASP Clinical Education Seminar (CES): Protocols	1
543 ASP Amplification Technology	3
546 ASP Audiologic Assessment	3
507 ASP Anatomy & Physiology of Hearing	3
512 ASP Practicum	1

#### First Year (Spring)

	Semester Hours
510 ASP Clinical Education Seminar (CES): Auditory Processing	1
576 ASP Physiologic Assessment of the Auditory System I	4
577 ASP Vestibular Disorders	4
585 ASP Cochlear Implants	3
512 and/or 515 ASP Practicum	3

#### First Year (Summer)

	Semester Hours
510 ASP Clinical Education Seminar (CES): Cochlear Implants	1
542 ASP Hearing Disorders	3
574 ASP Pediatric Audiology for Audiology Majors	3
512 ASP and/or 515 ASP Practicum	4

#### Second Year (Fall)

	Semester Hours
510 ASP Clinical Education Seminar (CES): Private Practice	1
511 ASP Introduction to Research in Speech and Hearing	3
544 ASP Amplification for Adults with Hearing Impairment	3
602 ASP Psychoacoustics	3
512 ASP and/or 515 ASP Practicum	3

*\*Qualifying exams taken at beginning of semester*

#### Second Year (Spring)

	Semester Hours
510 ASP Clinical Education Seminar (CES): Hot Topics (as needed)	1
545 ASP Sound Measurement Techniques and Hearing Conservation	3
584 ASP Amplification for Children with Hearing Impairment	3
605 ASP Speech Perception and Hearing Impairment	3
656 ASP Directed Research	3
512 ASP and/or 515 ASP Practicum	3

<b>Second Year (Summer)</b>	<b>Semester Hours</b>
512 ASP and/or 613 ASP Practicum	4

<b>Third Year (Fall)</b>	<b>Semester Hours</b>
510 ASP Clinical Education Seminar (CES): Educational Audiology	1
604 ASP Molecular Genetics & Pharmacology of Hearing	3
583 ASP Physiologic Assessment of the Auditory System II	3
594 ASP Aural Habilitation/Rehabilitation of the Hearing-Impaired	3
656 ASP Directed Research (if needed)	3
512 ASP and/or 515 ASP Practicum	3

<b>Third Year (Spring)</b>	<b>Semester Hours</b>
510 ASP Clinical Education Seminar (CES): Research Colloquium	1
586 ASP Standards & Practice Issues in Audiology	3
663 ASP Advanced Seminar in Aural Habilitation/Rehabilitation	3
664 ASP Seminar in Amplification	3
512 and/or 515 ASP Practicum	3
Elective if Concentration Student or 656 ASP Directed Research (if needed)	3

*\*Comprehensive exams taken at beginning of semester.*

<b>Third Year (Summer)</b>	<b>Semester Hours</b>
613 ASP Externship in Audiology	6

<b>Fourth Year (Fall)</b>	<b>Semester Hours</b>
613 ASP Externship in Audiology	6

<b>Fourth Year (Spring)</b>	<b>Semester Hours</b>
613 ASP Externship in Audiology	6

*Minimum of 112 semester hours required*

## Course Descriptions

**ASP 507 Anatomy and Physiology of Hearing (3).** Didactic class offered once per year, fall semester. Structure and function of the peripheral and central auditory systems, and their roles in mediating auditory processes. Corequisite: ASP 546. Instructor of record: *Dr. Ashley Harkrider*

**ASP 510 Clinical Education Seminar in Audiology (1).** Didactic class with lab offered every semester. Seminar provides a forum for deliberation on issues impacting audiology practice in a variety of clinical and educational settings to help the graduate student clinician transition to their independent practice roles. Repeatability: May be repeated. Maximum 7 hours. Corequisite(s): ASP 512 or ASP 515. Instructor of record: *Dr. Patti Johnstone*

**ASP 511 Introduction to Research in Speech and Hearing (3).** Didactic class offered once per year, fall semester. Analysis of research techniques, fundamentals of statistics, application of statistics, and completion of a proposal and hypothetical pilot research project. Instructor: *Dr. Patti Johnstone*

**ASP 512 Clinical Practice in Audiology (1-4).** Practicum offered every semester. Repeatability: May be repeated. Maximum 24 hours. Corequisite(s): ASP 546. Instructor of record: *Dr. Nancy Schay*

**ASP 515 Practicum in Aural Rehabilitation (1-4).** Practicum offered every semester. Repeatability: May be repeated. Maximum 9 hours. Prerequisite(s)/Corequisite(s): ASP 524 and ASP 529 or equivalent. Instructor: *Emily Noss*

**ASP 542 Hearing Disorders (3).** Didactic class offered once per year, summer semester. Effects of heredity, development/aging, diseases, and physical agents on hearing. Prerequisite(s): ASP 524 or consent of instructor. Instructor: *Dr. Mark Hedrick*

**ASP 543 Amplification Technology (3).** Didactic class offered once per year, fall semester. Description of hearing aid circuits, components and performance characteristics. Electroacoustical and real-ear analysis of hearing aids. Coupler material and geometry effects. Practical experience in troubleshooting, repair, and construction of hearing aids. Prerequisite(s)/Corequisite(s): ASP 524 and ASP 507 or consent of instructor. Instructor: *Dr. Patrick Plyler*

**ASP 544 Amplification for Adults with Hearing Impairment (3).** Didactic class offered once per year, fall semester. Speech acoustics/psychoacoustics. Influence of noise, reverberation and auditory pathology on speech perception. Strategies for selecting amplification. Psychological considerations. Orientation and counseling. Dispensing models. Prerequisite(s): ASP 507, ASP 524, and ASP 543 or consent of instructor. Instructor: *Dr. Patrick Plyler*

**ASP 545 Sound Measurement Techniques and Hearing Conservation (3).** Didactic class offered once per year, spring semester. Techniques of measurement and analysis of sound: hearing conservation in schools and industry. Registration Permission: Consent of instructor. Instructor: *Dr. Patti Johnstone*

**ASP 546 Audiologic Assessment (3).** Didactic class offered once per year, fall semester. Theoretical bases for behavioral audiometry and acoustic immittance measurement. Instructor: *Dr. Steve Doettl*

**ASP 574 Pediatric Audiology for Audiology Majors (3).** Didactic class offered once per year, summer semester. Theoretical and practical considerations in evaluation and treatment of hearing loss in infants and children. Audiological intervention in case management of hearing-impaired child; amplification, educational alternatives, and state and federal guidelines. Credit Restriction: Students with credit in ASP 573 may also receive credit for ASP 574. Prerequisite(s): ASP 507, ASP 546, and ASP 576. Registration Restriction(s): Audiology major. Instructors: *Drs. Ashley Harkrider and Deborah von Hapsburg*

**ASP 576 Physiologic Assessment of the Auditory System I (4).** Didactic class with lab offered once per year, spring semester. Otoacoustic emissions, electrocochleography, and auditory brainstem responses. Anatomical origins, principles, and applications. Use of these responses in evaluation of auditory function and determination of site-of-lesion. Contact hour distribution: 3 hours lecture and 1 hour lab. Prerequisite(s): 507 and 546 or consent of instructor. Instructor of record: *Dr. Joanna Tampas*

**ASP 577 Vestibular Disorders (4).** Didactic class with lab offered once per year, spring semester. Anatomy, physiology, and pathophysiology of vestibular system and other systems that contribute to balance. Practicum in electronystagmography. Prerequisite(s): ASP 507, ASP 542, ASP 546, and ASP 576 or consent of instructor. Instructor: *Dr. Steve Doettl*

**ASP 583 Physiologic Assessment of the Auditory System II (3).** Didactic class offered once per year, fall semester. Middle-latency, long-latency, and event-related potentials. Neurophysiological mechanisms, principles, and applications. Use of these potentials in evaluation of neurological and cognitive function. Prerequisite(s): ASP 576 or consent of instructor. Instructor: *Dr. Ashley Harkrider*

**ASP 584 Amplification for Children with Hearing Impairment (3).** Didactic class offered once per year, spring semester. Study of strategies for selecting and fitting amplification systems for children; outcome measures and service coordination. Prerequisite(s): ASP 543, ASP 544, and ASP 574, or consent of instructor. Instructor: *Dr. Deborah von Hapsburg*

**ASP 585 Cochlear Implants (3).** Didactic class offered once per year, spring semester. Overview of cochlear implants, focusing on theory of auditory stimulation and cochlear implant systems; candidacy, surgical preparation, and follow-up/outcome measures; the rehabilitation process; and cochlear implant case presentations. Prerequisite(s): ASP 507, ASP 576, and ASP 583 or consent of instructor. Instructor: *Dr. Jong Ho Won*

**ASP 586 Standards and Practice Issues in Audiology (3).** Didactic class offered once per year, spring semester. Overview of professional practice standards, ethics, medical/legal issues, business practices, and reimbursement procedures in audiology. Prerequisite(s): ASP 512 or consent of instructor. Instructor: *Dr. Mark Hedrick*

**ASP 593 Independent Study (1-15).** Offered every semester. Independent study in speech, language, or hearing related topics. Repeatability: May be repeated. Maximum 15 hours. Instructor of record: *Dr. Ashley Harkrider*

**ASP 594 Aural Habilitation/Rehabilitation of the Hearing-Impaired (3).** Didactic class offered once per year, fall semester. Study of grieving process, counseling, group and individual amplification systems, classroom/speech acoustics, central auditory problems, therapy methods for habilitation and rehabilitation, speech reading, school-based programs, programs for adults and the elderly; student research reports/case studies. Prerequisite(s): ASP 524 and ASP 529 or consent of instructor. Instructor: *Dr. Deborah von Hapsburg*

**ASP 602 Psychoacoustics (3).** Didactic class offered once per year, fall semester. Auditory perception and reception of acoustic stimuli. Prerequisite(s): ASP 507 or consent of instructor. Instructor: *Dr. Jong Ho Won*

**ASP 604 Molecular Genetics and Pharmacology of Hearing (3).** Didactic class offered once per year, fall semester. Study of genetics, pharmacology, and general cellular processes as they relate to hearing. Prerequisite(s): ASP 507 or consent of instructor. Instructor: *Dr. Mark Hedrick*

**ASP 605 Speech Perception and Hearing Impairment (3).** Didactic class offered once per year, spring semester. Study of perception of speech stimuli, with particular emphases on the effects of hearing impairment on perception. Instructor: *Dr. Mark Hedrick*

**ASP 613 Externship in Audiology (1-9).** Clinical practicum offered every semester. Off-campus clinical training experience. Repeatability: May be repeated. Maximum 36 hours. Registration Permission: Consent of academic advisor. Instructor: *Dr. Patti Johnstone*

**ASP 656 Directed Research (1-4).** Offered every semester. Participation in ongoing or non-dissertation research. Repeatability: May be repeated. Maximum 9 hours. Registration Permission: Consent of instructor. Instructor of record: *Dr. Ashley Harkrider*

**ASP 658 Directed Study in Audiology (1-3).** Offered every semester. Repeatability: May be repeated. Maximum 9 hours. Registration Permission: Consent of instructor. Instructor of record: *Dr. Ashley Harkrider*

**ASP 660 Directed Study in Hearing Science (1-3).** Offered every semester. Repeatability: May be repeated. Maximum 9 hours. Registration Permission: Consent of instructor. Instructor of record: *Dr. Ashley Harkrider*

**ASP 663 Advanced Seminar in Aural Habilitation/Rehabilitation (3).** Didactic class offered once per year, spring semester. Synthesis of information on audiologic habilitation and rehabilitation cases. Prerequisite(s): ASP 543, ASP 544, ASP 584, and ASP 594 or consent of instructor. Instructor: *Dr. Elizabeth Humphrey*

**ASP 664 Advanced Seminar in Amplification (3).** Didactic class offered once per year, spring semester. Synthesis of information amplification technology, amplification for adults with hearing impairment, and case studies. Instructor: *Dr. Patrick Plyler*

### ***Elective or Supplementary Courses***

**ASP 502 Registration for Use of Facilities (1-15).** Offered every semester. Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. Grading Restriction: P/NP only. Repeatability: May be repeated. Credit Restriction: May not be used toward degree requirements. Instructor of record: *Dr. Ashley Harkrider*

**ASP 524 Introduction to Audiologic Assessment (3).** Didactic class offered once per year, spring semester. Basic principles of clinical audiometry; pure tone, speech, masking and overview of special auditory tests. Prerequisite(s): ASP 503 or consent of instructor. Instructor: *Dr. Patrick Plyler*

**ASP 525 Counseling and Communication Disorders (3).** Issues related to the role of counseling in clinical practice in speech pathology and audiology. Includes discussion of counseling needs and approaches, including multicultural issues. *Course currently not offered.*

**ASP 529 Introduction to Aural Habilitation/Rehabilitation of the Hearing Impaired (3).** Didactic class offered twice per year, fall and spring semesters. Introduction to psychosocial aspects, amplification components/characteristics, assistive devices, speech acoustics, speech perception, speech reading, parent-infant, preschool and school years of children, communication impairments/handicaps/remediation of adults, effect of aging/remediation on the elderly, and case studies. Prerequisite(s): ASP 503 and ASP 524 or consent of instructor. Instructor: *Mary Buehler*

**ASP 547 Special Problems in Audiology (1-3).** Offered every semester. Repeatability: May be repeated. Maximum 6 hours. Prerequisite(s): ASP 524 or equivalent. Registration Permission: Consent of instructor. Instructor of record: *Dr. Ashley Harkrider*

**ASP 591 Foreign Study (1-15).** Offered every semester. Participation in ongoing or non-dissertational research, clinical practicum, coursework or independent study outside the United States. Repeatability: May be repeated. Maximum 30 hours. Instructor of record: *Dr. Ashley Harkrider*

**ASP 592 Off-Campus Study (1-15).** Offered every semester. Participation in ongoing or non-dissertational research or independent study with off-campus advisor. Repeatability: May be repeated. Maximum 30 hours. Instructor of record: *Dr. Ashley Harkrider*

**ASP 601 Experimental Phonetics (3).** Didactic class offered every other year as needed in fall or spring semester. Acoustical and perceptual analyses of speech production and overall oral communication. Registration Permission: Consent of instructor. Instructor: *Dr. Molly Erickson*

**ASP 610 Seminar in Hearing Science (3)** Topics vary. Repeatability: May be repeated. Maximum 6 hours. *This course currently is not offered.*

**ASP 611 Experimental Design in Speech and Hearing (3).** Didactic class offered every other year in the fall or spring semester if needed. Analysis of experimental design in theses and related journals. Generation of experimental designs. Registration Permission: Consent of instructor. Instructor: *Dr. Tim Saltuklaroglu*

**ASP 650 Advanced Seminar in Audiology (3 – 6).** Topics vary. Repeatability: May be repeated. Maximum 9 hours. Registration Permission: Consent of Instructor. Class offered every two years as needed. Instructor: *Varies by topic.*

**ASP 655 Practicum in College Teaching (1-3).** Offered every semester. Supervised experience in college teaching. Grading Restriction: Satisfactory/No Credit grading only. Repeatability: May be repeated. Maximum 6 hours. Registration Permission: Consent of instructor. Instructor of record: *Dr. Ashley Harkrider*

**ASP 662 Advanced Seminar in Audiologic Assessment (3).** Synthesis of information on audiologic and vestibular assessment and application of clinical cases. Prerequisite(s): 542, 546, 574, 576, and 577 or consent of instructor. *This course currently not offered.*

## **Au.D. Grading Scale**

### **Academic Coursework**

**A** =  $\geq 0.90$   
**B+** =  $\geq 0.86$  &  $< 0.90$   
**B** =  $\geq 0.80$  &  $< 0.86$   
**C+** =  $\geq 0.76$  &  $< 0.80$   
**C** =  $\geq 0.70$  &  $< 0.76$   
**D** =  $\geq 0.60$  &  $< 0.70$

### **Clinical Practicum**

**A** =  $\geq 0.94$   
**B** =  $\geq 0.86$  &  $\leq 0.93$   
**C** =  $\geq 0.78$  &  $< 0.85$   
**D** =  $\geq 0.70$  &  $< 0.77$



## Requirements for Graduation

The following requirements must be satisfied to earn the degree of Doctor of Audiology:

1. Satisfactory completion of a minimum of 112 semester credit hours of work, which must include 70 hours of academic courses, and 42 hours in clinical courses.
2. Students must complete coursework with a “B” or better overall average. Grades of “B” or above are required in all content area coursework.
3. Satisfactory completion (“Pass”) of a qualifying exam.
4. Satisfactory completion (“Pass”) of a thesis or comprehensive exam is required prior to graduation.
5. Students must discharge all financial obligations to the University and remove all deficiencies documented by the Registrar.
6. Students planning to practice in the United States also must pass all Knowledge and Skills (KASA) competencies prior to graduation.

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## MASTER OF SCIENCE IN AUDIOLOGY

Graduate study leading to the MS with a major in audiology is only available to those students accepted to and enrolled in the Au.D. program. This degree is awarded to students who desire a master’s degree as part of their progress toward a doctorate. A student must be in good standing within the Au.D. program and must have completed a minimum of 42 credits of academic coursework at the 500 or 600 levels (not including ASP 512 or 515) and must pass a qualifying examination or equivalent.

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## POST-PROFESSIONAL PROGRAM IN AUDIOLOGY (Au.D.)

### Program Objectives

The degree completion program for the Doctor of Audiology degree primarily is designed as an avenue for past graduates from the University of Tennessee to gain the additional knowledge necessary to transition from the MA/MS to the entry-level Au.D. Graduates from programs other than UT may also apply to the program. The degree completion program was developed in conjunction with the audiology program’s conversion to the Au.D., which requires 112 graduate credit hours.

The philosophy of the Au.D. program is that the Doctor of Audiology degree is the appropriate first professional degree for audiologists. The program also supports the certification standards of the American-Speech-Language- Hearing Association (ASHA) for the profession.

With the implementation of the transitional Au.D. degree program at UTHSC, the University and the Department will facilitate the achievement of a common baseline for all audiologists who have graduated from the program at UT in the past. The degree-completion program will allow working clinicians to gain the additional knowledge necessary to bring them academically and clinically to the entry-level Au.D. The program is designed to add only the essential knowledge and skills needed to practice as a Doctor of Audiology, as the *Knowledge and Skills Assessment (KASA)* expands the expected outcomes of audiology graduates in the areas of foundations of practice, prevention and identification, evaluation, and treatment.

### Program Description

Prior to the implementation of the Au.D. as the entry-level degree for certification in audiology, students were required to complete a 2-year graduate program culminating in the Master’s degree. Graduates then completed a 9-month Clinical Fellowship Year (CFY) under the supervision of a certified audiologist. Once completed, the graduate became eligible for the Certificate of Clinical Competence in Audiology (CCC-A) from ASHA, and for state licensure.

Due to the changes in ASHA certification standards noted earlier, the 2-year Master’s program at UT was expanded to a 4-year program culminating in the Au.D. degree. The first two years of the Au.D. program and previous M.A. program are the same with one exception; ASP 584 (Pediatric Amplification) was added. During the

third year of the Au.D. program, students complete 18 semester hours of coursework, 3 semester hours of directed research, and 6 semester hours of clinical practicum. The fourth year of the Au.D. program is dedicated to full-time externship (18 semester hours) which is comparable to the CFY completed post-graduation under the old certification standards.

## Program Requirements

Applicants to the transitional Au.D. program are required to have earned a Master's degree in Audiology. Based upon the program requirements outlined below, an individualized graduate program will be designed in accordance with the Audiology Certification Standards (ASHA, 2007).

Applicants to the transitional Au.D. program who have completed a CFY will be expected to complete 18 semester hours of coursework and 3 semester hours of directed research included in the 3rd year of the Au.D. program which were not completed during the Master's program. Applicants who have completed a CFY will be granted a waiver of the 18 semester hours of clinical externship completed in the 4th year of the Au.D. program; however the applicant must complete a minimum of 3 semester hours of clinical practicum to demonstrate he/she meets the KASA requirements for clinical competence. Clinical competence will be assessed by current clinical faculty or an approved off-campus supervisor using the procedures and metrics used for 4th year externs in the Au.D. program. The applicant will continue to enroll in clinical practicum until he/she meets the KASA requirements for clinical competence.

Applicants to the transitional Au.D. program that did not complete a CFY will be expected to complete 18 semester hours coursework, 3 semester hours of directed research, 6 semester hours of clinical practicum, and 18 semester hours of externship included in the 3rd and 4th years of the Au.D. program that he/she did not complete during their Master's program. At the completion of the 4th year externship, the applicant must demonstrate he/she meets the KASA requirements for clinical competence. Clinical competence will be assessed by current clinical faculty or an approved off-campus supervisor using the procedures and metrics used for 4th year externs in the Au.D. program.

## Program Components

If the audiologist graduated from the 2-year MA/MS program at UT, the Au.D. degree completion program will require a minimum of 27 semester hours. Graduates from institutions other than UT will have an individualized review of academic coursework and clinical experiences to determine which courses must be taken. Most audiologists will be able to complete the program in approximately 1 - 2 years while employed in a clinical or academic setting.

### Components for the MA/MS graduate from UT:

1. Based upon a review of the application materials by the University, the applicant may be granted a waiver of the 18 semester hours of clinical externship if he/she has successfully completed a Clinical Fellowship Year; however the applicant must complete a minimum of 3 semester hours of clinical practicum to demonstrate he/she meets the KASA requirements for clinical competence. Clinical competence will be assessed by current clinical faculty or an approved off-campus supervisor using the procedures and metrics used for 4th year externs in the Au.D. program. The applicant will continue to enroll in clinical practicum until he/she meets the KASA requirements for clinical competence.

#### 2. **Required UTHSC Courses** (21 semester hours)

583 Physiologic Assessment II	3 semester hours
584 Pediatric Amplification	3 semester hours
585 Cochlear Implants	3 semester hours
586 Standards and Practice Issues	3 semester hours
604 Genetics & Pharmacology	3 semester hours
663 Seminar in Aural Rehabilitation	3 semester hours
664 Seminar in Amplification	3 semester hours

#### 3. **Required UTHSC Research** (3 semester hours)

656 Directed Research	3 semester hours
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4. **Required UTHSC Clinical Practicum** (3 semester hours)  
512 Clinical Practice in Audiology 3 semester hours<sup>1</sup>

5. **Required UTHSC Externship** (18 semester hours)  
613 Externship 1 8 semester hours<sup>2</sup>

6. Students are given a maximum of 5 years from entrance into the program to complete all the degree requirements.

7. Applicants that completed a CFY will take a minimum of 3 semester hours of ASP 512 to demonstrate KASA requirements for clinical competency. The applicant will continue to enroll in ASP 512 until he/she meets the KASA requirements for clinical competence.

8. Applicants that did not complete a CFY will complete 6 semester hours of ASP 512 and 18 semester hours of ASP 613.

<sup>1</sup>Applicants that completed a CFY will take a minimum of 3 semester hours of ASP 512 to demonstrate KASA requirements for clinical competency. The applicant will continue to enroll in ASP 512 until he/she meets the KASA requirements for clinical competence.

<sup>2</sup>Applicants that did not complete a CFY will complete 6 semester hours of ASP 512 and 18 semester hours of ASP 613.

#### **Components for the MA/MS graduate from another University:**

1. Based upon a review of the application materials, the University will determine if coursework completed in the applicant's MA/MS program is comparable to that required in the UT MS program. Any courses deemed unacceptable or missing will be added to the required courses listed below. The applicant may be granted a waiver of the 18 semester hours of clinical externship if they have successfully completed a Clinical Fellowship Year; however the applicant must complete a minimum of 3 semester hours of clinical practicum to demonstrate he/she meets the KASA requirements for clinical competence. Clinical competence will be assessed by current clinical faculty or an approved off-campus supervisor using the procedures and metrics used for 4th year externs in the Au.D. program. The applicant will continue to enroll in clinical practicum until he/she meets the KASA requirements for clinical competence.

2. **Required UTHSC Courses** (21 semester hours, minimum<sup>3</sup>)  
583 Physiologic Assessment II 3 semester hours  
584 Pediatric Amplification 3 semester hours  
585 Cochlear Implants 3 semester hours  
586 Standards and Practice Issues 3 semester hours  
604 Genetics & Pharmacology 3 semester hours  
663 Seminar in Aural Rehabilitation 3 semester hours  
664 Seminar in Amplification 3 semester hours

3. **Required UTHSC Research** (3 semester hours)  
656 Directed Research 3 semester hours

4. **Required UTHSC Clinical Practicum** (3 semester hours)  
512 Clinical Practice in Audiology 3 semester hours<sup>4</sup>

5. **Required UTHSC Externship** (18 semester hours)  
613 Externship 18 semester hours<sup>5</sup>

6. Students are given a maximum of 5 years from entrance into the program to complete all the degree requirements.

7. Coursework missing from MA/MS program to be determined

8. Applicants that completed a CFY will take a minimum of 3 semester hours of ASP 512 to demonstrate KASA requirements for clinical competency. The applicant will continue to enroll in ASP 512 until he/she meets the KASA requirements for clinical competence.

9. Applicants that did not complete a CFY will complete 6 semester hours of ASP 512 and 18 semester hours of ASP 613.

<sup>3</sup> *Coursework missing from MA/MS program to be determined*

<sup>4</sup> *Applicants that completed a CFY will take a minimum of 3 semester hours of ASP 512 to demonstrate KASA requirements for clinical competency. The applicant will continue to enroll in ASP 512 until he/she meets the KASA requirements for clinical competence.*

<sup>5</sup> *Applicants that did not complete a CFY will complete 6 semester hours of ASP 512 and 18 semester hours of ASP 613.*

## Application Materials

The applicant must provide the following materials for review by the admissions committee (see below). Based upon a review of the application materials and program requirements outlined previously, an individualized graduate program will be designed in accordance with the Audiology Certification Standards (ASHA, 2007).

1. Current home address and contact information
2. Education summary including transcripts
3. Complete work history including job site, position held, and length of employment
4. Evidence of successful completion of the Clinical Fellowship Year, if applicable

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## MASTER OF SCIENCE IN SPEECH-LANGUAGE PATHOLOGY (M.S.)

### Program Objectives

The academic courses and clinical opportunities prepare students to address speech, language, and swallowing disorders across the lifespan in both medical and educational environments. Emphasis is placed on evidence-based practice with sensitivity to cultural and linguistic diversity. This program is designed to meet all academic and practicum requirements for clinical certification from the American Speech-Language-Hearing Association (ASHA).

### Admissions

The UTHSC Program utilizes the Council of Academic Programs in Communication Sciences and Disorders Centralized Application Service (<http://www.capcsd.org/csdcas/>). Prospective applicants may apply by accessing the Speech-Language Pathology Applicant website at <https://portal.csdcas.org/>.

### Requirements for Admission

1. Bachelor's degree from an accredited university
2. A minimum GPA of 3.0 on a 4.0 scale in the Bachelor's Degree
3. A satisfactory score on the Verbal and Quantitative scales of the Graduate Record Examination (GRE).
4. Three letters of recommendation preferably completed by 3 professors who had the student in class.
5. A personal statement of intent.
6. Foreign applicants whose native language is not English must submit results of TOEFL with a minimum score of 550.
7. Applicants who accept an offer of admission will be required to complete UTHSC's Pre-Admissions Requirement System (PARS).

## Health Requirements

Speech-Language Pathology students are required to show proof of current health insurance prior to enrollment. Students are required to be immunized against the Hepatitis B virus and to have an annual skin test for Tuberculosis. Information about meeting these requirements is presented via email prior to the first day of class and, again, during orientation. Some clinical education sites require affiliating audiology students to have one or more of the following: rubella titer or vaccine, general physical examination. Students are responsible for these costs.

## Technical Standards

Speech-Language Pathology students must have or acquire certain essential skills, functions and professional attitudes and behavior as described in the Technical Standards document. All students who enroll must be prepared to understand and abide by these requirements. Information about meeting these requirements is presented during orientation and can be found on our website at <http://www.uthsc.edu/allied/asp/masters/whoshouldapply.php>.

## Criminal Background Check

A criminal background check through Verified Credential Services is required after acceptance and prior to enrollment. Upon receipt of an adverse criminal background check, an explanation by the student will be required and a decision will be made by the Chair and Dean as to whether the incident(s) would be a problem for the student when seeking internship placements or licensure to practice. Admission may be denied in some cases. Students should be aware that additional criminal background checks along with drug screens and fingerprinting may be required by clinical sites, certification committees, and state licensure boards. Students are responsible for these costs.

## Accreditation

The program in Speech-Language Pathology is accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology.

## Curriculum

The Speech Pathology program typically requires five semesters of study for full-time students with undergraduate preparation in the discipline and eight semesters of study for full-time students who hold bachelor's degrees in other areas. For this reason, most applicants will begin the program in year two. Part-time students are accepted into the SLP program on occasion and time to completion of the program is dependent on their schedules and when needed courses and clinical practicum experiences are available.

The SLP curriculum is designed to provide opportunities for students to focus on certain areas through the use of elective options focusing on SLP in schools, Medical SLP and/or Aural Rehabilitation. There also is opportunity to complete a thesis in lieu of certain seminar courses. In general, courses are offered one time per calendar year. Exceptions include courses for undergraduate and graduate students (e.g., ASP 521, ASP 529, ASP 514, ASP 520), which may be offered twice per calendar year. Professional seminars (ASP 590), clinical practicum experiences (e.g., ASP 530, ASP 533, ASP 537), and directed research or independent study courses (e.g., ASP 500, ASP 555, ASP 593, ASP 659) are offered every semester.

## Sample Course Schedule for MS-SLP Curriculum

*(Students may waive 1<sup>st</sup> full year of coursework if taken prior to enrollment).*

<b>First Year (Fall)</b>	<b>Semester Hours</b>
ASP 504 Anatomy and Physiology	3
ASP 503 Intro to Hearing Science	3
ASP 508 Acoustics and Perception	3
ASP 509 Speech and Language Development	3
ASP 521 Intro to Language Pathologies in Children	3

<b>First Year (Spring)</b>	<b>Semester Hours</b>
ASP 505 Phonetics	3
ASP 517 Intro to Speech Sound Disorders	3
ASP 524 Intro to Audiologic Assessment	3
ASP 529 Aural Habilitation/Rehabilitation	3
ASP 514 or 520 Stuttering or Voice Disorders	3
ASP 530 Observation of Clinical Practice (1 hr.)	1

<b>First Year (Summer)</b>	<b>Semester Hours</b>
ASP 514 or 520 Stuttering or Voice Disorders	3
ASP 581 School Speech-Language Pathology	2
Electives	3-6

<b>Second Year (Fall)</b>	<b>Semester Hours</b>
ASP 506 Neural Bases of Speech and Language	3
ASP 518 Adult Neurogenic Communication Disorders I	3
ASP 541 Structural Disorders	2
ASP 561 Child Language Disorders	3
ASP 515 and/or 533 and/or 534 Practicum in Speech Pathology	3
ASP 590 Professional Seminar (Elective choice)	1

<b>Second Year (Spring)</b>	<b>Semester Hours</b>
ASP 553 Intro to Research in Speech–Language Pathology	3
ASP 519 Adult Neurogenic Communication Disorders II	3
ASP 526 Dysphagia	3
ASP 515 and/or 533 and/or 534 Practicum in Speech Pathology	3
ASP 580 Medical Speech-Language Pathology	2
ASP 590 Professional Seminar (Elective choice)	1

<b>Second Year (Summer)</b>	<b>Semester Hours</b>
ASP 581 School Speech-Language Pathology*	2
ASP 573 Pediatric Audiology for Education	3
ASP 590 Professional Seminar (Elective choice)	1
ASP 515 and/or 533 and/or 534 Practicum in Speech Pathology	3
Elective	3

<b>Third Year (Fall)</b>	<b>Semester Hours</b>
ASP 539 Motor Speech Disorders	3
ASP 661 Seminar in Child Language or ASP 531 Seminar on Stuttering or ASP 523 Seminar in Voice or Elective	3 1-3
ASP 533 and/or 537 Advanced Clinical Practice in Speech Pathology - Off-Campus	3

<b>Third Year (Spring)</b>	<b>Semester Hours</b>
**ASP 537 Advanced Clinical Practice in Speech Pathology - Off-Campus	1-15

\* If not taken previously

\*\*Comprehensive Exam taken this semester. Minimum of 94 semester hours required

## Course Descriptions

### Core Courses

**ASP 503 Introduction to Hearing Science (3).** Didactic class offered once per year, fall semester. Introduction to disorders of hearing. Fundamental aspects of auditory anatomy and physiology. Instructor: *Dr. Mark Hedrick*

**ASP 504 Anatomy and Physiology of Speech (3).** Didactic class offered once per year, fall semester. Anatomy, physiology and embryological development of the speech production mechanism. Prerequisite(s) or Corequisite(s): ASP 505. Instructor: *Dr. Tim Saltuklaroglu*

**ASP 505 Phonetics (3).** Didactic class offered once per year, spring semester Basic phonetics, including recognition and production of spoken English sounds with analysis of their formation, phonetic transcription of speech, phonetic aspects of dialect variation. Instructor: *Dr. Molly Erickson*

**ASP 506 Neural Bases of Speech and Language (3).** Didactic class offered once per year, fall semester. Structure and function of central and peripheral nervous systems, role in speech and language. Prerequisite(s): 524 or consent of instructor. Instructor: *Dr. Devin Casenhiser*

**ASP 508 Acoustics and Perception (3).** Didactic class offered once per year, fall semester. Basic acoustics. Introduction to psychoacoustics and speech perception. Instructor: *Dr. Molly Erickson*

**ASP 509 Speech and Language Development (3).** Didactic class offered twice per year, fall and spring semesters. Speech and language development in the normal child. Instructor: *Dr. Devin Casenhiser*

**ASP 514 Stuttering (3).** Didactic class offered twice per year, spring and summer semesters. Nature, appraisal, and treatment. Instructor: *Dr. Tim Saltuklaroglu*

**ASP 515 Practicum in Aural Rehabilitation (1-4).** Practicum offered every semester. Repeatability: May be repeated. Maximum 9 hours. Prerequisite(s)/Corequisite(s): ASP 524 and ASP 529 or equivalent. Instructor: *Emily Noss*

**ASP 517 Introduction to Speech Sound Disorders (3).** Didactic class offered once per year, spring semester. Etiology, diagnosis, and treatment of articulatory and phonological disorders. Prerequisite(s): ASP 505 or consent of instructor. Instructor: *Dr. Jillian McCarthy*

**ASP 518 Adult Neurogenic Communication Disorders I (3).** Didactic class offered once per year, fall semester. This course will assist students in developing basic biological, social, clinical, and theoretical understandings of commonly observed neurological impairments. Prerequisite(s): ASP 506 or consent of instructor. Instructor: *Dr. Ellen Hamby*

**ASP 519 Adult Neurogenic Communication Disorders II (3).** Didactic class offered once per year, spring semester. This course will assist students in developing an advanced understanding of the neural, behavioral, social, clinical, and theoretical understandings of acquired neurological cognitive-linguistic impairments. Prerequisite(s): ASP 506 and ASP 518 or consent of instructor. Instructor: *Dr. Kristin King*

**ASP 520 Voice Disorders (3).** Didactic class offered twice per year, spring and summer semesters. Etiology, diagnosis, and treatment of organic and functional voice disorders. Prerequisite(s): ASP 501 and ASP 504 or consent of instructor. Instructor: *Dr. Molly Erickson*

**ASP 521 Introduction to Language Pathology in Children (3).** Didactic class offered once per year, fall semester. Etiology, diagnosis, and treatment of language impairments in children. Prerequisite(s): ASP 509 or consent of instructor. Instructor: *Dr. Ann Michael*

**ASP 524 Introduction to Audiologic Assessment (3).** Didactic class offered once per year, spring semester. Basic principles of clinical audiometry; pure tone, speech, masking and overview of special auditory tests. Prerequisite(s): ASP 503 or consent of instructor. Instructor: *Dr. Patrick Plyler*

**ASP 526 Dysphagia (3).** Didactic class offered once per year, spring semester. Clinical diagnosis, evaluation, and treatment of adult swallowing disorders and critical interpretation of research literature on dysphagia. Prerequisite(s): ASP 506 or consent of instructor. Instructor: *Dr. Carren Mills*

**ASP 529 Introduction to Aural Habilitation/Rehabilitation of the Hearing Impaired (3).** Didactic class offered twice per year, fall and spring semesters. Introduction to psychosocial aspects, amplification components/characteristics, assistive devices, speech acoustics, speech perception, speech reading, parent-infant, preschool and school years of children, communication impairments/handicaps/remediation of adults, effect of aging/remediation on the elderly, and case studies. Prerequisite(s): ASP 503 and ASP 524 or consent of instructor. Instructor: *Mary Buehler*

**ASP 530 Observation of Clinical Practice (1).** Didactic and clinical rotation offered twice per year, fall and spring semesters. Prerequisite(s): ASP 509 or consent of instructor. Instructor: *Carol Sheridan*

**ASP 533 Advanced Clinical Practice in Speech-Language Pathology (1-4).** Clinical practicum offered every semester. Repeatability: May be repeated for a maximum of 15 hours. Prerequisite(s): ASP 530, Observation of Clinical Practice, or consent of instructor. Enrollment for fewer than 2 hours must have prior departmental approval. Instructor of record: *Carol Sheridan*

**ASP 534 Advanced Clinical Practice in Speech-Language Pathology (1-4).** Didactic and laboratory course offered every semester. Repeatability: May be repeated for a maximum of 15 hours. Prerequisite: Consent of instructor. Enrollment for fewer than 2 hours must have prior departmental approval. Instructor: *Dr. Ann Michael*

**ASP 537 Advanced Clinical Practice in Speech-Language Pathology: Off-Campus Sites (1-15).** Clinical practicum offered every semester. Repeatability: May be repeated for a maximum of 15 hours. Prerequisite(s): 100 hours clinical experience and consent of instructor. Enrollment for fewer than 2 hours must have prior departmental approval. Instructor of record: *Carol Sheridan*

**ASP 539 Motor Speech Disorders (3).** Didactic class offered once per year, fall semester. Neuromotor organization for speech production; types of motor speech disorders and associated neuromuscular symptomology; diagnosis and management of motor speech disorders. Prerequisite(s): ASP 506. Instructor: *Dr. Kristin King*

**ASP 541 Structural Disorders of Speech (2).** Didactic class offered once per year, spring semester. Etiology, diagnosis and clinical management of craniofacial and resonance disorders. Prerequisite(s): 504 and 517. Instructor: *Dr. Kristin King*

**ASP 553 Research in Speech-Language Pathology (2).** Didactic class offered once per year, spring semester. Analysis of research techniques, fundamentals of statistics, application of statistics, and completion of a proposal and hypothetical pilot research project. Instructor: *Dr. Tim Saltuklaroglu*

**ASP 554 Language Analysis (2)** Didactic class offered once per year, spring semester. This course will equip students with the knowledge and skills necessary to elicit, transcribe, code, analyze, and interpret language and/or speech samples for both clinical and research applications. Students will learn to use software to assist with the task, and will analyze speech with attention paid to form, content and use of language. Instructor: *Dr. Devin Casenhiser*

**ASP 561 Child Language Disorders (3).** Didactic class offered once per year, fall semester. Current literature on assessment and intervention techniques for young language learners. Prerequisite(s): ASP 521 or consent of instructor. Instructor: *Dr. Jillian McCarthy*

**ASP 580 Medical Speech-Language Pathology (2).** Didactic class offered once per year, spring semester. This course will address medical speech pathology for pediatrics and adults, including medical terminology, ethical and end of life issues, basic procedures and competencies in a medical setting, common medical diagnoses, unusual/less common medical diagnoses, trachs, vents, speaking valves, and alternative means of functional communication in a medical setting. Instructor: *Dr. Kristin King*



**ASP 581 School Speech-Language Pathology (2).** Didactic class offered once per year, summer semester. Organization and implementation of speech and language programs in schools. Instructor: *Dr. Jillian McCarthy*

**ASP 590 Professional Seminar (1).** Didactic class of varying topics offered every semester, fall, spring and summer semesters. Repeatability: May be repeated. This seminar will address a topic in speech- language pathology in detail. Students will be expected to conduct literature searches, discuss evidence based practice, and recent research on the topic area. Instructor of record: *Dr. Ilsa Schwarz*

### ***Elective or Supplementary Courses***

**ASP 500 Thesis (1-15).** Offered every semester. Grading Restriction: P/NP only. Repeatability: May be repeated. Instructor of record: *Dr. Ashley Harkrider*

**ASP 501 Introduction to Communication Disorders (3).** Didactic class offered twice per year, fall and spring semesters. Nature, etiology, and incidence of speech, hearing, and language disorders. Instructor: *Dr. Ilsa Schwarz*

**ASP 502 Registration for Use of Facilities (1-15).** Offered every semester. Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. Grading Restriction: P/NP only. Repeatability: May be repeated. Credit Restriction: May not be used toward degree requirements. Instructor of record: *Dr. Ashley Harkrider*

**ASP 513 Appraisal of Speech and Language Disorders (3)** Diagnostic procedures for children and adults with speech and language problems including observation and practice with diagnostic tests. *This course currently not offered.*

**ASP 522 Seminar in Speech Sound Disorders (3).** Current research in diagnosis and management of speech sound disorders. Prerequisite(s): ASP 517 or consent of instructor. *This course currently not offered.*

**ASP 523 Seminar in Voice Disorders (3).** Didactic class offered once per year, fall semester. Current research in diagnosis and management of voice disorders. Multicultural, gender, and age-related issues. Prerequisite(s): ASP 520 or consent of instructor. Instructor: *Dr. Molly Erickson*

**ASP 525 Counseling and Communication Disorders (3).** Issues related to the role of counseling in clinical practice in speech pathology and audiology. Includes discussion of counseling needs and approaches, including multicultural issues. *This course currently not offered.*

**ASP 527 Language, Culture, and Communication Disorders (3).** Multicultural issues across the lifespan; theoretical rationales for speech and language development and use, assessment and treatment practices. Comment(s): Graduate standing required. *This course currently not offered.*

**ASP 528 Clinical Practice in Speech-Language Pathology II (1-4).** Offered every semester. Repeatability: May be repeated. Maximum 4 hours. Prerequisite(s): 530 and prior departmental approval. *This course currently not offered.*

**ASP 531 Seminar on Stuttering (3).** Didactic class offered once per year, fall semester. Current significant research in stuttering. Prerequisite(s): ASP 514 or consent of instructor. Instructor: *Dr. Tim Saltuklaroglu*

**ASP 552 Seminar in Speech Pathology (2-3).** Current significant research in speech pathology. Topics vary. Repeatability: May be repeated with consent of department. Maximum 9 hours. Recommended Background: 9 hours in speech pathology. *This course currently not offered.*

**ASP 555 Special Problems in Speech-Language Pathology (1-3).** Offered as needed. Repeatability: May be repeated. Maximum 6 hours. Prerequisite: Consent of instructor. Instructor: *Varies by topic.*

**ASP 558 Phonological Disorders (3).** Current theories and approaches to assessment and intervention for individuals with difficulty acquiring or using speech sound system of English. Prerequisite(s): 517 or consent of instructor. *Course currently not offered.*

**ASP 563 Language Disorders: Birth to Three (3).** Didactic class offered once per year, summer semester. Overview of family-focused, transdisciplinary intervention process. Assessment/treatment of infants, toddlers, and preschoolers. Description of disabilities and resulting communication disorder. Prerequisite(s): ASP 521 or consent of instructor. Instructor: *Dr. Ann Michael*

**ASP 573 Pediatric Audiology for Education Professionals (3).** Didactic class offered once per year, summer semester. Basic principles in the identification and management of hearing loss in infants and children; social and psychological concomitants of auditory disorder; genetic hearing loss and other high risk types of impairment related to hearing; educational alternatives and state and federal guidelines. Credit Restriction: Students with credit in ASP 574 cannot receive credit for ASP 573. Prerequisite(s): ASP 524. Instructor: *Dr. Patrick Plyler*

**ASP 585 Cochlear Implants (3).** Didactic class offered once per year, spring semester. Overview of cochlear implants, focusing on theory of auditory stimulation and cochlear implant systems; candidacy, surgical preparation, and follow-up/outcome measures; the rehabilitation process; and cochlear implant case presentations. Prerequisite(s): ASP 507, ASP 576, and ASP 583 or consent of instructor. Instructor: *Dr. Jong Ho Won*

**ASP 591 Foreign Study (1-15).** Offered every semester. Participation in ongoing or non-dissertational research, clinical practicum, coursework or independent study outside the United States. Repeatability: May be repeated for a maximum of 30 hours. Instructor of record: *Dr. Ashley Harkrider*

**ASP 592 Off-Campus Study (1-15).** Offered every semester. Participation in ongoing or non-dissertational research or independent study with off-campus advisor. Repeatability: May be repeated for a maximum of 30 hours. Instructor of record: *Dr. Ashley Harkrider*

**ASP 593 Independent Study (1-15).** Offered every semester. Independent study in speech, language, or hearing related topics. Repeatability: May be repeated for a maximum of 15 hours. Instructor of record: *Dr. Ashley Harkrider*

**ASP 601 Experimental Phonetics (3).** Didactic class offered every other year as needed in fall or spring semester. Acoustical and perceptual analyses of speech production and overall oral communication. Registration Permission: Consent of instructor. Instructor: *Dr. Molly Erickson*

**ASP 609 Seminar in Speech Science (3).** Topics vary. Repeatability: May be repeated for a maximum 6 hours. *Course currently not offered.*

**ASP 611 Experimental Design in Speech and Hearing (3).** Didactic class offered every other year in the fall or spring semester if needed. Analysis of experimental design in theses and related journals. Generation of experimental designs. Registration Permission: Consent of instructor. Instructor: *Dr. Tim Saltuklaroglu*

**ASP 626 Advanced Seminar in Neurologically-based Communication Disorders (3).** Topics vary. Repeatability: May be repeated. Maximum 6 hours. Prerequisite(s): 518 and 526. *Course currently not offered.*

**ASP 652 Advanced Seminar in Speech and Language (3)** Topics vary. Repeatability: May be repeated for a maximum of 6 hours. *Course currently not offered.*

**ASP 655 Practicum in College Teaching (1-3).** Offered every semester. Supervised experience in college teaching. Grading Restriction: Satisfactory/No Credit grading only. Repeatability: May be repeated for a maximum of 6 hours. Registration Permission: Consent of instructor. Instructor of record: *Dr. Ashley Harkrider*

**ASP 659 Directed Study in Speech Science (1-3)** Offered every semester. Repeatability: May be repeated for a maximum of 9 hours. Prerequisite: Consent of instructor. Instructor of record: *Dr. Ashley Harkrider*

**ASP 661 Advanced Seminar: Language Disorders in Children (3).** Didactic class offered once per year, fall semester. Topics vary. Repeatability: May be repeated for a maximum of 6 hours. Prerequisite(s): 561 or consent of instructor. Instructor: *Dr. Ilsa Schwarz*

**ASP 663 Advanced Seminar in Aural Habilitation/Rehabilitation (3).** Didactic class offered once per year, spring semester. Synthesis of information on audiologic habilitation and rehabilitation cases. Prerequisite(s): ASP 543, ASP 544, ASP 584, and ASP 594 or consent of instructor. Instructor: *Dr. Elizabeth Humphrey*

## **M.S. SLP Grading Scales**

### ***Academic Coursework***

- A** =  $\geq 0.90$
- B+** =  $\geq 0.86$  &  $< 0.90$
- B** =  $\geq 0.80$  &  $< 0.86$
- C+** =  $\geq 0.76$  &  $< 0.80$
- C** =  $\geq 0.70$  &  $< 0.76$
- D** =  $\geq 0.60$  &  $< 0.70$

### ***Clinical Practicum***

- A** =  $\geq 0.94$
- B** =  $\geq 0.86$  &  $\leq 0.93$
- C** =  $\geq 0.78$  &  $< 0.85$
- D** =  $\geq 0.70$  &  $< 0.77$

## **Requirements for Graduation (M.S.-SLP)**

The following requirements must be satisfied to earn the degree of Master of Science in Speech-Language Pathology.

1. Satisfactory completion of a minimum of 79 hours in academic coursework and a minimum of 15 hours in clinical practicum. (Up to 37 hours of requirements may be waived on the basis of knowledge and skills gained at the undergraduate level or prior to enrollment.)
  2. Students must complete coursework with a "B" or better overall average. Grades of "B" or above are required in all content area coursework.
  3. Satisfactory completion ("Pass") of a thesis or comprehensive exam is required prior to graduation.
  4. Students must discharge all financial obligations to the University and remove all deficiencies documented by the Registrar.
  5. Students planning to practice in the United States also must pass all Knowledge and Skills (KASA) competencies prior to graduation.
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## **Ph.D. in SPEECH AND HEARING SCIENCE**

The Ph.D. Program is research oriented with primary emphasis on processes involved in normal or disordered speech, language, and hearing. The doctoral program fosters development of individuals who seek professional careers in research, teaching, or clinical practice in speech-language pathology, audiology, speech-language science, or hearing science.

For specific information on the PhD in Speech and Hearing Science program, refer to the College of Graduate Health Sciences section of this catalog.

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## CLINICAL LABORATORY SCIENCES

Kathy Kenwright, M.S., Chair

The Department of Clinical Laboratory Sciences offers the following degree programs: Bachelor of Science in Medical Laboratory Science (BSMLS<sup>6</sup>; including an on-line option for medical laboratory technicians), Master of Cytopathology Practice (MCP), and a Master of Science in Clinical Laboratory Sciences (MSCLS; with both an Advanced Practice option and a Post-professional Graduate option).

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### BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCE (B.S.M.L.S.)

Kathy Kenwright, M.S., Program Director  
Sherri D. Flax, M.D., Medical Advisor

#### Program Objectives

The curriculum is designed to produce graduates who reflect the current expectations of the profession and of employers, particularly with respect to the need for problem solving and supervisory skills in the laboratory. Graduates of the program are prepared to function effectively as technologists in any laboratory setting and eventually to assume positions of responsibility in laboratory management, teaching and consulting.

#### Curriculum Description

The curriculum of the medical technology program is a two-year professional program. Students complete two years of pre-requisite courses at other colleges or universities, and then complete two years (21 months) of professional coursework on the campus of the University of Tennessee Health Science Center. Clinical experience is integrated throughout the curriculum. The curriculum is designed so that there are opportunities for interactions with other health sciences students, and for integration of professional principles with the techniques of medical technology.

Students are required to pass either a comprehensive examination upon completion of the program covering all courses in the curriculum, or comprehensive examinations at intervals as specified by faculty. Examinations may be written, practical, or both. Where a sequence of courses is described below, each course in the sequence is prerequisite to the subsequent course. Generally, for promotion to the next semester or to graduation, all courses in each semester must be completed with a passing grade.

#### Admission Requirements

To be eligible for consideration for admission into the MT program, applicants must meet the following requirements:

1. Completion of the following 61 semester hours of pre-requisite coursework with a grade of "C" or better in each course: (Note Science courses that are delivered in a virtual or online format are not acceptable.)

Prerequisite Course Work	Semester Hours
English Composition	3
Humanities	3
General Chemistry <sub>7</sub>	8
Organic Chemistry <sub>7</sub> *	8
General Biology or Zoology	8
Human Physiology or Anatomy/Physiology	4
Microbiology	4
College Algebra or Statistics	3
Social Science	3
Electives	<u>17</u>
<b>TOTAL</b>	<b>61</b>

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<sup>6</sup> Formerly the Bachelor of Science in Medical Technology (BSMT)

<sup>7</sup> One semester of Organic Chemistry and on semester of Biochemistry is acceptable

2. Submit official transcripts of above coursework.
3. Personal interview with faculty members.
4. Foreign applicants whose native language is not English must submit results of TOEFL, with minimum score of 550 on the written test or 213 on the computer test.
5. Completed application form including an essay describing the applicant's reasons for choosing the profession and their career goals. A non-refundable application fee must accompany the application.
6. Pre-professional advisory committee recommendation from college or university attended OR three letters of recommendation from previous college instructors.
7. Ability to meet published technical standards of the College of Allied Health Sciences and the professional practice of Medical Technology.

Applications are accepted online at [www.uthsc.edu/admiss](http://www.uthsc.edu/admiss)

#### Application deadlines

- Early deadline: December 1
- Regular deadline: April 1
- Late deadline: July 1

### Health Requirements

In addition to general University of Tennessee Health Science Center requirements, medical technology students are required to have an annual skin test for tuberculosis and to be immunized against *Neisseria meningitidis* and the Hepatitis B virus. Information about fulfilling these requirements is provided during orientation.

### Technical Standards

Medical Technology students must have or must be able to acquire certain essential skills, functions and professional attitudes and behavior as described for the College and the Program in order to progress through the curriculum and to graduate. A description of the technical standards for students in the College of Allied Health Sciences and the Medical Technology degree program can be found at: [http://www.uthsc.edu/allied/mt/mt\\_tech.php#tech2](http://www.uthsc.edu/allied/mt/mt_tech.php#tech2)

### Scholarships

The following scholarships are available to students entering the Medical Technology program:

- UTNAA Scholarship
- Chancellor's Scholarship
- Ann Bell Scholarship
- Elam Scholarship
- Elizabeth Club Scholarship

Information about these scholarships is available at the following link on the UTHSC webpage:

<http://www.uthsc.edu/allied/documents/Scholarship%20Policies%20and%20Procedures%202009.pdf>

### The Professional Curriculum – B.S.M.L.S.

The curriculum for a Bachelor of Science in Medical Laboratory Science consists of 4 semesters. The following is a summary of the courses which are offered annually during the terms indicated. Students move through this program in a cohort.

**FIRST SEMESTER (Fall: Aug- Dec)**

<b>Course</b>	<b>Credit (lec-lab contact) Hours</b>	<b>Instructor</b>
MT 411 Biochemistry	3 (40-0)	John Fain
MT 412 Clinical Analysis	3 (40-40)	Kevin McHugh
MT 413 Introduction to Pathology	1 (20-0)	Cameila Johns
MT 415 Urinalysis	2 (20-20)	LeiLani Collins
MT 418 Intro to Clinical Lab Science	1 (20-20)	Linda Ross
MT 423 Immunology	1 (20-0)	Patty Liddell
MT 414 Parasitology	2 (20-20)	Linda Pifer
MT 425 Urinalysis: Clinical Practicum	1 (1 week)	LeiLani Collins
<b>TOTAL</b>	<b>14 hours</b>	

**SECOND SEMESTER (Spring: Jan - May)**

<b>Course</b>	<b>Credit (lec-lab contact) Hours</b>	<b>Instructor</b>
<b>Winter Term</b>		
MT 421 Human Genetics	1 (20-0)	Linda Pifer
MT426 Basic Microbiology	2 (20-30)	Linda Pifer
MT 427 Cell Biology	2 (25-0)	Roderick Hori
MT 434 Clinical Immunology I	2 (20-40)	Thomas Williamson
MT 422 Clinical Chemistry I	3 (30-40)	Kevin McHugh
<b>Spring Term</b>		
MT 431 Hematology I	3 (30-60)	LeiLani Collins
MT 432 Clinical Microbiology I	4 (30-80)	Linda Ross
MT 433 Clinical Chemistry II	3 (30-40)	Kathleen Kenwright
<b>TOTAL</b>	<b>20 hours</b>	

**THIRD SEMESTER (Fall: July – Dec)**

<b>Course</b>	<b>Credit (lec-lab contact) hours</b>	<b>Instructor</b>
<b>Summer Term</b>		
MT 441 Hematology II: Clinical Practicum	2 (2 weeks)	LeiLani Collins
MT 442 Microbiology II: Clinical Practicum	2 (3 weeks)	Linda Ross
MT 443 Chemistry III: Clinical Practicum	2 (2 weeks)	Kathleen Kenwright
MT 444 Immunology II: Clinical Practicum	1 (1 week)	Thomas Williamson
MT 519 Virology	1 (15-0)	Linda Pifer
MT 520 Adv.Tech in Molecular Biology	2 (20-40)	Keisha Brooks
<b>Fall Term</b>		
MT 511 Hematology III	4 (40-60)	LeiLani Collins
MT 513 Clinical Chemistry IV	3 (30-40)	Kathleen Kenwright
MT 518 Introduction to Research	1 (20-0)	Linda Pifer
MT 512 Blood Bank I	5 (60-40)	Thomas Williamson
MT 532 Clinical Microbiology III	2 (20-20)	Linda Ross
<b>TOTAL</b>	<b>25 hours</b>	

## FOURTH SEMESTER (Spring: Jan - May)

MT 515 Basic Ed. and Management	2 (25-0)	Linda Ross
MT 517 Principles of Laboratory Utilization	1 (20-0)	Kathleen Kenwright
MT 521 Hematology IV: Clinical Practicum	3 (3 weeks)	LeiLani Collins
MT 523 Clinical Chemistry V: Clin Practicum	2 (2 weeks)	Kathleen Kenwright
MT 531 Off campus Experiences	1 (2 weeks)	LeiLani Collins
MT 533 Ethics & Professional Issues	1 (20-0)	Linda Ross
MT 535 Research Practicum	2 (2 weeks)	Linda Pifer
MT 542 Microbiology IV: Clinical Practicum	2 (2 weeks)	Linda Ross
MT 544 Blood Bank II: Clinical Practicum	4 (4 weeks)	Thomas Williamson
<b>TOTAL</b>	<b>18 hours</b>	

**GRAND TOTAL** **77 hours**

## Course Descriptions

**411 MT Biochemistry (3).** Offered annually fall semester, didactic course. The biosynthesis and metabolism of carbohydrates, lipids, proteins, and amino acids and basics of enzymology. DNA replication and RNA synthesis. Course Director: *Dr. John Fain*

**412 MT Clinical Analysis (3).** Offered annually fall semester, didactic and laboratory course. Principles involved in preparing various types of solutions and dilutions used in the clinical laboratory. Also laboratory safety, and organic chemistry review. Basic principles of spectrophotometry, chromatography, electrochemistry and radioisotopes. Principles of enzyme kinetics, pH and buffer systems. Laboratory exercises support lecture material. Course Director: *Kevin McHugh*

**413 MT Introduction to Pathology (1).** Offered annually fall semester, didactic hybrid course. Basic concepts of pathology with emphasis on the relationship of historical, physical and laboratory findings to the patho-physiology of disease. Emphasizes vocabulary of disease and disease mechanisms. Course Director: *Dr. Cameila Johns*

**414 MT Parasitology (2).** Offered annually fall semester, didactic and laboratory course. Lecture and laboratory exercises emphasizing classification and identification of parasites of medical importance including morphology of infective and diagnostic forms. Also included will be consideration of arthropod vectors, laboratory quality control and proper specimen collection and handling. Course Director: *Dr. Linda Pifer*

**415 MT Urinalysis (2).** Offered annually fall semester, didactic and laboratory course. Didactic presentations and laboratory experience in the examination of urines. This includes quality control, renal physiology and the pathology of kidney abnormalities. Course Director: *LeiLani Collins*

**425 MT Urinalysis Clinical Practicum (1).** Offered annually fall semester. Practical clinical laboratory experience in the examination of urines. This includes quality control, renal physiology and the pathology of kidney abnormalities. Course Director: *LeiLani Collins*

**418 MT Introduction to Clinical Laboratory Sciences (1).** Offered annually fall semester, didactic and laboratory course. A lecture and laboratory course designed to introduce new laboratory science students to the principles of Standard Precautions and safety in the laboratory, the use of the microscope and identification of basic human cells. Principles of specimen collection, dilution calculations and cell suspensions will also be covered. An introduction to medical terminology, healthcare professions, professional attributes and strategies for student success in the professional programs are discussed. Course Director: *Linda Ross*

**421 MT Human Genetics (1).** Offered annually spring semester, didactic course. A study of the mechanisms underlying human genetics and their medical applications. Discussions will emphasize the fundamental concepts of genetics; the structure and function of genes, chromosomes, DNA and RNA; replication; transmission, and recombination; and the frequency of given genes in the population. A variety of genetic aberrations will be discussed in relationship to the more common medical phenomena. Course Director: *Dr. Linda Pifer*

**423 MT Immunology (1).** Offered annually spring semester, didactic and laboratory course. A study of basic principles pertaining to the immune response. Includes the *in vivo* mechanisms underlying response to infectious agents, alteration of immunity, aberrant immunity, tumor immunity, hypersensitivity and structures and functions of antigens and antibodies. An introduction to diagnostic testing concepts is also included. Course Director: *Thomas Williamson*

**426 MT Basic Microbiology (2).** Offered annually spring semester, didactic and laboratory course. Principles of microbial physiology and genetics, microbial growth and nutrition and sterilization and disinfection. Mechanisms of disease production, antibiotic action and laboratory exercises in isolation and morphologic study of selected pathogens. Course Director: *Dr. Linda Pifer*

**427 MT Cell Biology (2).** Offered annually spring semester, didactic course. A study of the structure and function of organelles, biosynthetic pathways within the cell, cellular production of energy, and membrane transport systems. Course Director: *Dr. Roderick Hori*

**431 MT Hematology I (3).** Offered annually spring semester, a didactic and laboratory course covering principles of hematopoiesis, normal and abnormal blood cell physiology, function and morphology, principles of normal and abnormal hemostasis, routine and special laboratory techniques in hematology and coagulation, correlation of disease states with laboratory results, and quality control. Course Director: *LeiLani Collins*

**441 MT Hematology II: Clinical Practicum (2).** Offered annually fall semester. Clinical practice experience under supervision including application of appropriate knowledge and skills in a service laboratory setting. Course Director: *LeiLani Collins*

**511 MT Hematology III (4).** Offered annually fall semester, a didactic and laboratory course covering principles of hematopoiesis, normal and abnormal blood cell physiology, function and morphology, principles of normal and abnormal hemostasis, routine and special laboratory techniques in hematology and coagulation, correlation of disease states with laboratory results, and quality control. Prerequisites: 431 MT, Hematology I, and 441 MT, Hematology II. Course Director: *LeiLani Collins*

**521 MT Hematology IV: Clinical Practicum (3).** Offered annually spring semester. Clinical practice experience under supervision including application of appropriate knowledge and skills in a service laboratory setting. Prerequisites: 431 MT Hematology I, 441 MT Hematology II and 511 MT Hematology III. Course Director: *LeiLani Collins*

**432 MT Clinical Microbiology I (4).** Offered annually spring semester. Didactic and laboratory course in clinical microbiology and mycology with emphasis on the isolation, identification and antibiotic sensitivity testing, where appropriate, of human pathogenic microorganisms. Included are pathogenesis and pathophysiology of infectious disease as well as epidemiology and quality assurance. Course Director: *Linda Ross*

**442 MT Clinical Microbiology II: Clinical Practicum (2).** Offered annually fall semester. Clinical practice course including practical application of clinical microbiology and mycology principles in a service laboratory setting under supervision. Prerequisite: 432 MT, Clinical Microbiology I. Course Director: *Linda Ross*

**532 MT Clinical Microbiology III (2).** Offered annually fall semester. Didactic and laboratory course in clinical microbiology and mycology with emphasis on the isolation, identification and antibiotic sensitivity testing, where appropriate, of human pathogenic microorganisms. Included are pathogenesis and pathophysiology of infectious disease as well as epidemiology and quality assurance. Prerequisites: 432 MT, Clinical Microbiology I, and 442 MT, Clinical Microbiology II. Course Director: *Linda Ross*



**542 MT Clinical Microbiology IV: Clinical Practicum (2).** Offered annually spring semester. Clinical practice courses including practical application of clinical microbiology and mycology principles in a service laboratory setting under supervision. Prerequisites: 432 MT, Clinical Microbiology I, 442 MT, Clinical Microbiology II, and 532 MT, Clinical Microbiology III. Course Director: *Linda Ross*

**422 MT Clinical Chemistry I (3).** Offered annually spring semester. Didactic and laboratory course including basic concepts of laboratory instrumentation, troubleshooting techniques, operation, evaluation, and selection of instruments. Lectures and assigned readings emphasizing chemical measurements of physiological indicators of normal and abnormal human metabolism. Correlation of laboratory generated data with the available clinical information. Laboratory experience in determining constituents of body fluids, principles of chemical analysis, use and care of equipment and identification of sources of error. Course Director: *Kevin McHugh*

**433 MT Clinical Chemistry II (3).** Offered annually spring semester. Didactic and laboratory course including basic concepts of laboratory instrumentation, troubleshooting techniques, operation, evaluation, and selection of instruments. Lectures and assigned readings emphasizing chemical measurements of physiological indicators of normal and abnormal human metabolism. Correlation of laboratory generated data with the available clinical information. Laboratory experience in determining constituents of body fluids, principles of chemical analysis, use and care of equipment and identification of sources of error. Course Director: *Kevin McHugh*

**443 MT Clinical Chemistry III: Clinical Practicum (2).** Offered annually spring semester. Clinical practice experience under supervision in a service laboratory setting. Course Director: *Kathleen Kenwright*

**513 MT Clinical Chemistry IV (3).** Offered annually fall semester. Didactic and laboratory course including basic concepts of laboratory instrumentation, troubleshooting techniques, operation, evaluation, and selection of instruments. Lectures and assigned readings emphasizing chemical measurements of physiological indicators of normal and abnormal human metabolism. Correlation of laboratory generated data with the available clinical information. Laboratory experience in determining constituents of body fluids, principles of chemical analysis, use and care of equipment and identification of sources of error. Prerequisites: 412 MT, Clinical Analysis; 422 MT, Clinical Chemistry I; 433 MT, Clinical Chemistry II; and 443 MT, Clinical Chemistry III. Course Director: *Kathleen Kenwright*

**523 MT Clinical Chemistry V: Clinical Practicum (2).** Offered annually spring semester. Clinical practice experience under supervision in a service laboratory setting. Prerequisites: 412 MT Clinical Analysis, 422 MT Clinical Chemistry I, 433 MT Clinical Chemistry II, 443 MT Clinical Chemistry III, and 513 MT Clinical Chemistry IV. Course Director: *Kathleen Kenwright*

**434 MT Clinical Immunology I (2).** Offered annually spring semester, didactic and laboratory course. A study of the immunologic and physiologic principles on which diagnostic immunology/serology is based, including both theoretical and practical application of these principles to the analysis of body fluids for the assessment of various disease states. Course Director: *Thomas Williamson*

**444 MT Immunology/Serology II (1).** Offered annually fall semester. Clinical practice under supervision in a service laboratory where emphasis is placed on technical proficiency. Course Director: *Thomas Williamson*

**512 MT Blood Banking I (5).** Offered annually fall semester, didactic and laboratory course. Theories of immunohematology with application to clinical blood banking. Includes theoretical and technical considerations of blood groups, serological procedures, transfusion therapy, related pathologic mechanisms and the production of blood products. Problem solving experience related to these concepts is provided. Course Director: *Thomas Williamson*

**544 MT Blood Banking II: Clinical Practicum (4).** Offered annually spring semester. Clinical practice experience under supervision in a service laboratory where emphasis is placed on technical proficiency. Course Director: Prerequisite MT 512 Blood Bank. *Thomas Williamson*

**515 MT Basic Educational and Management Principles (2).** Offered spring semester, didactic course. Principles of learning with specific application to the development of instructional objectives, strategies and evaluation for specific teaching-learning situations. Also basic principles of management with particular emphasis on the clinical laboratory. Includes the basic management process, personnel supervision, identification and allocation of resources and simulated problem solving. Provides practical application of management principles under the supervision of local laboratory managers. Course Director: *Linda Ross*

**518 MT Introduction to Research I (1).** Offered fall semester, didactic course. Discussion of the elements of research, including scientific writing, statistical analysis of data, seminar preparation, and literature searches. Current topics such as the use of animals in scientific research and ethics in research will also be discussed. Course Director: *Dr. Linda Pifer*

**535 MT Research Practicum II (2).** Offered spring semester, independent study course involving literature review of recent research publications in various medical technology disciplines, submission of a paper and presentation in a formal seminar. Emphasis on importance of research in advancement of clinical laboratory sciences. Course Director: *Dr. Linda Pifer*

**519 MT Virology (1).** Offered fall semester, didactic course The nature, classification, physiochemical properties, multiplication, host cell relationships and immunology of viruses of human importance. Transmission, pathogenesis and all current techniques of laboratory diagnosis will also be discussed. Course Director: *Dr. Linda Pifer*

**520 MT Advanced Techniques in Molecular Biology (2).** Offered fall semester, didactic and laboratory course. Basic concepts, principles, and applications of technological advancements in laboratory science including genetic technologies, flow cytometry, HLA tissue typing, nucleic acid hybridization and amplification techniques, and biosensors. Provides opportunity for students to understand how basic scientific discoveries impact patient diagnosis, treatment, and prognosis. Course Director: *Keisha Brooks*

**517 MT Principles of Laboratory Utilization (1).** Offered spring semester, didactic course. Principles affecting the cost effective and efficient use of laboratory services in an environment of managed care will be presented. Special emphasis will be placed on the challenge of maintaining quality services while containing costs and the knowledge and skills necessary for successful consultations with physicians on effective use of the laboratory. Clinical correlation case presentations are also included. Course Director: *Kathy Kenwright*

**531 MT Off Campus Experience (1).** Offered spring semester, clinical practice. WEEK 1: Students may choose to concentrate their activity in areas related to medical technology such as forensic pathology or to return to any area for in-depth study. Objectives to be met will be mutually set by student and faculty. WEEK 2: Students spend one week on site in a clinical laboratory which employs molecular techniques. Experiences vary according to site and include techniques such as flow cytometry, HLA tissue typing, molecular pathology, genetics or microbiology, electron microscopy, or cytogenetics. Objectives to be met will be mutually set by student and faculty. Course Director: *LeiLani Collins*

**533 MT Ethics and Professional Issues (1).** Offered spring semester, didactic course. Considerations related to the identification and management of professional and ethical issues in the delivery of health care particularly as they relate to the practice of medical technology. Faculty led and student led discussions on specific topics will be utilized. Course Director: *Linda Ross*

### **Attendance Requirement**

Medical technology students are expected to attend all scheduled classes, student labs, and clinical lab assignments. In the case of absence due to illness or emergency, the student must notify the medical technology office and clinical site no later than 8:30AM of the day missed. For any other absences, prior arrangements must be made with the specific instructor(s) involved. Makeup tests, missed lectures, or laboratory sessions should be coordinated with the course director. Appointments for health services should not be made during scheduled class time.

## Clinical Affiliations

Clinical affiliation sites are located in Memphis and throughout Tennessee. Due to the limited number of clinical sites in Memphis, it may become necessary for students to accept the financial impact of traveling and living out of town for a portion of their clinical assignments.

## Grading Policy

Written and practical examinations and performance evaluations are a part of the educational program throughout the curriculum. All courses in each semester must be passed before the student is allowed to progress to the next semester. No credit for any course is awarded until the end of the semester. The point-grade conversion scale used by the medical laboratory science program for all courses, **except** clinical practice courses is as follows:

95 – 100	= A
85 – 94	= B
75 – 84	= C
65 – 74	= D
Below 65	= F

The grading scale for all **clinical practice** courses is as follows:

95 – 100	= A
86 – 94	= B
80 – 85	= C
75 – 79	= D
Below 75	= F

## Progress and Promotion

Students must maintain a semester GPA of 2.0 on a 4.0 scale and meet all required professional and ethical standards to progress to the next semester in good standing. Any student who earns a grade of D in any course may be placed on academic probation. A student earning a grade of “F” in any course or a grade of “D” in two or more courses may be dismissed. Using the guidelines outlined for progress and promotion under the General Information section in the present document/catalog, the student will be carefully evaluated to determine the course of action which is best for the student and the program.

## Requirements for Graduation

The following requirements must be satisfied to earn the Bachelor of Science degree in Medical Laboratory Science:

1. The candidate must present evidence of having satisfactorily completed all prerequisite coursework.
2. Students must complete all courses and maintain a minimum GPA of 2.0.
3. Successful students will complete the program in May and will be eligible to take national certification examinations and apply for a Tennessee license to practice in the state.
4. The candidate must discharge all financial obligations to the University and remove all deficiencies documented by the Registrar.

Attendance at graduation is mandatory. Those unable to attend the commencement must obtain permission to receive the degree *in absentia* by filing a written request with the Dean of the College.

## Awards

The two awards given to the students in the Bachelor of Science in Medical Technology program are named for former faculty members who provided distinguished service to the University.

- **Frances Guthrie Outstanding Student Award in Medical Technology**

This award is presented to a graduating student who has demonstrated exceptional ability based on academic and professional criteria. The recipient is chosen by the medical technology faculty and fellow students. This award is not necessarily given each year.

- **Alice Scott Hitt Faculty Award in Medical Technology**

This award is presented to a graduating student who has demonstrated outstanding personal and professional characteristics. The recipient of the award is chosen by the medical technology faculty. This award may not be given every year.

## Certification Examination and Licensure

Graduates with a Bachelor's degree in Medical Laboratory Science qualify to sit for the national certification examination in medical laboratory science (MLS) administered by the Board of Certification (BOC) of the American Society for Clinical Pathology (ASCP). Graduates are also eligible to take the American Medical Technologists (AMT) certification examination. Both examinations are offered year-round in major cities throughout the United States. Graduates in the program seeking employment in the field of medical technology in the state of Tennessee must also obtain a license to practice from the Tennessee Medical Laboratory Board. A passing score on the ASCP or AMT certification exam is required for licensure in Tennessee.

## Accreditation

The UTHSC program in medical technology is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 5600 N. River Road, Suite 720, Rosemont, IL 60018-5119, (773) 714-8880; <http://www.naacls.org>.

## Student Professional Organization Membership

Medical technology students are eligible for student membership in a number of professional associations including the American Society for Clinical Laboratory Science and the American Society of Clinical Pathology. Students are encouraged to apply for membership in one or more regional or national professional organizations.

## BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCE -- ONLINE PROGRAM (MLT TO B.S.M.L.S.)

Kathy Kenwright, M.S., Program Director  
 Sherri D. Flax, M.D., Medical Advisor

## Program Objectives

The College of Allied Health Sciences offers an online Bachelor of Science degree in Medical Laboratory Science (B.S.M.L.S.) program for students who have earned an Associate of Science (A.S.) degree in Medical Laboratory Technology (MLT). This career-ladder program allows Medical Laboratory Technicians to complete their Bachelor of Science degree online while maintaining their employment in a medical laboratory. Graduates of the program are prepared to function effectively as technologists in any laboratory setting and eventually to assume positions of responsibility in laboratory management, teaching and consulting.

## Admission Requirements

1. Completion of the following 84 semester hours of pre-requisite coursework with a grade of "C" or better in each course: (Note: Science courses that are delivered in a virtual or online format are not acceptable.)

Prerequisite Course Work	Semester Hours
English	3
Humanities	3
General Chemistry	8
Organic Chemistry <sup>8*</sup>	8
General Biology or Zoology	8
Human Physiology or Anatomy/Physiology	4
College Algebra	3
Microbiology	4

<sup>8</sup> One semester of Organic Chemistry and one semester of Biochemistry is acceptable.

Social Science	3
Electives and MLT coursework	<u>40</u>
<b>TOTAL</b>	<b>84</b>

- An earned A.S. or A.A.S. degree in Medical Laboratory Technology from a NAACLS accredited program.
- In addition to their B.S. degree requirements, qualified students must have successfully completed with a “C” or better the specific courses required for medical technology.
- A minimum overall GPA of 2.5.
- Sufficient college level course work to total a minimum of 84 semester hours with a “C” or higher in MLT and prerequisite courses.
- Three letters of recommendation from previous college instructors or immediate supervisor and a letter of support from the applicant’s laboratory manager.
- Foreign applicants whose native language is not English must submit the results of TOEFL, with a minimum score of 550.
- Interview with the faculty.

Applications are accepted online at [www.uthsc.edu/admiss](http://www.uthsc.edu/admiss)

### Health Requirements

In addition to general University of Tennessee Health Science Center requirements, Medical Technology students are required to have an annual skin test for tuberculosis and to be immunized against *Neisseria meningitidis* and the Hepatitis B virus. Information about fulfilling these requirements is provided during orientation.

### Required Textbooks

Required textbooks are available at the UTHSC Bookstore.  
<http://www.uthsc.edu/purchasing/bookstore.php>

### Technology Requirements

#### Minimum Hardware Requirements

**Processor:** 3.00 GHz (or higher) Pentium IV processor (or similar-type of processor, including Celeron and others)

**Processor Speed:** 1.5GHz or faster

**Operating System:** Windows XP Professional, not home edition; **Note:** Some of the software that is used in the courses will not work with the VISTA operating system.

**RAM/Memory:** At least 1GB RAM **Hard Disk Capacity:** At least 40GB or higher

**Monitor:** At least 15" color high resolution, multiscan color monitor (17" is preferred)

**Audio/Sound card:** 16 bit sound card (required for both audio and video support)

**Multimedia capabilities:** Video & audio (speakers and microphone, preferably headset); and PC-type camera/webcam (any brand with USB connector)

**Minimum Software Requirements:** Microsoft Office 2003 (will need Compatibility Pack available at Helpdesk website) or 2007 Professional Edition which includes the following programs:

- **Word** for word processing
- **Excel** for spreadsheets
- **PowerPoint** for presentations
- **Access** for database management
- **Outlook** for email, calendar, contact management, and tasks

### Technical Standards

Medical Technology students must have or must be able to acquire certain essential skills, functions and professional attitudes and behavior as described for the College and the Program in order to progress through the curriculum and to graduate. A description of the technical standards for students in the College of Allied Health Sciences and the Medical Technology degree program can be found at: [http://www.uthsc.edu/allied/mt/mt\\_tech.php#tech2](http://www.uthsc.edu/allied/mt/mt_tech.php#tech2)

## MLT to BSMLS Curriculum

<b>Fall (August-December)</b>	<b>Credit hours</b>	
MLS 401 Medical Laboratory Practice	3	Linda Ross
MLS 402 Clinical Practicum	1	Leilani Collins
MLS 403 Clinical Chemistry	3	Kathleen Kenwright
MLS 404 Clinical Practicum	2	Kathleen Kenwright
<b>TOTAL</b>	<b>11</b>	

<b>Spring (January-May)</b>	<b>Credit hours</b>	
MLS 405 Hematology	5	Leilani Collins
MLS 406 Clinical Practicum	2	Leilani Collins
MLS 407 Blood Bank	5	Thomas Williamson
MLS 408 Clinical Practicum	2	Thomas Williamson
<b>TOTAL</b>	<b>14</b>	

<b>Fall (July- December)</b>	<b>Credit hours</b>	
MLS 409 Clinical Microbiology	5	Linda Ross
MLS 410 Clinical Practicum	2	Linda Ross
MLS 501 Advanced Laboratory Practices	4	Linda Pifer
<b>TOTAL</b>	<b>11</b>	

## Course Descriptions

**401 MLS Medical Laboratory Practices (3).** Offered annually fall semester, didactic, on-line course. The principles of safe operations of a clinical laboratory including Standard Precautions, OSHA regulations and ergonomic practices. Urinalysis will include quality control, renal physiology and the pathology of kidney abnormalities. An immunological methods section reviews immunodiagnostic basics, including agglutination, precipitation, neutralization, immunofluorescence, and labeled immunoassays with the application on diagnosing infectious diseases. Course Director: *Linda Ross*

**403 MLS Clinical Chemistry (5).** Offered annually fall semester, didactic, on-line course. This course will emphasize chemical measurements of physiological indicators of normal and abnormal human metabolism. Topics covered include carbohydrates, proteins, renal function, arterial blood gases, cardiac markers, liver function, lipid testing, nutritional assessment, enzymes, endocrinology, tumor markers, prenatal testing, newborn screening for inborn errors of metabolism, therapeutic drug monitoring, and toxicology. Case studies will be used to correlate laboratory generated data with clinical information. Basic principles of quality control including Westgard Rules, calculation of mean, median, mode, standard deviation and coefficient of variation will be reviewed. Course Director: *Kathleen Kenwright*

**405 MLS Hematology (5).** Offered annually spring semester, didactic, on-line course. Principles of hematopoiesis, normal and abnormal blood cell physiology, function and morphology, principles of normal and abnormal hemostasis, routine and special laboratory techniques in hematology and coagulation, correlation of disease states with laboratory results, and quality control. Course Director: *Leilani Collins*

**407 MLS Blood Bank (5).** Offered annually spring semester, didactic, on-line course. The course covers theories of immunohematology with application to clinical blood banking. Lecture sessions include technical aspects related to blood group antigens and antibodies, serological procedures, quality control, donor requirements, blood storage, and blood components with application of this knowledge to problem solving in antibody identification, various hemolytic diseases, adverse effects of transfusion, and transfusion therapy. Also encompassed in this course are basic concepts of the immune response such as antigen and antibody interactions, the complement system, disorders of the immune response, and hypersensitivity reactions. Course Director: *Thomas Williamson*

**409 MLS Clinical Microbiology (5).** Offered annually fall semester, didactic, on-line course. Clinical microbiology, mycology, parasitology and virology with emphasis on the isolation, identification, classification and antibiotic sensitivity testing, where appropriate, of human pathogenic microorganisms. Included are transmission, pathogenesis, pathophysiology and immunology of infectious disease as well as epidemiology, proper specimen collection and handling and quality assurance. Course Director: *Linda Ross*

**402 MLS Clinical Practicum I (1).** Offered annually fall semester. Clinical practice course including experience in immunology under supervision in a service laboratory where emphasis is placed on technical proficiency. Course Director: *Linda Ross*

**404 MLS Clinical Practicum II (2).** Offered annually fall semester. Clinical practice course including experience in clinical chemistry under supervision in a service laboratory where emphasis is placed on technical proficiency. Course Director: *Kathleen Kenwright*

**406 MLS Clinical Practicum III (2).** Offered annually spring semester. Clinical practice course including experience in hematology under supervision in a service laboratory where emphasis is placed on technical proficiency. Course Director: *LeiLani Collins*

**408 MLS Clinical Practicum IV (2).** Offered annually spring semester. Clinical practice course including experience in blood banking under supervision in a service laboratory where emphasis is placed on technical proficiency. Course Director: *Thomas Williamson*

**410 MLS Clinical Practicum V (2).** Offered annually fall semester. Clinical practice course including experience in microbiology under supervision in a service laboratory where emphasis is placed on technical proficiency. Course Director: *Linda Ross*

**501 MLS Advanced Laboratory Practices (4).** Offered annually fall semester, didactic, on-line course. Principles of laboratory management, education, ethics, and professionalism will be covered. Discussion of the elements of research, including scientific writing, statistical analysis of data, seminar preparation, and literature searches. Current topics such as the use of animals in scientific research and ethics in research will also be included. Online review material and practice tests for the national board of certification exam will be conducted in this course. *Course to be offered as of fall, 2013.*

## **Communication**

Email is the primary mode of communication for instructor and student interactions. Course information is provided to students via the campus learning management system, BlackBoard, which includes the course syllabus, links to campus resources, reading and supplemental class materials, recorded lectures, testing and assessment, grades and other classroom materials. Faculty may also interact with students via web-conferencing using Adobe Connect, video chat and telephone conferences.

## **Attendance Requirement**

Attendance is mandatory. In an online class, that means participating in discussions or activities posted in Blackboard and checking for announcements on a daily basis.

## **Clinical Affiliations**

Clinical affiliation sites are located in Memphis and throughout Tennessee. Ideally students will complete their clinical practicums at their place of employment. These practicums must be completed outside of their work schedule. If the place of employment does not perform testing in all areas the student will be expected to find an alternate site. An affiliation agreement (between the clinical site and the University) must be signed before a student can perform a clinical practicum.

## Grading Policy

Written and practical examinations and performance evaluations are a part of the educational program throughout the curriculum. All courses in each semester must be passed before the student is allowed to progress to the next semester. No credit for any course is awarded until the end of the semester. The point-grade conversion scale used by the medical technology program for all courses, *except* clinical practice courses is as follows:

95 – 100 = A  
85 – 94 = B  
75 – 84 = C  
65 – 74 = D  
Below 65 = F

The grading scale for all *clinical practice* courses is as follows:

95 – 100 = A  
86 – 94 = B  
80 – 85 = C  
75 – 79 = D  
Below 75 = F

## Progress and Promotion

Students must maintain a semester GPA of 2.0 on a 4.0 scale to progress to the next semester in good standing. Any student who earns a grade of D in any course may be placed on academic probation. A student earning a grade of “F” in any course or a grade of “D” in two or more courses may be dismissed. Using the guidelines outlined for progress and promotion under the General Information section in the present document/catalog.

## Requirements for Graduation – BSMLS (MT to BSMLS)

The following requirements must be satisfied to earn the Bachelor of Science degree in Medical Laboratory Science:

1. The candidate must present evidence of having satisfactorily completed all prerequisite coursework.
2. Students must complete all courses and maintain a minimum GPA of 2.0.
3. Successful students will be eligible to take national certification examinations and apply for a Tennessee license to practice in the state.
4. The candidate must discharge all financial obligations to the University and remove all deficiencies documented by the Registrar.

Attendance at graduation is mandatory. Those unable to attend the commencement must obtain permission to receive the degree in absentia by filing a written request with the Dean of the College.

## Certification Examination and Licensure

Graduates with a Bachelor's degree in Medical Technology qualify to sit for the national certification examination in medical laboratory science (MLS) administered by the Board of Certification (BOC) of the American Society for Clinical Pathology (ASCP). Graduates are also eligible to take the American Medical Technologists (AMT) certification examination. Both examinations are offered year-round in major cities throughout the United States. Graduates in the program seeking employment in the field of medical technology in the state of Tennessee must also obtain a license to practice from the Tennessee Medical Laboratory Board. A passing score on the ASCP or AMT certification exam is required for licensure in Tennessee.



## Accreditation

The UTHSC program in medical technology is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 5600 N. River Road, Suite 720, Rosemont, IL 60018-5119; (773) 714-8880; <http://www.naacls.org>. The online program will undergo accreditation review during the next accreditation cycle with the current medical technology program.

## Student Professional Organization Membership

Medical technology students are eligible for student membership in a number of professional associations including the American Society for Clinical Laboratory Science and the American Society of Clinical Pathology. Students are encouraged to apply for membership in one or more regional or national professional organizations.

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## MASTER OF CYTOPATHOLOGY PRACTICE (M.C.P.)

Barbara D. Benstein, Ph.D., Program Director  
Nadeem Zafar, M.D., Medical Director, Cytotechnology Program  
Charles R. Handorf, M.D., Ph.D., Medical Advisor, Histotechnology Program

## Program Objectives

The curriculum for the Master of Cytopathology Practice (MCP) degree is designed to prepare competent entry-level histotechnologists and cytotechnologists with the skills necessary to prepare tissue and cytologic specimens for microscopic analysis, and to accurately evaluate and interpret all types of cytologic material. Graduates of the program will be able to perform, interpret and correlate ancillary testing for proper triage of patients. They will be able to meet the current demands of the profession and will be prepared to engage future technology as it becomes standard in the anatomic laboratory. Graduates of the program will also have the necessary skills in quality assessment to direct quality improvement activities and assume positions of leadership in management, research and education. Graduates of the program are qualified to sit for both the cytotechnologist and histotechnologist certification examinations offered by the American Society of Clinical Pathology Board of Certification.

## Curriculum Description

The program is designed as a full time "3 + 2" program that leads to a Master of Cytopathology Practice Degree. Students complete three years of pre-requisite courses at other colleges or universities, and then complete two years (21 months) of professional coursework on the campus of the University of Tennessee Health Science Center. Candidates are not required to have a baccalaureate degree prior to admission. Students receive both clinical experience and didactic instruction throughout the program, with the greatest emphasis on microscopic interpretation of cells for diagnosis of disease. Techniques of specimen collection, fixation, preparation, processing, embedding, microtomy and staining are mastered, as well as procedures for documentation and quality improvement. Students perform and interpret ancillary technologies including molecular diagnostic techniques and are introduced to laboratory management principles, and laboratory information systems. Required oral presentations by students include selected scientific literature reviews and case studies. Students also design and conduct a research project for presentation.

## Admission Requirements

To be eligible for consideration for admission into the MCP program, applicants must meet the following requirements:

1. Completion of the following 85 semester hours of pre-requisite coursework with a grade of “C” or better in each course: (Note: Science courses that are delivered in a virtual or online format are not acceptable.)

<b>Prerequisite Course Work</b>	<b>Semester Hours</b>
General Biology	8
General Chemistry	8
English or Communication	9
Social Science	12
Mathematics or Statistics	3
Advanced Biology*	15
Electives	<u>30</u>
<b>TOTAL</b>	<b>85</b>

2. Minimum overall grade point average of 3.0 OR minimum overall grade point average of 2.5 with a satisfactory score on the GRE.
3. Submit official transcripts of above coursework
4. Personal interview with members of the admissions committee
5. Foreign applicants whose native language is not English must submit results of TOEFL, with minimum score of 550 on the written test or 213 on the computer test.
6. Completed application form including an essay describing the applicant’s reasons for choosing the profession and their career goals. A non-refundable application fee must accompany the application.
7. Pre-professional advisory committee recommendation from college or university attended OR two letters of recommendation from previous college instructors.
8. Ability to meet published technical standards of the College of Allied Health Sciences and the Master of Cytopathology Practice degree program.
9. Students wishing to receive a baccalaureate degree from the institution where pre-requisite courses were taken must also meet the general core educational course requirements of that institution.
10. No credit is awarded for prior experiential learning to meet the requirements for completion of the Master of Cytopathology Practice degree.

## Admissions

Applications are accepted online at [www.uthsc.edu/admiss](http://www.uthsc.edu/admiss)

### Application deadlines

- Early deadline: January 30
- Regular deadline: April 15
- Late deadline: July 1

## Health Requirements

In addition to general UTHSC requirements, students admitted to the program must submit evidence of good health. The health examination should include a chest x-ray or tuberculin skin test and a comprehensive eye examination which includes a test for color vision. (Imperfect color vision is not a basis for excluding an applicant from the program but instructors should know if this defect exists.) Students are also required to be immunized against Neisseria meningitidis and the Hepatitis B virus.

## Technical Standards

Once enrolled in the Master of Cytopathology Practice degree program, students must meet the full requirements of the curriculum, including the demonstration of specific skills (technical standards) described for the College and the Program, in order to progress through the curriculum and to graduate. A description of the technical standards for students in the College of Allied Health Sciences and the Master of Cytopathology Practice degree program can be found at [http://www.uthsc.edu/allied/ct/ct\\_tech.php](http://www.uthsc.edu/allied/ct/ct_tech.php).

## Scholarships

The following scholarships are available to students entering the Master of Cytopathology Practice Degree program:

- UTNAA Scholarship
- Chancellor's Scholarship
- Erickson-Rube Scholarship
- Goodman Scholarship

Information about these scholarships is available at the following link on the UTHSC webpage:

<http://www.uthsc.edu/allied/documents/Scholarship%20Policies%20and%20Procedures%202009.pdf>

## The Professional Curriculum – M.C.P.

The Master of Cytopathology Practice degree program curriculum consists of 4 semesters. The following is a summary of the courses which are offered annually during the terms indicated.

### FIRST SEMESTER (Fall: Aug-Dec)

Course	Credit Hrs (lec-lab contact)	Instructor
401 MCP Histology	2 (15-45)	Anand Kulkarni
413 MCP Introduction to Pathology (MT413)	1 (20-0)	Cameila Johns
418 MCP Intro to Clin Lab Science (MT418)	1 (20-10)	Linda Ross
440 MCP Microscopic Evaluation I	4 (0-180)	Keisha Brooks
451 MCP Gynecologic Cytopathology	4 (60-0)	Barbara Benstein
470 MCP Lab Techniques I	2 (15-45)	Keisha Brooks
<b>TOTAL</b>	<b>14 hours</b>	

### SECOND SEMESTER (Spring: Jan-June)

427 MCP Cell Biology (MT427)	2 (25-0)	Roderick Hori
420 MCP Histotechnology Theory I	3 (45-0)	Sheila Criswell
435 MCP Histotechnology Practice I	3 (0-135)	Sheila Criswell
471 MCP Lab Techniques II	2 (15-45)	Keisha Brooks
461 MCP Diagnostic Cytopathology	4 (60-0)	Barbara Benstein
481 MCP Microscopic Evaluation II	4 (0-180)	Keisha Brooks
494 MCP Principles of Research	2 (15-45)	Keisha Brooks
<b>TOTAL</b>	<b>20 hours</b>	

### THIRD SEMESTER (Fall: July-Dec)

520 MCP Adv Tech Mol Biol (MT520)	2 (20-0)	Keisha Brooks
551 MCP Statistics	1 (15-0)	Marcia Sharp
552 MCP Histotechnology Theory II	3 (45-0)	Sheila Criswell
565 MCP Histotechnology Practice II	3(0-135)	Sheila Criswell
560 MCP Microscopic Evaluation III	3 (0-135)	Keisha Brooks
575 MCP Advanced Diagnostic Cytopathology	3 (45-0)	Barbara Benstein
590 MCP Histotechnology Practicum	6 (6 weeks)	Barbara Benstein
592 MCP Research Seminar I	1 (0-45)	Keisha Brooks
<b>TOTAL</b>	<b>22 hours</b>	

#### FOURTH SEMESTER (Spring: Jan-May)

Course	Credit Hrs (lec-lab contact)	Instructor
515 MCP Basic Ed & Management (MT515)	2 (25-0)	Linda Ross
581 MCP Microscopic Evaluation IV	4 (0-180)	Barbara Benstein
583 MCP Ethics & Professional Issues	1 (15-0)	Barbara Benstein
593 MCP Research Seminar II	1 (0-45)	Keisha Brooks
597 MCP Cytology Practicum	8 (8 weeks)	Keisha Brooks
<b>TOTAL</b>	<b>16 hours</b>	
<b>Total hours</b>	<b>72 hours</b>	

#### Course Descriptions

**401 MCP Histology (2).** Offered annually fall semester, didactic and laboratory, hybrid course designed to orient the student in tissue structure and function. The characteristics and properties of primary normal human tissues are studied in relation to organ systems. Course Director: *Dr. Anand Kulkarni*

**413 MCP Introduction to Pathology (1).** Offered annually fall semester, didactic, hybrid course designed to orient the student to basic concepts of pathology with emphasis on the relationship of histological, physical and laboratory findings to the pathophysiology of disease. Emphasis is on vocabulary of disease and disease mechanisms. Course Director: *Dr. Cameila Johns*

**418 MCP Introduction to Clinical Laboratory Sciences (1).** Offered annually fall semester, a didactic and laboratory course designed to introduce new laboratory science students to the principles of Standard Precautions and safety in the laboratory, the use of the microscope and identification of basic human cells. Principles of specimen collection, dilution calculations and cell suspensions will also be covered. An introduction to medical terminology, healthcare professions, professional attributes and strategies for student success in the professional programs are discussed. Course Director: *Linda Ross*

**440 MCP Microscopic Evaluation I (4).** Offered every fall semester, a laboratory course in the study, interpretation and diagnosis of gynecologic cytology specimens. Didactic material introduced in 451 MCP, Gynecologic Cytopathology, is reinforced. Course Director: *Keisha Brooks*

**451 MCP Gynecologic Cytopathology (4).** Offered every fall semester, a didactic course in which the cellular morphology of female genital tract material is specifically studied. Normal biologic variations, atypical changes, premalignancy, and types of malignancy are considered in detail. Patient management and follow-up based on cytologic findings is also presented. Course Director: *Dr. Barbara Dubray-Benstein*

**470 MCP Laboratory Techniques I (2).** Offered every fall semester, a didactic and laboratory course which introduces collection, preparation and staining of cytologic specimens from the female genital tract and other body sites. Principles of laboratory safety are emphasized. Course Director: *Keisha Brooks*

**427 MCP Cell Biology (2).** Offered every spring semester, a didactic course which reviews the structure and function of organelles, biosynthetic pathways within the cell, cellular production of energy, and membrane transport systems. Course Director: *Dr. Roderick Hori*

**420 MCP Histotechnology Theory I (3).** Offered every spring semester, a didactic, hybrid course in which the basic principles of tissue grossing, fixation, processing, embedding, microtomy, and routine and histochemical staining are discussed. Areas covered will include demonstration of carbohydrates, connective tissue, amyloid, microorganisms, pigments and minerals, and non-enzyme muscle stains. Course objectives require discussion of quality control, quality assurance and procedure writing. Course Director: *Sheila Criswell*

**435 MCP Histotechnology Practice I (3).** Offered every spring semester, a laboratory course in the practice of tissue and body fluid preparation, fixation of specimens, grossing of specimens, processing and embedding of representative samples, microtomy and routine staining of slides. Also covered are histochemical staining and interpretation of tissue for carbohydrates, connective tissue, amyloid, microorganisms, pigments and minerals, and non-enzyme muscle stains. Didactic material from lecture course in Histotechnology Theory I is reinforced. Course Director: *Sheila Criswell*

**471 MCP Laboratory Techniques II (2).** Offered every spring semester, a continuation of 470 MCP, Laboratory Techniques I, this course is a lecture and laboratory experience in cytopreparation of all types of cytologic specimens. Special emphasis is given to fine needle aspiration material, special stains, techniques of fixation, and cell block preparation. Adjunctive techniques applicable to cytopathology such as immunocytochemistry, FISH, ISH, and HPV DNA testing methods will also be presented. Course Director: *Keisha Brooks*

**461 MCP Diagnostic Cytopathology (4).** Offered every spring semester, a didactic course in which the gross and microscopic anatomy of the major organ systems is presented including the respiratory tract, urinary tract, gastrointestinal system, body cavities and central nervous system. Cytologic material, including fine needle aspirates, from these areas is presented in detail. Emphasis is placed on differential diagnosis of the various non-neoplastic and neoplastic disease processes. Course Director: *Dr. Barbara Dubray-Benstein*

**481 MCP Microscopic Evaluation II (4).** Offered every spring semester, a laboratory course in the study, interpretation and diagnosis of cytologic specimens from the respiratory tract, urinary tract, gastrointestinal tract, central nervous system and body cavity fluids. Didactic material introduced 461 MCP, Diagnostic Cytopathology, is reinforced. Course Director: *Keisha Brooks*

**494 MCP Principles of Research (2).** Offered every spring semester, a didactic and independent study course in which the basic elements of research are presented including literature searches, statistical analysis of data, and scientific writing. Students identify a particular research problem for study, prepare a bibliography, and develop a plan to collect and analyze data. Students are required to prepare a request for approval by the IRB. Students will also review and interpret selected current literature articles and give verbal presentations for discussion. Course Director: *Keisha Brooks*

**520 MCP Advanced Techniques in Molecular Biology (2).** Offered every fall, a didactic and laboratory course. Basic concepts, principles, and applications of technological advancements in laboratory science including genetic technologies, flow cytometry, HLA tissue typing, nucleic acid hybridization and amplification techniques and biosensors. Provides opportunity for students to understand how basic scientific discoveries impact patient diagnosis, treatment and prognosis. Course Director: *Keisha Brooks*

**551 MCP Statistics (1).** Offered every fall, a didactic, on-line course in which students apply statistical analyses to clinical problems. Students will develop an understanding of how descriptive and inferential statistics can be used in research. Students will apply knowledge of statistics in critiquing published articles. Course Director: *Dr. Marcia Sharp*

**552 MCP Histotechnology Theory II (3).** Offered every fall semester, a didactic, hybrid course in which the theory of enzyme histochemistry will be discussed as it relates to muscle disease and the identification of leukemic cells. Immunoenzyme-histochemistry, immunofluorescence, the selection of antibodies, preparation of controls and evaluation of the final results are included. The theory and practice of preparation of samples for examination by electron microscopy will be discussed. Course objectives require discussion of quality control, quality assurance and procedure writing. Course Director: *Sheila Criswell*

**565 MCP Histotechnology Practice II (3).** Offered every fall semester, a laboratory course in which the students perform and evaluate enzyme histochemical stains and immunohistochemical procedures. Preparation of samples for electron microscopy evaluation including sample processing and staining, use of the Ultra Microtome and the use of both Transmission and Scanning Electron Microscopes is included. Didactic material from lecture course Histotechnology Theory II is reinforced. Course Director: *Sheila Criswell*

**560 MCP Microscopic Evaluation III (3).** Offered every fall semester, a laboratory course in the study, interpretation and diagnosis of fine needle aspiration specimens. Didactic material introduced in 575 MCP, Advanced Diagnostic Cytopathology, is reinforced. Course Director: *Keisha Brooks*

**575 MCP Advanced Diagnostic Cytopathology (3).** Offered every fall semester, a didactic course in which the gross and microscopic anatomy of organ sites accessible by fine needle aspiration is presented. Emphasis is placed on the differential diagnostic criteria used to make accurate interpretations in all types of cytologic material. Special stains and other ancillary techniques such as flow cytometry, immunocytochemistry and molecular diagnostics are presented in terms of their efficacy and significance for diagnosis and prognosis. Course Director: *Dr. Barbara Dubray-Benstein*

**590 MCP Histotechnology Practicum (6).** Offered every fall semester, a clinical practice course under supervision in a laboratory setting: where students practice tissue processing, embedding, microtomy, and routine staining; perform and evaluate histochemical stains to demonstrate carbohydrates, amyloid, connective tissue, pigments, microorganisms, and non-enzyme muscle stains. Immunohistochemical procedures are also performed including preparing and selecting appropriate controls and evaluating the results. Students may also receive supervised experience in an electron microscopy laboratory performing specimen processing, preparation of grids, operating TEM and SEM microscopes, and composing micrographs. Course Directors: *Sheila Criswell and Dr. Barbara Dubray-Benstein*

**592 MCP Research Seminar I (1).** Offered every fall semester, an independent research project course. Practicum course in which the student designs, conducts and prepares a report on a research project in the field of cytopathology. Students also participate in discussions of current journal articles and present a known diagnostic case in a continuing education forum. Course Director: *Keisha Brooks*

**515 MCP Basic Education and Management Principles (2).** Offered every spring semester, didactic course. Principles of learning with specific application to the development of instructional objectives, strategies and evaluation for specific teaching-learning situations. Also basic principles of management with particular emphasis on the clinical laboratory. Includes the basic management process, personnel supervision, identification and allocation of resources and simulated problem solving. Provides practical application of management principles under the supervision of local laboratory managers. Course Director: *Linda Ross*

**581 MCP Microscopic Evaluation IV (4).** Offered every spring semester, a laboratory course in the study, interpretation and diagnosis of all types of cytologic specimens. Students continue to synthesize didactic material from courses 451 MCP, 461 MCP and 575 MCP and utilize it in terms of microscopic evaluation. Emphasis is placed on sensitivity and specificity of diagnosis while developing proficiency in microscopic analysis of routine cytologic case material in preparation for off-site clinical rotations. Course Director: *Dr. Barbara Dubray-Benstein*

**583 MCP Ethics and Professional Issue (1).** Offered every spring semester, didactic course. A course in professional and ethical issues as they relate to the practice of cytopathology and molecular pathology. Current laboratory regulations, medical-legal issues and other special topics are discussed. Course Director: *Dr. Barbara Dubray-Benstein*

**593 MCP Research Seminar II (1).** Offered every spring semester, an independent research project course. Presentation of a research project and submission of a written scientific paper. Students are expected to present their research data in the form of an abstract or poster at a state/regional or national meeting and/or submit their paper for publication in an appropriate scientific journal. Students also participate in discussions of current journal articles and present an unknown diagnostic case in a continuing education forum. Course Director: *Keisha Brooks*

**597 MCP Cytology Practicum (8).** Offered every spring semester, clinical practice course. Clinical experience under supervision in a cytopathology laboratory setting. Students perform microscopic evaluation of all types of cytologic material with efficiency and an emphasis on accuracy of interpretation. Course Director: *Keisha Brooks*

## Attendance Requirement

Cytopathology practice students are expected to attend all scheduled classes, student labs, and clinical lab assignments. In the case of absence due to illness or emergency, the student should notify the cytopathology practice office and clinical site no later than 8:30AM of the day missed. For any other absences, prior arrangements must be made with the specific instructor(s) involved. Appointments for health services should not be made during scheduled class time.

## Clinical Affiliations

Clinical affiliation sites are located in Memphis, throughout Tennessee, and in other states. Due to the limited number of clinical sites in Memphis, it is necessary for students to accept the financial impact of traveling and living out of town for a portion of their clinical assignments.

## Grading Policy

Written and practical examinations and performance evaluations are a part of the educational program throughout the curriculum. All courses in each semester must be passed before the student is allowed to progress to the next semester. No credit for any course is awarded until the end of the semester. The point-grade conversion scale used by the cytopathology program for all courses, *except* clinical practice courses is as follows:

95 – 100 = A  
85 – 94 = B  
75 – 84 = C  
65 – 74 = D  
Below 65 = F

The grading scale for all *clinical practice* courses is as follows:

95 – 100 = A  
85 – 94 = B  
80 – 85 = C  
75 – 79 = D  
Below 75 = F

## Progress and Promotion

Students must maintain a GPA of 3.0 on a 4.0 scale in order to progress to the next semester in good standing. Any student who earns a grade of C or less in any course or whose GPA falls below a 3.0 may be placed on academic probation or dismissed. Using the guidelines outlined for progress and promotion under the General Information section in the present document/catalog, the student will be carefully evaluated by the Progress and Promotions Committee of the program to determine the course of action which is best for the student and for the program.

## Requirements for Graduation – M.C.P.

The following requirements must be satisfied to earn the degree of Master of Cytopathology Practice:

1. Satisfactory completion of 72 semester credit hours of core course requirements.
2. Obtain a minimum GPA of 3.0
3. Satisfactory completion of a research project and presentation are required prior to graduation.
4. Satisfactory score on written and visual comprehensive examination.
5. Successful students will complete the program in May and will be eligible to take national certification examinations and apply for a Tennessee license to practice in the state.
6. Students must discharge all financial obligations to the University and remove all deficiencies documented by the Registrar.

Attendance at graduation is mandatory. Those unable to attend the commencement must obtain permission to receive the degree in absentia by filing a written request with the Dean of the College.

## Awards

The two awards given to students in the Master of Cytopathology Practice degree program are named for former faculty members who provided distinguished service to the University.

- **Cyrus C. Erickson Award in Cytotechnology:** This award is presented to a graduating student by the cytotechnology faculty in recognition of professional ability, intellectual curiosity and a sense of responsibility.
- **Gerre Wells Gourley Award in Histotechnology:** This award is presented to a graduating student in recognition of professional attitude, knowledge and technical skill.

## Certification Examination and Licensure

Graduates with a master of cytopathology practice degree qualify to sit for the national certification examinations in cytotechnology and histotechnology administered by the Board of Certification (BOC) of the American Society for Clinical Pathology (ASCP). The examinations are year-round in major cities throughout the United States. Graduates who successfully complete the examination are entitled to use the designation CT (ASCP) and/or HTL (ASCP). After certification in cytotechnology or histotechnology, graduates are also eligible for certification in molecular pathology, MP (ASCP). Graduates in the program seeking employment in the field of cytotechnology in the state of Tennessee must also obtain a license to practice from the Tennessee Medical Laboratory Board. A passing score on the ASCP certification exam is required for licensure in Tennessee.

## Accreditation

The UTHSC Program in Cytopathology Practice is accredited by the Cytotechnology Programs Review Committee in cooperation with the Commission on Accreditation of Allied Health Education Programs (CAAHEP), 1361 Park Street, Clearwater, FL 33756; (727) 210-2350; [www.caahep.org](http://www.caahep.org). It has also received initial accreditation from the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 5600 N. River Road, Suite 720, Rosemont, IL 60018-5119; (773) 714-8880; [www.naacls.org](http://www.naacls.org).

## Student Professional Organization Membership

Cytopathology practice students are eligible for student membership in a number of professional associations including the American Society of Cytopathology, the American Society for Cytotechnology, the National Society for Histotechnology and the American Society of Clinical Pathology. Students are encouraged to apply for membership in one or more regional or national professional organizations.

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## MASTER OF SCIENCE IN CLINICAL LABORATORY SCIENCES - ADVANCED PRACTICE TRACK (M.S.C.L.S.)

Kathy Kenwright, M.S., Program Director  
Sherri D. Flax, M.D., Medical Advisor

## Program Objectives

The College of Allied Health Sciences offers a Master of Science degree in Clinical Laboratory Science designed for students who have earned a B.S. degree in biology or chemistry and desire to enter a career in the clinical laboratory. The program provides the necessary educational experiences for the student to qualify for certification as a medical technologist/clinical laboratory scientist by national examination and to apply for a Tennessee license to practice as a clinical laboratory professional. Graduates achieve entry-level competency in laboratory sciences as well as acquire additional, graduate-level skills in problem solving, management, communication and clinical correlation.



## Curriculum Description

The program is a full-time, 24 month advanced practice course of study which begins in September of each year. Students earn a B.S. degree in biology or chemistry at other colleges or universities and then complete two years of professional coursework on the campus of the University of Tennessee Health Science Center. Master's level courses, taken with the B.S. in Medical Laboratory Science students, have higher level course learning objectives to improve the learner's critical thinking and problem solving skills. To achieve these objectives, graduate students will have additional assignments in each course including clinical rotations. These assignments will include but are not limited to additional reading assignments, essay test questions, journal critiques, case study presentations, research papers and independent learning assignments.

During the spring semester of the second year, graduate students will begin mentored work with a faculty mentor on a Master's Level Research Project which will be written in a format suitable for publication in a clinical journal. Projects will be presented to faculty and students upon completion.

## Admissions Requirements

### Advance Practice Track

1. An earned B.S. degree in biology, chemistry, microbiology or other science from an accredited university.
2. In addition to their B.S. degree requirements, qualified students must have successfully completed with a "C" or better the specific pre-requisite courses required for medical technology.
3. Submit a satisfactory score on the Graduate Record Exam (GRE).
4. Meet faculty expectations on the student professional performance evaluation.
5. Students must complete forty-four (44) semester hours of the undergraduate professional courses (the first year of the B.S. in Medical Technology) with a cumulative GPA of 3.0 or higher on a 4.0 scale.
6. Foreign applicants whose native language is not English must submit the results of TOEFL, with a minimum score of 550 on the written test or 213 on the computer test.
7. Students must submit a letter of intent to The Admissions Committee of the Department of Clinical Laboratory Sciences in the Spring of the first year of the program.
8. Graduate applicants will be notified by the Dean of the College of Allied Health Sciences in May advising them of their admission status. Master's level course work begins in the second fall term.

**Students must apply to the B.S. in Medical Laboratory Science program. Applications are accepted online at <http://www.uthsc.edu/admissions/>**

## Health Requirements

In addition to general University of Tennessee Health Science Center requirements, Medical Laboratory Science students are required to have an annual skin test for tuberculosis and to be immunized against *Neisseria meningitidis* and the Hepatitis B virus. Information about fulfilling these requirements is provided during orientation.

## Technical Standards

Medical Laboratory Science students must have or must be able to acquire certain essential skills, functions and professional attitudes and behavior as described for the College and the Program in order to progress through the curriculum and to graduate. A description of the technical standards for students in the College of Allied Health Sciences and the Medical Laboratory Science degree program can be found at: [http://www.uthsc.edu/allied/mt/mt\\_tech.php#tech2](http://www.uthsc.edu/allied/mt/mt_tech.php#tech2)

## Scholarships

The following scholarships are available to students entering the Medical Laboratory Science program:

- UTNAA Scholarship
- Chancellor's Scholarship
- Ann Bell Scholarship
- Elam Scholarship
- Elizabeth Club Scholarship

Information about these scholarships is available at the following link on the UTHSC webpage:  
<http://www.uthsc.edu/allied/documents/Scholarship%20Policies%20and%20Procedures%202009.pdf>

Students wishing to be considered should complete the scholarship application and return it to the program director. <http://www.uthsc.edu/finaid/AlliedHealthScholarshipApplication.pdf>

### The Professional Curriculum – M.S.C.L.S.

The Master of Science in Clinical Laboratory Sciences degree program consists of 5 semesters. The following is a summary of the courses which are offered annually during the terms indicated. Students move through this program in a cohort.

#### FIRST SEMESTER (Fall: Aug- Dec)

Course	Credit (lec-lab contact) Hours	Instructor
MT 411 Biochemistry	3 (40-0)	John Fain
MT 412 Clinical Analysis	3 (40-40)	Kevin McHugh
MT 413 Introduction to Pathology	1 (20-0)	Camelia Johns
MT 415 Urinalysis	2 (20-20)	LeiLani Collins
MT 418 Intro to Clinical Lab Science	1 (20-20)	Linda Ross
MT 423 Immunology	1 (20-0)	Patty Liddell
MT 414 Parasitology	2 (20-20)	Linda Pifer
MT 425 Urinalysis: Clinical Practicum	1 (1 week)	LeiLani Collins
<b>TOTAL</b>	<b>14 hours</b>	

#### SECOND SEMESTER (Spring: Jan – May)

##### Winter Term

MT 421 Human Genetics	1 (20-0)	Linda Pifer
MT 426 Basic Microbiology	2 (20-30)	Linda Pifer
MT 427 Cell Biology	2 (25-0)	Roderick Hori
MT 434 Clinical Immunology I	2 (20-40)	Thomas Williamson
MT 422 Clinical Chemistry I	3 (30-40)	Kevin McHugh

##### Spring Term

MT 431 Hematology I	3 (30-60)	LeiLani Collins
MT 432 Clinical Microbiology I	4 (30-80)	Linda Ross
MT 433 Clinical Chemistry II	3 (30-40)	Kathleen Kenwright
<b>TOTAL</b>	<b>20 hours</b>	

#### THIRD SEMESTER (Fall: July – Dec)

##### Summer Term

MT 441 Hematology II: Clinical Practicum	2 (2 weeks)	LeiLani Collins
MT 442 Microbiology II: Clinical Practicum	2 (3 weeks)	Linda Ross
MT 443 Chemistry III: Clinical Practicum	2 (2 weeks)	Kathleen Kenwright
MT 444 Immunology II: Clinical Practicum	1 (1 week)	Thomas Williamson
MT 519 Virology	1 (15-0)	Linda Pifer
MT 520 Adv. Tech in Molecular Biology	2 (20-40)	Keisha Brooks

**Fall Term**

MT 611 Hematology III	4 (40-60)	LeiLani Collins
MT 613 Clinical Chemistry IV	3 (30-40)	Kathleen Kenwright
MT 612 Blood Bank I	5 (60-40)	Thomas Williamson
MT 632 Clinical Microbiology III	2 (20-20)	Linda Ross
CLS 601 Research Design	2 (20-0)	Linda Pifer
<b>TOTAL</b>	<b>26 hours</b>	

**FOURTH SEMESTER (Spring: Jan – May)**

CLS 602 Educ & Training Theory & Methods	2 (25-0)	Linda Ross
CLS 604 Current Issues in Clin Lab Sci	2 (20-0)	Linda Ross
CLS 701 Princ of Lab Management	2 (3 weeks)	Linda Ross
MT 621 Hematology IV: Clin Practicum	3 (3 weeks)	LeiLani Collins
MT 623 Clinical Chemistry V: Clin Practicum	2 (2 weeks)	Kathleen Kenwright
MT 642 Microbiology IV: Clin Practicum	2 (2 weeks)	Linda Ross
MT 644 Blood Bank II: Clin Practicum	4 (4 weeks)	Thomas Williamson
<b>TOTAL</b>	<b>17 hours</b>	

**FIFTH SEMESTER (Fall: July – Dec)**

CLS 795 Adv. Mol Tech: Clin Practicum	2 (20-0)	LeiLani Collins
CLS 798 Research Practicum	2 (3 weeks)	Linda Pifer
CLS 796 Master's Project	3 (4 weeks)	Linda Pifer
CLS 797 Master's Project	3 (4weeks)	Linda Pifer
<b>TOTAL</b>	<b>10 hours</b>	

**Course Descriptions**

**411 MT Biochemistry (3).** Offered annually fall semester, didactic course. The biosynthesis and metabolism of carbohydrates, lipids, proteins, and amino acids and basics of enzymology. DNA replication and RNA synthesis. Course Director: *Dr. John Fain*

**412 MT Clinical Analysis (3).** Offered annually fall semester, didactic and laboratory course. Principles involved in preparing various types of solutions and dilutions used in the clinical laboratory. Also laboratory safety, and organic chemistry review. Basic principles of spectrophotometry, chromatography, electrochemistry and radioisotopes. Principles of enzyme kinetics, pH and buffer systems. Laboratory exercises support lecture material. Course Director: *Kevin McHugh*

**413 MT Introduction to Pathology (1).** Offered annually fall semester, didactic hybrid course. Basic concepts of pathology with emphasis on the relationship of historical, physical and laboratory findings to the patho-physiology of disease. Emphasizes vocabulary of disease and disease mechanisms. Course Director: *Dr. Cameila Johns*

**414 MT Parasitology (2).** Offered annually fall semester, didactic and laboratory course. Lecture and laboratory exercises emphasizing classification and identification of parasites of medical importance including morphology of infective and diagnostic forms. Also included will be consideration of arthropod vectors, laboratory quality control and proper specimen collection and handling. Course Director: *Dr. Linda Pifer*

**415 MT Urinalysis (2).** Offered annually fall semester, didactic and laboratory course. Didactic presentations and laboratory experience in the examination of urines. This includes quality control, renal physiology and the pathology of kidney abnormalities. Practical clinical experience under supervision in all areas of the foregoing. Course Director: *LeiLani Collins*

**425 MT Urinalysis Clinical Practicum (1).** Offered annually fall semester, clinical practice. Practical clinical laboratory experience under supervision in the examination of urines. This includes quality control, renal physiology and the pathology of kidney abnormalities. Course Director: *LeiLani Collins*

**418 MT Introduction to Clinical Laboratory Sciences (1).** Offered annually fall semester, didactic and laboratory course. A lecture and laboratory course designed to introduce new laboratory science students to the principles of Standard Precautions and safety in the laboratory, the use of the microscope and identification of basic human cells. Principles of specimen collection, dilution calculations and cell suspensions will also be covered. An introduction to medical terminology, healthcare professions, professional attributes and strategies for student success in the professional programs are discussed. Course Director: *Linda Ross*

**421 MT Human Genetics (1).** Offered annually spring semester, didactic course. A study of the mechanisms underlying human genetics and their medical applications. Discussions will emphasize the fundamental concepts of genetics; the structure and function of genes, chromosomes, DNA and RNA; replication; transmission, and recombination; and the frequency of given genes in the population. A variety of genetic aberrations will be discussed in relationship to the more common medical phenomena. Course Director: *Dr. Linda Pifer*

**423 MT Immunology (1).** Offered annually spring semester, didactic and laboratory course. A study of basic principles pertaining to the immune response. Includes the in vivo mechanisms underlying response to infectious agents, alteration of immunity, aberrant immunity, tumor immunity, hypersensitivity and structures and functions of antigens and antibodies. An introduction to diagnostic testing concepts is also included. Course Director: *Patty Liddell*

**426 MT Basic Microbiology (2).** Offered annually spring semester, didactic and laboratory course. Principles of microbial physiology and genetics, microbial growth and nutrition and sterilization and disinfection. Mechanisms of disease production, antibiotic action and laboratory exercises in isolation and morphologic study of selected pathogens. Course Director: *Dr. Linda Pifer*

**427 MT Cell Biology (2).** Offered annually spring semester, didactic course. A study of the structure and function of organelles, biosynthetic pathways within the cell, cellular production of energy, and membrane transport systems. Course Director: *Dr. Roderick Hori*

**431 MT Hematology I (3).** Offered annually spring semester, didactic and laboratory course covering principles of hematopoiesis, normal and abnormal blood cell physiology, function and morphology, principles of normal and abnormal hemostasis, routine and special laboratory techniques in hematology and coagulation, correlation of disease states with laboratory results, and quality control. Course Director: *LeiLani Collins*

**441 MT Hematology II: Clinical Practicum (2).** Offered annually fall semester. Clinical practice experience under supervision including application of appropriate knowledge and skills in a service laboratory setting. Course Director: *LeiLani Collins*

**611 MT Hematology III (4).** Offered annually fall semester, a didactic and laboratory course covering principles of hematopoiesis, normal and abnormal blood cell physiology, function and morphology, principles of normal and abnormal hemostasis, routine and special laboratory techniques in hematology and coagulation, correlation of disease states with laboratory results, and quality control. Graduate students will have additional assignments which may include but are not limited to: additional reading assignments, essay test questions, journal critiques, case studies, presentations, research papers and independent learning assignments. Prerequisites: 431 MT, Hematology I, and 441 MT, Hematology II; Students must be admitted to the graduate program in Clinical Laboratory Sciences. Course Director: *LeiLani Collins*

**621 MT Hematology IV: Clinical Practicum (3).** Offered annually spring semester. Clinical practice experience under supervision including application of appropriate knowledge and skills in a service laboratory setting. Graduate students will have additional assignments which may include but are not limited to: additional reading assignments, essay test questions, journal critiques, case studies, presentations, research papers and independent learning assignments. Prerequisites: 431 MT Hematology I, 441 MT Hematology II, and 511 MT Hematology III. Students must be admitted to the graduate program in Clinical Laboratory Sciences. Course Director: *LeiLani Collins*

**432 MT Clinical Microbiology I (4).** Offered annually spring semester. Didactic and laboratory course in clinical microbiology and mycology with emphasis on the isolation, identification and antibiotic sensitivity testing, where appropriate, of human pathogenic microorganisms. Included are pathogenesis and pathophysiology of infectious disease as well as epidemiology and quality assurance. Course Director: *Linda Ross*

**442 MT Clinical Microbiology II (2).** Offered annually fall semester. Clinical practice course including practical application of clinical microbiology and mycology principles in a service laboratory setting under supervision. Course Director: *Linda Ross*

**632 MT Clinical Microbiology III (2).** Offered annually fall semester. Didactic and laboratory course in clinical microbiology and mycology with emphasis on the isolation, identification and antibiotic sensitivity testing, where appropriate, of human pathogenic microorganisms. Included are pathogenesis and pathophysiology of infectious disease as well as epidemiology and quality assurance. Graduate students will have additional assignments which may include but are not limited to: additional reading assignments, essay test questions, journal critiques, case studies, presentations, research papers and independent learning assignments. Prerequisites: 432 MT, Clinical Microbiology I, and 442 MT, Clinical Microbiology II. Students must be admitted to the graduate program in Clinical Laboratory Sciences. Course Director: *Linda Ross*

**642 MT Clinical Microbiology IV: Clinical Practicum (2).** Offered annually spring semester. Clinical practice courses including practical application of clinical microbiology and mycology principles in a service laboratory setting under supervision. Graduate students will have additional assignments which may include but are not limited to: additional reading assignments, essay test questions, journal critiques, case studies, presentations, research papers and independent learning assignments. Prerequisites: 432 MT, Clinical Microbiology I, 442 MT, Clinical Microbiology II, and 632 MT, Clinical Microbiology III. Students must be admitted to the graduate program in Clinical Laboratory Sciences. Course Director: *Linda Ross*

**422 MT Clinical Chemistry I (3).** Offered annually spring semester. Didactic and laboratory course including basic concepts of laboratory instrumentation, troubleshooting techniques, operation, evaluation, and selection of instruments. Lectures and assigned readings emphasizing chemical measurements of physiological indicators of normal and abnormal human metabolism. Correlation of laboratory generated data with the available clinical information. Laboratory experience in determining constituents of body fluids, principles of chemical analysis, use and care of equipment and identification of sources of error. Course Director: *Kevin McHugh*

**433 MT Clinical Chemistry II (3).** Offered annually spring semester. Didactic and laboratory course including basic concepts of laboratory instrumentation, troubleshooting techniques, operation, evaluation, and selection of instruments. Lectures and assigned readings emphasizing chemical measurements of physiological indicators of normal and abnormal human metabolism. Correlation of laboratory generated data with the available clinical information. Laboratory experience in determining constituents of body fluids, principles of chemical analysis, use and care of equipment and identification of sources of error. Course Director: *Kathleen Kenwright*

**443 MT Clinical Chemistry III (2).** Offered annually fall semester. Clinical practice experience under supervision in a service laboratory setting. Course Director: *Kathleen Kenwright*

**613 MT Clinical Chemistry IV (3).** Offered annually fall semester. Didactic and laboratory course including basic concepts of laboratory instrumentation, troubleshooting techniques, operation, evaluation, and selection of instruments. Lectures and assigned readings emphasizing chemical measurements of physiological indicators of normal and abnormal human metabolism. Correlation of laboratory generated data with the available clinical information. Laboratory experience in determining constituents of body fluids, principles of chemical analysis, use and care of equipment and identification of sources of error. Graduate students will have additional assignments which may include but are not limited to: additional reading assignments, essay test questions, journal critiques, case studies, presentations, research papers and independent learning assignments. Prerequisites: 412 MT Clinical Analysis, 422 MT Clinical Chemistry I, 433 MT Clinical Chemistry II, and 443 MT Clinical Chemistry III. Students must be admitted to the graduate program in Clinical Laboratory Sciences. Course Director: *Kathleen Kenwright*

**623 MT Clinical Chemistry V: Clinical Practicum (2).** Offered annually spring semester. Clinical practice experience under supervision in a service laboratory setting. Graduate students will have additional assignments which may include but are not limited to: additional reading assignments, essay test questions, journal critiques, case studies, presentations, research papers and independent learning assignments. Prerequisites: 412 MT Clinical Analysis, 422 MT Clinical Chemistry I, 433 MT Clinical Chemistry II, 443 MT Clinical Chemistry III and 613 MT Clinical Chemistry IV. Students must be admitted to the graduate program in Clinical Laboratory Sciences program. Course Director: *Kathleen Kenwright*

**434 MT Clinical Immunology I (2).** Offered annually spring semester, didactic and laboratory course. A study of the immunologic and physiologic principles on which diagnostic immunology/serology is based, including both theoretical and practical application of these principles to the analysis of body fluids for the assessment of various disease states. Course Director: *Thomas Williamson*

**444 MT Immunology/Serology II: Clinical Practicum (1).** Offered annually fall semester: Clinical practice under supervision in a service laboratory where emphasis is placed on technical proficiency. Course Director: *Thomas Williamson*

**519 MT Virology (1).** Offered fall semester, didactic course. The nature, classification, physiochemical properties, multiplication, host cell relationships and immunology of viruses of human importance. Transmission, pathogenesis and all current techniques of laboratory diagnosis will also be discussed. Course Director: *Dr. Linda Pifer*

**520 MT Advanced Techniques in Molecular Biology (2).** Offered fall semester, didactic and laboratory course. Lectures and laboratory exercises in basic concepts, principles, and applications of technological advancements in laboratory science including genetic technologies, flow cytometry, HLA tissue typing, nucleic acid hybridization and amplification techniques, and biosensors. Provides opportunity for students to understand how basic scientific discoveries impact patient diagnosis, treatment, and prognosis. Course Director: *Keisha Brooks*

**601 CLS Research Design (2).** Offered fall semester, didactic course. The methodology involved in planning, conducting, analyzing, and reporting research associated with clinical laboratory data. General discussion of the research process followed by examination of several different research methods. Course Director: *Dr. Linda Pifer*

**602 CLS Education and Training Theory and Methods (2).** Offered annually spring semester, didactic course. Introduction to educational theory as it applies to health care, with emphasis on the development and management of instructional and training programs in the clinical laboratory setting. Includes development of legally required competency assessment programs for practitioners. Course Director: *Linda Ross*

**604 CLS Current Issues in Clinical Laboratory Sciences (2).** Offered annually spring semester, didactic course. Seminar for the discussion of issues affecting clinical laboratory scientists. Course Director: *Linda Ross*

**612 MT Blood Banking I (5).** Offered annually fall semester, didactic and laboratory course. Theories of immunohematology with application to clinical blood banking. Includes theoretical and technical considerations of blood groups, serological procedures, transfusion therapy, related pathologic mechanisms and the production of blood products. Problem solving experience related to these concepts is provided. Graduate students will have additional assignments which may include but are not limited to: additional reading assignments, essay test questions, journal critiques, case studies, presentations, research papers and independent learning assignments. Prerequisites: Students must be admitted to the graduate program in Clinical Laboratory Sciences. Course Director: *Thomas Williamson*

**644 MT Blood Banking II: Clinical Practicum (4).** Offered annually spring semester. Clinical practice experience under supervision in a service laboratory where emphasis is placed on technical proficiency. Graduate students will have additional assignments which may include but are not limited to: additional reading assignments, essay test questions, journal critiques, case studies, presentations, research papers and independent learning assignments. Prerequisite MT 612 Blood Bank. Students must be admitted to the graduate program in Clinical Laboratory Sciences program. Course Director: *Thomas Williamson*

**701 CLS Principles of Laboratory Management I (2).** Offered annually spring semester, didactic course. Introduction to laboratory administration with emphasis on human resources management. Leadership styles, communications and interviewing skills, employee selection and evaluation, motivation, morale, discipline and personnel planning. Includes record keeping, budgets, costs accounting, purchasing, product evaluation, lab safety and regulatory issues. Course Director: *Linda Ross*

**795 CLS Advanced Molecular Techniques (2).** Offered annually fall semester, clinical practice. Students spend two weeks on site in a clinical laboratory which employs molecular techniques. Experiences vary according to site and include techniques such as flow cytometry, HLA tissue typing, molecular pathology, genetics or microbiology, electron microscopy, or cytogenetics. Objectives to be met will be mutually set by student and faculty. Course Director: *LeiLani Collins*

**796 CLS Master's Project I (3).** Offered every semester, independent project. First part in planning and conducting the required master's degree research project. Students are expected to begin formulation of their research questions and to complete their review of the literature and to begin and complete the data collection phase of their research. Student projects are designed in various areas of the clinical laboratories and focus on clinical testing, management and supervision issues. Students are required to formally present the results of their projects to the faculty and student body, and are encouraged to publish their results. Course Director: *Dr. Linda Pifer*

**797 CLS Master's Project II (3).** Offered every semester, independent project. Continuation of CLS 796, Master's Project I. During this phase the research report is completed and the final defense of the project takes place. Student projects are designed in various areas of the clinical laboratories and focus on clinical testing, management and supervision issues. Students are required to formally present the results of their projects to the faculty and student body, and are encouraged to publish their results. Course Director: *Dr. Linda Pifer*

**798 CLS Research Practicum (2).** Offered annually fall semester, clinical practice. Supervised clinical experience with a laboratory manager, clinical laboratory science educator or laboratory utilization specialist to permit application of knowledge and skills gained in the curriculum to the clinical laboratory and other affected disciplines. Course Director: *Dr. Linda Pifer*

### **Attendance Requirement**

Medical technology students are expected to attend all scheduled classes, student labs, and clinical lab assignments. In the case of absence due to illness or emergency, the student must notify the medical technology office and clinical site no later than 8:30AM of the day missed. For any other absences, prior arrangements must be made with the specific instructor(s) involved. Makeup tests, missed lectures, or laboratory sessions should be coordinated with the course director. Appointments for health services should not be made during scheduled class time.

## Clinical Affiliations

Clinical affiliation sites are located in Memphis and throughout Tennessee. Due to the limited number of clinical sites in Memphis, it may become necessary for students to accept the financial impact of traveling and living out of town for a portion of their clinical assignments.

## Grading Policy

Written and practical examinations and performance evaluations are a part of the educational program throughout the curriculum. All courses in each semester must be passed before the student is allowed to progress to the next semester. No credit for any course is awarded until the end of the semester. The point-grade conversion scale used by the medical technology program for all courses is as follows:

95 – 100	= A
86 – 94	= B
80 – 85	= C
75-79	= D
Below 75	= F

## Progress and Promotion

Graduate students must maintain a cumulative GPA of 3.0 on a 4.0 scale and meet all professional/ethical standards in order to progress to the next semester in good standing. Academic probation and/or dismissal from the program may result if the GPA falls below 3.0. Using the guidelines outlined for progress and promotion under the General Information section in the present document/catalog, the student will be carefully evaluated to determine the course of action which is best for the student and the program.

## Requirements for Graduation – M.S.C.L.S.

The following requirements must be satisfied to earn the degree of Master of Science in Clinical Laboratory Science Advanced Practice Track.

1. Satisfactory completion of 44 credit hours at the baccalaureate level and 43 credit hours of work at the Master of Science level.
2. Students must complete all courses and maintain a minimum GPA of 3.0.
3. Satisfactory completion of a research project and presentation are required prior to graduation.
4. Students must file an application for admission to candidacy when the conditions listed above have been fulfilled and the final draft of the master's project has been approved by the research mentor and faculty.
5. Successful graduate students will complete the program in late August and will be eligible to take national certification examinations and apply for a Tennessee license to practice in the state. Graduation will be held in December of the second year.
6. Students must discharge all financial obligations to the University and remove all deficiencies documented by the Registrar.

Attendance at graduation is mandatory. Those unable to attend the commencement must obtain permission to receive the degree in absentia by filing a written request with the Dean of the College.

## Awards

### **Brenta G. Davis Outstanding Clinical Laboratory Science Graduate Student Award**

This award will be presented to a graduate of the Master of Science in Clinical Laboratory Science program who demonstrates scholarship, character and dedication to the highest ethical and professional standards. The recipient of the award will be chosen by the didactic faculty. The award will not necessarily be presented each year.



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## POST-PROFESSIONAL MASTER OF SCIENCE IN CLINICAL LABORATORY SCIENCES (M.S.C.L.S.)

***This program is not accepting applications for admission at this time***

The College of Allied Health Sciences offers a graduate program leading to a Master of Science in Clinical Laboratory Sciences (MSCLS) degree available to certified medical technologists, histotechnologists and cytotechnologists. The program provides the opportunity to:

1. understand and manage the effects of managed care without sacrificing quality;
2. develop skill in teaching student and laboratory personnel; and,
3. strengthen expertise in administration, federal and state laws regulating the laboratory, and financial issues affecting the laboratory. All students are required to enroll in a core curriculum of research, education, and regulatory courses. Medical technologists, histotechnologists and cytotechnologists may specialize in the management track; however, only medical technologists are accepted for the laboratory utilization track.

The Graduate Program in Clinical Laboratory Sciences is designed for both full-time and part-time students. Students must have a written plan for completion of the program requirements approved by the Director of the Graduate Program. All degree requirements for the Master of Science in Clinical Laboratory Sciences (MSCLS) must be completed within five years of the date of initial enrollment. A master's thesis and a practicum must be completed prior to graduation. The minimum credit hours required for graduation is 36 semester hours.

### Required Textbooks

Required textbooks are available at the UTHSC Bookstore. <http://www.uthsc.edu/purchasing/bookstore.php>.

### Technology Requirements

#### **Minimum Hardware Requirements**

**Processor:** 3.00 GHz (or higher) Pentium IV processor (or similar-type of processor, including Celeron and others)

**Processor Speed:** 1.5GHz or faster

**Operating System:** Windows XP Professional, not home edition. **Note:** Some of the software that is used in the courses will not work with the VISTA operating system.

**RAM/Memory:** At least 1GB RAM **Hard Disk Capacity:** At least 40GB or higher

**Monitor:** At least 15" color high resolution, multiscan color monitor (17" is preferred)

**Audio/Sound card:** 16 bit sound card (required for both audio and video support)

**Multimedia capabilities:** Video & audio (speakers and microphone, preferably headset); and PC-type camera/webcam (any brand with USB connector)

**Minimum Software Requirements:** Microsoft Office 2003 (will need Compatibility Pack available at Helpdesk website) or 2007 Professional Edition which includes the following programs:

- **Word** for word processing
- **Excel** for spreadsheets
- **PowerPoint** for presentations
- **Access** for database management
- **Outlook** for email, calendar, contact management, and tasks

### Curriculum Summary

#### **Core Courses (16 SH required)**

	<b>Semester Hours</b>
CLS601 Research Design	2
CLS602 Education and Training Theory and Methods	2
CLS603 Biostatistics in the Health Sciences	3
CLS604 Current Issues in CLS	2
CLS798 Research Practicum	3
CLS799 Thesis	4

<b>Management Track (11 SH required)</b>	<b>Semester Hours</b>
CLS701 Principles of Laboratory Management I	2
CLS702 Principles of Laboratory Management II	3
CLS703 Financial Principles & Methods for the Clinical Laboratory	3
CLS705 Health Information Systems	3
<b>Laboratory Utilization Track (13 SH required)</b>	<b>Semester Hours</b>
CLS720 Laboratory Utilization I	2
CLS721 Laboratory Utilization II	3
CLS722 Laboratory Utilization III	3
CLS723 Integrating the Laboratory Across Clinical Disciplines	2
CLS724 Quality Assurance and Outcomes Assessment	3
<b>Electives</b>	<b>Semester Hours</b>
CLS 605 Legal and Regulatory Issues and the Clin Lab	2
CLS 610 Computer and Network Techn in Lab Med	2
CLS 612 Sci Writing, Contract Dev and Grantsmanship	2
CLS 613 Adv in Clin Lab Sci and Technology	3
CLS 614 Health Care Ethics (U of M HADM 7107)	2
CLS 615 Medical Sociology (U of M SOCI 7851)	3
CLS 704 Health Care Marketing	3
CLS 710 Health Care Economics (U of Memphis ECON 7710)	3
CLS 711 Health Care Politics and Policy (U of M HADM 7110)	3
CLS 712 Epidemiology	3
CLS 713 Negotiation Strategies (U of M MKTG 7510)	3
CLS 714 Market Driven Quality (U of M MKTG 7511)	3
CLS 725 Strategies for Health Policy Formation and Planning	3
CLS 800 Special Topics in Clinical Laboratory Science	1-4
TBA Healthcare Leadership	3
MDH 700 DH Education: Admin, Planning and Organization	3
MHIM 605 Healthcare Information Systems	3
MHIM 610 Issues in Health Information Technology Seminar	3

*Other courses through the University of Memphis College of Education in Instruction and Curriculum Leadership, Instructional Design and Technology, Educational Psychology and Research, Leadership or Higher and Adult Education as approved by the Program Director.*

## **Course Descriptions**

### **Core Courses (offered annually)**

**CLS 601 Research Design (2).** Offered annually fall semester, didactic, on-line. The methodology involved in planning, conducting, analyzing, and reporting research associated with clinical laboratory data. General discussion of the research process followed by examination of several different research methods. Course Director: *Dr. Linda Pifer*

**CLS 602 Education and Training Theory and Methods (2).** Offered annually every semester, didactic, hybrid. Introduction to educational theory as it applies to health care, with emphasis on the development and management of instructional and training programs in the clinical laboratory setting. Includes development of legally required competency assessment programs for practitioners. Course Director: *Linda Ross*

**CLS 603 Biostatistics in Clinical Laboratory Sciences (3).** Offered annually fall semester, didactic, on-line. Statistical treatment of data from clinical research. Tabular, graphical, and numerical descriptive methods; random sampling; principles of statistical inference; confidence intervals; statistical tests of hypothesis using t and chi-square distributions. Interpreting of statistical analyses in clinical literature. Course Director: *Dr. Thomas Cox*

**CLS 604 Current Issues in Clinical Laboratory Sciences (2).** Offered annually every semester, didactic, on-line. Seminar for the discussion of issues affecting clinical laboratory scientists. Course Director: *Linda Ross*

**CLS 798 Research Practicum (3).** Offered annually every semester, clinical practice. Supervised clinical experience with a laboratory manager or laboratory utilization specialist to permit application of knowledge and skills gained in the curriculum to the clinical laboratory and other affected disciplines. Course Director: *Dr. Linda Pifer*

**CLS 799 Thesis (4).** Offered annually every semester, independent project. Consideration of all facets related to the investigative process; formulation of a problem, search and analysis of the literature, procedure for collecting data, analysis of data, and organization of thesis proposals and thesis. The student is required to present and obtain committee approval of the proposal prior to the data collection. Course Directors: *Linda Ross & Dr. Linda Pifer*

***Management Courses (offered annually)***

**CLS 701 Principles of Laboratory Management I (2).** Offered annually spring semester, didactic, on-line. Introduction to laboratory administration with emphasis on human resources management. Leadership styles, communications and interviewing skills, employee selection and evaluation, motivation, morale, discipline and personnel planning. Course Director: *Linda Ross*

**CLS 702 Principles of Laboratory Management II (3).** Offered annually fall semester, didactic, on-line. Introduction to laboratory administration with emphasis on record keeping, budgets, costs accounting, purchasing, product evaluation, lab safety, and labor relations. Course Director: *Richard Warren*

**CLS 703 Financial Principles and Methods for the Clinical Laboratory (3).** Offered annually spring semester, didactic, hybrid. Budget development, and analysis, including analysis of variance reports; cost accounting, and test pricing; analysis/preparation of proposals for purchase vs. lease of equipment, reagents, etc.; negotiation of arrangements and development of contracts with vendors and professional staff; maximization of billing strategies consistent with public and private payor requirements; cost/benefit analysis of test menus, point-of-care offerings and business plan development. Course Director: *Richard Warren*

**CLS 705 Health Information Systems (3).** Offered annually fall semester, didactic, on-line. Basic attributes of information systems used for in-patient, out-patient, and research health data; methods useful to manage and evaluate such systems. Course Director: *Dr. Marcia Sharp*

***Laboratory Utilization Courses (offered on an as needed basis)***

**CLS 720 Laboratory Utilization I (2).** Offered annually every semester, didactic, hybrid. Principles of appropriate laboratory utilization by providers and rationale for its importance in a managed care environment. Emphasis on clinical appropriateness criteria, and clinical relevance issues and their relationship to care management team and other clinical decisions. Also review of the model of the interactive laboratory in the integration of total patient care with algorithmic test selection, triggered automatic test sequencing and factors influencing clinician use of the laboratory. Course Directors: *Linda Ross & Leilani Collins*

**CLS 721 Laboratory Utilization II (3).** Offered annually every semester, didactic, hybrid. An application of principles of laboratory utilization in selected clinical disorders including emphasis on pathophysiology of various disease processes as reflected by symptomatology and in clinical laboratory findings. Also effects of treatment on laboratory findings, especially for evaluation or monitoring of treatment. Considerations of appropriate test choices incorporating issues of clinical need, scientific and technical factors and cost effectiveness concerns. In addition to lectures, supervised clinical projects will be utilized to enhance student understanding of the principles described. Prerequisite: CLS 721, Laboratory Utilization I. Course Directors: *Linda Ross & Leilani Collins*

**CLS 722 Laboratory Utilization III (3).** Offered annually every semester, didactic, hybrid. This course is similar to Laboratory Utilization II except that a different array of clinical disorders will be studied. Prerequisite: CLS 720: Laboratory Utilization I. Course Directors: *Linda Ross & Leilani Collins*

**CLS 723 Integrating the Laboratory Across Clinical Disciplines (2).** Offered annually every semester, didactic, hybrid. The role of the clinical laboratory as part of a health care team in managed care and communicating ways to effectively utilize the clinical laboratory to other health care disciplines, with emphasis on the development and utilization of consultation and team building skills. Course Directors: *Linda Ross & Leilani Collins*.

**CLS 724 Quality Assurance and Outcomes Assessment (3).** Offered annually every semester, didactic, hybrid. History of assessing and assuring quality of care. Emphasis recent activities concerning clinical outcomes, appropriateness, and effectiveness, including cost effectiveness. Course Directors: *Linda Ross & Leilani Collins*

***Elective Courses (offered on an as needed basis)***

**CLS 605 Legal and Regulatory Issues and the Clinical Laboratory (2).** Offered annually spring semester, didactic, on-line. Laws and regulations affecting administration of clinical laboratories and other healthcare organizations, including CLIA '88; administrative law, corporate and business law, labor law, civil liability, tax-related issues. Legal issues relevant to administration, utilization, compliance, medical necessity, and reimbursement. *TBD*

**CLS 710 Health Care Economics (U of M ECON 7710) (3).** Offered every semester, didactic. Overview of the economics of and strategies for financing health care in the United States, with emphasis on the effects on successful financial management of health care institutions and clinical laboratories. Includes analysis of financing and delivery of health care and discussion of current health reform issues. Course Director: *Dr. Cyril F. Chang*

**CLS 712 Epidemiology (3).** Offered annually spring semester, didactic, on-line. The course introduces the basic principles and methods of epidemiology and demonstrates their applicability in the field of public health. Topics to be covered include the historical perspective of epidemiology, measures of disease occurrence and of association, clinical epidemiology, disease screening, casual inference, and study design. Course Director: *Leonard Bloom*

**CLS 800 Special Topics in Clinical Laboratory Science (1-4).** Offered every semester, independent study. Directed readings or topics of current interest in clinical laboratory science. The course may be repeated with topic change. Course Director: *Linda Ross*

**700 MDH Dental Hygiene Education: Administration, Planning, and Organization (3).** Offered annually, spring semester, didactic, on-line format. The study of leadership theories and program administration unique to dental hygiene educational programs, including an understanding of general and specialized accreditation processes, role of state dental licensure boards, human resources, faculty performance assessment, program financing from public funding and clinical fees, clinic administration and outcomes assessment. *Course Director: Dr. Susan Crim*

**MHIM 605 Healthcare Information Systems (3).** Offered annually spring semester, didactic, on-line format. A survey of fundamental concepts of information technology applied to health care from the perspectives of providers, payers, consumers. Major topics include the electronic health record, health information systems, repositories and data bases, enterprise-wide systems, laboratory, radiology (PACs) systems, voice recognition, physician order entry, telemedicine, decision support systems. Overview of historical, current, and emerging health information systems; concepts and knowledge involved in making strategic use of information technology (IT) in health care organizations and linkages to business, planning, and governance; Overview of multiple systems, vendors, processes and organizations; methodology for evaluation of health information systems. Includes system design methodologies including systems analysis and design; systems selection and evaluation; workflow analysis and project management. Instructor: *Amanda King*; Course Director: *Dr. Rebecca B. Reynolds*

**MHIM 610 Issues in Health Information Technology Seminar (2).** Offered annually summer semester, didactic, on-line format. An exploration of current issues related to health informatics including healthcare policy analysis and development, ethical issues, structure of healthcare delivery systems, assessment of population health, models of health care delivery, access and quality of care issues. Prerequisite courses include 600 MHIM, Information Technology and Systems, and 605 MHIM, Health Information Systems. *Dr. Sajeesh Kumar and Dr. Rebecca Reynolds.*

### Progress and Promotion

Graduate student progress will be reviewed at the end of each semester, including an evaluation of the quality of the academic work and progress toward the degree. Minimum criteria must be met to avoid probation or dismissal.

### Grading Scale

The grading scale for CLS post-professional graduate students is as follows:

90-100	= A
80-89	= B
70-79	= C
Below 70	= F

Students must complete all courses with grades of “B” or above in core and clinical concentration courses, and “C” or above in other courses. No more than two grades of “C” may be applied toward a post-professional graduate degree. Students must maintain an overall grade point average of 3.0 (“B”). A student may be dismissed from the program upon earning more than two (2) grades of “C” or a grade below a “C”. Grades in courses earned at another university will not be computed in the cumulative GPA.

### Communication

Email is the primary mode of communication for instructor and student interactions. Course information is provided to students via the campus learning management system, BlackBoard, which includes the course syllabus, links to campus resources, reading and supplemental class materials, recorded lectures, testing and assessment, grades and other classroom materials. Faculty may also interact with students via web-conferencing using Adobe Connect, video chat and telephone conferences.

### Requirements for Graduation

The following requirements must be satisfied to earn the degree of Master of Science in Clinical Laboratory Sciences:

1. Satisfactory completion of 36 semester credit hours of work, which must include 16 hours of core courses, 11-13 hours of specialty concentration courses, and 7-9 hours of electives.
2. Students must complete all courses with a “B” average.
3. Satisfactory completion of practicum and thesis presentation with a final oral examination is required.
4. Admission to candidacy for the master’s degree. Students file an application for draft of the thesis has been approved by the Committee.
5. Students must discharge all financial obligations to the University and remove all deficiencies documented by the Registrar.

Attendance at graduation is mandatory. Those unable to attend commencement must obtain permission to receive the degree *in absentia* by filing a written request with the Dean of the College.

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## DENTAL HYGIENE

Cassandra B. Holder Ballard, RDH, Ed.D., Chair

The Department of Dental Hygiene offers two degree programs, an entry-level Bachelor of Science in Dental Hygiene, and a post-professional Master of Dental Hygiene.

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## BACHELOR OF SCIENCE IN DENTAL HYGIENE (B.S.D.H.)

Cassandra B. Holder Ballard, RDH, Ed.D., Program Director

### Program Objectives

The curriculum in dental hygiene is designed to prepare graduates with a broad based general education; and a level of professional competence necessary for current and future dental hygiene practice. Graduates are prepared to function effectively in a clinical office setting; and also possess advanced knowledge and skills required for careers in teaching, research, public health, and other related areas.

### Curriculum Description

**The Entry Level Program** prepares graduates for entry into the field of dental hygiene. The program is designed as a full time “2 + 2” program that leads to a Bachelor of Science in Dental Hygiene Degree. The Entry Level Program is designed as the third and fourth years of a baccalaureate degree program. Two years of pre-professional college coursework are required prior to admission, and are followed by two years of professional coursework. The curriculum extends over five semesters. Each semester’s courses must be passed before a student is allowed to progress to the next semester. Students matriculate in the fall semester and are eligible for the May graduation two academic years later. Didactic instruction and clinical practice are integrated throughout the curriculum and provide opportunities for interaction with dentist, dental hygienists, dental students, dental school faculty, and other health care professionals in the area, as dental hygiene services are included as a part of comprehensive health care.

### Admission Requirements

To be eligible for consideration for admission into the BS dental hygiene program, applicants must meet the following requirements:

1. Completion of the following 58 semester hours of pre-requisite coursework with a grade of “C” or better in each course: (Note: Science courses that are delivered in a virtual or online format are not acceptable.)

<b>Prerequisite Course Work</b>	<b>Semester Hours</b>
Biology (General or Zoology)*	4
Microbiology	4
Human Anatomy and Physiology	8
General Chemistry**	8
Nutrition	3
English***	9
Psychology	3
Sociology	3
Social Sciences****	6
Speech	3
Electives	7
<b>TOTAL</b>	<b>58</b>

\* *Must be appropriate for science majors.*

\*\* *Chemistry courses for Pre-Nursing students are acceptable. Must include content in biochemistry.*

\*\*\* *Must include Composition I and II and any literature.*

\*\*\*\* *Social Science courses may include psychology, sociology, anthropology, and philosophy.*

NOTE: Science courses must include laboratory.

2. A GPA of 2.5 is the minimum required for application to the program; however, a 3.0 or higher in prerequisite courses is considered competitive.
3. Submit official transcripts of above coursework.
4. Applicants whose native language is not English and who have neither graduated from a U.S. high school nor completed a minimum of 30 credit hours at a U.S. postsecondary institution are to submit an official TOEFL score. Preference is given to candidates with a minimum score of 100 (with a 26 or above in both the listening and speaking sections) of the internet-based test.  
<http://www.uthsc.edu/admissions/international-students.php#footnotes>
5. Completed application form including an essay describing the applicant's reasons for choosing the profession and their career goals. A non-refundable application fee must accompany the application.
6. Pre-professional advisory committee recommendation from college or university attended OR two letters of recommendation from previous college instructors.
7. Ability to meet published technical standards (see below) of the College of Allied Health Sciences and the Entry-level Dental Hygiene degree program.

**Applications are accepted online at [www.uthsc.edu/admiss](http://www.uthsc.edu/admiss)**

#### **Admission by Transfer to Dental Hygiene Program**

Under exceptional circumstances, highly qualified students who are attending an accredited U.S. or Canadian dental hygiene program may be considered for placement in the Dental Hygiene program at the University of Tennessee Health Science Center, College of Allied Health Sciences. All such decisions will be considered contingent upon the quality of the applicant and the number of vacancies that have occurred in the present classes. Students earning baccalaureate degrees in dental hygiene must complete 30 of the last 36 semester hours at the University of Tennessee.

#### **Health Requirements**

In addition to general UTHSC requirements, all students are to comply with the University of Tennessee Health Science Center immunizations requirements. Those requirements are distributed to students prior to matriculation and may be found on the University Health Services website.

<http://www.uthsc.edu/univheal/student%20services/newstudents.php>

Compliance records for students are maintained by University Health Services. Additionally, the Department of Dental Hygiene will monitor compliance with the immunization program.

Policies and procedures for immunization, testing, and post-exposure incidents have been developed to comply with Occupational Safety and Health Administration (OSHA), Centers for Disease Control (CDC), American Dental Association (ADA), American Dental Hygienists' Association (ADHA), and extramural site recommendations or policies. Dental hygiene students, in the course of their clinical responsibilities, have exposure to blood, blood products, tissue, secretions, or body fluids of patients potentially containing hepatitis B (HBV) and are at risk for HBV as well as other infectious diseases.

Dental hygiene students are required to be immunized against the Hepatitis B virus and are required to have a TB skin test annually. These services are provided by University Health Services at a nominal cost. Information about fulfilling these requirements is provided during new-student orientation.

#### **Technical Standards**

Dental Hygiene students must have or acquire certain essential skills, functions and professional attitudes and behavior as described in our Technical Standards document. This document is provided upon request to any interested party and is also available on the program's website [http://www.uthsc.edu/allied/dh/dh\\_tech.php](http://www.uthsc.edu/allied/dh/dh_tech.php). Applicants who accept a position in the program must declare the ability to fulfill the Technical Standards for Admission to the College of Allied Health Sciences, Department of Dental Hygiene.

## Scholarships

The following scholarships are available to students entering the Entry-level Dental Hygiene Degree program:

- UTNAA Scholarship
- Chancellor's Scholarship
- Barbara A. Young Scholarship
- Josephine Circle Scholarship
- Elizabeth Club Scholarship Elam Scholarship

Information about these scholarships is available at the following link on the UTHSC webpage:

[http://www.uthsc.edu/allied/documents/Scholarship\\_List.pdf](http://www.uthsc.edu/allied/documents/Scholarship_List.pdf)

## The Entry Level Program Curriculum (BSDH)

The Bachelor of Science in Dental Hygiene degree program curriculum consists of 5 semesters. The following is a summary of the courses which are offered annually during the terms indicated.

### FIRST SEMESTER (Fall: Aug-Dec)

Course	Credit (lec-lab-clinic contact) Hrs	Instructor
410 DH Clinic Theory	3 (45-0-0)	Eleta Morgan
411 DH Head and Neck Anatomy	3 (45-0-0)	Reese Scroggs
413 DH Dental Embryology, Histology & Anatomy	4 (60-0-0)	Bobby Collins
418 DH Clinic Theory 1	2 (0-90-0)	Eleta Morgan
424 DH Oral Radiology	3 (45-90-0)	John Covington
<b>TOTAL</b>	<b>15 hours</b>	

### SECOND SEMESTER (Spring: Jan-May)

Course	Credit (lec-lab-clinic contact) Hrs	Instructor
421 DH Clinic Practice 2	4 (0-0-240)	Eleta Morgan
425 DH Oral Disease Prevention & Patient Ed	2 (30-0-0)	Cassandra Ballard
426 DH Clinic Theory 2	2 (30-0-0)	Colette Stewart
427 DH General and Oral Pathology	2 (30-0-0)	Molly Rosebush
437 DH Periodontology	3 (45-0-0)	Ayda Khuri
448 DH Dental Materials	3 (15-90-0)	Susan Daniel
<b>TOTAL</b>	<b>16 hours</b>	

### THIRD SEMESTER (Summer: July-Aug)

423 DH Transitional Clinic	2 (0-0-120)	Eleta Morgan
536 DH Anxiety and Pain Control <sup>9</sup> +	4 (30-90-0)	Bobby Collins
<b>TOTAL</b>	<b>6 hours</b>	

### FOURTH SEMESTER (Fall: Aug-Dec)

430 DH Clinic Practice 3	4 (0-0-240)	Eleta Morgan
431 DH Clinic Theory 3	2 (30-0-0)	Susan Daniel
434 DH Dental Pharmacology	2 (30-0-0)	Marilyn Lee
438 DH Community Dental Health Theory	2 (30-0-0)	Susan Daniel
532 DH Special Patient Care	3 (45-0-0)	Nancy Williams
<b>TOTAL</b>	<b>13 hours</b>	

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<sup>9</sup> Satisfactory completion of this course is required for progression in clinical courses.



## FIFTH SEMESTER (Spring: Jan-May)

525 DH Clinic Theory 4	2 (30-0-0)	Eleta Morgan
538 DH Community Dental Health Practicum	3 (15--60-0)	Susan Daniel
541 DH Clinic Practice 4	4 (0-0-240)	Eleta Morgan
542 DH Ethics, Jurisprudence and Pract Mgt	3 (45-0-0)	Elaine Stegman
<b>TOTAL</b>	<b>12 hours</b>	
<b>TOTAL HOURS</b>	<b>62 hours</b>	

## Course Descriptions

**410 DH Clinic Theory 1 (3).** Offered annually Fall semester; Didactic. Introduction to dental hygiene including the history and growth of the profession and current roles of dental hygienists in various practice settings. Introduction to patient care including current practices for infection control; recording of medical and dental histories; techniques for recording and monitoring vital signs; guidelines for inspecting oral tissues and charting observations; and basic theory, principles and procedures of oral prophylaxis. Also includes introduction to dental/dental hygiene policies and procedures, and professional conduct. (Serves as pre-requisite to DH 426) Course Director: *Eleta Reed-Morgan*

**411 DH Head and Neck Anatomy (3).** Offered annually Fall semester; Didactic. Morphology of the head and neck with emphasis on structures pertinent to dentistry. Includes cranium and soft tissue relations; origin, insertion, action, and innervation of muscles of mastication and facial expression; brain and cranial nerves; and vascular supply to the head and neck. Anatomical basis for routes of spread of dental infection and anatomical basis for dental anesthesia also discussed. Lectures and demonstrations. Course Director: *Dr. Reese Scroggs*

**413 DH Dental Embryology, Histology & Anatomy (4).** Offered annually Fall semester; Didactic. Overview of prenatal development, development of the face and neck, orofacial structures, tooth development and eruption. Histological and microscopic anatomy of tissues and organ systems with emphasis on oral soft tissues, enamel, dentin, pulp, tissues of periodontium. Study of the anatomy of the human dentition and supporting structures including anatomical terminology. Emphasis on anatomic form of teeth in gingival tissue, basic occlusion, morphological anomalies, and relationship of teeth and gingiva. Course Director: *Dr. Bobby Collins*

**418 DH Clinic Theory 1 Lab (2).** Offered annually Fall semester. Laboratory and clinical exercises in the techniques of detection and removal of hard and soft deposits from tooth surfaces. Also includes introduction to dental/dental hygiene clinic policies and procedures, and professional conduct. (Serves as pre-requisite to DH 421) Course Director: *Eleta Reed-Morgan*

**421 DH Clinic Practice 2 (4).** Offered annually Spring semester; Clinic. Continuation of 410 DH, Clinical Theory I. This course is the first clinical course in a series of courses in which students gain clinical proficiency by providing dental hygiene services to patients. Experiences include rotations for clinical experiences in specialty clinics within the College of Dentistry, community and government dental clinics, and school-based programs for at-risk populations. Prerequisite: 418 DH, Clinic Theory I Lab. Course Director: *Eleta Reed-Morgan*

**423 DH Transitional Clinic Practice (2).** Offered annually Summer semester; Clinic. Second clinical course in a series of courses in which students gain clinical proficiency by providing dental hygiene services to patients. Experiences include rotations for clinical experiences in specialty clinics within the College of Dentistry, community and government dental clinics, and school-based programs for at-risk populations. Course Director: *Eleta Reed-Morgan*

**424 DH Oral Radiology (3).** Offered annually Fall semester; Didactic with lab. Basic instruction is given in contemporary dental radiology techniques, emphasizing an introduction to intraoral and extraoral techniques; radiation physics, principles of and generation of photons (x-rays); components of x-ray producing equipment; radiation hygiene and safety; introduction to radiation deleterious effects on cell biology; composition, processing and chemistry of x-ray film; intraoral and extraoral anatomical bony landmarks; recognition of operator error/ processing artifacts; and introduction to differential diagnosis in oral radiology. Special emphasis is placed on determining radiographic signs of caries, bone loss associated with periodontal and systemic diseases, periapical pathology and radiographically notable dental materials for clinical interpretation. Course Director: *Dr. John Covington*

**425 DH Oral Disease Prevention & Patient Education (2).** Offered annually Spring semester; Didactic. Study of oral hygiene, preventive products, and dental health teaching methods. Emphasis on cultural implications for individualized patient instruction in prevention of dental disease using behavior modification. Course Director: *Dr. Cassandra Holder-Ballard*

**426 DH Clinical Theory 2 (2).** Offered annually Spring semester; Didactic. Continuation of 410 DH, Clinical Theory 1, expanding on basic theory, principles and procedures of oral prophylaxis. Lectures to supplement clinical learning experiences through integration and application of basic, dental, and dental hygiene science to problems encountered while providing dental hygiene services. (Satisfactory completion of each course is required for progression to the next in the series.) Course Director: *Colette Stewart*

**427 DH General and Oral Pathology (2).** Offered annually Spring semester; Didactic. This course deals with the study of human diseases. The first part of the course addresses the basic mechanisms that cause disease (general pathology). The second part of the course reviews the effects of those basic disease mechanisms on various organ systems (systemic pathology). The third part of the course presents, in detail, the diseases that affect the oral cavity and adjacent tissues and structures (oral pathology). Special emphasis will be given to those pathologic mechanisms, systemic conditions, and oral diseases that are common in the population or of particular significance to oral health care providers and patients. Course Director: *Dr. Molly Rosebush*

**430 DH Clinic Practice 3 (4),** Offered annually Fall semester; Clinic. Third clinical course in a series of courses in which students gain clinical proficiency by providing dental hygiene services to patients. Experiences includes rotations for clinical experiences in specialty clinics within the College of Dentistry, community, government dental clinics, and school-based programs for at-risk populations. Course Director: *Ms. Eleta Reed-Morgan*

**431 DH Clinical Theory 3 (2).** Offered annually Fall semester; Didactic. Continuation of 426 DH, Clinical Theory 2, expanding on basic theory, principles and procedures of oral prophylaxis. Lectures to supplement clinical learning experiences through integration and application of basic, dental, and dental hygiene science to problems encountered while providing dental hygiene services. (Satisfactory completion of each course is required for progression to the next in the series.) Course Director: *Susan Daniel*

**434 DH Dental Pharmacology (2).** Offered annually Fall semester; Didactic. Study of basic pharmacologic principles, drugs used in dentistry, and misuse of therapeutic agents. Includes discussion of commonly prescribed drugs, their uses, side effects, and dental treatment implications of such drugs. Course Director: *Dr. Marilyn Lee*

**437 DH Periodontology (3).** Offered annually Spring semester; Didactic. Study of the historical and scientific background of dental hygiene periodontal practice, pathogenesis of periodontal diseases, rationale for therapy, critical analysis of patient assessments, current theories of treatment, and specific rationales for techniques. (Satisfactory completion of this course is required for progression in clinical courses.) Course Director: *Ayda Khuri*

**438 DH Community Dental Health Theory (2).** Offered annually Fall semester; Didactic. This course provides a study of the principles and methods used in assessing, planning, implementing, and evaluating community dental health programs. Topics include, epidemiology, research methodology, biostatistics, community based prevention programs for prevention of caries, oral disease indexes, dental health education, and program planning. Students critically evaluate scientific literature, dental care delivery and mechanisms for financing dental care. Course Director: *Susan Daniel*

**448 DH Dental Materials (3).** Offered annually Spring semester; Didactic with lab. This course addresses the chemistry and physical properties of various materials used in dental practice. Includes lecture and laboratory exercises involving the application and manipulation of the more commonly used dental materials. Course Director: *Susan Daniel*

**525 DH Theory 4 (2).** Offered annually Spring semester; Didactic. Continuation of basic theory, principles and procedures of oral prophylaxis. Lectures to supplement clinical learning experiences through integration and application of basic, dental, and dental hygiene science to problems encountered while providing dental hygiene services. (Satisfactory completion of each course is required for progression to the next in the series.) Course Director: *Eleta Reed-Morgan*

**532 DH Special Patient Care (3).** Offered annually Fall semester; Didactic. The goal of this course is to lead the student to discover information concerning effects of systemic diseases, conditions, and aging and how these situations will require special treatment modifications for dental care. This course should also provide the student with the knowledge and skills to meet the oral health needs of special patients listed in the course outline. Prevention and management of medical emergencies that may arise in the dental environment is also included in this course. Course Director: *Dr. Nancy Williams*

**536 DH Anxiety and Pain Control (4).** Offered annually Summer semester; Hybrid with lab. This is a didactic course reviewing the procedures available for the management of pain and anxiety. Principles of local anesthesia will include anatomy, physiology, pharmacology, armamentarium, technique and complications. Principles of nitrous oxide and oxygen conscious sedation will be covered. A laboratory component will be included to prepare the students for certification in the administration and monitoring of nitrous oxide. Local anesthesia is taught to laboratory and clinical competence. Nitrous oxide analgesia is taught to laboratory competence but not clinical competence. Course Director: *Dr. Dr. Bobby Collins*

**538 DH Community Dental Health Practicum (3).** Offered annually Spring semester; Laboratory Hybrid. This course will build upon the basics of DH 438, Community Dental Health Theory. Students will have the opportunity to develop a community dental health program which requires application of dental public health theories, principles and concepts. Students will be expected to assess, plan, and implement evidence based community dentistry projects. Course Director: *Susan Daniel*

**541 DH Clinic Practice 4 (4).** Offered annually Spring; Clinic. Final clinical course in a series courses in which students gain clinical proficiency by providing dental hygiene services to patients. Experiences include rotations for clinical experiences in specialty clinics within the College of Dentistry, community, government dental clinics, and school-based programs for at-risk populations. Course Director: *Eleta Reed-Morgan*

**542 DH Ethics, Jurisprudence & Practice Management (3).** Offered annually Spring semester; Didactic. Experience in problem solving and ethical decision making in dental hygiene based on theories and principles of ethics. Case studies are used for practical application. Study of principles of law as related to dental hygiene and dental practice, including tort and contract law. Includes preparation for the jurisprudence examination administered by the Tennessee State Board of Dental Examiners. A study of dental practice management and treatment planning. Course Director: *Elaine Stegman*

## Attendance Requirement

Dental hygiene students are expected to attend all scheduled classes, clinics, and laboratory assignments. If a student must miss a scheduled learning experience due to illness or emergency, he/she must notify the dental hygiene office no later than 8:30AM of the day missed. For any other absences, prior arrangements must be made with the specific instructor or course director with approval of the program director. Appointments for health services should not be made during scheduled learning experiences.

## Clinical Affiliations

Clinical affiliation sites are located in West Tennessee counties, primarily Shelby County. Students accept the financial impact of traveling to clinical assignments.

## Grading Policy

Course grades are based on a student's performance on written and practical examinations as well as clinical performance. Each semester's courses must be passed before the student is allowed to progress to the next semester. The point-grade conversion scale used in the dental hygiene program for all courses, **except** clinic practice courses, is as follows:

95 – 100 = A  
85 – 94 = B  
75 – 84 = C  
70 – 74 = D  
Below 70 = F

The grading scale for all **clinic practice** courses is as follows:

95 – 100 = A  
88 – 94 = B  
80 – 87 = C  
75 – 79 = D  
Below 75 = F

## Progress and Promotion

Students must maintain a GPA of 2.0 on a 4.0 scale in order to progress to the next semester in good standing. Any student who earns a grade of D or less in any course or whose GPA falls below a 2.0 may be placed on academic probation or dismissed. Using the guidelines outlined for progress and promotion under the General Information section in the present document/catalog, the student will be carefully evaluated by the Progress and Promotions Committee of the program to determine the course of action which is best for the student and for the program.

## Requirements for Graduation – B.S.D.H.

The following requirements must be satisfied to earn the degree of Bachelor of Science of Dental Hygiene:

- A. Satisfactory completion of 62 semester credit hours of work.
- B. Students must complete coursework with a "C" (2.0 GPA) or better overall average
- C. Students must discharge all financial obligations to the University and remove all deficiencies documented by the Registrar.

Attendance at graduation is mandatory. Those unable to attend commencement must obtain permission to receive the degree *in absentia* by filing a written request with the Dean of the College.

## Awards

### **Dental Hygiene Clinical Achievement Award**

This award is given to the graduating student who has demonstrated the following professional traits: comprehensive knowledge, proficiency in rendering patient care, sensitivity to patient needs, and commitment to community health needs. These characteristics are accompanied by an apparent desire to assume responsibility as a member of the oral health team.

### ***The Faculty Award***

This award is presented by the faculty to the graduating student who has earned the highest scholastic average during the study of dental hygiene.

### ***Excellence in Dental Hygiene Award***

This award is sponsored by the Johnson & Johnson Company but is selected by the DH faculty. This award is to recognize consistently outstanding performance in providing patient education.

### ***Sigma Phi Alpha Dental Hygiene Honor Society***

The national dental hygiene honor society was founded in 1958. Eligibility for membership is based on scholarship, potential service to the profession, character, and leadership. Eligible students must rank in the top 25% of their class, however only 10% may be chosen annually.

### ***The Tennessee Dental Hygienists' Association Outstanding Student Award***

This person is nominated and elected by their classmates as the person they believe is outstanding in fellow student relations, both academically and professionally. This person will receive a plaque and will also be recognized at the TDHA annual session.

### ***Professional Leadership Award***

This award recognizes the student who exhibited the greatest overall professional leadership in the class. Examples include, but are not limited to, the Student American Dental Hygienists' Association and the Memphis Dental Hygienists' Association involvement, holding class office, organizing volunteer activities, etc.

### ***Community Service Award***

This award is presented to the student(s) who exhibited the greatest enthusiasm for community service and school projects.

### ***Golden Scaler Award***

This award is sponsored by the Hu-Friedy Company and is presented to the student who is selected for outstanding clinical achievement.

### ***Urban Smiles Award***

One of the goals of Urban Smiles is to promote the importance of preventive dentistry in underserved populations. This award is given to the student who demonstrates a true heart for service, sincere compassion for the patient, and the spirit of teamwork.

***Colgate STAR Award:*** This award is presented to the student who demonstrates dedication to the profession, outstanding achievement, compassion in patient care, displays enthusiasm for community service, and enjoys the role of dental hygienist.

## **Student Professional Organization Membership**

Dental hygiene students qualify to become student members of the American Dental Hygienists' Association, and are encouraged to exercise this option.

## **Licensing Examination**

Dental hygiene students take the National Dental Hygiene Board Examination in the spring semester of the second year and must make a satisfactory score to be licensed in most states. Students must also pass the Southern Regional Dental Hygiene Board Examination to become licensed to practice dental hygiene in Tennessee and other states in this region. Faculty will provide information to students about the testing date and the location of this examination, and others throughout the country.

## **Accreditation**

The UTHSC Program in Dental Hygiene is fully accredited by the American Dental Association Commission on Dental Accreditation, 211 East Chicago Avenue Suite 1900 Chicago, Illinois 60611

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## MASTER OF DENTAL HYGIENE DEGREE (M.D.H.)

Nancy J. Williams, RDH, EdD, Program Director

### Program Objectives

The College of Allied Health Sciences offers a Master of Dental Hygiene (MDH) degree designed for licensed dental hygienists who desire to become a dental hygiene educator or administrator. This program provides the necessary educational experience for the student to teach at either the community college or university level. The program is offered either part-time (3-6.0 semester hours per semester) or full-time (9.0 or more semester hours per semester). This is an on-line program that requires a maximum of one week during the first two years of enrollment at the UTHSC Memphis campus. However, since the purpose of this program is to prepare faculty members and administrators, the graduate student must complete coursework requirements for DH 702 (Internship in Dental Hygiene Education) in a face-to-face format. A dental hygiene educational program located near the graduate student's home may be selected for this course if approved by the graduate program director to complete this requirement.

### Technical Standards

MDH students are required to meet the technical standards of the program and the department. These may be found at the following website: [http://www.uthsc.edu/allied/mdh/mdh\\_tech.php](http://www.uthsc.edu/allied/mdh/mdh_tech.php)

### Health Requirements

Graduate students must demonstrate sound physical and mental health consistent with the demands of the educational program and professional field. Since this is a distance learning program, graduate students must comply with drug and other screenings and immunization requirements at each clinical site.

### Technology Requirements

Students are required to have access to a computer. Information about the technical requirements can be found at the following link: [http://www.uthsc.edu/allied/mdh/mdh\\_require.php](http://www.uthsc.edu/allied/mdh/mdh_require.php)

### Admission Requirements

Minimum requirements for consideration for admissions to the Masters of Dental Hygiene degree program are:

- A. An earned B.S. degree in Dental Hygiene or related field. Since the A.S. degree is entry level for some dental hygienists, an A.S. degree is required with a B.S. degree in a related field. (Official transcripts from each college attended must accompany application.)
- B. A minimum GPA of 3.0 on a 4.0 GPA scale in dental hygiene coursework.\*
- C. Completion of the UTHSC on-line application for the MDH program. Included in the admissions packet is an essay. Applicants should include in the essay: goals for graduate study, past clinical experience including number of years as a dental hygienist, past experience including number of years as a dental hygiene faculty member, brief description of professional and community involvement, and experience with distance learning.
- D. Three (3) letters of recommendation must be completed by previous faculty members and/or employers.
- E. Official transcripts from each institution attended or attending.
- F. Each dental hygiene applicant's license must be in good standing in each state where licensed.
- G. Evidence of current malpractice insurance owned by the applicant. Malpractice insurance may be purchased through the University.

- H. Personal or telephone interviews with the graduate admissions committee may be required. In addition a second essay is required. It is recommended that applicants state name of institution where dental hygiene degree was earned, other institutions attended and major, number of years of dental hygiene practice, type of practice, dental hygiene teaching experience, on-line learning experience, and goals for graduate study.
- I. A minimum of two years of dental hygiene practice is suggested.
- J. Foreign applicants whose native language is not English must submit results of TOEFL, with a minimum score of 550, 213 on the computerized version.
- K. Students may transfer no more than three (3) graduate-level semester credit hours from another institution. Courses submitted for transfer must be approved by the MDH Admissions Committee,
- L. Meet technical standards for the college and department.
- M. Clear criminal background check.

*\*Applicants who do not meet the 3.0 minimum GPA must provide evidence to the admissions committee that demonstrates the likelihood of academic success.*

**Applications are accepted online at [www.uthsc.edu/admiss](http://www.uthsc.edu/admiss)**

**Notification of Acceptance**

Graduate applicants will be notified by the Dean of the College of Allied Health Sciences.

**Curriculum for Master of Dental Hygiene Degree**

<b>Core Courses</b>	<b>Semester Hours</b>
600 MDH Methods and Strategies of Dental Hygiene Teaching	3
601 MDH Theories of Dental Hygiene Clinical Teaching and Evaluation	3
602 MDH Introduction to Research for the Health Professional	3
603 MDH Community Oral Health Promotion	3
606 MDH Introduction to Statistics in DH Education	3
700 MDH DH Education: Admin, Planning & Organization	3
701 MDH Student Services in Dental Hygiene Education	3
702 MDH Internship in Dental Hygiene Education	3
705 MDH Elective Study in Dental Hygiene Education	3
706 MDH Capstone Project in Dental Hygiene Education	3
707 MDH Online Teaching Strategies	3

**Course Descriptions for Master of Dental Hygiene Degree**

**600 MDH Methods and Strategies of Dental Hygiene Teaching (3).** Offered annually, fall semester, didactic, on-line format. The purpose of this course is to prepare graduates to teach and evaluate didactic courses traditionally included in the undergraduate dental hygiene curriculum. Components of this course include: overview of adult educational theory, face-to-face and web-based instructional technology, curriculum design, and teaching strategies and evaluation techniques related to cognitive and affective teaching and learning. This course is a pre-requisite for 702 MDH and 706 MDH. *Dr. Thomas Cox*

**601 MDH Theories of Dental Hygiene Clinical Teaching and Evaluation (3).** Offered annually, fall and spring semester; didactic, on-line format. The purpose of this course is twofold. First, graduates will be prepared to teach and evaluate fine psychomotor skills both in preclinical technique courses and in dental hygiene clinic. The second purpose is to prepare graduates to serve as clinical coordinators and/or clinical faculty members. Included in this section is information related to clinic administration as it applies to both clinical faculty and students. Developing undergraduate students' professional behavior, clinical technique, and patient communication skills during patient treatment will be emphasized. Graduates will gain knowledge related to clinical administration as it relates to establishing clinical requirements, competencies and mock clinical exams and calibration of clinical grading. This course is a pre-requisite for 702 MDH and 706 MDH. Course Director: *Dr. Cassandra Holder-Ballard*

**602 MDH Introduction to Research for the Health Professional (3).** Offered annually, spring semester, didactic, on-line format. This course is designed for basic introduction to research methods for dental hygiene educators. It will provide a step-by-step overview of the research process and development of a research paper. Prerequisite: Students must successfully complete 606 MDH prior to enrollment. Course Director: *Dr. Nancy Williams*

**603 MDH Community Oral Health Promotion (3).** Offered annually, fall and spring semester; didactic, on-line format. This is a project based course that builds on knowledge and skills acquired in undergraduate preventive and community oral health. Course Director: *Dr. Nancy Williams*

**606 MDH Introduction to Statistics in Dental Hygiene Education (3).** Offered annually, fall semester; didactic, on-line format. This course is designed for basic introduction to statistics for dental hygiene educators. It will provide a step-by-step overview of beginning statistics commonly used in DH education. Prerequisite for 602. Course Director: *Dr. Nancy Williams*

**700 MDH Dental Hygiene Education: Administration, Planning, and Organization (3).** Offered annually, spring semester; didactic, on-line format. The study of leadership theories and program administration unique to dental hygiene educational programs, including an understanding of general and specialized accreditation processes, role of state dental licensure boards, human resources, faculty performance assessment, program financing from public funding and clinical fees, clinic administration and outcomes assessment. Course Director: *Dr. Susan Crim*

**701 MDH Student Services in Dental Hygiene Education (3).** Offered annually fall semester; didactic, on-line format. An overview course of student services available at the community college or university level such as but not limited to student health, recruiting, admissions, financial aid, and judicial affairs. Course Director: *Dr. Cynthia Calhoun*

**702 MDH Internship in Dental Hygiene Education (3).** Offered annually fall and spring semester, didactic, on-line and clinical practice course. Each graduate student will provide pre-clinical and/or clinical instruction and evaluation in a dental hygiene program and also will assist a Professor in teaching a didactic course in a dental hygiene program. Each graduate student will work closely with graduate faculty to identify appropriate faculty mentors from dental hygiene educational programs in students' home communities so this requirement can be completed at a distance from the Memphis campus. Prerequisite: 600 MDH and 601 MDH. Course Director: *Dr. Nancy Williams*

**705 MDH Elective Study in Dental Hygiene Education (3).** Offered annually fall and spring semester; experiential course that may be offered face-to-face, hybrid or on-line format depending on approved elective. The purpose of this elective is to allow students the opportunity to enhance their skills and knowledge in their area of interest. Suggest modules include: Advanced Dental Hygiene Clinic Practice, Dental Hygiene Program Administration, Community Oral Health Planning, Dental Hygiene Research, Instructional Technology Used in Dental Hygiene Education, Continuing Education Administration, etc. Course Director: *Dr. Nancy Williams*



**706 MDH Capstone Project in Dental Hygiene Education (3).** Offered annually fall and spring semester, independent project. Each graduate student must successfully complete a Capstone Project and present findings to the graduate faculty and/or at a regional or national professional meeting. This is a capstone activity in which students enroll during the final term of the program. Sound demonstration of writing, organizational and communication skills associated with the MDH degree is required. Students must select an MDH faculty advisor as well as an onsite mentor where the student will complete the capstone project and present an overview of the capstone project to the graduate faculty and/or students at the beginning of the course. Each student's mentor as well as the proposed content must be approved by the graduate faculty prior to initiation of the project. The graduate student must also defend the completed project. Prerequisites: MDH 600, 601, 602, 603, 606, 700, 701, 702, 707 and permission from the MDH program director. Course Director: *Dr. Nancy Williams*

**707 MDH Online Teaching Strategies (3).** Offered annually spring semester, didactic, on-line format. Student will have an opportunity to learn how to teach using online strategies and study the latest technology used in distance learning. Course Director: *Dr. Karen Adsit*

### Communication

Email is the primary mode of communication for instructor and student interactions. Course information is provided to students via the campus learning management system, BlackBoard, which includes the course syllabus, links to campus resources, reading and supplemental class materials, recorded lectures, testing and assessment, grades and other classroom materials. Faculty may also interact with students via web-conferencing using Adobe Connect, video chat and telephone conferences.

### Attendance Requirement

MDH students are expected to participate in all online experiences, clinics, and other assignments. Students are required to check UTHSC email at least daily. For absences, prior arrangements must be made with the specific instructor or course director with approval of the program director.

### Grading Scale

The following grading scale for MDH graduate students is as follows:

- 90-100 = A
- 80-89 = B
- 70-79 = C
- Below 70 = F

Graduate students must maintain a GPA of 3.0 or higher each semester. Dismissal from the program may result if the GPA falls below 3.0.

### Requirements for Graduation

The following requirements must be satisfied to earn the degree of Master of Dental Hygiene.

1. Satisfactory completion of the 30 hour (if admitted prior to March 2010 or 33 semester hour MDH curriculum (admitted after March 2010).
2. Students must complete all courses and maintain a minimum GPA of 3.0.
3. Students must file an application for graduation for either December or May graduation.
4. Students must complete all courses within five (5) years of enrolling in the program.
5. Satisfactory completion of the Capstone Project.
6. Students' dental hygiene license should remain in good standing throughout the program and must be in good standing at the time of graduation.
7. Students must discharge all financial obligations to the university and remove all deficiencies documented by the Registrar. to the University and remove all deficiencies documented by the Registrar.
8. 3.0 overall GPA is required

Attendance at graduation is required. Those unable to attend commencement must obtain permission to receive the degree in absentia by filing a written request with the Dean of the College.

## **Awards**

### ***The Outstanding MDH Graduate Student Award***

The Outstanding MDH Award is presented to the student who has exhibited remarkable dedication to the future of DH education as demonstrated by academic achievement and professional excellence throughout the program. The student must achieve a GPA of 3.5 or higher on a 4.0 scale. The recipient of the award will be chosen by the MDH faculty. The award will not necessarily be presented each year.

### ***Sigma Phi Alpha Dental Hygiene Honor Society***

The national dental hygiene honor society was founded in 1958. Eligibility for membership is based on scholarship, potential service to the profession, character, and leadership. Eligible students must rank in the top 25% of their class, however only 10% may be chosen annually.

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## **HEALTH INFORMATICS AND INFORMATION MANAGEMENT**

Rebecca B. Reynolds, EdD, Chair

The Department of Health Informatics and Information Management offers an on-line Master of Health Informatics and Information Management (MHIIM) with two tracks (an entry-level track and a post-graduate track) as well as an on-line post-baccalaureate certificate in Health Informatics and Information Management. The Department of Health Informatics and Information Management follows the UTHSC Academic Calendar.

HIIM students near the UTHSC Memphis campus can gain access to campus facilities utilizing a UTHSC official student identification badge. Students have access to all required course materials through the learning management system used by UTHSC (BlackBoard).

## **Student Status**

When students are admitted to the program they must determine whether or not they wish to take classes as a full-time or part-time student. The program director and faculty advisor will assist the student in developing an appropriate program of study for program completion based on this determination.

Students are allowed to transfer up to nine (9) semester hours of credit to apply toward the post-graduate degree. The program director will approve this transfer, per the UTHSC policy, after the student is enrolled at UTHSC. No credits are allowed to be transferred into the entry-level program.

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## **ENTRY-LEVEL MASTER OF HEALTH INFORMATICS AND INFORMATION MANAGEMENT (M.H.I.I.M.)**

### **Entry-level Program Objectives**

The entry-level curriculum is designed to produce graduates who can combine knowledge of a broad number of disciplines to provide high quality health information services in a variety of health care settings. The program produces graduates who meet the current demands of the health care field and who will assume leadership roles in health informatics and information management. The curriculum emphasizes the full diversity of opportunities to contribute to quality patient care by providing excellent health information services

### **Program Description**

The entry-level curriculum in health informatics and information management includes courses in organization and administration, health information technology and systems, clinical foundations, coding and classification systems, quality management and oversight, law, and health information science. Clinical rotations through selected hospitals and other health care facilities provide practical experience. Students spend a month in a management affiliation. Criterion referenced evaluation is used in each course and students are required to reach the minimum competency level established for the course. Grades are

based on written and practical examinations, as well as on performance in directed experience. A student must pass each semester's courses with a grade of "B" in each course as well as attain a minimum semester grade point average of 3.0 in order to progress to the subsequent semester or term or to graduate.

### **Admission Requirements for Entry-level M.H.I.I.M.**

<b>Prerequisite Course Work</b>	<b>Semester Hours</b>
Human Anatomy and Physiology	8
Principals of Management	3
Personnel Administration	3
English Composition and Literature	12
Social Science	6
Statistics	3
Medical Terminology	3
Management Information Systems	3
Systems Analysis and Design	3
Database Management	3
Electives	<u>45</u>
<b>TOTAL</b>	<b>92</b>

*12 hours of prerequisite course work must be completed at the upper-division level and must be completed at an accredited university.*

**Applications are accepted online at [www.uthsc.edu/admiss](http://www.uthsc.edu/admiss)**

### **Technical Standards**

Health Informatics and Information Management students must have or acquire certain essential skills, functions and professional attitudes and behavior as described in our Technical Standards document. This document is provided upon request to any interested party; however, all students who enroll must be prepared to understand and abide by these requirements. Written and oral communication skills are extremely important. Written communication skills are vital as the HIIM program and career require intensive writing.

### **Attendance**

Students are expected to respond to instructor-initiated requests as well as meet deadlines outlined in each course syllabus. Students are expected to complete assignments by due dates and to be punctual for all directed experience and other clinical activities.

### **Progress and Promotion for Entry-level Students**

An entry-level student must pass each semester's courses with a grade of "B" in each course in order to progress to the subsequent semester or term or to graduate.

### **Technology Requirements**

Technology requirements for HIIM students are posted at [http://www.uthsc.edu/allied/him/tech\\_requirements.php](http://www.uthsc.edu/allied/him/tech_requirements.php) and include minimum hardware and software requirements for student participation in online courses as well as the minimum internet service requirements.

### **Accreditation of the Entry-level Program**

The UTHSC entry-level program in Health Informatics and Information Management is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM); 233 N. Michigan Ave., Suite 2150; Chicago, IL 60601-5519; (312) 233-1100; [www.cahiim.org](http://www.cahiim.org).

## Entry-level Curriculum Summary – M.H.I.I.M.

The program length is determined by the number of credit hours students register for each semester. The curriculum is offered so that a full-time student may complete the program in six semesters. Students have seven years to complete the degree requirements. Courses are offered at least once per calendar year in the semester indicated within each of the following course descriptions. All courses in the program are delivered in an on-line format. The Directed Practice courses require students to complete clinical rotations.

<b>Course Work</b>	<b>Semester Hours</b>
511 HIM Health Information Science and Laboratory I	3
513 HIM Organization and Administration I	3
550 HIM Clinical Foundations of Health Information Management	3
541 HIM Health Information Technology and Systems I	3
515 HIM Directed Experience I	2
521 HIM Health Information Science and Laboratory II	3
523 HIM Organization and Administration II	3
525 HIM Directed Experience II	2
537 HIM Management Affiliation	3
551 HIM Reimbursement Methodologies in Healthcare	3
MHIM 600 Information Technology and Systems	3
MHIM 601 Quality Management in Health Services	2
MHIM 602 Legal Issues in Health Information Technology & Systems	3
MHIM 603 Leadership in Health Information Technology & Systems	3
MHIM 604 Financial Management for Health Professionals	3
MHIM 605 Healthcare Information Systems	3
MHIM 606 Healthcare Vocabularies and Clinical Terminologies	2
MHIM 607 Statistics and Decision Making	3
MHIM 608 Knowledge Management	3
MHIM 609 Concepts of Research Methodology	3
MHIM 610 Issues in Health Information Technology Seminar	2
MHIM 613 Applied Research Project	3
<b>TOTAL</b>	<b>61 hours</b>

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## POST-GRADUATE MASTER OF HEALTH INFORMATICS AND INFORMATION MANAGEMENT (M.H.I.I.M.)

Rebecca B. Reynolds, Ed.D., R.H.I.A., Program Director

### Program Objectives

The goal of the post-graduate MHIIM is to provide the competencies for health care professionals to manage information in an increasingly complex electronic health environment.

### Curriculum Description

The post-graduate master's degree curriculum at UTHSC prepares graduates for leadership roles in a variety of employment settings. It is designed for working healthcare professionals to expand skills sets in health informatics and information management. These roles are associated with enterprise-wide information systems strategic planning, management and health data administration. Individuals may attain a variety of positions in the management, analysis, and dissemination of information. These positions may be in institutions focused on the delivery of healthcare, enterprises that engage in development of health information systems, or other private or governmental agencies that engage in the use, management, or analysis of patient related information for public health surveillance.

## Admission Requirements for Post-Graduate M.H.I.I.M.

1. Baccalaureate degree in a health-related discipline;
2. Minimum grade point average of 3.0;
3. Three letters of recommendation from previous college instructors or immediate supervisors;
4. Foreign applicants whose native language is not English must submit results of TOEFL, with minimal score of 550, 213 on the computerized version Official transcripts;
5. Personal interview with the admissions committee;
6. Ability to meet published technical standards of the College of Allied Health Sciences and the Department of Health Informatics and Information Management;
7. A completed application form including an essay describing the applicant's career goals;
8. A non-refundable application fee must accompany the application.

## Technical Standards

Health Informatics and Information Management students must have or acquire certain essential skills, functions and professional attitudes and behavior as described in our Technical Standards document. This document is provided upon request to any interested party; however, all students who enroll must be prepared to understand and abide by these requirements. Written and oral communication skills are extremely important.

## Curriculum Summary for Post-Graduate M.H.I.I.M.

The program length is determined by the number of credit hours students register for each semester. The curriculum is offered so that a full-time student may complete the program in six semesters. Students have five years to complete the degree requirements.

Course Work	Semester Hours
MHIM 600 Information Technology & Systems	3
MHIM 601 Quality Management in Health Services	2
MHIM 602 Legal Issues in Health Information Technology & Systems	3
MHIM 603 Leadership in Health Information Technology & Systems	3
MHIM 604 Financial Management for Health Professionals	3
MHIM 605 Healthcare Information Systems	3
MHIM 606 Healthcare Vocabularies and Clinical Terminologies	2
MHIM 607 Statistics and Decision Making	3
MHIM 608 Knowledge Management	3
MHIM 609 Concepts of Research Methodology	3
MHIM 610 Issues in Health Information Technology Seminar	2
MHIM 613 Applied Research Project.	3

## Course Descriptions

**511 HIM Health Information Science and Laboratory I (3).** Offered annually fall semester; didactic, on-line format. Introduction to the field of health information management, including history of patient records, and functions of a health information/medical record department. In-depth study of components, development and use of the record and flow of patient information through the facility; design of forms and computer views; Survey of related systems for other health facilities included. *Elizabeth D. Bowman*

**513 HIM Organization and Administration I (3).** Offered annually fall semester; didactic, on-line format. Application of principles of organization, administration, supervision, and human relations to the health information/medical record department. Includes utilization of financial and physical resources, financial management of health care facilities, development of systems, procedures, services, and equipment; controlling quality of departmental functions, and professional ethics. *Dr. Marcia Y. Sharp*

**515 HIM Directed Experience I (2).** Offered every semester; clinical rotation and simulation course. Directed practical experience in information management procedures, management of personnel, and interdepartmental relationships in health care facilities. Prerequisite or co-requisite courses: HIM 511, Health Information Science and Laboratory I, and HIM 513, Organization and Administration. *Dr. Rebecca B. Reynolds*

**521 HIM Health Information Science and Laboratory II (3).** Offered annually spring semester; didactic, on-line format. Principles of coding and classification with in-depth coverage of the International Classification of Diseases, Clinical Modification, 10<sup>th</sup> Edition (ICD-10-CM/PCS) and Current Procedural Terminology/Healthcare Common Procedure Coding System (CPT/HCPCS). Coverage is also included on encoders, ethical coding, and managing the coding function. Prerequisites: 511 HIM, Health Information Science and Laboratory I, and 550 HIM, Clinical Foundations. *Elizabeth D. Bowman*

**523 HIM Organization and Administration II (3).** Offered annually spring semester; didactic, on-line format. Includes an in-depth study of quality and performance improvement methodologies both in clinical and administrative settings. Includes use of clinical information in quality, utilization management, risk management, and peer review activities. Prerequisites: HIM 511, Health Information Science and Laboratory I. *Elizabeth D. Bowman, course director*

**525 HIM Directed Experience II (2).** Offered every semester, clinical rotation and simulation course. Directed practical experience in information management procedures, management of personnel, and interdepartmental relationships in health care facilities. Prerequisites: 515 HIM, Direct Experience I. *Dr. Rebecca B. Reynolds*

**541 HIM Health Information Technology and Systems I (3).** Offered annually fall semester; didactic, on-line format. A review of information systems, the evolution and implementation of the electronic health record, including the necessary supporting information and technology infrastructure; and the application of new techniques to the handling of information in patient care situations; systems analysis and design; systems selection and evaluation; project management. *Elizabeth D. Bowman*

**550 HIM Clinical Foundations (3).** Offered annually fall semester; didactic, on-line format. Study of pathophysiology and pharmacology as utilized in health information management practice. Covers disease processes of all body systems. *Elizabeth D. Bowman*

**551 HIM Reimbursement Methodologies in Healthcare (3).** Offered annually summer semester; didactic, on-line format. Coverage of major reimbursement systems in use in healthcare including those for hospitals, long-term care facilities, ambulatory care facilities and home health. Includes compliance, chargemaster and case mix management and healthcare finance. Prerequisites: 511 HIM, Health Information Science and Laboratory I, and 521 HIM, Health Information Science and Laboratory II. *Dr. Marcia Y. Sharp*

**537 HIM Management Affiliation (3).** Offered every semester; clinical practice course. On-site management assignment as an intern in a healthcare facility. Student will gain experience in activities and responsibilities of department directors and other HIM roles. Pre-requisites/co-requisites: All of the HIM 500 level courses. *Dr. Rebecca B. Reynolds*

**600 MHIM Information Technology and Systems (3).** Offered annually fall semester; didactic, on-line format. Broad coverage of technology concepts underlying modern computing and information management as well as survey of the field of health informatics to provide students with the foundation for the program of studies. Topics include overview of concepts in health informatics, information technology infrastructure, information systems management in healthcare, management IT challenges, interoperability and certification of computer systems, Internet, basic computer security including identity and access management, and meaningful use standards. *Dr. Rebecca B. Reynolds*

**601 MHIM Quality Management in Health Services (2).** Offered annually fall semester; didactic, on-line format. Diverse perspectives in quality management and regulation including relevant research and management methodologies of quality, cost and access to healthcare with a focus on the role of health information management. Overview of performance improvement, methods and applications in the area of outcomes research including practice variation, risk adjustment, quality measures and quality management (or quality improvement), practice guidelines, evidence-based medicine, clinical decision support, health-related quality of life, utility assessment, economic evaluations (including cost-effectiveness studies). *Elizabeth D. Bowman, course director*

**602 MHIM Legal Issues in Health Information Technology and Systems (3).** Offered annually spring semester; didactic, on-line format. Examination of legal issues related to electronic-based health information; the growth of computer and communication technologies, including privacy, security, electronic data interchange and compliance related issues; policy, regulatory and related concerns; interpretation and implementation of enterprise information policy. Principles of law applied to the health field with emphasis on federal, state, and local laws affecting health information management practice, confidentiality, and security of information. *Dr. Rebecca B. Reynolds*

**603 MHIM Leadership for Health Information Technology and Systems (3).** Offered annually fall semester; didactic, on-line format. Strategic management and planning, change management, leadership in e-health environment, project management including planning, scheduling, monitoring and reporting, process modeling. This course builds on the foundations of health information management or other professional preparation. Discussion of implementation of electronic health record systems, systems analysis from the enterprise level will be the focus of the class. Students are expected to develop a systems-thinking approach to leading health IT projects. Prerequisites: MHIM 600, 601, 602, 604, 605. *Dr. Marcia Y. Sharp*

**604 MHIM Financial Management for Health Professionals (3).** Offered annually spring semester; didactic, on-line format. Overview of financial statements, components of operational budgeting and capital budgeting and management of capital projects; variance analysis, internal controls, contracts; facility – vendor and/or supplier relationships, cost reporting, reimbursement methods, and return on investment. The course will provide students with the foundation to recognize and to apply key financial principles to help their organizations meet their core business goals. *Richard Warren*

**605 MHIM Healthcare Information Systems (3).** Offered annually spring semester; didactic, on-line format. A survey of fundamental concepts of information technology applied to health care from the perspectives of providers, payers, consumers. Major topics include the electronic health record, health information systems, repositories and data bases, enterprise-wide systems, laboratory, radiology (PACs) systems, voice recognition, physician order entry, telemedicine, decision support systems. Overview of historical, current, and emerging health information systems; concepts and knowledge involved in making strategic use of information technology (IT) in health care organizations and linkages to business, planning, and governance; Overview of multiple systems, vendors, processes and organizations; methodology for evaluation of health information systems. Includes system design methodologies including systems analysis and design; systems selection and evaluation; workflow analysis and project management. *Amanda King, instructor, Dr. Rebecca B. Reynolds, course director*

**606 MHIM Healthcare Vocabularies and Clinical Terminologies (2).** Offered annually summer term; didactic, on-line format. Standard clinical terminologies including SNOMED, Clinical Terms Version 3 (Read Codes), UMLS, ICD-9-CM, ICD-10-CM, and ICD-10-PCS, CPT/HCPCS, medical linguistics, medical vocabulary standards, natural language processing and the role of healthcare vocabularies and clinical terminologies in the electronic health record. *Elizabeth D. Bowman*

**607 MHIM Statistics and Decision Making (3).** Offered annually summer term; didactic, on-line format. Advanced statistical techniques building on existing knowledge of descriptive statistics and fundamental inferential statistics as applied in the field of health information; biostatistics, methods of health data collection, analysis, and interpretation, including descriptive statistics, probability, and hypothesis-testing and confidence interval estimation for normally distributed data; tools in using data to make informed management decisions; use of data from clinical information systems in performing clinical effectiveness research, including the strengths and limitations of these data. *Dr. Marcia Y. Sharp*

**608 MHIM Knowledge Management (3).** Offered annually spring semester; didactic, on-line format. Database theory and methodologies for database design with emphasis on data integrity. Application of decision analysis and knowledge-based systems and decision analysis techniques; Topics include data mining, data marts, data warehouses, clinical data repositories, OLAP and data modeling and obtaining information from clinical and administrative systems. Prerequisites: 601 MHIM, Quality Management in Health Services, and 607 MHIM, Statistics and Decision Making. *Dr. Chanchai McDonald*

**609 MHIM Concepts of Research Methodology (3).** Offered annually fall semester; didactic, on-line format. Discussion of the elements of research, evaluation methodologies including the research process, study design, methods of data collection with emphasis on preparation and evaluation of data collection instruments, statistical analysis of data including use of statistical packages, literature searches, and scientific writing. Prerequisite: 607 MHIM, Statistics and Decision Making. *Dr. Sajeesh Kumar*

**610 MHIM Issues in Health Information Technology Seminar (2).** Offered annually summer term; didactic, on-line format. An exploration of current issues related to health informatics including healthcare policy analysis and development, ethical issues, structure of healthcare delivery systems, assessment of population health, models of health care delivery, access and quality of care issues. Prerequisites: 600 MHIM, Information Technology and Systems, and 605 MHIM, Health Information Systems. *Dr. Sajeesh Kumar and Dr. Rebecca Reynolds*

**613 MHIM Applied Research Project (3).** Offered every semester; independent study course. Rigorous project focused on a real-world informatics setting and application of problem-solving methods for development of solutions. May include original research in the area of health information management, information systems and/or health informatics. Oral and written reports required, including oral presentation and defense of project. Prerequisite: permission of course director. *Dr. Rebecca B. Reynolds and Dr. Sajeesh Kumar*

## Communication

Email is the primary mode of communication for instructor and student interactions. Course information is provided to students via the campus learning management system, BlackBoard, which includes the course syllabus, links to campus resources, reading and supplemental class materials, recorded lectures, testing and assessment, grades and other classroom materials. Faculty may also interact with students via web-conferencing using Adobe Connect, video chat and telephone conferences.

## Grading

The entry-level health informatics and information management program has a competency-based curriculum in which competencies for the entry level health information manager developed by the American Health Information Management Association are used. Graduates of the program are expected to be able to perform the functions as articulated in the competencies. Criterion referenced evaluation is used in each course and students are required to reach the minimum competency level established for the course. Grades are based on written and practical examinations, as well as on performance in directed experience. A student must pass each semester's courses with a grade of "B" in each course in order to progress to the subsequent semester or term or to graduate.

### Grading Scale

A	90-100
B	80-89
C	70-79
D	60-69
F	below 60



## Graduation Requirements - Post-Graduate M.H.I.I.M.

The following requirements must be satisfied to earn the degree of Master of Health Informatics and Information Management:

1. Satisfactory completion of 33 semester credit hours of graduate level coursework.
2. Completion of coursework with a 3.0 average. A grade of “B” or above in each course is required.
3. Satisfactory score on written comprehensive examination.
4. Meeting technical standards for the degree.
5. Discharge of all financial obligations to the University and removal of all deficiencies documented by the Registrar.
6. Attendance at graduation is required. Those unable to attend commencement must obtain permission to receive the degree *in absentia* by filing a written request with the Dean of the College.

## Awards

**Tennessee Health Information Management Association Outstanding Student Award:** This award is presented to a graduating entry-level HIIM student for outstanding academic and clinical ability. The recipient is chosen by health informatics and information management faculty.

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## CERTIFICATE IN HEALTH INFORMATICS AND INFORMATION MANAGEMENT

### Program Objectives

The goal of the Certificate in Health Informatics and Information Management is to provide the basic skills needed to practice in an electronic healthcare environment for the student who does not wish to complete the masters. The certificate curriculum will allow the healthcare practitioner to obtain the basic skills needed to practice in an electronic environment.

### Admission Requirements

1. Baccalaureate degree in a health-related discipline
2. Three letters of recommendation from previous college instructors or immediate supervisors
3. Foreign applicants whose native language is not English must submit results of TOEFL, with minimal score of 550, 213 on the computerized version.
4. Personal interview with the admissions committee
5. Ability to meet published technical standards of the College of Allied Health Sciences and the Department of Health Informatics and Information Management
6. A completed application form including an essay describing the applicant’s career goals.
7. A non-refundable application fee must accompany the application.

### Technical Standards

Certificate of Health Informatics and Information Management students must have or acquire certain essential skills, functions and professional attitudes and behavior as described in the technical standards document. This document is provided upon request to any interested party; however, all students who enroll must be prepared to understand and abide by these requirements. Written and oral communication skills are extremely important.

## Certificate in HIIM Curriculum Summary

Course Work	Semester Hours
MHIM 600 Information Technology and Systems	3
MHIM 605 Healthcare Information Systems	3
MHIM Elective (with approval of the program director)	3

### Course Descriptions

The descriptions for these courses are included under the Master of Health Informatics and Information Management section of this catalog.

### Student Professional Organization Membership

Health Informatics and Information Management students are eligible for membership in the American Health Information Management Association (AHIMA), and are encouraged to join. Dues include a subscription to the *Journal of AHIMA*, access to the AHIMA Body of Knowledge and student membership in the Tennessee Health Information Management Association and the Memphis Health Information Management Association.

### Registration Examination

Following successful completion of the entry-level health informatics and information management program, HIIM students are eligible to apply to write the national registration examination.

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## OCCUPATIONAL THERAPY

Ann H. Nolen, Psy.D., OTR, FAOTA, Interim Chair  
Lawrence W. Faulkner, Ph.D., OT/L, Interim Vice Chair

## MASTER OF OCCUPATIONAL THERAPY PROGRAM (M.O.T.)

### Program Objectives

The curriculum for the Master of Occupational Therapy Program is designed to prepare competent entry-level occupational therapists that can meet the present practice demands of the profession and can utilize advanced problem-solving skills. Based in a strong foundation of liberal arts and of biological and behavioral sciences, students develop expertise in the analysis and therapeutic use of a wide variety of occupations. Students learn to understand and appreciate the role of occupation in the promotion of health, prevention of disease, and minimization of dysfunction. The program promotes both professional and academic development and seeks to graduate future leaders in the profession of occupational therapy who are qualified to sit for the NBCOT certification exam and become licensed.

### Curriculum Description

The curriculum in occupational therapy is a full time program leads to an entry-level master's degree. Students matriculate into the occupational therapy program following successful completion of 90 semester hours of pre-professional coursework. An undergraduate degree is not required for admission to the Program. The program includes 18 months of academic coursework followed by nine months of fieldwork. Students are expected to graduate in May of the third year.

Curriculum courses include: occupation-centered practice, perspectives of development across the lifespan, leadership, evidence-based practice, biomechanical and neurological aspects of occupational performance, management and healthcare policy, and the basic sciences. To provide active learning experiences instructors use small group activities, hands on labs, and two week Level I Fieldworks: pediatric, adult and gerontology practice areas.

Three, 3-month Level II fieldwork placements give the students the opportunity to apply and synthesize knowledge and skills in a variety of both traditional and community based settings. Level I and II Fieldwork sites are available nationally. While the department's Academic Fieldwork Coordinator arranges and monitors the fieldwork experiences, the student is financially responsible for all expenses incurred.

## Admission Requirements

A bachelor's degree is not a requirement for admission to the Master of Occupational Therapy Program. To be eligible, applicants must meet the following requirements:

1. Completion of the following 90 semester hours of pre-requisite coursework with a grade of "C" or better in each course: (The biology, anatomy and physiology, chemistry and physics courses *must be taken within the last five years and each must include a laboratory component*. Higher level science courses may be substituted if current.) No credit is awarded for prior experiential learning to meet the prerequisite requirements.

Prerequisite Requirements	Semester Hours
General Biology (or Zoology)	8
Anatomy & Physiology	8
General Chemistry	4
General Physics or Applied Kinesiology	4
English Composition	6
Oral Communication	3
General Psychology	3
Lifespan Psychology or Human Growth and Development*	3
Abnormal Psychology	3
General Sociology	3
Anthropology	3
Humanities**	9
Statistics	3
Medical Terminology	1
Electives***	<u>29</u>
<b>TOTAL</b>	90

\*Course content **MUST** cover conception to death. Two psychology courses may be required to fulfill the across the lifespan requirement at some institutions.

\*\*Recommended courses to complete the nine semester hours include foreign language (Spanish preferred), philosophy, logic, ethics, literature, and/or fine arts.

\*\*\*Recommended courses include: computer/technology skills, kinesiology, education, technical or critical writing, logic, fine and performing arts, language and communication systems, philosophy, and industrial arts or activity-based courses (e.g., woodworking, ceramics, photography). No more than four credits in activity-based courses are acceptable..

2. Minimum overall grade point average of 3.0 OR a minimum overall grade point average of 2.5 with a satisfactory score on the GRE.
3. Satisfactory score on the GRE taken within the last five years. The highest score in each category will be considered if the test has been taken multiple times.
4. Completed application through the OT Centralized Application Service (OTCAS) [www.otcas.org](http://www.otcas.org) including:
  - A. Submission of all transcripts and GRE scores. Official transcripts and GRE scores must also be submitted to UTHSC.
  - B. An essay which describes the applicant's personal and professional goals, including motivation and knowledge of the field of occupational therapy
  - C. Proof of at least 40 observation hours (non-paid) in a minimum of two different (OT) settings.
  - D. Three reference forms. One must be from an occupational therapist and cannot be the same person who signed the observation form.
  - E. A plan for completion of all remaining prerequisites by the program's January start date.
5. Ability to meet published technical standards of the College of Allied Health Sciences and the Master of Occupational Therapy degree program.

**Application Deadline:** March 1 for the following January admission.

## Health Requirements

Students must demonstrate good physical and mental health consistent with the demands of the educational program and the professional field of occupational therapy. Immunization against Hepatitis B virus is required. Some fieldwork sites have additional requirements for health screening and/or further immunization. A description of the university's current health requirements can be accessed at [www.uthsc.edu/admissions/university-level\\_reqs.php](http://www.uthsc.edu/admissions/university-level_reqs.php)

## Technical Standards

Occupational therapy students must have or acquire certain essential skills, functions and professional attitudes and behavior as described in our Technical Standards document. A description of the technical standards for students in the College of Allied Health Sciences and the Master of Occupational Therapy degree program can be found at [http://www.uthsc.edu/allied/ot/tech\\_standards.php](http://www.uthsc.edu/allied/ot/tech_standards.php)

## Scholarships

The following scholarships are available to students entering the Master of Occupational Therapy Program:

- UTNAA Scholarship
- Chancellor's Scholarship
- Lori Maloy Scholarship

Information about these scholarships is available at the following link on the UTHSC webpage: <https://www.uthsc.edu/allied/Scholarship%20Policies%20and%20Procedures%202009.pdf>

## The Professional Curriculum

### FIRST SEMESTER (Jan–June)

<b>Block I (Jan-mid March)</b>	<b>Semester Hours</b>
ANAT 411 Anatomy	6
OT 431 Leadership Development I	1
OT 437 Perspectives of Early Development (continues in Block II)	3
OT 440 Level I Fieldwork A	1
<i>Two Weeks of Level I Fieldwork A occur between blocks</i>	
<b>Block II (April-early June)</b>	
ANAT 442 Neurobiology	2
OT 430 Biomechanical Aspects of Occupational Performance	3
OT 425 Foundations of Occupation-Centered Practice	4
OT 436 Evidence-Based Practice	2
OT 400 Introduction to Pathology	1
<b>Total Hours for Semester I</b>	<b>23</b>

### SECOND SEMESTER (July–Dec)

<b>Block I (July-August)</b>	
OT 532 Occupation-Centered Group Practice (continues in Block II)	3
OT 536 Research Project Design	2
OT 537 Neurological Aspects of Occupational Performance	3
OT 538 Perspectives of Adult Development	3
OT 540 Level I Fieldwork B*	1
<i>Two Weeks of OT 540 Level I Fieldwork B occur between Blocks.</i>	
<b>Block II (Late September-mid December)</b>	
OT 531 Occupation-Centered Practice in Community Mental Health	4
OT 533 Occupation-Centered Practice in Pediatrics	4
OT 535 Occupation-Centered Practice in Adulthood	4
<b>Total Hours for Semester II</b>	<b>24</b>

### THIRD SEMESTER (Jan–June)

	<b>Semester Hours</b>
<b>Block I</b>	
OT 630 Leadership Development II	2
OT 636 Research Project Implementation	3
OT 641 Perspectives of Aging	3
OT 642 Leadership in Healthcare	4
<i>Two Weeks of OT 540 Level I Fieldwork C occur between blocks.</i>	
<b>Block II</b>	
OT 640 Level I Fieldwork C*	1
OT 633 Occupation-Centered Practice with Older Adults	4
OT 637 Presentation of Research Project	1
OT 638 Special Topics	1
<b>Total Hours for Semester III</b>	<b>19</b>

### FOURTH SEMESTER (July-Dec)

OT 731 Level II Fieldwork	5
OT 732 Level II Fieldwork	5
<b>Total Hours for Semester IV</b>	<b>10</b>

### FIFTH SEMESTER (Jan-Mar)

OT 733 Level II Fieldwork	5
<b>Total Hours for Semester V</b>	<b>5</b>

**TOTAL HOURS IN THE MOT CURRICULUM** **81**

## Course Descriptions

**ANAT 411 Gross Anatomy (6).** Offered annually spring semester; didactic and laboratory course. Study of the gross structure of the human body focusing on the musculoskeletal and cardiovascular systems. Dissection of cadaver supplemented by lecture. *Dr. Joseph Callaway and Dr. Richard Kasser*

**ANAT 442 Neurobiology (2).** Offered annually spring semester; didactic and laboratory course. This course covers the basic organization of the central, peripheral and autonomic nervous system. *Dr. William Armstrong*

**OT 400 Introduction to Pathology (1).** Offered annually spring semester; didactic. An introduction to the pathological origins of disease as they relate to the musculoskeletal respiratory and other major body systems. The course also reviews neoplasia, cell injury, immunopathology and describes its application to occupational therapy. *Dr. Brittany Hoffer*

**OT 425 Foundations of Occupation-Centered Practice (4).** Offered annually Spring semester; didactic and laboratory. This course serves as the foundation for the holistic practice of occupational therapy as defined by the history of the profession and the ethical standards that guide practice. Emphasis will be on the development of the profession as well as development of professional reasoning through the use of professional terminology, activity analysis, the occupational therapy practice framework, basic theoretical and philosophical constructs, knowledge, skills and attitudes essential for successful practice in occupational therapy. *Ms. Susan McFadden*

**OT 430 Biomechanical Aspects of Occupational Performance (3).** Offered annually spring semester; didactic and laboratory. The course will integrate the study of the structure and function of muscles and joints, including electromyography (EMG) and biomechanics. The students will be prepared to consider occupations for therapeutic intervention based on EMG and biomechanical analysis. It will examine properties of muscles and muscle contractions, range of motion, strength and joint structure to address occupational performance dysfunction. The course will help apply the utilization of lower limb muscles in ambulation and stability and help formulate and apply determination of manual muscle range of motion normative data, goniometry measurement and functional range for clinical application, explore joint structure, function and joint categories; and analyze biomechanical principles with particular emphasis on human skeletal levers. The course will provide a basic introduction to splinting. *Ms. Ellen Robertson*

**OT 431 Leadership Development I (1).** Offered annually spring semester; didactic course. Introduction to professional behavior and concepts central to the development of leadership and emphasizing the importance of a strong occupational therapist identity. *Dr. Ann Nolen*

**OT 436 Evidence-Based Practice (2).** Offered annually spring semester; didactic course. This course is designed to develop/increase the ability to collect evidence from published research reports and one's own experience to answer practice related questions. In addition, students will discuss the ethical and practical issues that can influence the search for sound evidence. *Dr. Lawrence Faulkner*

**OT437 Perspectives of Early Development (3).** Offered annually spring semester; didactic course. This course is the study of the conceptual and theoretical basis of occupational therapy practice in childhood. The course will integrate the theoretical principles with developmentally appropriate occupations, adaptive demands, and selected impairment. *Dr. Anita Mitchell*

**OT 440 Level I Fieldwork A (1).** Offered annually spring semester; clinical practice. Level I Fieldwork includes those experiences designed as an integral part of didactic courses for the purpose of directed observation and participation in selected field settings. It does not emphasize independent student performance. Students will complete fieldwork related assignments designed to stimulate critical reasoning and application of occupational therapy principles in a clinical setting. The occupational therapy concepts highlighted in this course include: the occupational profile, client factors, performance patterns, context, and client performance, collaboration between client and practitioner, and health promotion. Students are financially responsible for fieldwork related expenses. *Dr. Lisa Tekell*

**OT 531 Occupation Centered Practice in Community Mental Health (4).** Offered annually fall semester; didactic and laboratory course. This course uses theory, evidence and problem solving skills to develop a conceptual framework for occupation centered practice with mental health clients in community mental health settings. This course includes observation experience with clients in various stages of life and in a variety of community mental health treatment settings. Students will use clinical reasoning in the selection of theoretical approach, data gathering, treatment planning and intervention. Occupational therapy assessments that are applicable to community settings will be introduced and practiced. Focus is on community practice and the psychosocial understanding of challenges faced by clients with mental illnesses during their recovery and community reintegration process. *Dr. Ann Nolen*

**OT 532 Occupation-Centered Group Practice (3).** Offered annually fall semester; didactic and laboratory course. This course examines the dynamics of group interaction and how activity and occupation may be utilized in the group experience to promote participation for health and well-being. Through the small group experiences, the student will develop leadership skills and practice teamwork. *Ms. Rosemary Batorski*

**OT 533 Occupation-Centered Practice in Pediatrics (4).** Offered annually fall semester; didactic and laboratory course. This course provides opportunities for the application of theoretical constructs of occupational therapy practice, including the evidence base for client-centered assessment and intervention approaches. It will require utilization of the systems approach, taking into the account the individual, the context of his/her functioning, and his/her perception of quality of life, well-being, and occupation. *Dr. Anita Mitchell*

**OT 535 Occupation-Centered Practice in Adulthood (4).** Offered annually fall semester; didactic and laboratory course. This course promotes the application of theoretical constructs of occupational therapy practice, including the evidence base for client-centered assessment and intervention approaches. It requires utilization of the systems approach, taking into account the individual, the context of his/her functioning, and his/her perception of quality of life, well-being, and occupation. *Ms. Ellen Robertson*

**OT 536 Research Project Design (2).** Offered annually fall semester; didactic and mentor led group independent study. This course includes principles of research design, critical analysis of occupational therapy research, preparation of the literature review, and completion of a proposal for a selected project or presentation. Introduction to clinical inquiry skills for qualitative and quantitative research is also included. Emphasis on problem definition, research design and methodology, including differential and inferential statistical analysis. Students will begin the proposal for the project or presentation. *Dr. Lawrence Faulkner*

**OT 537 Neurological Aspects of Occupational Performance (3).** Offered annually fall semester; didactic course. This course considers the function and dysfunction associated with anatomy and physiology of the nervous system. Emphasis is on clinical manifestations associated with occupational performance in the sensory, motor, cognitive and psychosocial domains. *Ms. Ellen Robertson*

**OT 538 Perspectives of Adult Development (3).** Offered annually fall semester; didactic course. This course is the study of the conceptual and theoretical basis of occupational therapy practice in adulthood. The course will integrate the theoretical principles with developmentally appropriate occupations, adaptive demands and selected impairments. *Dr. Brittany Hoffer*

**OT 540 Level I Fieldwork B (1).** Offered annually fall semester; clinical practice. Level I Fieldwork includes those experiences designed as an integral part of didactic courses for the purpose of directed observation and participation in selected field settings. It does not emphasize independent performance. Students will complete fieldwork related assignments designed to stimulate critical reasoning and application of occupational therapy principles in a clinical setting. The occupational therapy concepts highlighted in this course include: the occupational profile, client factors, performance patterns, context, client performance, collaboration between client and practitioner, and health promotion. Students are financially responsible for fieldwork related expenses. *Dr. Lisa Tekell*

**OT630 Leadership Development II (2).** Offered annually spring semester; clinical practice hybrid. This course focuses on level II fieldwork responsibilities and prepares the student for this role. Emphasis will be on innovative leadership, interpersonal skills and client diversity. This course transitions the student, preparing them for licensing and practice requirements. *Dr. Lisa Tekell*

**OT 633 Occupation-Centered Practice with Older Adults (4).** Offered annually spring semester; didactic and laboratory course. This course involves application of theoretical constructs of occupational therapy practice, including the evidence basics for client-centered assessment and intervention approaches. It will require utilization of the systems approach, taking into account the individual, the context of his/her functioning, and his/her perception of quality of life, well-being and occupation. *Dr. Brittany Hoffer*

**OT 636 Research Project Implementation (3).** Offered annually spring semester, didactic and mentor led group independent study. Implementation of the proposal for the project or presentation, including needs assessment, distribution of surveys, data collection and analysis. *Dr. Lawrence Faulkner*

**OT 637 Presentation of Research Project (1).** Offered annually spring semester; didactic and mentor led group independent study. Preparation of a presentation or investigative project in partial fulfillment of the requirements of a master's degree program. Professional contribution through submission of a manuscript to a professional publication, or presentation at a professional meeting is expected. *Dr. Lawrence Faulkner*

**OT638 Special Topics (1).** Offered annually spring semester; didactic and laboratory course. This course will provide focused training and exploration of current practices or topics in occupational therapy. The content varies based upon practice demands or literature trends. Examples include autism spectrum disorders, physical agent modalities, advanced splinting, recovery model or occupational justice. *Dr. Lawrence Faulkner*

**OT 640 Level I Fieldwork C (1).** Offered annually spring semester; clinical practice. Level I Fieldwork includes those experiences designed as an integral part of didactic courses for the purpose of directed observation and participation in selected field settings. It does not emphasize independent performance. Students will complete fieldwork related assignments designed to stimulate critical reasoning and application of occupational therapy principles in a clinical setting. The occupational therapy concepts highlighted in this course include: the occupational profile, client factors, performance patterns, context, client performance, collaboration between client and practitioner, and health promotion. Students are financially responsible for fieldwork related expenses. *Dr. Lisa Tekell*

**OT641 Perspectives of Aging (3).** Offered annually spring semester; didactic and laboratory course. This course focuses in on Level II fieldwork responsibilities and prepares the student for this role. Emphasis will be on leadership, interpersonal skills, and diversity. *Ms. Rosemary Batorski*

**OT642 Leadership in Healthcare (4).** Offered annually spring semester; didactic. The occupational therapist of the future is expected to be a leader in shaping healthcare policy, providing client advocacy, and managing occupational therapy services. This course will provide the knowledge and understanding of the various contexts, such as professional, social, cultural, political and ecological in which occupational therapy services are provided. Management of occupational therapy services will include the application of principles of the management and systems in the provision of OT services to individuals and organizations. *Dr. Ann Nolen Course to be offered as of Spring, 2014*

**OT 731 Level II Fieldwork (5).** Offered annually fall semester; clinical practice. The first Level II Fieldwork experience is designed to facilitate students' personal and professional development. The integration and application of clinical reasoning and practical skills will be required in each of three placements. Students will experience a range of client populations and settings to include psychosocial, physical disabilities, and an area of special interest to the student. The fieldwork experience is provided at approved facilities with supervision that meets ACOTE accreditations standards. Permission from the Academic Fieldwork Coordinator is required. Students are responsible for all costs related to fieldwork experiences; placements may be required out-of-state. *Dr. Lisa Tekell*

**OT 732 Level II Fieldwork A (5).** Offered annually fall semester; clinical practice. The second Level II Fieldwork experience is designed to facilitate the student's personal and professional development. The integration and application of clinical reasoning and practical skills will be required in three placements. Students will experience a range of client populations and settings to include psychosocial, physical disabilities, and an area of special interest to the student. The fieldwork experience is provided at approved facilities with supervision that meets ACOTE accreditations standards. Permission from the Academic Fieldwork Coordinator is required. Students are responsible for all costs related to fieldwork experiences; placements may be required out-of-state. *Dr. Lisa Tekell*

**OT 733 Level II Fieldwork B (5).** Offered annually spring semester; clinical practice. The third Level II Fieldwork is designed to facilitate the student's personal and professional development. The integration and application of clinical reasoning and practical skills will be required in each of three placements. Students will experience a range of client populations and settings to include psychosocial, physical disabilities, and an area of special interest to the student. The fieldwork experience is provided at approved facilities with supervision, which meets ACOTE accreditations standards. Permission from the Academic Fieldwork Coordinator is required. Students are responsible for all costs related to fieldwork experiences; placements may be required out-of-state. *Dr. Lisa Tekell*

**OT 734 Advanced Level II Fieldwork C (1-5).** Elective clinical practice offered as needed. The advanced fieldwork is open to a limited number of students. Permission from the Academic Fieldwork Coordinator is required. Students are responsible for all costs related to fieldwork experiences; placements may be required out-of-state. *Dr. Lisa Tekell*



## Attendance Requirement

Occupational therapy students are expected to attend all scheduled classes, student labs, and fieldwork assignments. In the case of absence due to illness or emergency, the student should notify the course instructor. For any other absences, prior arrangements must be made with the specific instructor(s) involved. Appointments for health services should not be made during scheduled class time.

## Fieldwork

Level I and Level II fieldwork sites are located in Memphis, throughout Tennessee, and in other states. Due to the limited number of clinical sites in Memphis, it is necessary for students to accept the financial impact of traveling and living out of town for a number of their clinical assignments.

## Grading Policy

Written and practical examinations and performance evaluations are a part of the educational program throughout the curriculum. All courses in each semester must be passed before the student is allowed to progress to the next semester. All courses that receive an incomplete (I) must be resolved by the end of the subsequent semester. No credit for any course is awarded until the end of the semester. The point-grade conversion scale used for all courses taught by occupational therapy faculty is as follows:

94-100	=	A
86-93	=	B
78-85	=	C
70-77	=	D
Below 70	=	F

## Progress and Promotion

Students are evaluated on both professional development and academic achievement. Students must maintain a GPA of 3.0 on a 4.0 scale in order to progress to the next semester in good standing. Any student who earns a grade of C or less in any course or whose GPA falls below a 3.0 may be placed on academic probation or dismissed. All students must complete all coursework with a cumulative GPA of 3.0 to be eligible for Level II fieldwork. Using the guidelines outlined for progress and promotion under the General Information section in the present document/*catalog* for the College of Allied Health Sciences, each student's academic and professional development will be carefully evaluated by the Progress and Promotions Committee of the program to determine the course of action which is best for the student and for the program.

## Requirements for Graduation

The following requirements must be satisfied to earn the Master of Occupational Therapy Degree:

1. Satisfactory completion of 90 semester hours of specific prerequisite coursework.
2. Satisfactory completion of 81 semester hours of professional curriculum course work, including satisfactory performance in 15 hours of Level II Fieldwork. *Level II Fieldwork requirements must be completed within the 24 months following completion of on-campus academic coursework*
3. Completion of all courses with an overall average of at least a 3.0.
4. Demonstration of the level of professionalism necessary for the professional practice of occupational therapy.
5. Ability to meet the minimal technical standards or essential skills necessary for the professional practice of occupational therapy.
6. Satisfactory completion of a 6 credit hour research-based individual or group project or thesis, approved by a committee includes at least one faculty member from the Department of Occupational Therapy.
7. Submission and satisfactory completion of all assignments related to fieldwork and the professional development evaluation.

*Attendance at graduation is mandatory. Those unable to attend the commencement must obtain permission to receive the degree in absentia by filing a written request with the Dean of the College.*

## **Awards**

### ***Achievement Award in Occupational Therapy***

Each year the faculty selects a graduating student who has been outstanding in both the academic and fieldwork aspects of their education.

### ***Leadership Award in Occupational Therapy***

For this award faculty and students select a graduating student who has demonstrated the professional characteristics of outstanding leadership in both academic coursework and during the fieldwork rotations.

## **Certification Examination and Licensure**

Graduates with a master of occupational therapy qualify to sit for the national certification examination administered through the National Board of Certification for Occupational Therapy (NBCOT). Information regarding this process may be found at their website, <http://www.nbcot.org>. Students must consult the licensure board in the state where they plan to practice to determine licensure requirements.

## **Accreditation**

The Accreditation Council of Occupational Therapy Education (ACOTE) has accredited the Master of Occupational Therapy Program through the 2012/2013 academic year. ACOTE is located at 4720 Montgomery Lane, P.O. Box 31220, Bethesda, MD, 20824-1220. Telephone: (301) 652-7711; E-mail: [accred@aota.org](mailto:accred@aota.org)

## **Student Professional Organization Membership**

Occupational therapy students are eligible for membership in the Student Occupational Therapy Association (SOTA).

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## **PHYSICAL THERAPY**

Carol Counts Likens, PhD, PT, MBA, Chairman  
Pamela Ritzline, EdD, PT, Director, Post-Professional Program in Physical Therapy  
930 Madison Ave., Suite 640 (901) 448-5888

The Department of Physical Therapy offers three degree programs: Doctor of Physical Therapy (DPT); Master of Science in Physical Therapy (MSPT); Doctor of Science in Physical Therapy (ScDPT); and one degree completion program (transitional Doctor of Physical Therapy; DPT).

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## **DOCTOR OF PHYSICAL THERAPY PROGRAM (D.P.T.)**

Carol Counts Likens, PhD, PT, MBA, Program Director

### **Objectives of the DPT Program**

The objectives of the Doctor of Physical Therapy degree program are to provide to enrolled students a quality education that requires accumulation of scientific knowledge, acquisition of essential physical therapy skills and the development of professional attitudes and behaviors. Graduates of the program are qualified to sit for the National Physical Therapist Examination. A passing score on the examination is required for licensure as a physical therapist.

### **Curriculum Description**

The Department of Physical Therapy is located within the College of Allied Health Sciences. The program is designed as a full time "4 + 3" program that leads to the Doctor of Physical Therapy degree. Students complete four years of pre-professional coursework at other colleges or universities, and then complete three years of professional education on the campus of the University of Tennessee Health Science Center. Candidates are required to have a baccalaureate degree prior to admission. Students matriculate in the fall semester and graduate at the end of the winter/spring semester (May), three years later, after completion of all academic and clinical internship requirements. Clinical internship sites are located in Memphis, throughout Tennessee, and in surrounding states. Due to the limited number of clinical sites in Memphis and other urban areas, students should anticipate the financial impact of traveling and

living out of town for the majority of their clinical internships. The intent of the clinical internships is to provide the student with broad exposure to physical therapy practice in a variety of settings and geographic locations. As a rule, no student will be allowed to complete all clinical internship experiences in any one geographic location.

### Admission Requirements

To be eligible for consideration for admission, applicants must fulfill the requirements listed below. Meeting the minimum requirements does NOT assure admission to the Doctor of Physical Therapy program. Priority is given to residents of Tennessee. Applicants whose native language is not English must submit results of TOEFL, with minimal score of 550.

1. A baccalaureate degree and all prerequisite courses must be completed prior to enrollment, with a minimum cumulative grade point average of 2.85 on a 4.00 scale. Grades of "D" in required courses are not acceptable. Experience has shown that generally a cumulative GPA of at least 3.00 must be presented for an applicant to be competitive.
  - If a required course is repeated, both grades are calculated into the cumulative GPA, but the credit hours assigned to the course may be counted only once in fulfilling the required number of hours.
  - Credit hours earned for non-theory courses in physical education, music, and military science are not accepted in fulfillment of prerequisite hours or as elective hours.
  - Credit for science courses completed more than five years prior to application will be carefully reviewed by the Admissions Committee and may not be accepted in fulfillment of the required number of hours.
  - Courses completed in a PTA program may not be used in fulfillment of any science course required for admission to the UTHSC physical therapy program. Selected coursework completed in a PTA program may be accepted in partial fulfillment of the required number of elective hours.
  - Transcripts from foreign education institutions are not considered.
  - The following 19 hours of pre-requisite courses must be completed and reported on official transcripts before an application will be considered for admission: Biology I, Chemistry I, Physics I, Anatomy and Physiology I, and Psychology I
2. A competitive score on the verbal and quantitative sections of the Graduate Record Examination is required.
3. A completed application to the **Physical Therapist Centralized Application Services (PTCAS)** at [www.ptcas.org](http://www.ptcas.org) must be received by October 1<sup>st</sup> for fall admission, and January 16<sup>th</sup> for spring admission. ALL application materials, including transcripts, GRE scores, and pre-professional evaluation, must be received by the UTHSC Admissions Committee within four (4) weeks after the PTCAS deadline or the student will be denied.
4. A personal interview, if requested (based on science/math/psychology GPA and GRE score), is required for admission.
5. One completed pre-professional evaluation on the PTCAS site from either an applicant's basic science professor *OR* the applicants academic advisor.
6. Applicants must demonstrate good physical and mental health consistent with the demands of the educational program.
7. Applicants who accept a position in the program must declare the ability to fulfill the Technical Standards for Admission to the College of Allied Health Sciences, Department of Physical Therapy. These standards may be found at [http://www.uthsc.edu/allied/pt/pt\\_tech\\_stand.php](http://www.uthsc.edu/allied/pt/pt_tech_stand.php).
8. Coursework from another physical therapy program may not be transferred to meet the requirements for admission to or graduation from the DPT program.

Prior to enrollment, the following courses must be completed with grades of “C” or better. Science courses that are delivered in a virtual or online format are not acceptable.

<b>Courses</b>	<b>Semester Hours</b>
Biological Sciences* (must include General Biology or General Botany And General Zoology)	8
Anatomy and Physiology*	8
General Chemistry*	8
General Physics*	8
Mathematics <sup>1</sup>	3
Statistics <sup>2</sup>	3
General Psychology <sup>3</sup>	6
Humanities/Social Sciences <sup>4</sup>	12
English Composition	6

*\*Must include laboratory experiences*

1. Student must complete coursework that fulfills physics prerequisite.
2. Statistics - content must include nonparametric and parametric statistics, descriptive and inferential statistics, including analysis of variance. Use of statistical techniques with data sets, interpretation of statistical results and computer interaction in data analysis are strongly recommended. Biomedical statistics, education statistics, psychology statistics as well as statistics courses in the math department are acceptable.
3. Must include General Psychology I and II or General Psychology I and either Human Growth and Development or Abnormal Psychology.
4. Recommended courses to complete humanities/social science courses are: additional psychology, sociology, anthropology, economics, counseling, human relations, political science, humanities, art history, philosophy or logic, English literature, history, foreign language, fine arts, religion.

### **Factors Considered in the Selection of Students**

Factors utilized by the Admissions Committee include, but are not necessarily limited to:

1. Academic Record. Past academic performance is considered an indication of the probability of an applicant’s completing the academic portion of the program successfully. As noted, the minimum GPA required for admission is 2.85; however, the average GPAs of recent entering classes has been 3.5 or higher.
2. Graduate Record Examination scores.
3. Personal Interview. Students admitted to the professional program are selected on a competitive basis. The personal interview explores areas such as: experience and knowledge of the profession, interpersonal skills, communication skills, problem solving abilities and professional potential.
4. Motivation and Knowledge of the Field. The Admissions Committee believes that students who know the most about what physical therapists do are most likely to take maximum advantage of the educational opportunities in the physical therapy education program. Interest in and knowledge of the field may be evidenced by an applicant’s having taken advantage of available opportunities for learning about physical therapy. No set numbers of observational/volunteer/actual work experience hours are required. However, students who have been successful in gaining admission to the program typically have over 100 hours with a variety of diagnoses. These students were also successful in expressing their overall knowledge of the field of physical therapy during their individual interviews.

## The Professional Curriculum

The schedule of a physical therapy student is rigorous. Because of the time required for attending lectures, laboratories and clinical assignments, plus the time necessary for study and practice, students are encouraged to minimize outside work commitments during the time they are enrolled in the program.

The following is a summary of the required courses included in the Doctor of Physical Therapy professional curriculum. Required courses are offered annually in the terms indicated.

	Credit Hrs	Lect Hrs	Lab Hrs
<b>(1) FALL SEMESTER I (August–December)</b>			
500 PT - Basic Pathology for Physical Therapists	2	30	0
501 PT – Principles of Research	3	45	0
502 PT - Neurobiology for Physical Therapists	3	45	0
505 PT - Fundamentals of Physical Therapy	2	20	24
506 PT - Psychosocial Aspects of Physical Therapy	3	46	0
510 PT - Applied Exercise Physiology for Physical Therapists	3	46	12
514 PT - Clinical Procedures I	3	30	40
609 PT - Professional, Ethical, and Supervisory Issues	2	30	0
<b>TOTAL</b>	<b>21</b>	<b>292</b>	<b>76</b>
<b>(2) SPRING SEMESTER I (January–June)</b>			
511 ANAT - Gross Anatomy	6	60	60
520 PT - Introduction to Therapeutic Exercise	2	20	22
522 PT - Physical Therapy in Neurological Disorders I	4	45	26
523 PT - Physical Evaluation Procedures	5	45	60
525 PT - Applied Pathology	3	45	0
526 PT - Kinesiology/Pathokinesiology	4	65	0
528 PT - Physical Therapy in Orthopedics I	3	36	16
529 PT - Fundamentals of Imaging for Physical Therapists	1	15	0
530 PT - Evidence-Based Practice I	1	15	0
712 PT – Fundamentals of Epidemiology	3	45	0
<b>TOTAL</b>	<b>32</b>	<b>391</b>	<b>184</b>
<b>(3) FALL SEMESTER II (July–December)</b>			
600 PT - Physical Therapy in Neurological Disorders II	5	66	26
601 PT – Evidence-Based Practice II	1	15	0
602 PT – Service Learning in Physical Therapy I	1	15	0
603 PT - Clinical Internship I	2	Clin Ed – 5 wks	
604 PT - Pharmacology in Physical Therapy	2	30	0
605 PT - Physical Therapy in Orthopedics II	4	42	32
607 PT – Physical Therapy in Cardiopulmonary Disorders	2	20	10
614 PT - Health and Wellness	3	45	0
<b>TOTAL</b>	<b>20</b>	<b>233</b>	<b>68</b>

	Credit Hrs	Lect Hrs	Lab Hrs
<b>(4) SPRING SEMESTER II (January - June)</b>			
613 PT – Physical Therapy in Geriatrics	2	33	2
623 PT - Clinical Internship II	2	(Clin Ed-5 wks)	
624 PT - Physical Therapy in Neurological Disorders III	4	46	16
625 PT – Evidence Based Practice III	1	15	0
626 PT – Service Learning in Physical Therapy II	1	15	0
629 PT - Physical Therapy in Orthopedics III	4	45	35
633 PT - Clinical Procedures II	2	20	30
<b>TOTAL</b>	<b>16</b>	<b>174</b>	<b>83</b>
<b>(5) FALL SEMESTER III (July - December)</b>			
622 PT – Prosthetics and Orthotics	3	35	26
637 PT – Issues in Women’s Health	1	16	8
638 PT - Administration in Physical Therapy	4	60	0
701 PT - Clinical Procedures III	1	12	10
702 PT - Clinical Internship III	3	(Clin Ed-8 wks)	
703 PT - Physical Therapy in Integumentary Disorders	1	20	12
704 PT – Physical Therapy in Pediatrics	5	60	30
708 PT – Differential Diagnosis in Physical Therapy	2	30	2
709 PT – Evidence-Based Practice IV	1	15	0
<b>TOTAL</b>	<b>21</b>	<b>248</b>	<b>88</b>
<b>(6) SPRING SEMESTER III (January - June)</b>			
706 PT - Clinical Internship IV	6	(Clin Ed-8 wks)	
707 PT - Clinical Internship V	6	(Clin Ed-8 wks)	
<b>TOTAL</b>	<b>12</b>		
<b>ELECTIVES (Term and courses vary)</b>	<b>3</b>		
<b>TOTAL HOURS FOR CURRICULUM</b>	<b>125</b>		

## Course Descriptions

**500 PT Basic Pathology for Physical Therapists (2).** Offered annually fall semester; didactic, hybrid course. Study of inflammation and repair, infectious and neoplastic disease, and immunologic responses. Students learn pathology incidence, etiology, pathogenesis, and medical management. Emphasis on cardiovascular, integumentary, musculoskeletal, and nervous system disorders encountered in physical therapy. Course director: Dr. Pamela Ritzline

**501 PT Principles of Research (3).** Offered annually fall semester; didactic course. Introduction to basic research concepts and statistical analyses. Students learn to design and implement a research project and analyze data for hypothesis testing. Clinical, educational, and administrative topics are explored. Emphasis on creating critical consumers of professional literature. Course director: Professor Jonathan Rose

**502 PT Neurobiology for Physical Therapists (3).** Offered annually fall semester; didactic course. Basic structure and function of the central, peripheral, and autonomic nervous systems. Includes clinical applications. Course director: Dr. Richard Kasser

**505 PT Fundamentals of Physical Therapy (2).** Offered annually fall semester; didactic and laboratory course. Introduction to basic care skills including the use of medical terminology, patient positioning, management of basic medical equipment, wheelchair management, aseptic technique, assessment of vital signs, passive range of motion, transfer training, gait training, and documentation. Information on ADA and architectural barriers is presented. Course director: *Dr. Ann Coleman*

**506 PT Psychosocial Aspects of Physical Therapy (3).** Offered annually fall semester; didactic course. Section one: includes effective communication, principles of education, conflict management, stress management, assertiveness, and introduction to communicating with clients who speak Spanish. Section two: addresses the patient and family in the health care system, including sexuality, impact of disability, addictive behaviors, grief processes, death and dying, children's reactions to illness, HIV/AIDS, and selected counseling techniques. Course director: *Dr. Ruth Mulvany*

**510 PT Applied Exercise Physiology for Physical Therapists (3).** Offered annually fall semester; didactic and laboratory course. Basic concepts of exercise physiology including response of pulmonary, cardiovascular, neuromuscular and endocrine systems to exercise. Course director: *Dr. Richard Kasser*

**511 ANAT Gross Anatomy (6).** Offered annually spring semester; didactic and laboratory course. Study of the gross structure of the human body focusing on the musculoskeletal and cardiovascular systems. Dissection of cadaver supplemented by lecture. Course director: *Dr. Joseph Callaway*

**514 PT Clinical Procedures I (3).** Offered annually fall semester; didactic and laboratory course. Theoretical basis and application of physical agents including cryotherapy, thermotherapy, ultrasound, hydrotherapy, electromagnetic radiation, and intermittent pneumatic compression. Includes introduction to massage. Course director: *Dr. Judy Clifft*

**520 PT Introduction to Therapeutic Exercise (2).** Offered annually spring semester; didactic and laboratory course. Principles of therapeutic exercise to promote strength, flexibility and function. Concepts applied to rehabilitation for impairments, pain, and movement disorders as well as for health and wellness. Course director: *Dr. Ruth Mulvany*

**522 PT Physical Therapy in Neurological Disorders I (4).** Offered annually spring semester; didactic and laboratory course. Physical therapy examination and assessment of adult neuromotor disorders. Evidence based practice of various tools and measurements. Concepts and theories of motor control, motor development and motor learning are introduced. Includes medical diagnostic procedures. Course director: *Dr. Mitzi Zeno*

**523 PT Physical Evaluation Procedures (5).** Offered annually spring semester; didactic and laboratory course. Basic skills utilized to evaluate the musculoskeletal and neuromuscular systems. Development of palpation skills, active and passive range of motion assessment, goniometry, posture evaluation, gait evaluation, girth measurements, manual muscle testing, and neurological screening. Course director: *Dr. Ruth Mulvany*

**525 PT Applied Pathology (3).** Offered annually spring semester; didactic course. Physicians and clinical specialists cover general medical and orthopedic concepts including: oncology, infectious disease, laboratory values, trauma, inflammatory and non-inflammatory joint and connective tissue conditions, and pediatric and congenital disorders. Emphasis on medical and surgical management. Course director: *Dr. Pamela Ritzline*

**526 PT Kinesiology/Pathokinesiology (4).** Offered annually spring semester; didactic and laboratory course. Fundamental biomechanical and kinesiological principles, including kinematics and kinetics, of human movement related to anatomical and neuroanatomical structures under normal and pathological conditions. Includes structure and function of human musculoskeletal system, biomechanics, and movement analysis of human motion. Course director: *Dr. Audrey Zucker-Levin*

**528 PT Physical Therapy in Orthopedics I (3).** Offered annually spring semester; didactic and laboratory course. Orthopedic management principles for chronic, rheumatologic, post-operative, and skeletal impairments. Application of therapeutic exercises, assistive devices, thermal and acoustic modalities, and soft tissue mobilization techniques. Emphasis on clinical impairment identification and prioritization, plan of care development, and treatment delivery. Course director: *Professor Jonathan Rose*

**529 PT Fundamentals of Imaging for Physical Therapists (1).** Offered annually spring semester; didactic course. Overview of the fundamentals of diagnostic imaging and the role of imaging in physical therapy. Course director: *Dr. Pamela Ritzline*

**530 PT Evidence-Based Practice I (1).** Offered annually spring semester; didactic and independent project course. Introduction to evidence-based practice (EBP). Includes formulating clinical questions, searching evidence-based resources, appraising evidence, and applying evidence to practice. Course director: *Dr. Judy Clift*

**600 PT Physical Therapy in Neurological Disorders II (5).** Offered annually fall semester; didactic and laboratory course. Pathophysiology, clinical manifestations, examination and management of pediatric and adult neuromuscular disorders including congenital and traumatic spinal cord injuries, motor neuron diseases, myopathies and selected neuropathies using a multidisciplinary approach. Course director: *Dr. Mitzi Zeno*

**601 PT Evidence-Based Practice II (1).** Offered annually fall semester; didactic and independent project course. Faculty-mentored group activities to develop evidence-based plan of care for patients/clients seen during Clinical Internship I. Course director: *Dr. Judy Clift*

**602 PT Service Learning in Physical Therapy I (1).** Offered annually fall semester; didactic and independent project course. Active participation in a service project organized with community partners. Course director: *Dr. Carol Likens*

**603 PT Clinical Internship I (2).** Offered spring semester; clinical practice. Five weeks of supervised clinical experience in selected physical therapy settings with emphasis on developing professional behaviors in the clinical environment. Observation in all areas of patient care and participation in developing physical therapy skills in areas in which the student has completed the required coursework. Course director: *Dr. Laura Eison*

**604 PT Pharmacology in Physical Therapy (2).** Offered annually fall semester; didactic, on-line format. Overview of drug administration, absorption, distribution, and elimination. Includes introduction to pharmacology of the CNS, ANS, cardiovascular system, and endocrine system; drugs affecting skeletal muscle; drugs used to treat pain and inflammation; and chemotherapy. Course director: *Dr. Audrey Zucker-Levin*

**605 PT Physical Therapy in Orthopedics II (4).** Offered annually fall semester; didactic and laboratory course. Physical therapy evaluation of and intervention for non-surgical musculoskeletal dysfunctions of the extremities. Emphasis on manual therapy skill development in lab. Introduction to adult and child sports physical therapy. Course director: *Dr. Susan Appling*

**607 PT Physical Therapy in Cardiopulmonary Disorders (2).** Offered annually fall semester, didactic and laboratory hybrid course. Management of individuals with cardiovascular and pulmonary dysfunction. Includes medical/surgical management and emphasizes physical therapy management. Course director: *Dr. Dianne Jewell*

**609 PT Professional, Ethical, and Supervisory Issues (2).** Offered annually fall semester; didactic course. Discussions of current issues that affect the practice of physical therapy. Concepts of professionalization with emphasis on history and development of physical therapy. Learning experiences include delegation and supervision of patient care activities; legal and regulatory parameters of physical therapy practice; safe, ethical, and legal practice. Course director: *Dr. Pamela Ritzline*

**613 PT Physical Therapy in Geriatrics (2).** Offered annually spring semester; didactic course. Designed to facilitate understanding of older adults and their special needs and to promote concepts of successful aging based on physical therapy evaluation and intervention. Cognitive impairments, dementia, biological, socioeconomic, and functional changes due to aging will be discussed. Course director: *Dr. Ruth Mulvany*



**614 PT Health and Wellness (3).** Offered annually fall semester; didactic course. Includes health promotion, health education, and models for behavior change. Health and wellness programs presented with emphasis on intervention, prevention, and promotion of health, wellness and fitness across the lifespan. Focus on *Healthy People 2020*. Course director: *Dr. Susan Appling*

**622 PT Prosthetics and Orthotics (3).** Offered annually fall semester; didactic and laboratory course Upper and lower extremity prosthetics and orthotics, spinal orthotics, assistive technology, wheelchair design and adaptive seating. Options, components, assessment, measurement, prescription, management and patient instruction. Course director: *Dr. Audrey Zucker-Levin*

**623 PT Clinical Internship II (2).** Offered spring semester; clinical practice course. Five weeks of supervised clinical experience in selected physical therapy settings. Observation in all areas of patient care and participation in developing physical therapy skills in areas in which the student has completed the required coursework. Course director: *Dr. Laura Eison*

**624 PT Physical Therapy in Neurological Disorders III (4).** Offered annually spring semester; didactic and laboratory course. Pathophysiology, clinical manifestations, and management of selected adult upper motor neuron disorders including cerebrovascular accidents, brain injuries, disorders of the basal ganglia and cerebellum, and central nervous system infections and tumors. Course director: *Dr. Ann Coleman*

**625 PT Evidence-Based Practice III (1).** Offered annually spring semester; didactic and independent project course. Faculty-mentored group activities to develop evidence-based plan of care for patients/clients seen during Clinical Internship II. Course director: *Dr. Judy Clifft*

**626 PT Service Learning in Physical Therapy II (1).** Offered annually spring semester; independent project course. Active participation in a service project organized with community partners. Course director: *Dr. Carol Likens*

**629 PT Physical Therapy in Orthopedics III (4).** Offered annually spring semester; didactic and laboratory course. Physical therapy evaluation and intervention for musculoskeletal dysfunctions of the spine and trunk. Emphasis on manual therapy skills development. Topics also include TMJ dysfunction, industrial physical therapy, and sacroiliac dysfunction. Course director: *Dr. Susan Appling*

**633 PT Clinical Procedures II (2).** Offered annually spring semester; didactic and laboratory course. Theoretical basis and application of electrotherapy for motor response, pain control, and tissue repair. Includes use of NMES, FES, TENS, IFC, RC, HVPC and iontophoresis. Course director: *Dr. Judy Clifft*

**637 PT Issues in Women's Health (1).** Offered annually fall semester; didactic and laboratory course. Women's health issues from adolescence to post-menopause. Common problems encountered during pregnancy and post-partum as well as a variety of gynecological disorders. Self-care and preventive strategies are included. Course director: *Dr. Mitzi Zeno*

**638 PT Administration in Physical Therapy (4).** Offered annually fall semester; didactic course. Topics include organizational theory and structure, personnel recruitment and retention, planning, policies and procedures, quality assurance, risk management, cost analyses, budgeting, marketing, regulation and public health policy. Course director: *Dr. Carol Likens*

**701 PT Clinical Procedures III (1).** Offered annually fall semester; didactic and laboratory course. Electrical testing procedures used in physical therapy including nerve conduction testing and electromyography. Introduction to biofeedback included. Course director: *Dr. Judy Clifft*

**702 PT Clinical Internship III (3).** Offered annually fall semester; clinical practice course. Eight weeks of supervised clinical experience in selected physical therapy settings with emphasis on developing increased independence and clinical reasoning skills. Course director: *Dr. Laura Eison*

**703 PT Physical Therapy in Integumentary Disorders (1).** Offered annually fall semester; didactic and laboratory course. Emphasis on physical therapy management of patients with open wounds, burns, and dermatologic disorders. Course director: *Dr. Judy Clifft*

**704 PT Physical Therapy in Pediatrics (5).** Offered annually fall semester; didactic and laboratory course. Includes normal child development and childhood conditions, including inborn or acquired, genetic, neurological and orthopedic disorders, followed by physical therapy assessment and interventions. Family, caregiver, social and environmental issues will be discussed. Course director: *Professor Roberta Gatlin*

**706 PT Clinical Internship IV (6).** Offered annually spring semester; clinical practice course. Eight weeks of supervised clinical experience in selected physical therapy settings with emphasis on developing increased independence and clinical reasoning skills. Course director: *Dr. Laura Eison*

**707 PT Clinical Internship V (6).** Offered annually spring semester; clinical practice course. Eight weeks of supervised clinical experience in selected physical therapy settings with emphasis on developing increased independence and clinical reasoning skills. Course director: *Dr. Laura Eison*

**708 PT Differential Diagnosis in Physical Therapy (2).** Offered annually fall semester; didactic and laboratory hybrid course. Role of the physical therapist as an autonomous practitioner with emphasis on medical screening and referral. Course director: *Dr. William Boissonnault*

**709 PT Evidence-Based Practice IV (1).** Offered annually fall semester; independent project course. Evidence-based plan of care developed for a patient/client seen during Clinical Internship III; EBP in-service presented to facility clinicians. Course director: *Dr. Judy Clifft*

**712 PT Fundamentals of Epidemiology (3).** Offered annually spring semester; didactic, hybrid course. Introduction to the basic principles and methods of epidemiology and demonstration of their applicability in the field of public health. Topics covered include the historical perspective of epidemiology, measures of disease occurrence and of association, clinical epidemiology, disease screening, causal inference, and study design. Course director: *Professor Leonard Bloom*

### ***Elective***

**710 PT Research Experience (1-3).** Offered every semester; independent research course. Participation in a faculty-directed research project. Activities may include literature searches, data collection and/or data analysis. Credit hours vary depending on work assignment. Course director: *Varies dependent on topic*

Students enrolled in the entry-level Doctor of Physical Therapy program are required to complete at least one three credit hour elective. Electives are selected from courses in the MSPT and ScDPT programs. A listing of the available courses will be provided to students during the spring semester of the second year of the program and the fall semester of the third year of the program.

### **Attendance Requirement**

Physical therapy students are expected to attend all scheduled classes, laboratory sessions, and clinical internship assignments. In cases of illness or emergency, the student must notify the individual faculty members whose classes the student will miss, or the clinical instructor of the affiliation site no later than 8:30AM of the day of absence. Appointments for health services should not be made during scheduled class time.

### **Health Requirements**

Physical therapy students are required to be immunized against the Hepatitis B virus and to have an annual skin test for Tuberculosis. Some clinical education sites require affiliating physical therapy students to have one or more of the following: rubella titer or vaccine, general physical examination. Information about meeting these requirements is provided during orientation.

## Student Professional Organization Membership

Physical therapy students qualify for student membership in the American Physical Therapy Association and Tennessee Physical Therapy Association. Students are required to participate as student members in the professional association.

## Accreditation

The DPT program is accredited by the Commission on Accreditation in Physical Therapy Education (<http://www.capteonline.org/home.aspx>)

## Progress and Promotions Policy

Each semester, the faculty who taught each class of students during that semester meet as a Progress and Promotions Committee for that class of students.

- a. In order to progress to the next semester in good standing, students must maintain a GPA of 3.0 on a 4.0 scale. If a student's GPA for that semester drops below 3.0, the student will be placed on academic probation. During that probation semester, student must achieve a GPA of 3.0 or greater. While on probation, the student may not participate in clinical internship experiences.
- b. A student must demonstrate satisfactory behavior in personal and professional characteristics deemed by faculty as being necessary for academic success and competency in clinical practice. Such areas may include ability to establish rapport with clients, ability to work effectively with members of the health care team, dependability, judgment, integrity, initiative, and interest.
- c. Students must meet the College and program technical standards to continue in the various curricula and graduate. Copies of these standards are provided to students by their respective programs.

See College section for recommended actions, notification of students, appeal process, leaves of absence, withdrawal and readmission

## Graduation Requirements

The following requirements must be satisfied to earn the degree of Doctor of Physical Therapy:

- a. Satisfactory completion of a minimum of 125 semester hours of credit.
- b. Completion of all coursework with a GPA of 2.75 or better overall average. Grades of "C" or above are required in all content area coursework.
- c. Students must earn a "P" in all clinical internship experiences.
- d. Students must discharge all financial obligations to the University and remove all deficiencies documented by the Registrar.

Attendance at graduation is mandatory. Those unable to attend commencement must obtain permission to receive the degree *in absentia* by filing a written request with the Dean of the College.

## Awards to students in the entry-level DPT program

### ***Outstanding Physical Therapy Student Award***

This award, given annually on behalf of academic and clinical physical therapy faculty, is presented to a graduating senior in recognition of his/her excellent performance in both classroom and clinical settings.

### ***Margaret and Perry "Stack" Ayers Scholarship Award***

The recipient of this award epitomizes the personal and professional qualities valued and cultivated by the faculty of the UTHSC Doctor of Physical Therapy program. This individual demonstrates exceptional interpersonal skills with classmates, faculty and patients, and will be remembered as an exemplary student clinician and model for what the UTHSC DPT program hopes to graduate. This award is not necessarily given annually.

### ***Physical Therapy Faculty Award***

As the highest honor physical therapy faculty can bestow on a student, the Faculty Award requires a unanimous vote of the faculty and is given in recognition of outstanding academic and clinical performance, and potential for leadership in the profession of physical therapy. This award is not necessarily given annually.

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## **TRANSITIONAL DOCTOR OF PHYSICAL THERAPY PROGRAM (D.P.T.)**

Pamela D. Ritzline, Ed.D., P.T., Program Director

The transitional Doctor of Physical Therapy program primarily is designed for graduates from the University who are licensed as physical therapists and who desire to pursue the doctoral degree while employed full-time. Graduates from programs other than UTHSC will be evaluated on an individual basis for entry into the program. The program was developed in conjunction with the conversion of the Professional Program in Physical Therapy to the DPT in April 2003.

The transitional DPT program is a hybrid program with a mixture of both online and face-to-face classes. The program is comprised of a combination of short course format, independent study, and online instruction. The short course format consists of pre-course work completed independently prior to arrival on campus, 3 full days on campus, and post-course work completed independently. The courses may include assigned readings, videos, CD or DVD presentation, or Internet interactions. Independent study courses are completed with guidance from a faculty advisor. Online courses are completed through Blackboard with assignments due throughout the semester as designated by the faculty member.

The transitional DPT program requires completion of 38 semester hours. Completion of a minimum of 25 semester hours beyond the MPT degree is required for graduates from the 3-year MPT program (2001-2006). Graduates from institutions other than UTHSC receive an individualized review of academic coursework and clinical experiences to determine the courses necessary to complete the degree. Most complete the program in approximately 1 -2 years while employed in a clinical or academic setting.

Graduates from the BSPT program at UTHSC or any other physical therapy program are required to complete a minimum of 38 semester hours. Completion of additional coursework may be necessary based on an assessment of the physical therapy educational coursework completed and professional experiences.. The assessment involves an individualized review of the applicant's transcripts and portfolio. Coursework completed at another university must have been completed within 7 years of admission to the doctoral program. Coursework older than 7 years may be validated by contemporary practice that demonstrates ongoing competency with the content. Students must complete 30 hours of coursework at UTHSC to earn a degree from UTHSC.

Applications for the transitional DPT program are accepted on a rolling basis. Academic schedules vary based on an individual degree plan determined by review of previous course work and portfolio credit. A maximum of 5 years from entrance into the transitional DPT program is allowed for completion of the degree requirements.

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## **POSTPROFESSIONAL PROGRAMS IN PHYSICAL THERAPY (MSPT and ScDPT)**

Pamela D. Ritzline, Ed.D., P.T., Program Director

The Department of Physical Therapy offers post-professional graduate studies for licensed physical therapists that lead to either the Master of Science in Physical Therapy (MSPT) or Doctor of Science in Physical Therapy (ScDPT) degree. The programs provide the opportunity to: 1) select a specialized area of physical therapy practice; 2) develop an advanced level of clinical competence for leadership in practice; 3) develop a research base for the analysis of the physical therapy profession's scientific body of knowledge and for developing clinically oriented research techniques; 4) and develop skill in teaching in entry-level educational, clinical, continuing, and public educational programs.

The postprofessional programs are designed for part-time or full-time students. All students develop a plan of study in conjunction with the program director. Each plan of study includes required core courses in physical therapy theory, education, and research as well as a clinical concentration in either musculoskeletal or neurological physical therapy. Each student selects a clinical area of concentration. All degree requirements for

the Master of Science in Physical Therapy must be completed within 5 years of the date of initial enrollment. Degree requirements for the Doctor of Science in Physical Therapy must be completed within 7 years of the date of initial enrollment.

**Postprofessional Admission Process Minimum Requirements**

Minimum requirements for consideration for admission to the **Master of Science in Physical Therapy (MSPT)** or **Doctor of Science in Physical Therapy (ScDPT)** degree programs include:

- Current license to practice as a physical therapist in the U.S.;
- Entry-level degree from an accredited program in physical therapy (official transcript(s) must accompany application);
- Minimum of two years of clinical practice as a physical therapist prior to matriculation into the program;
- Minimum GPA 3.00 on a 4.0 scale from the entry-level program;
- Graduate Record Examination (GRE): Recommend score of 500 (153 on new scale) each on verbal and quantitative components and 4 on analytical writing component
- Three letters of reference from previous college instructors or immediate supervisors;
- Personal interview with members of the faculty;
- Typed essay (3-5 pages) submitted with application;
- Computer and technology knowledge, skill, and access for completion of online courses, communication via e-mail, and conduction of literature searches; and
- Foreign applicants whose native language is not English must submit results of TOEFL, with minimum score of 550.

Additionally, applicants will be required to complete application forms for admission. Included in the application will be a required essay stating the applicant’s goals for graduate study.

**Curriculum Summary for Master of Science in Physical Therapy (MSPT)**

<b>Core Courses (16 SH Required)</b>	<b>Credit Hours</b>
PT 813 Educational Theory	3
PT 860 Biostatistics for Physical Therapists	3
PT 861 Research Design	3
PT 881 Health Care Management and Policy	3
PT 863 Thesis or Research Project	2 <sup>10</sup>

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<sup>10</sup> Students take PT863 twice over the course of two semesters, thus for a total of 4 SHs.

<b>Musculoskeletal Concentration (12-15 SH required)</b>	<b>Credit Hours</b>
PT 803 Theoretical Bases of Orthopaedic PT <sup>1</sup>	3
PT 804 Orthopaedic Clinical Medicine <sup>1</sup>	3
PT 890 Cervicogenic Headaches and Temporomandibular dysfunction	3
PT 896 Musculoskeletal Evaluation/Treatment of Spine	3
PT 897 Musculoskeletal Evaluation/Treatment of Extremities	3
PT 914 Imaging for Physical Therapists	3
PT 898 Musculoskeletal Evaluation/Treatment of Upper Quarter	3
PT 899 Musculoskeletal Evaluation/Treatment of Lower Quarter	3

<b>Neurological Concentration (12-15 SH required)</b>	<b>Credit Hours</b>
PT 812 Advanced Neuro. PT Techniques <sup>2</sup>	3
PT 900 Motor Control <sup>2,3</sup>	3
PT 895 Sensory Integration and Perceptual Motor Disorders <sup>3</sup>	3
PT 811 Evaluative Procedures in Pediatric PT	3
PT 814 School-Based Physical Therapy	3
PT 815 Issues in the NICU	3
PT 816 Complex Practice Issues in Pediatrics	3
PT 817 Cardiopulmonary Care for Adults with Neurological Disabilities	3

1. Required coursework in the Musculoskeletal concentration

2. Required for Adult Neurological concentration

3. Required for Pediatric Neurological concentration

## **Curriculum Summary for the Doctor of Science in Physical Therapy (ScDPT)**

<b>Core Courses (47 semester hours required)</b>	<b>Credit Hours</b>
PT 813 Education Theory and Methods	3
PT 860 Biostatistics for Physical Therapists	3
PT 861 Research Design	3
PT 881 Health Care Management and Policy	3
PT 902 Clinical Science Seminar I	3
PT 903 Clinical Residency Seminar	1
PT 905 Clinical Science Seminar II	3
PT 907 Clinical Residency I	8
PT 908 Complex Clinical Management I	3
PT 909 Clinical Outcomes Project I	3
PT 910 Clinical Residency II	8
PT 911 Complex Clinical Management II	3
PT 912 Clinical Outcomes Project II	3

**The following electives are offered for the Postprofessional Programs**

<b>Course Name</b>	<b>Credit Hours</b>
PT 814 School-Based Physical Therapy	3
PT 815 Issues in the NICU	3
PT 816 Complex Practice Issues in Pediatrics	3
PT 817 Cardiopulmonary Care for Adults with Neurological Disabilities	3
PT 871 Balance Disorders	3
PT 875 Human Gait and Disorders	3
PT 891 Applied Skeletal Ms. Physiology	3
PT 894 Dissection Anatomy	3
PT 831 Assistive Technology for Clients with Disabilities	3
PT 833 Professional and Ethical Issues	2
PT 898 Musculoskeletal Eval and Treatment of Upper Quarter	3
PT 899 Musculoskeletal Eval and Treatment of Lower Quarter	3
PT 901 Cultural Diversity	3
PT 904 Health Communication	3
PT 906 Age, Exercise & Rehab	3
PT 913 Special Topics: Women's Health	3
PT 913 Special Topics: Wound Care	3
PT 913 Special Topics: Pediatric Oncology	3
PT 914 Imaging for Physical Therapist	3
PT 862 Practicum	3,4

## Course Descriptions

*Courses are offered every other year except where otherwise noted.*

### **Courses from DPT Program that may be applied toward electives in MSPT and ScDPT requirements:**

**604 PT Pharmacology (2).** Offered annually fall semester; didactic, on-line course. Physiology and biochemistry of neural synapses and neurotransmitters and their alteration by different classes of drugs: catecholamines, anticonvulsants, antidepressants and anticholinergic drugs. Emphasis on possible side effects and implications for physical therapy. Course director: *Dr. Audrey Zucker-Levin*

**608 PT Kinesiology/Pathokinesiology II (2).** Elective didactic, hybrid, course offered as needed. Students apply principles of mechanics and physics to tasks commonly performed in physical therapy practice. Students apply motor control theories to biomechanical principles as well as perform kinesiological analysis of upper body and lower body activities such as pitching, running, and stair ascent/descent. Course director: *Dr. Audrey Zucker-Levin*

**614 PT Health and Wellness (3).** Offered annually fall semester; didactic course. Includes health promotion, health education, and models for behavior change. Health and wellness programs presented with emphasis on intervention, prevention, and promotion of health, wellness and fitness across the lifespan. Focus on Healthy People 2020. Course director: *Dr. Susan Appling*

**712 PT Fundamentals of Epidemiology (3)** Offered annually spring semester; didactic, hybrid course. Introduction to the basic principles and methods of epidemiology and demonstration of their applicability in the field of public health. Topics covered include the historical perspective of epidemiology, measures of disease occurrence and of association, clinical epidemiology, disease screening, causal inference, and study design. Course director: *Professor Leonard Bloom*

## Postprofessional Programs Courses:

**PT 803 Theoretical Bases of Orthopedic Physical Therapy (3).** Offered annually spring semester; didactic, hybrid course. Tissue pathology including inflammation and repair and the effects of immobilization and biomechanics applied to the spine relevant to orthopedic physical therapy practice are discussed. These principles provide the foundation for the examination of patients with orthopedic conditions and the selection of appropriate interventions. An examination scheme for the orthopedic patient will be presented with the emphasis on physical therapy differential diagnosis. Selected functional assessment tools commonly utilized in orthopedic physical therapy practice and radiographic imaging of the skeletal system will also be discussed. Course director: *Dr. William Boissonnault*

**PT 804 Orthopedic Clinical Medicine Seminar (3).** Offered annually fall semester; didactic and laboratory, hybrid course. A basic format for orthopedic physical examination is presented in this course and the role of the physical therapist as it interfaces with the role of the physician is discussed. Medical diagnostic testing and medical management of orthopedic dysfunctions and diseases is covered including such topics as radiology, surgical procedures, and pharmacology. Discussion and debate of current theories of both medical and physical therapy management of musculoskeletal dysfunction. Course director: *Dr. William Boissonnault*

**PT 811 Evaluative Procedures in Pediatric Physical Therapy (3).** Elective course offered fall semester as needed; didactic and laboratory, hybrid. Introduction to measurement theory, including test reliability, validity, and standardization. Normed and criterion referenced tools commonly used in pediatric physical therapy practice are described in detail. Laboratory develops skills in the administration and interpretation of designated physical therapy tests. Prerequisites: 812 PT, Advanced Neurological Physical Therapy Techniques, or permission of instructor. *Course not currently offered.*

**PT 812 Advanced Neurological Physical Therapy Techniques (3).** Elective course offered spring semester as needed; didactic and laboratory, hybrid. An advanced course in therapeutic exercise and management procedures used in the treatment of children and adults with nervous system disorders. Current concepts of motor development, motor control, and motor learning are presented. Traditional neurofacilitation approaches are critically examined in order to develop an integrated treatment model. Course materials are applied to assessment and treatment strategies through use of videotapes of children with developmental disabilities and adults with neurological dysfunctions. *Course not currently offered.*

**PT 813 Educational Theory and Methods (3).** Offered annually fall semester; didactic on-line course. Includes discussion on planning, implementing, and evaluating the teaching, learning process; educational philosophy and standards; learning theory; curriculum design; course and learning experience planning and evaluation. Course directors: *Dr. Pam Ritzline and Professor Linda Ross*

**PT 814 School-Based Physical Therapy (3).** Elective course offered every semester as needed; didactic on-line. Course addresses physical therapy as a related service provided to assist a child with a disability to function within an educational environment. Includes focus on a child's ability to transition as independently as possible in the school environment; participate in classroom and other activities at school; and maintain and change positions in the classroom. *Course not currently offered.*

**PT 815 Issues in the NICU (3).** Offered annually spring semester; didactic and laboratory, hybrid course. Includes evaluating and treating infants in NICU, appropriate standardized testing instruments, and long term issues with NICU graduates. Course director: *Professor Roberta Gatlin*

**PT 816 Complex Practice Issues in Pediatrics (3).** Offered annually fall semester; didactic and laboratory, hybrid course. Using the framework of ICF and the Guide to Physical Therapist Practice, content includes case studies and discussion of the impact of developmental biomechanics on a child's musculoskeletal system, impact of families on childhood development. Includes working with families of and children with Autism spectrum disorders, Multiple Disabilities, evaluating infants for possible motor delays, and the impact of aging on individuals with developmental disabilities. Course director: *Dr. Robert Barnhart*



**PT 817 Cardiopulmonary Care for Adults with Neurological Disabilities (3).** Elective course offered annually fall semester as needed; didactic, hybrid course. Designed to provide knowledge and skills in the evaluation and physical therapy management of individuals with cardiovascular and pulmonary dysfunction and co-morbid neurological disability(ies). The medical and surgical management of individuals with select cardiovascular and pulmonary dysfunction are presented. PT management in the acute care and rehabilitation settings are discussed. Students are expected to interpret and apply clinical lab, diagnostic, pharmacologic, and medical/surgical evaluations from selected cardiovascular and pulmonary dysfunctions as they affect the overall physical therapy plan of care. *Course not currently offered.*

**PT 831 Assistive Technology for Clients with Disability (3).** Elective course offered fall semester as needed; didactic and laboratory, hybrid. Review of current adaptations available for clients/patients who require assistive technology. Seating, augmentative communication, environmental control and ergonomics are the major topics of concern. Lab sessions apply material to children and adults with disabilities. *Course not currently offered.*

**PT 833 Professional and Ethical Issues (2).** Offered every semester; didactic, on-line course. Discussion of current issues affecting the practice of physical therapy. Emphasis on projected changes in roles of physical therapists; projected changes in health care delivery systems and probable impact on physical therapy; legal and ethical considerations. *Course not currently offered.*

**PT 860 Biostatistics for Physical Therapists (3).** Offered annually fall semester; didactic on-line format. Course encompasses descriptive statistics, estimation, association and prediction, one and two sample hypothesis testing (paired and unpaired situations), ANOVA concepts (one and two factor, mixed designs, ICC). Instruction includes data entry and use of software for statistical analysis using a PC. Analyses of selected clinical research articles are used to illustrate and reinforce theoretical concepts. *Course not currently offered.*

**PT 861 Research Design (3).** Offered every semester as needed; didactic on-line course. Survey of the techniques, methods and tools of research in the behavioral sciences. General discussion of the research process followed by examination of several different research methods. Experimental and quasi-experimental designs; descriptive research techniques. Overview of different methods of data collection, survey of statistical techniques frequently used in physical therapy literature. *Course not currently offered.*

**PT 862 Practicum (3, 4).** Offered every semester, clinical practice course. Supervised clinical experience to enable application of knowledge and skills gained from the curriculum within a clinical or educational setting. Practicum settings arranged with UT affiliates. Prerequisite: Consent of program director. Course director: *Varies with topic*

**PT 863 Thesis (2).** Offered every semester; independent research course. Consideration of all facets related to the investigative process; formulation of a problem, search and analysis of literature, developing procedure for collecting data, data analysis; writing thesis proposal and the final thesis. The student must obtain thesis committee approval of the proposal prior to data collection. Prerequisites: PT 860, Biostatistics for Physical Therapists, and PT 861, Research Design. Repeated once for a total of 4 credit hours. Course director: *Varies with topic*

**PT 871 Balance Disorders (3).** Offered annually fall semester; didactic and laboratory, hybrid course. Assessment and management. Current theories concerning neural control of balance, in health and under pathological circumstances. Analysis of current technology for balance assessment in clinical practice and research settings; includes treatment considerations. Prerequisite: permission of instructor. Course director: *Dr. Martha Hinman*

**PT 875 Human Gait and Disorders (3).** Offered annually spring semester; didactic and laboratory, hybrid course. Kinematic and kinetic analysis of normal human gait across the lifespan; contrast with typical patterns of patients having neural dysfunction. Includes assessment methods and management considerations. Prerequisite: permission of instructor. Course directors: *Dr. Audrey Zucker-Levin and Dr. Sherry Backus*

**PT 881 Health Care Management and Policy (3).** Offered annually spring semester; didactic on-line course. Course is designed to provide students with theoretical, didactic, and practical foundations necessary to manage a health care organization. Topics include policies and procedures, quality assurance and risk management, cost analyses and budgeting, marketing, regulation, reimbursement and documentation, ethics/malpractice/negligence, and health care delivery organizations. Course director: *Dr. Carol Likens*

**PT 890 Cervicogenic Headaches and Temporomandibular Dysfunction (3).** Offered annually fall semester; didactic and laboratory, hybrid course. Course includes lecture and laboratory instruction based on current evidence in examination and treatment techniques used to manage clients with cervicogenic headaches and temporomandibular dysfunction. Course directors: *Dr. Pam Ritzline and Dr. Brian Bartley*

**PT 891 Applied Skeletal Muscle Physiology (3).** Elective course offered annually fall semester as needed; didactic and laboratory. An analysis of the physiological bases of human movement and physical fitness as well as specific acute and chronic adaptations occurring consequent to various regimens of exercises. Exploration of selected techniques for assessing musculoskeletal function and structure. *Course not currently offered.*

**PT 892 Advanced Study in Selected Topics (2, 3).** Offered every semester; didactic and laboratory, hybrid course. Management of complex patient problems not specifically addressed in other courses. Course content varies, dependent upon current trends and new perspectives in physical therapy practice. Learning experiences appropriate for students in either neurologic or orthopedic concentrations. Course director: *Varies with topic*

**PT 893 Directed Study (2, 3).** Offered every semester; independent study course. An elective course designed to provide guided independent learning experiences in an area of physical therapy not otherwise available in the curriculum. May be used to prepare for thesis proposal. Course director: *Varies with topic*

**PT 894 Dissection Anatomy (3).** Offered annually spring semester; didactic and laboratory course. An elective course designed to study the relationships of anatomical structure with the clinical aspects of orthopedics and pediatrics. Each student in the class will lead the discussion and dissection of one assigned anatomical area. The discussion should include current clinical aspects of physical therapy as they relate to structure. Learning experiences appropriate for students in either pediatric or orthopedic concentrations. Limited to 8 students. Course director: *Dr. Richard Kasser*

**PT 895 Sensory Integrative and Perceptual Motor Disorders (3).** Elective course offered as needed; didactic and laboratory, hybrid. Assessment and treatment techniques are presented for the child with sensory integration and perceptual motor deficits and include the areas of muscle tone, postural mechanisms, extraocular control, body imagery, integration of two sides of the body, motor planning, form and space perception, tactile defensiveness, vestibular mechanisms, mixed dominance, and developmental skills. Standardized testing techniques are introduced to facilitate treatment planning. Prerequisites: PT 812, Advanced Neurological Physical Therapy Techniques, or permission of instructor. *Course not currently offered.*

**PT 896 Musculoskeletal Evaluation and Treatment of Spine (3).** Elective course offered as needed; didactic and laboratory, hybrid. Lecture and laboratory instruction in advanced evaluation and treatment techniques used to manage musculoskeletal dysfunctions of the spine and trunk. This course reviews common pathological conditions of the spine and discusses medical as well as physical therapy interventions. The principles of industrial rehabilitation are introduced as well as the development of programs for the prevention of painful spinal dysfunction. Prerequisites: PT 803, Theoretical Bases of Orthopedic Physical Therapy, PT 804, Orthopedic Clinical Medicine Seminar, or permission of instructor. *Course not currently offered.*

**PT 897 Musculoskeletal Evaluation and Treatment of Extremities (3).** Elective course offered as needed, didactic and laboratory, hybrid. Lecture and laboratory instruction in evaluation and treatment techniques used to manage musculoskeletal dysfunctions of the extremities. Prerequisites: PT 803, Theoretical Bases of Orthopedic Physical Therapy, PT 804, Orthopedic Clinical Medicine Seminar, or permission of instructor. *Course not currently offered.*

**PT 898 Musculoskeletal Evaluation and Treatment of Upper Quarter (3).** Elective course offered as needed; didactic and laboratory, hybrid. Lecture and laboratory instruction in evaluation and treatment techniques used to manage musculoskeletal dysfunctions of the upper quarter including mid- and upper-thoracic and cervical spine, shoulder and upper extremities. Prerequisites: PT 803, Theoretical Bases of Orthopedic Physical Therapy, PT 804, Orthopedic Clinical Medicine Seminar, or permission of instructor. *Course not currently offered.*

**PT 899 Musculoskeletal Evaluation and Treatment of Lower Quarter (3).** Elective course offered as needed; didactic and laboratory, hybrid. Lecture and laboratory instruction in evaluation and treatment techniques used to manage musculoskeletal dysfunctions of the lower quarter including lower thoracic and lumbar spine, sacrum, hip and lower extremities. Prerequisites: PT 803, Theoretical Bases of Orthopedic Physical Therapy, PT 804, Orthopedic Clinical Medicine Seminar, or permission of instructor. Course director: *TBD*

**PT 900 Issues in Motor Control and Motor Learning (3).** Offered spring semester, didactic and laboratory, hybrid course. Overview of current research in motor control and motor learning as applied to physical therapy. Focus on applications across the lifespan and to the evidence based practice. Case studies used for application and decision-making. Course director: *Dr. Jill Stewart*

**PT 901 Cultural Diversity Issues and Rehabilitation (3).** Offered fall semester; didactic, hybrid course. Introduces students to cultural issues in healthcare and rehabilitation. Students will learn the knowledge, attitudes and skills for enhancing their cross-cultural interactions with patients, families, and colleagues when working in diverse communities. Course director: *Dr. Helen Masin*

**PT 902 Clinical Science Seminar I (3).** Offered every spring semester; didactic on-line course. Analysis of the reliability and validity of clinical measurements used in physical therapy practice. Critical review of current clinical efficacy literature; utilizing research in advanced practice. Course director: *Dr. Pamela Ritzline*

**PT 903 Clinical Residency Seminar (1).** Offered every semester; independent study course. Objectives for the residency; selecting the residency site. Students encouraged to select community-based, home health, ambulatory settings. Course director: *Dr. Pamela Ritzline*

**PT 904 Health Communication: Counseling Patients and Personnel (3).** Offered spring semester didactic, hybrid course. Emphasizes application of effective communication strategies to achieve quality rehabilitation outcomes, through students' participation in lectures, student presentations and interactive discussion on topics related to communication in the health care field. Course director: *Dr. Ruth Mulvany*

**PT 905 Clinical Science Seminar II (3).** Offered every semester; independent research course. Writing and analysis of case reports for physical therapy. Reviews of single case studies in rehabilitation literature. Each student selects a practice issue and conducts a scholarly analysis of the external and internal factors affecting physical therapy care; product is a written report suitable for submission to a rehabilitation journal for publication. Course director: *Dr. Pamela Ritzline*

**PT 906 Age, Exercise and Rehabilitation (3).** Offered spring semester; didactic hybrid course. Overview of normal physiological responses to exercise in the elderly. Comparison of exercise-induced responses of the various physiological systems throughout the aging process. Focus on the importance of exercise from a rehabilitation perspective. Course directors: *Dr. Audrey Zucker-Levin and Dr. Ruth Mulvany*

**PT 907 Clinical Residency I (8).** Offered every semester; clinical practice course. A guided practicum with a practitioner-mentor, in which the student learns by experience, example and interaction concerning advanced practice. Experience is arranged to include: Community interaction, interdisciplinary cooperation; patient advocacy; patient empowerment issues; family education; consideration of socioeconomic, societal and cultural issues. (480 hours) Course director: *Varies with topic*

**PT 908 Complex Clinical Management I (3).** Offered every semester; didactic hybrid course. Chronic disease and disability in children and the elderly; orthopedic disorders; the essentials of complex reasoning and clinical decision making. Course director: *Varies with topic*

**PT 909 Clinical Outcomes Project I (3).** Offered every semester; independent project course. Students use the principles of clinical research to analyze a practice issue in their residency site and plan an intervention and assess outcome. Student required to complete an outcome project and report in the prescribed written format. Course director: *Varies with topic*

**PT 910 Clinical Residency II (8).** Offered every semester; clinical practice course. A guided practicum with a practitioner-mentor, in which the student learns by experience, example and interaction concerning advanced practice. Experience is arranged to include: Community interaction, interdisciplinary cooperation; patient advocacy; patient empowerment issues; family education; consideration of socioeconomic, societal and cultural issues. (480 hours) Course director: *Varies with topic*

**PT 911 Complex Clinical Management II (3).** Offered every semester; didactic hybrid course. Students present two complex clinical cases from their practice; all students respond to and interact concerning appropriate physical therapy care related to patient problems. Management must include: current pathophysiological aspects of the disease/disorder; current medical issues related to medical treatment of the disease/disorder; patient/ family education; community intervention; interdisciplinary interaction; consideration of cultural aspects; prevention and health promotion; and outcome. Course director: *Varies with topic*

**PT 912 Clinical Outcomes Project II (3).** Offered every semester; independent research course. Students use the principles of clinical research to analyze a practice issue in their residency site, conduct an intervention and assess outcome. Student required to complete an outcome project and report in the prescribed written format. Course director: *Varies with topic*

**PT 913 Special Topics in Physical Therapy (1-3).** Offered spring semester; didactic on-line course. Selected topics in physical therapy presented. Examples of topics include pediatric oncology, wound care, and women's health. Course director: *Varies with topic*

**PT 914 Imaging for Physical Therapists. (3).** Offered annually fall semester; didactic hybrid course. Introduction to the fundamentals of musculoskeletal imaging. Course presents capabilities and limitations of the different imaging modalities, information given in a radiologist's report, instruction and practice in independent viewing of images. Intended to assist clinician in correlating imaging findings to clinical findings to result in more comprehensive patient evaluations, more specific treatment plans, and better patient outcomes. Course director: *Dr. Brian Bartley*

## Requirements for Graduation

**The following requirements must be satisfied to earn the degree of Master of Science in Physical Therapy (MSPT):**

1. Satisfactory completion of 36 semester credit hours of work, which must include 16 hours of core courses, 12-15 hours in a clinical concentration and 5-8 hours of electives.
2. Students must earn a minimum grade of "B" in all coursework.
3. Satisfactory completion ("Pass") of either PT863 Thesis (minimum of 4 semester credit hours) or completion of a research project and submission of a publishable manuscript to an appropriate peer-reviewed publication.
4. Admission to candidacy for the master's degree. A student files an application for admission to candidacy when conditions above have been fulfilled and the final draft of the thesis or manuscript has been approved by the committee.

5. Students must discharge all financial obligations to the University and remove all deficiencies documented by the Registrar.

Attendance at graduation is mandatory. Any student unable to attend commencement must write a letter to the Dean of the College of Allied Health Science for permission to graduate in absentia.

**The following requirements must be satisfied to earn the degree of Doctor of Science in Physical Therapy (ScDPT):**

1. Satisfactory completion of 92 semester credit hours of work, which must include 47 hours of core courses, 13-14 hours in a clinical concentration and 32-34 hours of electives.
2. Students must earn a minimum grade of "B" in all coursework.
3. Satisfactory completion ("Pass") of a research project and submission of a publishable manuscript are required prior to graduation.
4. Students must discharge all financial obligations to the University and remove all deficiencies documented by the Registrar.

*Attendance at graduation is mandatory. Any student unable to attend graduation must write a letter to the Dean of the College of Allied Health Science for permission to graduate in absentia.*

## FACULTY LIST

Adsit, Karen, Adjunct Assistant Professor, 1996; Doctor of Education, University of Houston (1991)

Appling, Susan A., Associate Professor, 1992; Doctor of Physical Therapy, University of Tennessee Health Science Center (2008); Doctor of Philosophy in Education Psychology and Research, University of Memphis (2006)

Armstrong, William, Professor, 1984; Doctor of Philosophy, Michigan State University (1979)

Backus, Sherry I., Demonstration Teacher, 2001; Doctor of Physical Therapy, Massachusetts General Hospital Institute of Health Professions (2005); Master of Arts in Pathokinesiology, New York University (1993); Bachelor of Science in Physical Therapy, Marquette University, (1980)

Bartley, Brian, Teaching Associate, 2011; Doctor of Chiropractic, National University of Health Sciences (1990); Bachelor of Science in Chiropractic, National University of Health Sciences (1988); Master of Science in Physical Therapy, University of Indianapolis (1984)

Batorski, Rosemary, Associate Professor, 1989; Master of Occupational Therapy, Texas Woman's University (1985); Master of Education, University of Memphis (1976); Bachelor of Arts in Psychology, State College at Westfield Massachusetts (1970)

Bloom, Leonard, Associate Professor, 1999; Master of Public Health, Boston University (1999); Certificate in Cytotechnology, Women and Infants Hospital and Rhode Island Hospital (1994)

Boissonnault, William, Assistant Professor, 1986; Transitional Doctor of Physical Therapy, MGH Institute of Health Professions (2007); Doctor of Health Science, University of St. Augustine for Health Sciences (1999); Bachelor of Science in Physical Therapy, University of Wisconsin – Madison (1977); Certificate in Physical Therapy, University of Wisconsin (1977)

Bowman, Elizabeth, Professor, 1974; Master of Public Administration, University of Memphis (1985); Medical Record Administration Post-Baccalaureate Certificate, Baptist Memorial Hospital (1972)

Brooks, Keisha N., Assistant Professor, 2005; Master of Science in Administration, Central Michigan University (2004); Bachelor of Science in Cytotechnology, University of Tennessee Health Science Center (1999)

Buehler, Mary Velvet, Professor, 1985; Master of Arts in Speech Pathology, University of Tennessee, Knoxville (1985); Bachelor of Arts in Speech Pathology, University of Tennessee, Knoxville (1983)

Calhoun, Cynthia, Adjunct Assistant Professor, 1993; Doctor of Education in Higher and Adult Education, University of Memphis (2003); Master of Arts in Sociology, University of Memphis (1976); Bachelor of Arts in Sociology, Fisk University (1974)

Callaway, Joseph C., Associate Professor, 1995; Doctor of Philosophy in Zoology, University of Washington (1989)

Casenhiser, Devin M., Associate Professor, 2011; Doctor of Philosophy in Linguistics, University of Illinois, Urbana – Champaign (2004); Master of Arts in Classics, University of Illinois, Urbana – Champaign (1998)

Chang, Cyril F., Adjunct Professor, 1990; Doctor of Philosophy in Economics, University of Virginia (1979); Master of Arts in Economics, University of Memphis (1972)

Cliff, Judy, Associate Professor, 1980; Doctor of Physical Therapy, University of Tennessee Health Science Center (2007); Master of Science in Curriculum and Instruction, University of Memphis (1988); Bachelor of Science in Physical Therapy, University of Central Arkansas (1975)

Coleman, Frances Ann, Assistant Professor, 1996; Doctor of Physical Therapy, University of Tennessee Health Science Center (2008); Master of Science in Social Work, University of Tennessee, Knoxville (1977)

Collins, Bobby, Teaching Associate, 2008; Doctor of Dental Surgery, University of Iowa (1975); Master of Science in Teaching, University of Memphis (1969); Bachelor of Science in Biology, University of Memphis (1965)

Collins, Leilani, Associate Professor, 2001; Master of Science in Clinical Laboratory Sciences, University of Tennessee Health Science Center (2001)

Covington, John, Professor and Associate Dean, 1981; Doctor of Dental Surgery, University of Tennessee Health Science Center (1981); Master of Science in Individual Studies, University of Memphis (1977)

Cox, Thomas, Teaching Associate, 2007; Doctor of Education in Higher and Adult Education, University of Memphis (2004); Master of Arts in Liberal Studies, University of Memphis (2002)

Crim, Susan, Teaching Associate, 2008; Doctor of Philosophy in Educational Leadership and Organizational Development, University of Louisville (2006); Master of Science in Adult Technological Education, University of Tennessee, Knoxville (1985); Bachelor of Science in Health Education, East Tennessee State University (1974); Associate of Science in Dental Hygiene, East Tennessee State University (1974)

Criswell, Sheila, Teaching Associate, 2009; Master of Science in Clinical Laboratory Sciences, University of Tennessee Health Science Center (2010); Bachelor of Science in Cytotechnology, University of Tennessee Health Science Center (1992)

Daniel, Susan, Assistant Professor, 2010; Master of Science in Education, University of Kentucky (1979); Bachelor of Science in Dental Aux Teacher Education, University of North Carolina at Chapel Hill (1977); Associate of Applied Sciences in Dental Hygiene, Wayne Community College (1972)

Doettl, Steven M., Clinical Assistant Professor, 1997; Doctor of Audiology, University of Tennessee, Knoxville (2004); Master of Arts in Audiology, University of Tennessee, Knoxville (2001); Bachelor of Arts in Audiology, University of Tennessee, Knoxville (1999)

Dorris, Stacy, Teaching Associate, 2009; Master of Business Administration, University of Memphis (2007); Bachelor of Science in Health Information Management, University of Tennessee Health Science Center (1999); Bachelor of Arts in Psychology, University of Mississippi (1998)

Dubray-Benstein, Barbara, Professor, 1979; Doctor of Philosophy in Biology, University of Memphis (2003); Master of Science in Biology, University of Memphis (1986); Bachelor of Science in Cytotechnology, University of Tennessee Health Science Center (1978)

Dunn, Carla, Teaching Associate, 2011; Bachelor of Science in Dental Hygiene, University of Tennessee Health Science Center (2009)

Eison, Laura A., Instructor, 2011; Doctor of Physical Therapy, Temple University (2003); Master of Science in Physical Therapy, Sacred Heart University (2001); Bachelor of Science in Human Science and Services, University of Rhode Island (1998)

Ennis, Rachel, Teaching Associate, 2010; Master of Dental Hygiene, University of Tennessee Health Science Center (2012); Certificate in Dental Hygiene, Ohio State University (1983); Bachelor of Arts in Sociology, Ohio State University (1983)

Erickson, Mary Louise, Associate Professor, 1997; Doctor of Philosophy in Speech Science & Technology, University of Southern California (1989); Master of Music in Vocal Arts, University of Southern California (1984)

Fain, John N., Professor, 1985; Doctor of Philosophy in Biochemistry, Emory University (1960)

Faulkner, Lawrence W., Associate Professor, 2004; Doctor of Philosophy in Rehabilitation Sciences, University of Pittsburgh (2003); Bachelor of Science in Occupational Therapy, University of Texas Health Science Center at San Antonio (1986)

Flick, Jami E., Demonstration Teacher, 2012; Master of Science in Occupational Therapy, University of South Alabama (2007); Bachelor of Science in Pre-Professional Health Science, University of South Alabama (2006)

Gatlin, Roberta L., Assistant Professor, 2010; Bachelor of Science in Physical Therapy, University of Tennessee Health Science Center (1989); Bachelor of Science in Special Education, University of Memphis (1986)

Hamby, Ellen Ireland, Clinical Associate Professor, 1978; Doctor of Philosophy in Speech Pathology and Audiology, University of Iowa (1978); Master in Communicative Disorders, University of Mississippi (1974); Bachelor of Arts in Communicative Disorders, University of Mississippi (1973)

Harkrider, Ashley W., Associate Professor, 1994; Doctor of Philosophy in Communication Sciences & Disorders, University of Texas at Austin (1999); Master of Arts in Audiology, University of Tennessee, Knoxville (1995)

Hedrick, Mark S., Professor, 1997; Doctor of Philosophy in Hearing & Speech Sciences, Vanderbilt University (1991)

Hicks, Wyenona, Assistant Professor, 2007; Master of Science in Transfusion & Transplantation Sciences, University of Cincinnati (2004)

Hinman, Martha, Teaching Associate, 2011; Doctor of Education in Allied Health Education, University of Houston (1995); Master of Health Education in Physical Therapy, Medical College of Georgia (1980); Bachelor of Science in Physical Therapy, Medical College of Georgia (1976)

Hoffer, Brittany, Teaching Associate, 2012; Doctor of Physical Therapy, University of Saint Augustine (2009); Master of Physical Therapy, University of Saint Augustine (2007)

Holder-Ballard, Cassandra B., Associate Professor, 1996; Doctor of Education in Higher and Adult Education, University of Memphis (2006); Master of Public Health Administration, University of Memphis (1990); Bachelor of Science in Dental Hygiene, Tennessee State University (1984)

Hori, Roderick T., Associate Professor, 1998; Doctor of Philosophy in Biology, University of California, San Diego (1993)

Hume, Sue Bessel, Associate Professor, 1978; Doctor of Philosophy in Speech and Hearing Science, University of Tennessee, Knoxville (1984); Master of Medical Sciences, Emory University (1971)

Humphrey, Elizabeth Lynn, Clinical Assistant Professor, 1999; Doctor of Audiology, University of Tennessee, Knoxville (2005); Master of Arts in Audiology, University of Tennessee, Knoxville (2003); Bachelor of Arts in Audiology, University of Tennessee, Knoxville (2001)

Ingram, Lynn, Teaching Associate, 1982; Master of Science in Individual Studies, University of Memphis (1981); Bachelor of Science in Medical Technology, University of Tennessee Health Science Center (1973)

Jackson, Felisa, Teaching Associate, 2005; Bachelor of Science in Dental Hygiene, University of Tennessee Health Science Center (1999); Bachelor of Science in Biology, Lane College (1997)



Jewell, Dianne, Teaching Associate, 2011; Doctor of Physical Therapy, Virginia Commonwealth University (2008); Doctor of Philosophy in Health Services Organization & Research, Virginia Commonwealth University (2003); Master of Science in Physical Therapy, Boston University (1988)

Johns, Cameila, Assistant Professor, 1998; Bachelor of Medicine, Bachelor of Surgery, Andalas University, West Sumatera Indonesia (1993)

Johnstone, Patti Michele, Associate Professor, 2006; Doctor of Philosophy in Communicative Disorders, University of Wisconsin – Madison (2006); Master of Arts in Communicative Disorders & Sciences, State University of New York, Buffalo (1984)

Kamala Raghavan, Sajeesh Kumar, Associate Professor, 2012; Doctor of Philosophy in Ophthalmology and Visual Science, University of Western Australia (2006); Master of Science in Medical Informatics, Erasmus University (2002)

Kasser, Richard John, Associate Professor, 1990; Doctor of Philosophy in Anatomy, University of Kansas (1984); Master of Science in Physiology, Southern Illinois University, Carbondale (1977); Bachelor of Arts in Physiology, Southern Illinois University, Carbondale (1974)

Kenwright, Kathleen McLoughlin, Associate Professor, 1996; Master of Science in Instruction & Curriculum Leadership, University of Memphis (1998); Bachelor of Science in Biology, University of Memphis (1980)

Khuri, Ayda, Teaching Associate, 2008; Bachelor of Science in Dental Hygiene, University of Tennessee Health Science Center (2002); Master of Arts in Anthropology, University of Memphis (1985)

King, Amanda, Teaching Associate, 1995; Master of Health Informatics and Information Management, University of Tennessee Health Science Center (2009); Bachelor of Science in Health Information Management, University of Tennessee Health Science Center (2004); Bachelor of Science in Business Administration, University of Tennessee at Martin (1999)

King, Kristin Anne, Assistant Professor, 2008; Doctor of Philosophy in Communication Sciences & Disorders, East Carolina University (2008); Master of Science in Speech-Language/Auditory Pathology, East Carolina University (1996)

Kulkarni, Anand, Assistant Professor, 1999; Master in Surgery in Human Anatomy, Indira Gandhi Medical College, 1987; Bachelor of Medicine, Bachelor of Surgery, Government Medical College, Nagpur (1981)

Lee, Marilyn D., Professor, 1984; Doctor of Pharmacy, University of Tennessee Health Science Center (1980); Bachelor of Science in Pharmacy, University of Tennessee Health Science Center (1974)

Liddell, Patty W., Teaching Associate, 1999; Master of Science in Curriculum and Instruction, University of Memphis (1978); Bachelor of Science in Medical Technology, University of Memphis (1976)

Likens, Carol Counts, Associate Professor and Chair, 1983; Doctor of Philosophy in Health Sciences Administration, University of Tennessee Health Science Center (2001); Master of Business Administration, University of Tennessee at Martin (2008)

Marchese, Victoria, Teaching Associate, 2004; Doctor of Philosophy in Rehabilitation Sciences, MCP Hahnemann University (2001); Bachelor of Science in Physical Therapy, University of Tennessee Health Science Center (1994)

Masin, Helen L., Associate Professor, 1993; Doctor of Philosophy in Educational Leadership, University of Miami (1992); Master of Medical Sciences in Pediatric Physical Therapy and Education, Emory University (1977); Bachelor of Science in Physical Therapy, New York University (1970)

McCarthy, Jillian Heather, Instructor, 2011; Doctor of Philosophy in Human Sciences, University of Nebraska – Lincoln (2011); Master of Science in Speech-Language Pathology and Audiology, University of Nebraska – Lincoln (2004)

McDonald, Chanchai, Director, (2007); Doctor of Philosophy in Education, University of Minnesota (1994)

McHugh, Kevin R., Teaching Associate, 2006; Master of Science in Clinical Laboratory Science & Management, University of Tennessee Health Science Center (2009); Bachelor of Science in Medical Technology, University of Tennessee Health Science Center (2006)

Michael, Patricia Ann L., Clinical Professor, 2002; Doctor of Philosophy, Vanderbilt University (1989)

Mills, Carren E., Clinical Assistant Professor, 1999; Doctor of Philosophy in Speech and Hearing Science, University of Tennessee, Knoxville (2004); Master of Arts in Speech-Language Pathology, University of Tennessee, Knoxville (1997); Bachelor of Science in Psychology, Guilford College (1992)

Mincer, Harry H., Professor, 1961; Doctor of Philosophy in Pathology, University of Tennessee Health Science Center (1974); Doctor of Dental Surgery, University of Tennessee Health Science Center (1955)

Mitchell, Anita, Associate Professor, 1990; Doctor of Philosophy in Education Psychology and Research, University of Memphis (2012); Master of Science in Occupational Therapy, Boston University (1989); Bachelor of Health Sciences in Occupational Therapy, University of Missouri – Columbia (1983)

Mulvany, Ruth D., Associate Professor, 1981; Doctor of Physical Therapy, University of Tennessee Health Science Center (2007)

Nolen, Ann H., Associate Professor, 1992; Doctor of Psychology in Clinical Psychology, Forrest Institute of Professional Psychology (1992); Master of Arts in Psychology, Counseling, and Guidance, University of Northern Colorado (1975); Bachelor of Science in Occupational Therapy, University of Florida (1970)

Noss, Emily Clark, Clinical Assistant Professor, 2003; Master of Arts in Speech-Language Pathology, University of Tennessee, Knoxville (2005); Bachelor of Arts in Speech-Language Pathology, University of Tennessee, Knoxville (2002)

Oliver, Hope E., Clinical Instructor, 2006; Master of Education in Curriculum and Instruction, Tennessee State University (2004); Bachelor of Science in Dental Hygiene, Tennessee State University (1995); Associate of Applied Sciences in Dental Hygiene, Tennessee State University (1992)

Pifer, Linda W., Professor, 1964; Doctor of Philosophy in Microbiology, University of Mississippi Medical Center (1972)

Plyler, Patrick Norton, Associate Professor, 2003; Doctor of Philosophy in Speech and Hearing Science, University of Tennessee, Knoxville (1998); Master of Arts in Audiology, University of Tennessee, Knoxville (1993); Bachelor of Science in Speech-Language Auditory Pathology, East Carolina University (1992)

Ramirez de Lynch, Luisa E., Physical Therapist, 2004; Doctor of Physical Therapy, University of Tennessee Health Science Center (2008); Bachelor of Science in Physical Therapy, University of Puerto Rico (1978)

Reed-Morgan, Eleta, Assistant Professor, 2001; Master of Science in Dental Hygiene, University of Tennessee Health Science Center (2008); Bachelor of Science in Dental Hygiene, University of Tennessee Health Science Center (1998)

Reiner, Anton J., Professor, 1987; Doctor of Philosophy in Psychology, Bryn Mawr College (1977); Master of Arts in Psychology, Bryn Mawr College (1975)

Reynolds, Rebecca B., Associate Professor, 1994; Doctor of Education in Higher and Adult Education, University of Memphis (2008); Master of Health Administration, University of Memphis (1997); Bachelor of Science in Health Informatics and Information Management, University of Tennessee Health Science Center (1993)

Ritzline, Pamela Dawn, Associate Professor, 2007; Doctor of Education in Higher Education, Indiana University (2002); Master of Science in Physical Therapy, University of Indianapolis (1987)

Robertson, Ellen, Instructor, 2011; Master of Science in Occupational Therapy, Spalding University (2006); Bachelor of Arts in Exercise and Sports Science, University of North Carolina at Chapel Hill (2000)

Rose, Jonathan Michael, Assistant Professor, 2007; Master of Science in Physical Education, East Illinois University (1992); Certificate in Physical Therapy, Ohio State University (1997)

Rosebush, Molly Susan, Assistant Professor, 2008; Doctor of Dental Surgery, University of Michigan (2005); Master of Science in Dentistry, Ohio State University (2008)

Ross, Linda, Associate Professor, 1994; Master of Science in Instruction and Curriculum, University of Memphis (1995); Bachelor of Science in Medical Technology, University of Tennessee Health Science Center (1975)

Saltuklaroglu, Tim, Associate Professor, 2004; Doctor of Philosophy in Communication Sciences & Disorders, East Carolina University (2004)

Schay, Nancy Lambden, Associate Professor, 2001; Doctor of Audiology, University of Tennessee, Knoxville (2003)

Schubert, Lisa, Assistant Professor, 1999; Doctor of Occupational Therapy, Boston University (2012); Master of Arts in Occupational Therapy, New York University (1985)

Schwarz, Ilsa, Professor, 2002; Doctor of Philosophy in Speech Pathology and Audiology, University of Oregon (1982); Master of Science in Speech Pathology and Audiology, University of Oregon (1979)

Scroggs, Reese Schiller, Associate Professor, 1992; Doctor of Philosophy in Pharmacology, University of Illinois, Chicago (1989)

Sharp, Marcia Y., Assistant Professor, 2006; Doctor of Education, University of Memphis (2011); Master of Business Administration, Webster University (2004); Bachelor of Science in Health Information Management, University of Tennessee Health Science Center (1993)

Sheridan, Carol, Associate Professor, 1978; Master of Arts in Speech Pathology, University of Tennessee, Knoxville (1972)

Granier, Sheri Marchadie, Teaching Associate, 2009; Master of Dental Hygiene, University of Tennessee Health Science Center (2007); Bachelor of Science in Dental Hygiene, Louisiana State University (1999); Associate of Science in Dental Hygiene, Louisiana State University (1998)

Stedke, Schelli Jean, Instructor, 2007; Master of Dental Hygiene, University of Tennessee Health Science Center (2010); Bachelor of Science in Dental Hygiene, Ohio State University (1992)

Stegman, Elaine C., Assistant Professor, 1999; Master of Dental Hygiene, University of Tennessee Health Science Center (2010); Bachelor of Science in Dental Hygiene, University of Tennessee Health Science Center (1977)

Stewart, Colette, Instructor, 2008; Master of Science in Organization Leadership, Regis University (2009); Bachelor of Science in Dental Hygiene, University of Tennessee Health Science Center (1995)

Stewart, Jill, Teaching Associate, 2008; Doctor of Philosophy in Biokinesiology, University of Southern California (2010); Master of Science in Physical Therapy, University of Indianapolis (2000)

Tampas, Joanna W., Teaching Associate, 2001; Doctor of Philosophy in Speech and Hearing Science, University of Tennessee, Knoxville (2007); Master of Arts in Audiology, University of Tennessee, Knoxville (2002)

Tekell, Lisa C., Assistant Professor, 2003; Transitional Doctor of Occupational Therapy, University of St. Augustine for Health Sciences (2009); Master of Science in Occupational Therapy, Western Michigan University (2000); Bachelor of Science in Psychology, St. Ambrose University (1997)

Thomas, Elizabeth G., Instructor, 1993; Bachelor of Science in Dental Hygiene, University of Tennessee Health Science Center (1983); Certificate of Dental Hygiene, University of Tennessee Health Science Center (1971)

Thomas, Rebecca, Teaching Associate, 2000; Master of Occupational Therapy, Texas Woman's University (1995); Bachelor of Art in English and Commercial Art, Lambuth University (1991)

Vonhapsburg, Deborah, Associate Professor, 2001; Doctor of Philosophy in Communication Sciences & Disorders, University of Texas at Austin (2003); Bachelor of Science in Communication Sciences & Disorders, University of Texas at Austin (1990)

Warr, Gina P., Instructor, 1994; Bachelor of Science in Dental Hygiene, University of Tennessee Health Science Center (1976)

Warren, Richard E., Teaching Associate, 2006; Master of Health Administration, University of Memphis (2003); Bachelor of Science in Medical Technology, Mississippi State University (1986); Certificate in Medical Technology, Mississippi Baptist Medical Center (1986)

Williams, Nancy Johnson, Professor, 1980; Doctor of Education, University of Memphis (1992); Master of Science in Health, Physical Education, and Recreation, University of Memphis (1984); Bachelor of Science in Dental Hygiene, University of Tennessee Health Science Center (1980)

Williamson, Thomas, Assistant Professor, 2006; Bachelor of Science in Medical Technology, University of Tennessee Health Science Center (2003)

Won, Jong Ho, Assistant Professor, 2012; Doctor of Philosophy in Bioengineering, University of Washington (2010); Master of Science in Biomedical Engineering, Hanyang University (2005); Bachelor of Science in Mechanical Engineering, Hanyang University (2003)

Zeno, Mitzi B., Assistant Professor, 1986; Doctor of Physical Therapy, University of Tennessee Health Science Center (2009); Master of Science in Health Sciences, Texas Woman's University (1984)

Zucker-Levin, Audrey R., Associate Professor, 1998; Doctor of Philosophy in Physical Therapy, New York University (2003); Master of Science in Physical Therapy, Long Island University (1988); Master of Business Administration, University of Tennessee at Martin (2008)

**THE UNIVERSITY OF TENNESSEE  
HEALTH SCIENCE CENTER**

**CATALOG 2012 - 2013**



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**COLLEGE OF DENTISTRY**

**875 Union Avenue • Memphis, TN 38163 • Tel: (901) 448-6200**

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**Timothy L. Hottel, D.D.S., M.S., M.B.A., Dean**

William F. Slagle, D.D.S., M.Ed. Dean Emeritus

Franklin Garcia-Godoy, D.D.S., M.S., Senior Executive Associate Dean, Research

Mark R. Patters, D.D.S., Ph.D., Associate Dean, Academic and Institutional Affairs

J. Stansill Covington, D.D.S., M.S., Associate Dean, Admissions/Student Affairs

Lloyd A. George, D.D.S., J.D., Associate Dean, Clinical Affairs

David R. Cagna, D.M.D., M.S., Associate Dean, Postgraduate Affairs

Daniel E. Brown, J.D., C.P.A., Assistant Dean for Financial Affairs

## GENERAL INFORMATION

### **Biography of the Dean: Timothy L. Hottel, D.D.S., M.S., M.B.A., F.A.C.D.**

Dr. Timothy L. Hottel is Dean of the University of Tennessee Health Science Center College of Dentistry and Professor, Department of Prosthodontics. He received his dental degree from Case Western Reserve University where he simultaneously earned an M.S. in biomedical engineering. After many years of service to CWRU and maintaining a successful private practice, Dr. Hottel relocated to Ft. Lauderdale to join the faculty of Nova Southeastern University College of Dentistry where he held such positions as Chair, Department of Restorative Dentistry, Assistant Dean for Clinical Affairs, Assistant Dean for External Affairs, Associate Dean for Academic and Financial Affairs, Section Chief of Restorative Services and Executive Associate Dean. In 2009, he moved to Memphis to become the 19<sup>th</sup> Dean at the College of Dentistry. He continues to be active in research, publications and speaks both nationally and internationally in the areas of practice management and implantology.

### **History of the College**

The College of Dentistry was founded in Nashville in 1878. It is the oldest dental college in the South, and the third oldest public college of dentistry in the United States. The college was located in Nashville until 1911, when, in order to secure larger facilities, the Board of Trustees of the University of Tennessee moved it to Memphis. In that year, authorities of the University of Memphis transferred all of its equipment and the good will of its Dental Department to the Board of Trustees of The University of Tennessee. Through this union, the facilities and equipment of the two institutions were merged into one college.

### **Physical Facilities**

The College of Dentistry is fortunate to have excellent facilities for classroom, laboratory, and clinical instruction. The Humphreys General Education Building, built in 1977 and shared with other colleges on campus, provides 146,250 square feet of space for lecture, laboratory and self-study. It houses the lecture rooms and laboratories for all preclinical courses, except the gross anatomy laboratory which is located in the Wittenborg Anatomy Building, which is immediately adjacent to the Humphreys Building. The Humphreys Building also houses a computer laboratory which is utilized by both faculty and students. The Winfield Dunn Dental Clinical Building was completed and occupied in September 1977. This building contains 96,500 net square feet in five floors, providing 322 patient treatment chair units, administration and faculty offices, students' lounge, dental maintenance shop, dental clinical support laboratories, conference rooms, student laboratories, central sterilizing area, and other essential housekeeping and support activities necessary for the normal activities of a dental education facility. The main clinical teaching area was renovated and refurbished with state-of-the-art dental chairs and units in 2009-2010.

### **National Standing**

The programs in dentistry are accredited by the Commission on Dental Accreditation, a specialized accrediting body recognized by the Council on the Recognition of Postsecondary Accreditation and by the United States Department of Education. This accreditation is the direct result of extensive periodic evaluation by the commission every seven years. Accreditation permits qualified graduates of the college to make application for all state and regional board examinations in the United States. As an institution of higher education, the College of Dentistry is fully accredited by the Southern Association of Colleges and Schools as part of the regular accreditation process of The University of Tennessee Health Science Center.

### **Philosophy of Education**

The faculty of the College of Dentistry is committed to the education of a health professional whose primary responsibility will be the prevention of oral disease and the maintenance of the oral health of the public. This encompasses the recruitment of well-qualified and motivated students who understand the need for a commitment to improving the welfare of those they serve, as well as the personal obligations of continuous development.

Because of the changing patterns of dental disease and the rapidly changing demographics reflected in the populations of the nation, the dentist of the future must be better prepared to change with the times. Students must develop a background that equips them to understand basic scientific principles and concepts, as well as an understanding of how these principles and concepts can change. The student must be able to apply scientific principles to the practice of dentistry and possess the inquiry that will promote advancement of this knowledge. The practitioner of the future must appreciate the value of research as an innovator of change, as well as the need to be a continuing student to remain current in scientific knowledge. The educational program provides

opportunities to gain the basic knowledge and skills essential to the effective delivery of dental care. It also strives to prepare the student to apply this information in creative ways when dealing with unique clinical problems that do not have typical solutions.

A part of professional growth includes the recognition that the support of others within the profession is important to the welfare of the professional and that of the patient. Finally, the student must recognize that, by becoming a member of a profession, one assumes responsibilities which extend beyond oneself to include profession, patients, family, community, nation, and alma mater.

## **Faculty**

The faculty is organized by departments to constitute functional units in the major disciplines of the dental curriculum. In addition to the full-time and part-time faculty members in the College of Dentistry, the teaching personnel includes faculty of the Colleges of Medicine, Pharmacy and Graduate Health Sciences. A complete listing of faculty, by department is available on the College website at [http://www.uthsc.edu/dentistry/Fac\\_Depts/](http://www.uthsc.edu/dentistry/Fac_Depts/).

## **Alumni Affairs**

The Dental Alumni Association is organized to promote the welfare of The University of Tennessee Health Science Center, the College of Dentistry and its graduates. The University of Tennessee Health Science Center College of Dentistry Alumni Association works in conjunction with The University of Tennessee Health Science Center Office of Alumni Affairs on a number of activities throughout the year. The Dental Alumni Association sponsors the MidSouth Dental Congress that is held each year in early spring. This meeting features nationally known speakers, presentation of the annual award of "Outstanding Alumnus," and class reunions.

The Office of Alumni Affairs arranges receptions for alumni at various state, regional and national meetings.

## **Program Modification Statement**

In publishing these regulations, the College of Dentistry does not recognize any implied contract as having validity beyond the succeeding academic year. The faculty reserves the right to make changes in curriculum, policy and procedures when, in its judgment, such changes are in best interest of students and the College of Dentistry. Ordinarily, a student may expect to receive a degree by meeting the requirements of the curriculum, as specified in the catalog currently in force when they first enter the college, or in any one subsequent catalogue published while they are a student. However, the College of Dentistry is not obligated to fulfill this expectation, or to offer in any particular year, a course listed in the catalog.

## ACADEMIC CALENDAR 2012-2013

Date	Activity	Class
Sunday, July 1, 2012	Tuition and Fees Due Fall 1	
Thursday, July 5, 2012	Class Begins	D2, D3, D4
Monday, July 16, 2012	14 <sup>th</sup> Day Count	
July 26-27	Orientation Week Begins	D1
Monday, July 30, 2012	Class Begins	D1
Wednesday, August 1, 2012	Tuition and Fees Due Fall 2	
Friday, August 31, 2012	Fall Break Begins	D2
Friday, August 31, 2012	Fall Break Ends	D2
Monday, September 3, 2012	*University Holiday (Offices Closed)	
Tuesday, September 4, 2012	Fall Break Begins	D3, D4
Friday, September 7, 2012	Fall Break Ends	D3, D4
Monday, November 19, 2012	Thanksgiving Break Begins	D1, D2, D3, D4
Friday, November 23, 2012	Thanksgiving Break Ends	D1, D2, D3, D4
Friday, December 5, 2012	Last Day of Classes	D1, D2, D3, D4
Friday, December 7, 2012	Graduation	
Monday, December 24, 2012- Friday, December 28, 2012	University Holiday	
Tuesday, January 1, 2013	University Holiday	
Thursday, January 3, 2013	Tuition and Fees Due Spring 1	
Thursday, January 3, 2013	Classes Resume	All
Monday, January 21, 2013	University Holiday	
Wednesday, January 23, 2013	14 <sup>th</sup> Day Count	
Monday, March 25, 2013	Spring Break Begins	D1, D2, D3, D4
Friday, March 28, 2013	Spring Break Ends	D1, D2, D3, D4
Friday, March 29, 2013	University Holiday	
Tuesday, May 17, 2013	Classes End	D1
Thursday, May 16, 2013	Classes End	D2
Friday, May 24, 2013	Classes End	D4
Thursday, May 30, 2013	Classes End	D3
Monday, May 27, 2013	Memorial Day	
Friday, May 31, 2013	Graduation	D4



## DEGREES AND CERTIFICATES OFFERED

The College of Dentistry offers a full time 4-year program of study leading to the Doctor of Dental Surgery (D.D.S.) degree.

Postdoctoral programs of study are offered in the following dental specialties, five of which can lead to the Master of Dental Science degree (offered through the College of Graduate Health Sciences):

- Orthodontics Master of Dental Science degree (3 years)
- Pediatric Dentistry Master of Dental Science degree (3 years)
- Periodontics Master of Dental Science degree (3 years)
- Prosthodontics Master of Dental Science degree (3 years)
- Endodontics Master of Dental Science degree (3 years)

- Advanced Education in General Dentistry Certificate (through Lutheran Medical Center; 1 year)
- Oral & Maxillofacial Surgery Certificate (4 years)
- Pediatric Dentistry Certificate (2 years)
- Endodontics Certificate (2 Years)

## ADMISSION REQUIREMENTS

### Office of Admissions

The Associate Dean for Admissions and Student Affairs, along with the Admissions Committee, reviews applications for admission to the undergraduate (D.D.S.) program. Applications are made through the American Dental Education Association's "AADSAS" centralized application service. Undergraduate admissions information can be found at <http://www.uthsc.edu/dentistry/Admissions/>.

Admission to the various advanced education programs (Endodontics, Oral and Maxillofacial Surgery, Orthodontics, Periodontology, Pediatric Dentistry, and Prosthodontics) is made either directly to the program or through a centralized service such as PASS or MATCH. Please contact the program directly for details.

The Admissions Committee formulates and recommends policies and procedures for admission to the College of Dentistry. The committee establishes criteria, procedures, and data used in appraising and selecting applicants for admission. This committee evaluates qualifications of applicants and submits names of selected candidates for admission to the dean. Information related to applicants such as personal credentials, information gained through interviews, acceptance or denials, and related matters are considered confidential remaining "in committee," except as reported through appropriate channels.

### Technical Standards

The primary goal of the College of Dentistry is the preparation of students for the practice of dentistry. This includes pre-doctoral dental education, formal postdoctoral dental education, continuing education, and the preparation of all students for life-long learning.

As a health care specialty, primarily defined by anatomical boundaries, the practice of dentistry has unique requirements in that the accumulation of scientific knowledge must be accompanied by the simultaneous acquisition of essential diagnostic and clinical skills, management functions, and professional attitudes, ethics and behaviors. Such requirements are requisite to the provision of safe and effective management of the hard and soft tissue of the oral cavity and adjacent anatomical areas, including the teeth, jaws, and surrounding soft tissues.

The faculty of the College of Dentistry has a responsibility to graduate the best possible dental practitioners, residents, and graduate students; thus admission to educational programs in the College of Dentistry is offered only to those who present the highest qualifications for education and training in the art and science of dentistry. Applicants to programs of the College of Dentistry must possess the following general qualities: critical thinking, sound judgment, emotional stability and maturity, empathy, physical and mental stamina. Applicant must possess the ability to acquire knowledge, surgical skills and technical functions and use such knowledge, skills, and functions in a wide variety of didactic, laboratory, and clinical settings at a minimum level of competency, as defined by the college.

The faculty of the College of Dentistry has a responsibility for the welfare of the patients treated under the aegis of the college and the educational welfare of its students relative to the educational programs of the college. The Committee on Admissions of the College of Dentistry maintains that certain minimal technical standards must be present in applicants to the various educational programs of the college. A candidate for the Doctor of Dental Surgery degree, as well as dentists in the various advanced education programs of the college, must have the following essentials: motor skills; sensory/observational skills; communication skills; intellectual-conceptual, integrative, and quantitative abilities; and behavioral/social skills and professionalism.

### **1. Motor Skills**

Candidates for admission to programs of the College of Dentistry must have sufficient motor function to perform and participate in didactic, pre-clinical technique, laboratory, and clinical procedures and exercises at a minimal level of competency, as defined by the college. At a minimum, this includes coordination of both gross and fine muscular movements, equilibrium, and touch. Candidates for admission to programs of the College of Dentistry must have manual dexterity, including full functioning wrists, hands, fingers, and arms.

### **2. Sensory/Observational Skills**

Candidates for admission to programs of the College of Dentistry must have sufficient sensory/observational skills to perform and participate in didactic, preclinical technique, laboratory, and clinical procedures and exercises at a minimal level of competency, as defined by the college. At a minimum, this includes the ability to participate in didactic, preclinical technique and laboratory exercises and interact with patients in terms of observation and data gathering. Candidates for admission to programs of the College of Dentistry must have the functional use of visual and other sensory modalities.

### **3. Communication Skills**

Candidates for admission to programs of the College of Dentistry must have sufficient communication skills to perform and participate in didactic, pre-clinical technique, laboratory, and clinical procedures at a minimal level of competency, as defined by the college. At a minimum, this includes the ability to communicate effectively in written and spoken English in classroom, laboratory, and clinical settings.

### **4. Intellectual/Conceptual, Integrative, and Qualitative Skills**

Candidates for admission to programs of the College of Dentistry must have sufficient intellectual/conceptual, integrative, and qualitative skills to perform didactic, pre-clinical technique, laboratory, and clinical procedures and exercises at a minimal level of competency, as defined by the college. At a minimum, this includes the ability to manage data, solve problems, and make rational decisions regarding patient care in a timely manner.

### **5. Behavioral/Social Skills and Professionalism**

Candidates for admission to programs of the College of Dentistry must have sufficient behavioral/social skills and professionalism to perform didactic, preclinical technique, laboratory, and clinical procedures at a minimal level of competency, as defined by the college. At a minimum, this includes the attributes of integrity, empathy, communication, and motivation, in addition to emotional maturity and stability, sound judgment, punctuality, and interpersonal skills. For this reason, candidates for admission to programs of the College of Dentistry must be adaptable, able to cope with stress, assertive, able to delegate responsibilities, meet deadlines and manage time, and function as part of a dental health care team.

## **Summary**

In summary, the faculty of the College of Dentistry prepares students for the comprehensive practice of dentistry. The Committee on Admissions in the College of Dentistry, in accordance with Section 504 of the 1973 Vocational Rehabilitation Act and the Americans with Disabilities Act (PL101-336), has established the aforementioned essential functions of students in educational programs offered by the College of Dentistry.

The Committee on Admissions of the College of Dentistry will consider for admission applicants who demonstrate the ability to perform, or to learn to perform, the essential skills listed in this document. The college will strive to see that students or dentists with impaired intellectual, physical, or emotional functions do not place patients in jeopardy. Students will be judged not only on their scholastic accomplishments, but also on their physical and emotional capacities to meet the full requirements of the college's curriculum and to graduate as skilled and effective dental practitioners.

Upon admission, a student who discloses a properly certified disability will receive reasonable accommodation but must be able to perform the essential functions of the curriculum, as described in this document, either with or without reasonable accommodation. Students seeking accommodation should initiate their request in the Office of Academic Affairs of the University of Tennessee Health Science Center College of Dentistry.

## **Admission to Advanced Standing**

### **Admission of Foreign Dental Graduates**

The College of Dentistry considers graduates from foreign dental schools for admission with advanced standing. Applicants may be admitted at a level commensurate with their qualifications as determined by faculty evaluations. In general, applicants are usually admitted at the beginning of the second year, which then requires a minimum of three years in residence to receive the D.D.S. degree. Applicants must be United States citizens or permanent residents of the United States at the time of application. Also, applicants must have taken NBDE Part I, NBDE Part II and TOEFL (if from a non-English speaking country) at the time of application. Space must also be available in the second year class. Inquiries concerning this program are best made in the spring of the year when space availability is usually known.

### **Applicants for Transfer with Advanced Standing**

The College of Dentistry considers applications for transfer from students in good academic and professional standing from other dental education institutions accredited by the Commission on Dental Accreditation. Due to the nature of each college's curriculum, few requests for transfer can be accommodated. Additional information regarding application for advanced standing may be obtained from the Office of Admissions. Applicants must be citizens or permanent residents of the United States at the time of application.

### **Special Student Program**

D.D.S. - Ph.D. The College of Dentistry, in cooperation with the College of Graduate Health Sciences, offers the opportunity for well-qualified students to pursue both the D.D.S. and Ph.D. degrees. However, applicants must meet the admission criteria of both colleges and be accepted for study by both. Once the student has identified a major course of graduate study, a curriculum plan may be jointly developed by the Academic Dean of the College of Graduate Health Sciences, their major Professor, and the Academic Dean of the College of Dentistry. Students electing this program are classified as special students in the College of Dentistry, and their course of study must be individualized. Stipends for graduate study must be negotiated through the Academic Dean with the approval of the Graduate College. The course of study leading to both degrees may vary from six to eight or more years.

## **TUITION, FEES, AND EXPENSES**

### **Tuition and Fees**

Official information regarding tuition and fees for the College of Dentistry is available at [http://www.uthsc.edu/finance/bursar/colleges\\_fee\\_information.php](http://www.uthsc.edu/finance/bursar/colleges_fee_information.php). Cost of attendance estimates and information about loan applications are available at <http://www.uthsc.edu/finaid/Dentistry.php>.

### **Textbooks, Instruments and Materials**

The textbooks, instruments, and materials, that must be utilized in the educational program and furnished by the student, are stipulated by the faculty annually following a comprehensive needs analysis. Designated dental materials and supplies are purchased from an outside vendor arranged by the classes. At the beginning of each academic year, instrument kits are rented from the College of Dentistry. Additionally, each course director may designate required textbooks. The Curriculum Committee reviews all textbook requests. Required textbooks are available in the bookstore but may be procured from any legitimate source. Supplementary textbooks are included on the textbook list; however, they are optional and not required for the course. The estimated expense for textbooks, instruments, and materials may be obtained from the Office of Admissions and Student Affairs, 875 Union Avenue, S-102 Dunn Building, Memphis, TN 38163, (901) 448-6200 or at <http://www.uthsc.edu/dentistry/Admissions/DDS/yearly-expenses.php>. Information on textbooks is available at <http://uthsc.bncollege.com/webapp/wcs/stores/servlet/TBWizardView?catalogId=10001&storeId=57051&langId=-1>.

Newly entering students must arrange to acquire a laptop computer that meets the specifications provided by the College (see <http://www.uthsc.edu/dentistry/Admissions/DDS/DDSgenpolicy.html>).

Students are expected to comply with the requirements concerning equipment and textbook purchases as a condition for admission and continued enrollment.

## SCHOLARSHIPS AND FUNDING

Applications for student loans can be found at <http://www.uthsc.edu/finaid/Dentistry.php>.

In addition to loans, the College awards the following scholarship to students of the College of Dentistry on a competitive basis. Awards may vary each year depending upon the endowed account interest earned.

**Kenneth L. Frame Award.** Two students receive \$2,000 each. A criterion for this award is demonstrated excellence in the restorative area.

**James T. Andrews Scholarships.** Currently, four students receive \$2,000 each (\$8,000 annually). Eligibility for this award is demonstrated outstanding ability in restorative dentistry and financial need.

**Cecily W. Tipton Memorial Scholarships.** Currently, seven awards of \$2,000 each (\$14,000 annually) are given to Second, Third and Fourth year dental students. Students receiving these scholarships must have demonstrated academic excellence and financial need.

**Hinman Scholarships.** Two students each year receive \$3,000 each plus trip expenses to attend Hinman meeting in Atlanta. Eligibility for this award is based upon outstanding academic performance and financial need.

**Andy Holt Scholarship.** University of Tennessee Alumni Association awards an Andy Holt Scholarship to an incoming dental student. This award is a four-year award of \$10,000 per year for a total award of \$40,000.

**Pierre Fauchard Academy Award.** One student per year receives \$1,500. This is awarded to a senior dental student who has demonstrated outstanding leadership abilities.

**R. Malcolm Overbey Student Leadership Award.** Two students receive \$2,000 in recognition of exceptional leadership potential, scholastic achievement and personal and professional integrity.

**Robert N. Wilson, D.D.S Scholarship.** Three awards of \$2,000 to students who are married with at least one child and in the top 1/3 of the class.

**Winfield C. Dunn, D.D.S. Scholarship.** Two awards of \$2,000 to any student. Eligibility is scholastic, leadership and community involvement.

**Doris Costello Bowyer Memorial Scholarship.** The ASDA President receives a \$1,000 award for leadership and participation in campus activities.

**Weems Scholarship.** Two dental students receive \$2,500 each for academic accomplishments.

**Russell O. and Fannie B. Ford Scholarship Award.** One award to an incoming D-1 student of \$2,500 for academic accomplishment and leadership.

**F. Payne Hardison, D.D.S. and Mark F. Hardison, D.D.S., Scholarship Award.** One award of \$1,500 to a deserving student for scholastic and leadership ability.

**Gerald R. Karr, D.D.S. Family Scholarship Award.** One award of \$1,500 to a deserving student for academic accomplishment.

**Lowell Dale Blevins Scholarship.** One award of \$1,500 to a married student whose spouse is employed and demonstrates financial need and scholastic ability.

**Delta Dental of Tennessee Scholarship.** Three awards of \$2,500 given to a Tennessee student on the basis of scholastic ability and dedication to dentistry.

**Delta Dental of Arkansas Scholarship.** Three awards of \$2,000 given to an Arkansas student on the basis of scholastic ability and dedication to dentistry.

**Dental Endowment Fund Scholarship.** Ten awards of \$1,000 based upon financial need and dedication to dentistry.

**Joseph W. Graham, Sr. Scholarship.** One award of \$2,500 based upon scholastic ability, financial need and dedication to dentistry with emphasis on excellence in the restorative dentistry area.

**W.C. 'Dub' Lady Scholarship.** Two awards of \$1,500 given to students demonstrating scholastic ability, financial need, dedication to dentistry and from the eastern part of the state of Tennessee.

**O.D. and Ruth McKee Scholarship.** One award of \$2,500 based upon scholastic ability, financial need, and dedication to dentistry. The recipient should be from Bradley County, Tennessee, or Benton County, Arkansas.

**The Xi Psi Phi Fraternity Scholarship Award.** One award of \$2,000 awarded to a graduating or third-year student based on scholastic ability and service to the ZIP fraternity.

**Joe and Chris Miller Scholarship.** One award of \$1,250 based upon scholastic ability and dedication to dentistry.

**Joe and Pat Mosier Scholarship.** One award of \$1,250 based upon financial need and dedication to dentistry with special consideration of those students that rank in the middle third of their class.

**Dr. John T. (Jack) Camp Scholarship.** Six students receive \$2,000 each. The criterion for this award is having been an athlete in college and upon the 'need' of each individual student.

**Harold Cloogman, D.D.S. Scholarship.** Eighteen students receive \$3,000 each based upon successful academic performance, financial need and residency in East Tennessee.

**Helen Flanagan Fry Scholarship.** One female student is awarded \$1,000 based upon scholastic ability with financial need a consideration and residency in the eastern part of the state of Tennessee.

**Dr. Buford and Lynda Suffridge Scholarship.** One student is awarded \$1,500 primarily on the basis of financial need and ranking in the middle third of their dental class.

**Elizabeth Club Scholarship.** One female student is awarded \$1,000 based on demonstrated financial need and residency in the state of Tennessee.

**Dr. Maurice E. Petrovsky Scholarship.** Awarded to an outstanding fourth-year student who has demonstrated 'the pursuit of perfection in the field of Fixed Prosthodontics'.

**Dr. Roy Smith Scholarship.** One student is awarded \$2,000 based on academic performance and residency in West Tennessee.

**Redwine-Mitchell Scholarship.** One student is awarded \$1,250 based on academic performance, financial need and residency in East Tennessee

**Dr. and Mrs. Noah David Britton III Scholarship.** One student is awarded \$1,250 based on academic ability, financial need and dedication to dentistry.

**Dr. and Mrs. Thomas Onstott Scholarship:** One award of \$1,500 to any student based upon financial need and scholastic ability.

**Second District Dental Society Award.** Two awards of \$1,500 is given to any D-2, D-3 or D-4 student based upon scholastic ability, and dedication to dentistry as a career and profession with preference to students from the Second Dental District.

**Dr. Earl Henry Scholarship Award.** One award of \$1,500 is given to a D-4 student who is going into US armed forces (Navy preferred) from Second District, with financial need.

**Dr. Norris Howell Scholarship Award.** One award of \$1,500 is given to any dental student based upon scholastic ability, financial need and dedication to dentistry as a career and profession.

For more information on financial aid, see <http://www.uthsc.edu/finaid/Dentistry.php>

## GRADING POLICIES

### Grading Performance Level

The official grades utilized by the College of Dentistry and reported to the registrar are: A, B+, B, C+, C, D, F, P, W, WP, WF, I, and AU (Audit). The quality value assigned to the grade is outlined as follows:

Quality Points	
Grade	Per Credit Hour
A	4.00
B+	3.33
B	3.00
C+	2.33
C	2.00
D	1.00
F	0
P	0

The letters **'WP'** or **'WF'** will be recorded to indicate pass or failure in those instances in which a student withdraws from the College before completing the work. The designation of **'I'** will be used in those instances in which a student is unable to complete a course at the scheduled time because of an acceptable reason. The designations must be removed from the record by the date stipulated by the Dean but no later than the end of the semester following that in which the grade was received. Failure on the part of a student to remove an **'I'** with a passing grade within the time limit allowed will result in the grade of **'F'** being reported and recorded as a permanent grade.

## PROGRESS, PROMOTION, AND GRADUATION

Good academic standing leading to promotion requires that each student must earn a passing grade for each course and demonstrate competence in specific clinical activities required in each year of the curriculum. In addition, students are expected to achieve and maintain a cumulative grade point average of no less than 2.0 while enrolled with a minimum number of grades of **'D'**. A grade point average of 2.0 is expected in laboratory technique courses by the end of the second year. Furthermore, students are required to pass Part I of the National Board Dental Examinations to meet the criteria for promotion to the third year. Student promotion is determined by the evaluation of academic progress by the Student Status Committee through recommendations to the Dean. Other factors considered in the promotion decision are the personal and professional qualities of the dental student. The National Board Dental Examinations, developed and administered by the American Dental Association's Joint Commission on National Dental Examinations, are given in two parts. Part I is normally administered to all students during the winter- spring semester of the second year. Part II of the examination, covering clinical subjects, is administered to fourth year students prior to graduation.

Students must pass Part I and II in order to be eligible for licensure in any state or territory of the United States. Students are required to pass Part I of the National Board Dental Examinations as a condition for promotion to the third year within the College of Dentistry.

## Policy Governing Student Standing

The policies governing student standing are described at <http://www.uthsc.edu/dentistry/Academics/StudentStatus.pdf>.

### Withdrawal

The Administration reserves the right to dismiss or request the withdrawal of any student at any time, whenever it is apparent that the student is ineffectual academically, or lacks the necessary talent to pursue the curriculum in dentistry. Formal withdrawal is a prerequisite to honorable dismissal, or consideration for re-entrance to this institution, and must be approved by the Dean of the College of Dentistry. Students intending to withdraw from the college must notify the Associate Dean for Student Affairs and obtain a withdrawal form.

When the appropriate signatures have been obtained, the student must request an exit interview with the Associate Dean for Student Affairs. The Associate Dean for Student Affairs will sign the withdrawal form and forward it to the Dean for his/her signature. Once the Dean's approval has been obtained, the form is returned to the Registrar's Office for final processing.

### Requirements for Graduation

#### To qualify for the Doctor of Dental Surgery (DDS) degree, the student:

- a. Must have satisfactorily completed all required courses of the curriculum, including the didactic, laboratory, clinical and practical courses, to the satisfaction of the faculty;
- b. Must have an overall grade point average (GPA) of 2.00 (on a scale of 4.00);
- c. Must have satisfactorily completed all required comprehensive and clinical examinations.
- d. Must have acted in a reasonable, ethical and professional manner.
- e. Must have been enrolled in the College of Dentistry for all of the senior year.
- f. Must have discharged all financial and administrative obligations to the University.

### Graduation with Honors

The College confers to the graduates with the cumulative grade point average (GPA) that ranks in the top 2.5% of the class the distinction of graduation with "**highest honors**." Students with cumulative grade point averages that rank in the next highest 5.0% qualify for the designation of graduation with "**high honors**." Graduates of the College of Dentistry who attain a cumulative grade point average that ranks in the next highest 10% qualify for the designation of graduation with "**honors**." As the "honors" distinction must be reported to the registrar during the spring of the senior year, the GPA established at the end of the summer-fall semester of the senior year is used to determine students qualifying for graduation with honors. Students who enter the College with "advanced standing" and are permitted to enter in the second year are eligible for the honors designation; however, they will not supplant a student who has been enrolled in all 4 years of the curriculum.

### Appeal Process

The recommendation regarding academic status, promotion, and graduation of a student is the responsibility of the Student Status Committee. The committee meets each semester to evaluate student progress and make appropriate recommendations to the Dean of the College of Dentistry for a decision regarding academic status, promotion, and graduation.

A student has the right to appeal an adverse decision when the student can produce evidence or information that (1) circumstances existed at the time of the Committee's deliberations that were not known by the Student Status Committee and that evidence or information, if known by the Committee, would have influenced the Committee's recommendation regarding the student's academic and professional performance; (2) an error existed in the student's record that was used in reaching the adverse recommendation; or (3) the recommendation created unequal treatment for the student compared to the same or similar circumstances among the student's peers. Adverse decisions resulting from failure to pass Part I of the National Board Dental Examination may not be appealed.

An appeal for an evaluation of the Student Status Committee's recommendation by the Student Appeals Committee must be requested by the student, in writing, to the Dean of the College of Dentistry within five (5) working days of receipt of the original decision. The request must include the basis for requesting the appeal for reconsideration and include any supporting documentation. The Dean will evaluate the validity of the request.

Failure to provide a concrete basis for the appeal, which must contain information not previously considered by the Student Status Committee, will result in rejection of the appeal request. In general, explanations of circumstances that led to poor academic performance will not constitute sufficient grounds for an appeals hearing unless such explanations put in question the validity of the original decision.

If the appeal is accepted by the Dean, he/she will ask the Associate Dean for Academic Affairs to convene the Student Appeals Committee within ten (10) working days of, or as soon as feasible after the receipt of all appeal requests which are accepted by the Dean. The student will be informed, in writing, of the date, time, and place of the Student Appeals Committee meeting.

The student must attend the Student Appeals Committee meeting and be prepared to submit any additional pertinent information as well as respond to information previously considered by the Student Status Committee. The student has the right to be accompanied by any person(s), excluding legal counsel, who can provide relevant information in support of the appeal.

The Student Appeals Committee will make a final recommendation to the Dean of the College of Dentistry. The Dean, or the Dean's designee, will notify the student of the appeal decision within five (5) working days of or as soon as feasible after, the Student Appeals Committee meeting.

In the event that a student's appeal within the College of Dentistry regarding an adverse decision is denied, the student has the right to appeal to the Chancellor of the University of Tennessee Health Science Center.

## **PROFESSIONALISM**

### **Professional Standards**

In order to create and maintain the best possible professional atmosphere at The University of Tennessee Health Science Center College of Dentistry, it is necessary that faculty and students adhere to standards of professionalism, courtesy, and ethics. Common courtesy and mutual respect are essential to enhance the educational experience, and to decrease stress and misunderstanding. Each faculty member should serve as a professional role model to students, and establish a positive rapport in all educational settings. Each student should recognize their responsibility in professional growth, and maintain an attitude that strengthens that development. Compliance with these standards is the moral obligation of all dental faculty and all dental students:

- A. Respect and courtesy are essential in dealing with patients, students, faculty, and staff.
- B. Disagreement among faculty and/or students should be addressed in a private setting away from patient-care areas.
- C. If a student's dentistry is clinically acceptable and approved by an instructor, future instructors working with the patient should respect the original approval.
- D. Negative remarks should not be made in a patient's presence, and significant negative criticism should be given in a private setting.
- E. Adherence to proper clinical attire and dress code is mandatory.
- F. Substance abuse will not be allowed in the College of Dentistry.
- G. Promptness with adequate preparation for appointments and clinical assignments must be a priority of students and faculty.
- H. The use of profanity in dealing with patients, faculty, students and staff will not be tolerated.
- I. When patients cancel or break appointments, the appropriate faculty and staff must be notified promptly.
- J. The evaluation (grade) given for procedures should be discussed at the time of grading, so that the student will understand any deficiency, and how they may improve future performance.
- K. Faculty should promote confidence in students through positive reinforcement.
- L. Patients should have full explanation of the process and procedures involved in their treatment. Patients must be informed of the risks and benefits incurred.

The College policies on professionalism, collegiality and student advocacy are available at <http://www.uthsc.edu/dentistry/Academics/ProfessionalismPolicy.PDF>.



## Honor Code and Honor Council

The Honor Code of The University of Tennessee Health Science Center is promulgated in order to assure that student academic affairs of The University of Tennessee Health Science Center will be conducted under the highest standards of individual responsibility, thereby promoting personal honor and integrity in the best traditions of the health science professions. Major responsibility for protection of the education process is assumed by The University of Tennessee Health Science Center students who are directly responsible for the effective operation of the Honor Code.

The University of Tennessee Health Science Center Honor Code governs all students enrolled in The University of Tennessee Health Science Center. Each college has established an Honor Council to function under the rules delineated in the Honor Code. Alleged violations of the Honor Code are processed by the Honor Council of the college in which the alleged violation occurred. The Honor Council of the College of Dentistry is composed of four representatives from each class. Election of the representatives is in accordance with the bylaws of the Honor Code. More detailed information relative to the Honor Code can be found in the Student Handbook, *Centerscope*.

## ACADEMIC POLICIES

### Attendance Policy

The student attendance policy for the predoctoral DDS program is described at <http://www.uthsc.edu/dentistry/Academics/StudentAttendancePolicy.pdf>.

### Policy Regarding Integrated Examinations for D-1 and D-2 Students

Integrated examinations are given at periodic intervals (every 2, 3 or 4 weeks) during the D-1 and D-2 years. The content of each courses' contribution to the examination is established by the course director and covers the information taught since the last examination. The questions are generally multiple choice and the examination will be of approximately 2 hours duration and taken on computer. A cumulative final examination will be given at the end of each semester and will consist of questions from the entire course. It is the responsibility of each course director to establish the criteria for the awarding of course grades, the role of examinations in the determination of those grades and communicating this information to the student of the first day of each class or via the course's Blackboard website. Any concerns relative to individual examination questions, criteria for course evaluation or final grades should be directed to the appropriate course director. Students are expected to take examinations as scheduled. Students unable to take an examination as scheduled because of an emergency situation (hospitalization or death in the immediate family) must notify the Office of Academic Affairs prior to the examination. Excused absences from integrated exams will only be provided for emergency situations as described above.

### Policy on Student Classroom Activities

It is a guiding principle of the College of Dentistry that students attend class for the purpose of learning the information being taught and/or mastering the psychomotor skills that are necessary to practice dentistry. While in class (including laboratories), students are not to study or review other information that is not germane to the specific material being presented. Students may only use written media or any electronic devices (including, but not limited to cell phones, PDA's, computers or other internet-capable electronics) during class to assist in learning the specific topics being presented in class or labs. Any use of the UT computer network must be in compliance with the University of Tennessee's Information Technology Acceptable Use policy. Faculty members may prohibit the presence or use of any written media or any electronic device in their class or laboratory if they believe that those items may be a distraction from the teaching and learning process. Violation of any of this policy will be considered unprofessional conduct and an ethical breach.

### Faculty Teaching Material

It is the policy of University that "When a University employee develops mediated course materials..., ownership of the materials belongs to the creator, who retains the copyright and the rights to update, edit, or otherwise revise the mediated course materials and to place a time limit upon the use of the materials... The right to control distribution is a right of ownership." This policy establishes that faculty teaching materials are the intellectual property of the individual faculty member. Faculty may choose to share these materials with students and post such materials on University servers for the use of the students. However, such distribution to students is at the discretion of the faculty and students have no right to copy or otherwise use such materials without the consent of the faculty.

## COMMUNICATION WITH STUDENTS

E-mail is used as a method of official College communication with students. Official College communication includes but is not limited to e-mail from the administration and faculty including decisions of the Dean regarding promotion, graduation, repetition of courses and/or academic years and dismissal. The College e-mail policy is available

at <http://www.uthsc.edu/dentistry/Academics/student-email.pdf>.

## SPECIAL AWARDS, HONORS AND DISCIPLINE-SPECIFIC ACTIVITIES

### Lectureships

The Frank P. Bowyer Visiting Lectureship was established in 1980 through the generosity of Dr. Bowyer and his colleagues in the dental profession. Dr. Bowyer was an alumnus, past trustee of the University, and past president of the American Dental Association. This endowment makes possible an annual lecture by a prominent individual on the topic of organized dentistry, dental education, community dentistry, dental practice management or other appropriate health care issues. The lectures are primarily for third and fourth year dental students, and add an important dimension to the educational environment of the College of Dentistry.

### Research Symposia

The Hinman Student Research Symposium is held annually which features oral and poster presentations of research findings by dental students and postgraduate trainees from the University of Tennessee and from dental students across the United States and Canada. The Symposium is co-sponsored by the College of Dentistry and the Thomas P. Hinman Dental Society. The objectives include the recognition of student achievements in dental research and the encouragement of dental research careers and education.

### Fellowships, Honorariums, Associations, and Awards

#### Alumni Dental Student Research Fellowship

The award supported by the UT Dental Alumni Association enables dental students, selected on a competitive basis, to engage in individualized research projects during the summer period. The maximum stipend is \$2,500. Funds may also be available to defray the cost of travel for scientific presentations at national meetings.

#### Richard L. Sullivan Award for Dental Research

Completed projects of students receiving Summer Research Fellowships are judged at the end of the summer. The winner of this competition is awarded the Richard Sullivan Award and receives \$400 and a plaque.

#### Omicron Kappa Upsilon Dental Honor Society

Membership in this national honor fraternity reflects recognition of high scholastic standing and consistent, earnest study throughout the curriculum. To be eligible for election a student must rank in the upper twenty percent of his/her class scholastically, be of high moral character, and show promise of making significant contributions to his/her profession after graduation.

#### The Richard Doggett Dean and Marguerite Taylor Dean Honorary Odontological Society

This honor society, dedicated to promoting high standards in the profession, was founded in 1948 in recognition of Dr. Richard Doggett Dean and his wife, Dr. Marguerite Taylor Dean, for long and faithful service to the University and dental education.

#### Dean's List for Scholastic Achievement

Each academic year, students who rank in the top 25% of their class are placed on the "Dean's List."

### **College of Dentistry Student Awards**

- Academy of Dental Materials Award
- Academy of General Dentistry Award
- Academy of Operative Dentistry Award
- Academy of Osseointegration-Outstanding Student in Implant Dentistry Award
- American Academy of Oral Medicine Award
- American Academy of Oral and Maxillofacial Pathology Award
- American Academy of Oral and Maxillofacial Radiology Award
- American Academy of Pediatric Dentistry Award
- American Academy of Periodontology Award
- American Association of Endodontists Award
- American Association of Oral and Maxillofacial Surgeons Award
- American Association of Oral Biologists Award American Association of Orthodontists Award American Association of Women Dentists Award
- American College of Dentists Outstanding Leader Award
- American College of Prosthodontics Award American Student Dental Association's Award Certificate of Merit Awards
- Dean's Award for Clinical Excellence
- Dean's Leadership Award
- Dean's Odontological Society Dental Faculty Award
- Dentsply Merit Award in Removable Prosthodontics
- Dr. Maurice Petrovsky Excellence in Fixed Prosthodontics Award
- Imhotep Society
- International College of Dentists Achievement Award
- Omicron Kappa Upsilon Awards
- Pediatric Dentistry Alumni Association Award
- Pierre Fauchard Academy Award
- R. Malcolm Overby Student Leadership Award
- Sidney S. Friedman, Sr. Periodontology Award
- Southeastern Academy of Prosthodontics Award
- Student National Dental Association's Leadership Award
- Tennessee Society of Pediatric Dentistry Award
- The University of Tennessee Health Science Center, Student Service Award
- Whip Mix-Hanau 'Best of the Best' Prosthodontic

## **STUDENT ORGANIZATIONS AND ACTIVITIES**

### **American Association of Women Dentists**

The University of Tennessee Chapter of the AAWD was formed to foster mutual support among female dental students and to provide personal, social and professional association with women dentists.

### **American Dental Education Association**

The American Dental Education Association (ADEA) is a national organization to promote and improve dental education. Its mission is to lead faculty, students and institutions of the dental education community to address contemporary issues influencing education, research, and the delivery of oral health care for the improvement of the health of the public.

### **American Student Dental Association**

The University of Tennessee College of Dentistry chapter of the American Student Dental Association is a part of the national organization that is associated with the American Dental Association. Dental students may join the American Student Dental Association and receive the ADA journal, as well as be eligible for the association's insurance programs and other benefits. The membership fee is \$67 per year for students. In addition to maintaining an excellent liaison with the faculty and administration, the organization encourages active participation of each student to work for the highest ideals of the profession.

### **Christian Dental Fellowship**

### **College of Dentistry Student Government Association (CoDSGA)**

The objectives of the CoDSGA are to serve as the collective official voice of the students in the College of Dentistry of the University of Tennessee Health Science Center, and to function as the forum of local dental student government. It represents all students in the College of Dentistry addressing academic, financial, social and other issues affecting the students' overall learning experience. It stimulates interclass relationships and provides a common format for individual dental student's voice and expression.

The CoDSGA sponsors educational, cultural, intellectual and social projects for the betterment of the organization, the dental school, the dental profession and the community. The CoDSGA assists the Dean in implementing favorable relationships and communication between the students and faculty and serves as a liaison between the two. CoDSGA provides an opportunity for the development of leadership qualities in the students and promotes and fosters knowledge of the structure of the dental profession in general.

### **Delta Sigma Delta**

### **Dental Students Research Group (SRG)**

A chapter of the Students Research Group of the American Association for Dental Research was established in 1985. Students are encouraged to join the American Association for Dental Research/International Association for Dental Research (AADR/IADR). The University of Tennessee Health Science Center chapter of the SRG is represented annually at the national meetings of the AADR/IADR. Students participate in research projects guided by faculty mentors during the summer. Research seminars and Journal Club meetings are held periodically to discuss ongoing research and review literature related to dental research.

### **Student National Dental Association**

The Student National Dental Association (SNDA) strives to promote and encourage an increase in minority enrollment in all dental schools. The SNDA is committed to the improvement of the delivery of dental health to all people, with an emphasis on minorities and the under-served. This organization assists those programs within the greater community that require some measure of dental expertise, by educating and involving its members in the social, moral, and ethical obligations of the profession of dentistry and promoting a viable academic and social environment which is conducive to the mental health of minority students.

## **Fraternities**

On The University of Tennessee Health Science Center campus are chapters of two national dental fraternities: Psi Omega, and Xi Phi Phi. The Interfraternity Council aids in the formulation of policies relating to the activities of the fraternities. Through the help of the Council, each fraternity has a program that augments that of the College of Dentistry in preparing dental graduates for successful lives in the dental profession.

## **Psi Omega**

## **Xi Phi Phi**

## **Christian Medical-Dental Association**

## **CURRICULUM**

The Board of Trustees of The University of Tennessee has approved a four-year academic program to prepare dental professionals for the practice of general dentistry. Class enrollment is presently limited to a maximum of 90 students who matriculate in late July or early-August of each year.

Early in the curriculum, students are introduced to basic sciences and preclinical dental sciences that provide an understanding of the human organism in health and disease. These courses offer the foundation for advancement into patient care, which is achieved largely in the last two years of the curriculum. Basic science instruction is offered by faculty from the College of Medicine and College of Dentistry, while dental course instruction is offered by faculty of the College of Dentistry with assistance from faculty of other colleges of the Health Science Center Memphis campus.

The professional dental curriculum is designed to offer those entering the general practice of dentistry a sound foundation of preparation. Those completing the course of study and receiving the D.D.S. degree are qualified to apply for dental specialty programs or positions in governmental agencies that require these credentials.

## **Program Description**

Entering students (clinical) are expected to demonstrate a high level of interest and commitment to learning. This is evidenced by a professional attitude toward assigned tasks, concern for the patient's interest and well-being, time commitment to clinical care of patients, receptivity to instruction, professional interactions with fellow students, faculty and staff of the College, and willingness to do more than just the minimum. All clinical performance related to patient care must be rated clinically acceptable (C or better grade).

Students should realize the need to seek advice or help in situations where they do not have sufficient knowledge or experience. Faculty have the responsibility to be aware of students' progress in knowledge and skills as well as students' needs and to intervene in patient care when appropriate. Student progress in the development of diagnostic, treatment planning and treatment skills are based upon a demonstrated effectiveness in the successful management and treatment of assigned clinical patients and the successful completion of clinical competency assessments. These assessments require the students to demonstrate independent diagnostic problem solving, appropriate clinical judgment, and application of clinical skills in an appropriate manner.

Based upon their level of training, students must demonstrate successful and adequate progress in the various areas of clinical practice to be recommended for promotion/graduation. These areas include the demonstrated management of a comprehensive care program for a portfolio of patients who are selected and assigned based upon diversity of their clinical care needs. The student must effectively use available clinical time to achieve a record of clinical productivity, a high patient acceptance rating, and demonstrated ability to professionally manage the diagnostic treatment planning and treatment needs of his/her assigned patients. The student must be conversant on the clinical subjects relevant to his/her practice and capable of defending his/her diagnostic and treatment decisions. Demonstration of professional behavior consistent with good ethical conduct is expected and a *must*.

Students who do not progress satisfactorily as measured by these criteria may be delayed in their promotion. Failure to make satisfactory progress may require that a remedial program may be designed and implemented at the discretion of the faculty. If offered, this remedial program will be designed to offer specific help in the specific areas of identified deficiency. Repetition of a school year may be indicated at the recommendation of the faculty and at the discretion of the Dean.

The graduating senior must have demonstrated that they are competent in performing general dentistry skills and possess an adequate degree of basic science knowledge. The graduate must be capable of applying that knowledge and skill appropriately, and have a proven record of success in the professional and ethical management of his/her dental school practice. Collectively the faculty approves the readiness of the graduate to enter practice.

### **Educational Philosophy and Plan for the Clinical Teaching Program**

The purpose of the clinical component of the curriculum is to prepare dental students for the practice of general dentistry. The clinical teaching program prepares graduates to diagnose, treatment plan, ethically manage and treat patients, at first with close faculty assistance and ultimately with an increasing degree of independent initiative and confidence. This involves the acquisition of basic and clinical science knowledge and development of pre-clinical surgical and technique skills, sound clinical judgment, good interpersonal relations, efficient management of time and resources and an acceptable level of technical proficiency. This approach is predicated on the concept that learning accompanies doing and, therefore, applied clinic practice is essential to acquire the various skills that are necessary for a successful general practice. Concurrently, application of knowledge offers opportunities for objective evaluation and assessment of the quality of the care provided to assigned patients.

The clinical patient care program is dedicated to the achievement of clinical competence through two (2) major objectives: the pursuit of a philosophy of comprehensive patient care and the attainment of an optimal level of quantitative and qualitative clinical competence. It is the dual responsibility of the student with faculty supervision to fashion the clinical experience in such a manner that both objectives are met. Each student will be aided by a Clinical Practice leader, the Coordinator of Patient Care and the Clinical Director. The benefits of an applied philosophy of comprehensive patient care are realized concurrently with the attainment of evidence indicating that all College of Dentistry competency statements are met along with adequate clinical experience. It is the policy of the College of Dentistry to provide comprehensive care for its dental patients whenever possible. Comprehensive care is defined as the treatment needed to restore the patient's stomatognathic system to optimal appearance and function. It is expected that undergraduate dental students provide their portion of a patient's care in the school's clinics and arrange the referral(s) of their patients to the school's graduate clinics as needed. Any treatments that School clinics cannot provide are to be referred to private dental practice and students are expected to track the patient's treatment progress so any necessary follow-up care by the College may be accomplished in a timely manner. Patients not desiring referral care are to be offered alternative care whenever possible.

### **2012-2013 Curriculum Schedules**

The four-year curriculum consists of eight semesters.

First-year students begin the academic year the first week of August (18-week Fall semester). Second-year, third-year and fourth year students begin the academic year the first week of July (22-week Fall semester).

All students have a 19-week Spring semester that begins in early January. Second, third and fourth year students have a fall break in early September. All students have a break during the Thanksgiving holidays and a spring break in mid-March. Specific course dates are published annually by the college.

The curriculum as listed below represents the comprehensive format of study leading to the Doctor of Dental Surgery degree. However, the Curriculum Committee is constantly reviewing the curriculum to fulfill the academic needs of the profession. Thus, the actual course of study may reflect modifications on a year-to-year basis.

## FIRST YEAR SCHEDULE

<b>Fall Semester</b>	<b>Credit Hours</b>
ANAT 101 Histology for Dental Students	4
DSOM 101 Biomedical Clinical Conference (BCC), I	1 (P/F)
RESD 101 Operative Dentistry (Lecture)*	2
RESD 102 Operative Dentistry (Lab)*	1
RESD 103 Dental Morphology (Lecture)	2
RESD 104 Dental Morphology (Lab)	2
RESD 105 Tooth Preparation	2 (P/F)
MSCI 101 Biochemistry	5
PDCH 103 Human Values & Personal Ethics	1 (P/F)
RESD 106 Introduction to Dentistry	1 (P/F)
PDCH 107 Informatics and Evaluation of Dental Literature	1
PERI 103 Pathobiology	2
RESD 113 Biomaterials*	1
DSOM 105 Dependency & Addiction in the Dental Profession	1 (P/F)

<b>Spring Semester</b>	<b>Credit Hours</b>
ANAT 103 Neuroanatomy	2
ANAT 105 Gross Anatomy	6
DSOM 103 Biomedical Clinical Conference (BCC), II	1 (P/F)
ORTH 107 Craniofacial Growth & Human Development	1
PHYS 101 Physiology	5
PROS 119 Occlusion (Lecture)	2
PROS 120 Occlusion (Lab)	2
RESD 107 Intro to Clinical Practice I	1

## SECOND YEAR SCHEDULE

<b>Fall Semester</b>	<b>Credit Hours</b>
DSOM 201 Basic Dental Radiology	3
DSOM 203 Patient Evaluation*	2
DSOM 207 General/Systemic Pathology	4
DSOM 211 Biomedical Clinical Conference (BBC), III	1 (P/F)
ENDO 201 Basic Endodontics (Lecture)*	1
ENDO 202 Basic Endodontics (Lab)*	1
MSCI 201 Microbiology	4
PDCH 201 Introduction to Pediatric Dentistry*	2
PERI 203 Clinical Periodontology	3
PHAR 205 Dental Pharmacology*	4
PROS 221 Prosthodontics-Complete Denture (Lecture)	1
PROS 222 Prosthodontics-Complete Denture (Lab)	1
PROS 223 Prosthodontics-Removable Partial Denture (Lecture)*	1
PROS 224 Prosthodontics-Removable Partial Denture (Lab)*	1
PROS 225 Fixed Prosthodontics I (Lecture)	1
PROS 226 Fixed Prosthodontics I (Lab)	2
PROS 227 Fixed Prosthodontics II (Lecture)*	1
PROS 228 Fixed Prosthodontics II (Lab)*	1
RESD 203 Operative Composite Resin (CR Lecture)	1
RESD 204 Operative Composite Resin (CR Lab)	1
ORTH 203 Development of Occlusion	1

*\*Continues through Spring Semester*

## SECOND YEAR (continued)

Spring Semester	Credit Hours
RESD 205 Complete Intracoronal Preparations/Restorations (Lecture)	1
RESD 206 Complete Intracoronal Preparations/Restorations (Lab)	1
RESD 207 Introduction to Clinical (Clinic)	1 (P/F)
OMSU 201 Pain Control I	4
OMSU 203 Principles of Oral & Maxillofacial Surgery	2
PDCH 202 Pediatric Dentistry Lab	1
PDCH 204 Human Behavior & Dental Practice	1
PROS 230 Basic Life Support	1 (P/F)
PROS 231 Oral Implantology	1
RESD 208 Esthetic Dentistry (Lecture)	1
RESD 209 Esthetic Dentistry (Lab)	1 (P/F)

## THIRD YEAR SCHEDULE

Fall Semester	Credit Hours
DSOM 301 Clinical Correlation Conference	1
DSOM 302 Oral Diagnosis Clinic*	3
DSOM 311 Basic Oral & Maxillofacial Pathology*	5
DSOM 313 Special Patient Care	2
RESD 301 Dental Auxiliary Utilization	1 (P/F)
ENDO 302 Endodontics Clinic*	1
RESD 304 D.A.U. Clinic*	1 (P/F)
RESD 306 Operative Clinic*	5
OMSU 301 Advanced Pain Control	2
OMSU 302 Oral Surgery Clinic*	3
ORTH 301 Orthodontic Diagnosis and Treatment	3
ORTH 302 Orthodontic Appliance Fabrication (Lab)	1
PDCH 301 Introduction to Practice Management	1 (P/F)
PDCH 302 Pediatric Dental Clinic*	2
PDCH 304 Patient Centered Dentistry	1
PERI 301 Basic Periodontal Surgery	2
PERI 302 Periodontics Clinic*	3
PROS 308 Fixed Prosthodontics Clinic*	3
PROS 310 Removable Prosthodontics Clinic*	4
PROS 311 Oral Implantology	1
RESD 307 Esthetic Dentistry (Lecture)	1
RESD 308 Esthetic Dentistry (Lab)	1 (P/F)
PROS 330 Professionalism & Practice Management (Clinical Practice)	1 (P/F)
PROS 334 CPR Recertification	1 (P/F)

Spring Semester	Credit Hours
DSOM 305 Advanced Dental Radiology	1
ORTH 304 Orthodontic Clinic	1 (P/F)
PDCH 303 Professional Ethics and the Patient	1 (P/F)
PDCH 307 Dental Jurisprudence	1
PERI 303 Special Problems in Periodontal Therapy	2
PROS 309 Advanced Prosthodontics	1
PROS 313 Management of TMD	1
PROS 336 Professionalism & Practice Management II (Clinical Practice)	1 (P/F)
ENDO 301 Clinical Endodontics	1

*\*Continues through Spring Semester*



## FOURTH YEAR SCHEDULE

Fall Semester	Credit Hours
DSOM 401 Clinical Pathological Conference (CPC)	1
DSOM 402 Oral Diagnosis Clinic*	2
DSOM 407 Oral Medicine & Therapeutics	1
DSOM 409 Advanced Treatment Planning	1 (P/F)
ENDO 401 Advanced Endodontics	1
ENDO 402 Endodontics Clinic*	2
RESD 403 Advanced Operative Dentistry	1 (P/F)
RESD 404 D.A.U. Clinic*	1 (P/F)
RESD 406 Operative Clinic	5
OMSU 402 Oral Surgery Clinic*	3
OMSU 403 Advanced Oral & Maxillofacial Surgery	2
PDCH 401 Practice Implementation and Management	2
PDCH 402 Pediatric Dental Clinic*	2
PDCH 403 Community Dentistry	1
PERI 401 Advanced Periodontology	1
PERI 402 Periodontics Clinic*	3
PHAR 403 Applied Pharmacology	1 (P/F)
RESD 401 Advanced Biomaterials	1
PROS 406 Fixed Prosthodontics Clinic*	5
PROS 407 Principles of Prosthodontics Practice	1 (P/F)
PROS 408 Removable Prosthodontics Clinic*	5
PROS 430 Professionalism & Practice Management (Clinical Practice)	1 (P/F)
PROS 434 CPR Recertification II	1 (P/F)
<b>Spring Semester Credit Hours</b>	
PDCH 405 Applied Practice Management	1 (P/F)
PROS 409 Advanced TMD & Sleep Disordered Breathing	1 (P/F)
PROS 432 Professionalism & Practice Management II (Clinical Practice)	1 (P/F)
PDCH 407 Community Based Dental Education	1 P/F)

\*Continues through Spring Semester

## COURSE DESCRIPTIONS

### Basic Science Departments

The faculty of the College of Medicine offers the basic science courses that contribute to the dental curriculum.

#### Department of Anatomy and Neurobiology

*Department Chair & Professor: Matthew Ennis, Ph.D.*

**101 ANAT - Histology for Dental Students.** Included are basic cytology, special organ histology and selected topics of embryology relevant to dentistry. In addition to lectures, the laboratories allow direct observation of prepared microscope slides. Lecture and laboratory. Fall semester. Credit 4 (51-31). R. Waters

**103 ANAT - Neuroanatomy.** Lectures are supplemented with projected slides. The major structures and relationships of the brain (including cranial nerves) and the spinal cord are presented. Lecture and laboratory. Fall semester. Credit 2 (28-4). R. Scroggs

**105 ANAT - Gross Anatomy.** This course is an introduction to human gross anatomy by means of dissection supplemented with lectures. Slightly more than one half the course is devoted to detailed study of the head and neck. Lecture and laboratory. Spring semester. Credit 6 (61-69). R. Nelson

## Department of Molecular Sciences

*Department Chair & Professor: Gerald I. Byrne, Ph.D.*

**101 MSCI - Biochemistry.** The course consists of a series of lectures that offers a basis for an understanding of modern biochemistry as well as establishing a background for courses occurring later in the curriculum. Although major emphasis is on fundamental aspects of biochemistry, additional emphasis is given to areas of special importance in oral biology. The laboratory emphasizes analytical techniques applied to oral tissues and secretions. Lecture. Fall semester. Credit 5 (72-0). M. Dabbous

**201 MSCI - Microbiology.** Lectures and laboratory exercises present the fundamental aspects of microbial structure, growth, and genetics, with a survey of sterilization, disinfection and chemotherapy. Microbial virulence, nonspecific host resistance, and the principles of immunology precede a survey of disease producing microorganisms. Emphasis is placed on those affecting the oral cavity or with oral manifestations, and those of public health interest which might affect the dentist. Lecture. Fall semester. Credit 4(54-0). R. Belland

## Department of Physiology

*Department Chair & Professor: Gabor Tigyi, Ph.D.*

**101 PHYS - Physiology.** The properties, composition, and function of living matter and its reactions to internal and external agents are presented. The course is composed of lectures and laboratory experiences concerning the following organ systems: circulatory, respiratory, renal, digestive, and endocrine. The mechanism of integration of the various physiological systems is stressed. Lecture. Spring semester. Credit 5 (70-14). D. Nutting

## Department of Pathology

*Department Chair & Professor: Charles Handorf, M.D., Ph.D.*

**207 DSOM - General/Systemic Pathology** The faculty of the Department of Pathology provides instruction relative to the fundamental principles and concepts of general pathology in conjunction with the oral pathology taught in this course. Lecture. Fall semester. Credit 4 K. Anderson

## Department of Pharmacology

*Department Chair & Professor: Burt M. Sharp, M.D.*

**205 PHAR - Dental Pharmacology.** This course is designed to introduce the student to the basic principles of drug action, drug dose-response relationships and drug interactions to provide a sound basis for understanding practical dental therapeutics. Drug categories most important for beginning dental practice are introduced in this course, such as drugs affecting the autonomic nervous system, analgesic and anesthesia drugs, and antibiotics. This course later concentrates on categories of drugs that may be encountered in dental practice, such as drugs administered for therapeutic medical treatment of patients that may affect dental health or dental practice. Lecture. Fall semester. Credit 4 (65-0). D. Suttle

**403 PHAR - Applied Pharmacology.** This pharmacology course is scheduled as part of the preparation for passage of the Dental National Board Exam, Part II. The second year course, Dental Pharmacology, is a prerequisite. The course concentrates on the drugs that are most important for clinical practice - antibiotics, analgesics, anesthetics, and anti-inflammatory drugs- and on drug interactions pertinent to dentistry. The course incorporates self-study of information through a website, review with faculty, qualifying evaluation and participation in (case) seminars on drug interactions as it applies specifically to dental practice. On-line. Fall semester. Credit (1P/F) (7-1). T. Sweatman

## **Diagnostic Sciences and Oral Medicine**

*Department Chair and Professor: Cesar Migliorati, D.D.S., M.S., Ph.D.*

### **Division of Oral Diagnosis**

**101 DSOM - Biomedical Clinical Conference (BCC), I.** This course is a conference demonstrating the clinical correlation between the biochemistry and histology of developmental disturbances. Lecture. Fall semester. Credit (1P/F) (10-0). D. Tipton

**103 DSOM - Biomedical Clinical Conference (BCC), II.** This course is a conference relating to principles being taught in the D-1 basic science courses in physiology and gross anatomy. Lecture. Spring semester. Credit (1P/F) (10-0). D. Tipton

**105 DSOM - Dependency & Addiction in the Dental Profession** This course is designed to provide a basic understanding of chemical dependency/addiction, including its prevention, recognition, treatment, and impact upon the dental profession. Lecture. Fall semester. Credit (1 P/F) (8-0). K. Anderson

**201 DSOM - Basic Dental Radiology.** This course is designed to acquaint the student with the principles of x-ray production, the biological effect of x-radiation, radiation hygiene and protection, the making of intraoral radiographs, and the interpretation of these radiographs. Upon completion of this course the student will be knowledgeable about the proper use of this important diagnostic tool in the dentist's armamentarium. This is a prerequisite course for Advanced Oral Radiology (DSOM 305). Lecture. Fall semester. Credit 3 (27-24). W. Shintaku

**203 DSOM - Patient Evaluation.** A basic Oral Diagnosis course that introduces students to patient evaluation and examination techniques, the proper recording of collected exam data, the formulation of medical and dental summary diagnoses/problem lists, the planning of treatment alternatives for the patient's dental diagnoses (taking the medical diagnoses into consideration), and the presentation of the treatment plan(s) to the patient. Lecture and clinical simulation. Fall through Spring semesters. Credit 2 (29-30). M. Aubertin

**211 DSOM - Biomedical Clinical Conference (BCC), III.** This course is a conference demonstrating that a thorough understanding of basic principles of microbiology and pathology is essential in the daily practice of clinical dentistry. This course will be offered as a "Pass/Fail" course, thus, a "N/C" denotation as semester credit hour. The course is scheduled for the Fall semester. Lecture. Summer-fall term. Credit (1P/F) (10-0). D. Tipton

**301 DSOM - Clinical Correlation Conference.** This course provides a practical approach for the dental student by presenting case histories of patients with the most frequently seen medical problems. Clinical medical specialists will discuss specific disease processes, and the relationship of each medical disease and its therapy to the dental plan of treatment. Lecture. Fall semester. Credit 1 (22-0). C. Migliorati

**302 DSOM - Oral Diagnosis Clinic.** The Junior Oral Diagnosis clinic emphasizes the student's development of historical and clinical examination skills and his formulation of an appropriate dental treatment plan based upon each patient's dental and medical diagnoses. Students work in a closely supervised atmosphere and are scheduled briefly into a dental emergency service where patients needing immediate care are diagnosed and treated. Patient-care. Fall through Spring semester. Credit 3 (0-114). M. Woods

**305 DSOM - Advanced Dental Radiology.** This course introduces the principles and techniques involved in intraoral-occlusal and extraoral radiography with special emphasis on the use of the dental panoramic x-ray machine. The indications and criteria for prescribing these radiographic views are presented as well as material concerning the interpretation of the resultant radiographs. Other lecture topics include TMJ radiography, intraoral and extraoral film processing errors, processing artifacts and radiographic quality assurance programs designed for the modern dental office. Lecture. Spring semester. Credit 1 (10-5). W. Shintaku

**313 DSOM - Special Patient Care.** This course provides dental students with knowledge of the special needs of patients who are mentally retarded, medically compromised, or elderly. The course is presented by a series of guest lecturers. An interdisciplinary approach is taken in an effort to familiarize dental students with the need for consultation, as well as the varied aspects of health care for this population. In addition, several lectures focus on specific handicapping conditions, and highlight cultural and social aspects of providing dental health care for handicapped and elderly patients. Lecture. Fall semester. Credit 2 (31-0). M. Woods

**402 DSOM - Oral Diagnosis Clinic.** The Senior Oral Diagnosis clinic emphasizes the student's development of clinical judgment and patient management skills. Students are considered to be clinical interns and they examine, diagnose, and plan treatment for patients with minimal faculty supervision. They are also scheduled into a dental emergency service where patients needing immediate care are diagnosed and treated. Patient-care. Fall through Spring semester. Credit 2 (0-101). M. Woods

**407 DSOM - Oral Medicine & Therapeutics.** This course deals primarily with the treatment of selected diseases and conditions, other than caries and periodontal disease, in which the dentist plays a major role in the recognition, diagnosis and management of the disorder. Emphasis will be given to drug indications, contraindications, interactions, dosages, and related therapeutic issues. Clinical information and testing will utilize a case-base format, similar to that found on Part II of the National Board Dental Examination. Lecture. Fall semester. Credit 1 (14-0). M. Rosebush

**409 DSOM - Advanced Treatment Planning.** This course is designed to prepare the senior dental student for more difficult or complex patient treatment planning. A multidisciplinary group of faculty will present complex treatment cases/treatment considerations in a seminar format designed to encourage student participation. Emphasis will be placed on appropriate treatment options and sequencing. Lecture. Fall semester. (1P/F) (11-0). P. Gregory

### **Division of Oral Pathology**

**207 DSOM - General/Systemic Pathology** The course in general pathology instructs the student in the basic concepts of human disease and presents facts about the more commonly occurring non-oral diseases, particularly those pertinent to the practice of dentistry. Lecture. Fall semester. Credit 4 (70-0). K. Anderson

**311 DSOM - Basic Oral & Maxillofacial Pathology.** This course presents the terminology and working concepts of the epidemiology, etiology, pathogenesis, clinical signs and symptoms, histology, radiology (if applicable), treatment, and prognosis of oral and perioral lesions. The course demonstrates the relationship between the basic sciences and clinical oral pathology. Lecture. Fall through Spring semester. Credit 5 (87-0). K. Anderson

**401 DSOM - Clinical Pathological Conference.** This course utilizes the clinical pathology conference format to teach students to diagnose and manage various forms of oral pathology. Case histories are utilized to present clinical diagnostic problems. Lecture. Fall semester. Credit 1 (25-0). Y. Rawal

### **Department of Endodontics**

*Department Chair and Professor: Adam Lloyd, B.D.S., M.S.*

**201 ENDO - Basic Endodontics (Lecture).** These courses include lectures on the biological and clinical aspects of endodontics plus preparation for the preclinical laboratory exercises. Included in the biological aspects are discussions of the pulp, diseases of pulp and the periapical tissues, diagnostic and treatment procedures, selection of patients, and medications used in endodontics. The clinical lectures are devoted to anatomy and morphology as it relates to endodontics, procedures used in preparing and filling root canals, discussion of instruments and materials used, restoration of endodontically treated teeth and orientation for the clinic. Lecture. Fall through Spring semester. Credit 1 (21-0). A. Lloyd

**202 ENDO - Basic Endodontics (Lab).** The laboratory courses involve access, instrumentation and obturation of both plastic teeth and extracted human teeth. Complete treatment is performed on both single and multi-rooted teeth. Technique laboratory. Fall through Spring semester. Credit 1 (0-45). A. Lloyd

**301 ENDO – Clinical Endodontics.** The clinical lecture course in endodontics is designed to introduce the dental student to a multitude of endodontically related conditions and their management. Dealing with pulpal and periapical pathoses and decision making based on tooth restorability will be an everyday practice throughout a dental career and the importance of making sound, ethical treatment choices with best evidence will be emphasized. In addition, problem-solving in diagnostic dilemmas, endodontic retreatment, relevance of implants in endodontic practice, adjunct techniques, and dealing with dentoalveolar trauma in the permanent tooth. Lecture. Spring semester. Credit 1 (9-0). A. Lloyd

**302 ENDO and 402 ENDO - Endodontic Clinic.** The third and fourth year students have the opportunity to perform clinical endodontics under the supervision of instructors. In addition, students receive training in differential diagnosis, treatment planning and management of the emergency patient. Patient-care. Fall through Spring semester. Credit (302) 1(0-42); Credit (402) 2 (0-78). H. Matheny and A. Lloyd

**401 ENDO - Advanced Endodontics.** A lecture course is offered at the time when students have had exposure to the endodontic clinical experience. The course is designed to broaden the student's knowledge by examining the biological aspects of endodontics and enhance skills in the management of the more complex problems. In addition, new materials, alternate techniques and controversial subjects are examined with respect to the more routine clinical practice. Lecture. Fall semester. Credit 1 (13-0). A. Lloyd

## **Department of Restorative Dentistry**

*Department Chair and Professor: Janet A. Harrison, D.D.S.*

**101 RESD - Operative Dentistry (Lecture).** Lectures include classification and nomenclature of cavities; cavity preparation; instruments and instrumentation; histological structure of the teeth in relation to cavity preparation and selection of restorative materials. The manipulation of amalgam, cement bases, cavity liners, pulpal protection, pin retained amalgams and rubber dam application is introduced in this course. Lecture. Fall through Spring semester term. Credit 2 (23-0). J. Harrison

**102 RESD - Operative Dentistry (Lab).** Laboratory exercises include cavity preparation for amalgam in ivory teeth and extracted natural teeth. Amalgam restorations are placed and carved in all of the preparations. Amalgams placed in natural teeth are polished. The manipulation and application of cement bases, liners and cavity varnish are included. Technique laboratory. Fall through Spring Semester. Credit 1 (0-57). D. Versluis

**103 RESD - Dental Morphology (Lecture).** The Dental Morphology courses are presented in two closely related segments, lecture and laboratory. These courses are a prerequisite for all dental courses. The lecture course is designed to familiarize the student with dental terminology, internal and external tooth anatomy, tooth form, tooth function and supporting structures. The lectures also cover development of the dentitions (deciduous and adult) as well as variations or anomalies of tooth morphology and alignment of the dentition. Lecture. Fall semester. Credit 2 (31-0). B. Owens

**104 RESD - Dental Morphology (Lab).** The laboratory course reinforces the concepts taught in the lecture segment through waxing of individual anatomical tooth forms. The student learns the handling of instruments and proper wax temperature control through waxing exercises. After completion of exercises the student will wax fourteen individual teeth, seven maxillary and seven mandibular. The student should know the morphology of all human teeth and be prepared to reproduce that knowledge in sculptured wax. Technique laboratory. Fall semester. Credit 2 (0-84). B. Owens

**105 RESD - Tooth Preparation.** A practice course in Restorative Dentistry, this course provides an initial experience that presents and trains students to perform simulated clinical procedures in Operative Dentistry and Fixed Prosthodontics as well as training of motor skills and cognitive skills. Additionally, ergonomics will be emphasized. Simulation laboratory. Fall semester. Credit (2P/F) (18-24) J Harrison

**106 RESD - Introduction to Dentistry.** This course demonstrates how relationships are affected by such factors as intra- and inter-personal concerns, cultural bias, and the social skills of the dentists, patients and auxiliaries. It assists dental students in their responsiveness to the needs of others and provides a cohesive framework within which students can interpret, understand and respond to patient behaviors. Lecture. Fall semester. Credit (1P/F) (13-0). B. Owens

**107 RESD – Introduction to Clinical Practice I.** This course blocks students in the clinic during the Spring Semester of the first year. It will enable each student to become familiar with multiple experiences in clinic protocol, infection control protocol, patient record-keeping protocol, and face-to-face interactions with patients. It is further expected that each student will assist D-3 and D-4 students in patient treatment under the supervision of the attending faculty. Clinical rotation. Spring semester. Credit 1 (1P/F). A. Braxton

**203 RESD - Operative Composite Resin (CR Lecture).** This course is designed to provide the student with information about tooth-colored restorative therapy (i.e., composite resins, glass ionomers, and supporting materials). The selected clinical vignettes demonstrate case selection and management of the dentition using Class II, III, IV, V, preventive resin restoration (PRR) , and direct veneer restoration procedures and techniques. Lecture. Fall semester. Credit 1 (13-0). W. Wasson

**204 RESD - Operative Composite Resin (CR Lab).** This course consists of tooth-colored restorative laboratory projects. The projects will be taught in a step-bystep format for preparation design and placement (inserting, contouring, finishing, and contouring) of conservative tooth-colored restoratives (i.e., composite resin, glass ionomer, and supporting materials). The procedures to be taught in the laboratory are: (1) sealants, (2) PRR, (3) Class II, III, IV, V preparation designs and placement of composite resin material, (4) Class preparation design and placement of glass ionomer material, (5) direct composite veneers, (6) management of root caries, (7) detection and management of caries, and (8) resin bonding exercises. Class lab exercises will be done on natural teeth mounted in stone. All practical exercises will be done on plastic teeth mounted in stone. Technique laboratory. Fall semester. Credit 1 (0-21). W. Wasson

**205 RESD - Complex Intracoronal Preparations/Restorations (Lecture).** This lecture course will expand upon the principles of amalgam and composite resin preparations/restorations. Preparation design for compound and complex restorations will be discussed, including the indications and usage of pins, amalgapins, secondary retention features with/without bonding, and replacement of cusps. Introduction of additional, other than alloy based (amalgam) restoratives such as composite and/or composite core materials will be included. Other topics of this course include caries detection/removal and appropriate use of liners and bases in restorative treatment. Lecture. Spring semester. Credit 1 (11-0) B. Owens

**206 RESD - Complex Intracoronal Preparations/Restorations (Lab).** This laboratory course will include projects allowing the student doctor to work on typodont (plastic) teeth with/without simulated caries and treat natural teeth, simulating real-case clinical scenarios. Exposure to different restorative materials and diverse clinical techniques will be expanded. Student doctors will learn to prepare and insert compound and complex restorations, using both amalgam and composite resin materials, involving cusp replacement, as permanent restorations or build-up restoratives for future prosthodontic care. Technique laboratory. Spring semester. Credit 1 (0-30) B. Owens

**207 RESD - Introduction to Clinical Practice II.** This course blocks students in the clinic during the Winter-Spring Semester of the second year. It will enable each student, at a minimum, to enter the D-3 year with multiple experiences in clinic protocol, infection control protocol, patient record-keeping protocol, and face-to-face interactions with patients. It is further expected that each student will perform diagnostic procedures, pain control procedures, patient education, and selected patient treatment procedures, including experiences as primary operator in the presence of the D-4 student and under the supervision of the attending faculty. Correspondingly, for those procedures that the D-2 is not preclinically prepared to undertake, the student will gain valuable experience assisting or observing the D-4 student. Clinical rotation. Spring semester. Credit (1P/F) (3-56). A. Braxton

**208 RESD - Esthetic Dentistry (Lecture).** A lecture course designed for second year students to gain basic background knowledge in the biologic, mechanical and esthetics principles necessary to plan, prepare, fabricate, and deliver anterior and posterior esthetic restorations and to apply this background knowledge to the treatment of patients. Lecture. Spring semester. Credit 1 (16-0). J. Simon

**209 RESD - Esthetic Dentistry (Lab).** This is the companion course to Esthetic Dentistry (Lecture) - RESD 208. This is a laboratory course designed for second year students to apply the technical procedures necessary to fabricate various types of esthetic restorations, both direct and indirect using the most advanced materials and equipment. Technique laboratory. Spring semester. Credit (1P/F)(0-39). J. Simon

**301 RESD Dental Auxiliary Utilization.** This is a course introducing the student to efficiency techniques in the practice of dentistry involving the utilization of dental auxiliaries. Lecture. Fall semester. Credit (1P/F) (13-0). B. Owens

**304 RESD - DAU Clinic.** Credit is given for application of the principles of Dental Auxiliary Utilization in the clinical setting. Students deliver a limited scope of dental services while learning to use trained chair side dental assistants effectively and efficiently. Patient-care. Fall through Spring semester. Credit (1P/F) (0-20). B. Blen

**306 RESD & 406 RESD - Operative Dentistry Clinics.** Clinical experience in operative procedures taught by this department is gained under supervision of the Operative Dentistry Faculty. Patient-care. Fall through Spring semester. Credit 5 (0-240); Credit 5 (0-240). J. Harrison

**307 RESD - Esthetic Dentistry (Lecture).** A lecture course designed for third year students to gain basic background knowledge in the biologic, mechanical and esthetics principles necessary to plan, prepare, fabricate, and deliver anterior and posterior esthetic restorations and to apply this background knowledge to the treatment of patients. Lecture. Fall semester. Credit 1 (16-0). J. Simon (*To be discontinued as of 2013-14*)

**308 RESD - Esthetic Dentistry (Lab).** This is the companion course to Esthetic Dentistry (Lecture) - REST 315. This is a laboratory course designed for third year students to apply the technical procedures necessary to fabricate various types of esthetic restorations, both direct and indirect using the most advanced materials and equipment. Technique laboratory. Fall semester. Credit (1P/F)(0-39). J. Simon (*To be discontinued 2013-14*)

**403 RESD - Advanced Operative Dentistry.** This course is a compilation of clinically relevant techniques and procedures in Operative Dentistry. The intent of this course is to review principles and correlate theory into practice after the students have had clinical experience in operative dentistry. This course will present and review concepts, clinical procedures and problem solving using operative dentistry principles. Critical thinking and case-based learning will be emphasized. It also serves as a critical thinking exercise in preparation for Part II of the National Board Dental Examination. Lecture. Fall semester. Credit (1P/F)(0-6). R. Hatch

**404 RESD - DAU Clinic.** This experience offers application of the principles of Dental Auxiliary Utilization in the clinical setting. Students deliver a broad scope of dental services while learning to use trained chair side dental assistants effectively and efficiently. Patient-care. Fall through Spring semester. Credit (1P/F) (0-28). B. Blen

#### **Division of Biomaterials**

**113 RESD - Biomaterials.** A basic course in the study of dental materials that includes physical, chemical and mechanical properties and the interaction of basic materials with the biological system. A laboratory is included to illustrate both properties and manipulation of dental materials. Lecture. Fall semester. Credit 2 (22-2)1 (22-2). B. Owens

**401 RESD - Advanced Biomaterials.** This course is an update and review of dental materials. Emphasis is placed on new developments along with their practical applications to dentistry. On-line. Fall semester. Credit 1 (11-0). J. Harrison.

## **Department of Oral and Maxillofacial Surgery**

*Department Chair and Professor: Lawrence W. Weeda, Jr., D.D.S.*

**201 OMSU - Pain Control I.** Surgical anatomy and anatomical relations pertinent to local anesthesia are reviewed. A local anesthetic technique appropriate to all dental procedures is taught as well as the administration of adjunctive drugs by oral, intramuscular, and intravenous routes. The management of drug related, medical-dental emergencies is given strong emphasis as related to pain control. Lecture and clinical simulation. Spring semester. Credit 4 (30-3). J. Christian

**203 OMSU - Principles of Oral and Maxillofacial Surgery.** The student is acquainted with the science of oral surgery in theory and practice. Armamentaria and their appropriate application to uncomplicated removal of teeth and soft tissue management are presented by lecture along with laboratory periods which offer instruction in suture technique. Diagnosis and recognition of clinical conditions as they relate to surgical procedures and management of oral infections are stressed. Instruction in instrument care and aseptic technique is given. Lecture and technique laboratory. Spring semester. Credit 2 (30-6). L. Weeda

**301 OMSU - Advanced Pain Control.** This is an introduction to the armamentarium, agents, and the methods of general anesthesia as they relate to dentistry and oral surgery procedures. Differentiation is made between general anesthesia and inhalation analgesia. The pharmacology, physiology and technology related to inhalation analgesia are presented in depth, incorporating clinical demonstration and student participation. Other modalities of pain control that are reviewed for the student include oral and parenteral pre-operative and postoperative drugs. Lecture and clinical simulation. Fall semester. Credit 2 (27-8). M. Williams

**302 OMSU & 402 OMSU - Clinics.** The student gains experience in the clinical application of those surgical principles that will make him/her proficient in the performance of oral surgery that falls within the realm of the general practice of dentistry. This is achieved according to a specific protocol, and takes place subsequent to didactic and laboratory instruction for any given procedure. The student serves sequentially as: observer; assistant; operator. (Summer Clinic Optional). Patient-care. Fall through Spring semester. Credit 3 (0-120); Credit 3 (0-120). L. Weeda

**403 OMSU Advanced Oral Surgery.** This course embraces selected fundamental oral surgery techniques and a presentation of the total scope of oral surgery. Trauma, preprosthetic, and orthognathic surgery are presented along with surgery related to the infective process. Patient management is stressed. Lecture. Fall semester. Credit 2 (22-0). L. Weeda

## **Department of Orthodontics**

*Interim Department Chair and Professor: Terry M. Trojan, D.D.S., M.S.*

**ORTH 107 - Craniofacial Growth & Human Development.** The course familiarizes students with major concepts and supporting evidence concerning human growth and development. Emphasis is on the development of concepts. In addition, the lecture course provides a comprehensive study of the craniofacial structures. While embryology of the structures is reviewed, the focus is on postnatal development. Lecture. Spring semester. Credit 1 (37-0). T. Trojan

**203 ORTH - Development of Occlusion.** This course details the development of normal and ideal occlusions and of malocclusions. Initial discussion includes the normal development and eruption of the primary, mixed, and permanent dentitions, normal maturation of the orofacial musculature, and the physiology of occlusion. Lectures then cover the incidence, affected sites, sequelae, and etiologic factors that may be involved in the development of malocclusions. Lecture. Fall semester. Credit 1 (16-0). T. Trojan



**301 ORTH - Orthodontic Diagnosis and Treatment.** In this course, the student is provided with the necessary instruction to perform a comprehensive orthodontic examination, assemble data from diagnostic records, and plan the course of patient treatment. The student is introduced to a variety of contemporary fixed and removable appliances, their component parts and properties, and indications for their use. Instruction also is given on the procedures for placement and adjustment of the appliances, including the mechanical properties of orthodontic materials and biomechanical principles governing orthodontic tooth movement. Lecture. Fall semester. Credit 3 (41-0). J. Yates

**302 ORTH - Orthodontic Appliance Fabrication (Laboratory).** This laboratory course prepares the dental student for the clinical phase of undergraduate orthodontics. Course emphasis is given to teaching the student the clinical skills required to perform effectively in the clinic. This includes learning various diagnostic record techniques, the manipulation of orthodontic wire, banding and bonding techniques, and fabrication of various contemporary fixed and removable appliances. Technique laboratory. Fall semester. Credit 1 (0-20). J. Yates

**304 ORTH - Orthodontic Clinic.** This course entails the application of principles of orthodontic diagnosis and treatment. The student is taught to apply diagnostic principles to the broad range of malocclusions encountered in a general practice. Communication skills necessary to provide effective patient/parent consultation and effective interaction with orthodontic specialists are emphasized. The student is also taught how to treat those malocclusions that are generally considered to be of an uncomplicated nature. Treatment may be provided in a wide variety of situations using either fixed or removable appliances on the child, adolescent, or the adult. Clinical rotation. Spring semester. Credit (1P/F)(0-12). J. Yates

## **Department of Pediatric Dentistry & Community Oral Health**

*Department Interim Chair and Professor: Billy W. McCann, D.D.S., M.S.*

### **Division of Pediatric Dentistry**

**201 PDCH - Introduction to Pediatric Dentistry.** This is the basic course in Pediatric Dentistry that covers both preclinical and clinical subject matter. The course presents the following subjects in relation to treatment of the child patient: examination of the child patient, local anesthesia, premedication, behavior guidance, radiographic techniques, pulp therapy, restorative dentistry, eruption of the primary and permanent teeth, space maintenance and arch analysis, correction of minor irregularities in occlusion, limited tooth movement, trauma, gingivitis and periodontal disease, oral pathological conditions in children, dental problems of the handicapped child, special dental problems of the adolescent, and hospital dentistry. Lecture. Fall through Spring semester. Credit 2 (28-0). H. Sharp

**202 PDCH - Pediatric Dentistry Lab.** This series of lectures and exercises is designed to develop proficiency in the performance of basic periodontic procedures, such as amalgam alloy restorations, chrome crowns, fixed and removable space maintainers and the making and trimming of diagnostic casts. Technique laboratory. Spring semester. Credit 1 (0-28). H. Sharp

**302 PDCH - Pediatric Dentistry Clinic.** In a clinical setting, experience is gained in the treatment of the child's dental needs in the areas of diagnosis, treatment planning, prevention, amalgam alloys, chrome crowns, fixed and removable space maintainers, and limited tooth movement. Patient-care. Fall through Spring semester. Credit 2 (0-96). H. Sharp

**304 PDCH – Patient Centered Dentistry.** This course provides a practical approach for dental students to understand how the practice of dentistry is affected by intra- and inter-personal factors. The course provides students with the opportunity to practice interpersonal skills with standardized patients. Students work in a structured setting to apply the principles of patient centered dentistry that were introduced in the didactic course, PDCH 204: Human Behavior and Dental Practice. Lecture and clinical simulation. Fall semester. Credit 1 (19-7) M. Seeberg

**402 PDCH - Pediatric Dentistry Clinic.** This course is a continuation of PDCH 302. Patient-care. Fall through Spring semester. Credit 2 (0-96). H. Sharp  
**Division of Community Oral Health**

**103 PDCH - Human Values & Personal Ethics.** This course introduces dental students to the philosophical basis for ethical principles and reasoning which enables them to identify and resolve moral issues as dental students. Furthermore, an attempt is made to increase the moral sensitivity in students so that they are able to better cope with moral problems, thereby maximizing good behavior and minimizing bad behavior. The students are able to develop an understanding of the ethical behavior and standards of proper conduct for entry into the dental profession. Lecture. Fall semester. Credit (1P/F) (5-0). M. Seeberg

**107 PDCH - Informatics and Evaluation of Dental Literature.** This course is designed to introduce the student to the concept of evidence based dentistry, provide skills for accessing appropriate evidence-based literature, and help the student to understand the research methods which form the foundation for evidence based dentistry. The student will become familiar with available tools for searching the research literature. The student will be introduced to research concepts which are important in critical reading of the scientific literature with an emphasis on experimental and epidemiological research designs and inferential statistics. Lecture and computer laboratory. Fall semester. Credit 1 (14-4). M. Scarbecz

**204 PDCH – Human Behavior and Dental Practice.** This course demonstrates how relationships in the practice of dentistry are affected by such factors as intra- and inter-personal concerns, cultural bias, and the social skills of the dentists, patients and auxiliaries. It aims at raising awareness about a patient centered, culturally sensitive approach to providing dental care in a team. It provides the basic knowledge necessary to understand human behavior and communication, and demonstrates its application to oral health and oral health care. Lecture. Spring semester. Credit 1 (16-0). M. Scarbecz

**301 PDCH - Introduction to Practice Management.** This course introduces small business terminology and basic management techniques to students who are beginning their clinical experience. Procedural organization, time management, and development of communication skills are stressed. Students are encouraged to apply these principles to their individual cubicle and gain some insight into the management skills necessary to achieve a successful practice. Lecture. Fall semester. Credit 1 (1P/F)(9-0). P. Gregory

**303 PDCH - Professional Ethics and the Patient.** This course provides the dental students with the knowledge of basic moral principles regarding the treatment of dental patients in the Dunn clinical setting. This offers students an opportunity to discuss ethical issues through the use of case histories for discussion and instruction. Lecture. Fall semester. Credit (1PF)(5-5). L. Hong

**307 PDCH – Dental Jurisprudence.** This course is a study of the laws pertaining to the practice of dentistry in Tennessee and elsewhere. The legal aspects of the doctor patient relationship, contracts, and practice agreements are emphasized. Lecture. Spring semester. Credit 1 (13-2) G. Hart

**401 PDCH - Practice Implementation & Management.** This course is designed to familiarize the student with the methodology of locating, establishing, and managing a dental practice in the most productive manner. Consultants from the various subject areas lecture in their areas of expertise. Lecture. Fall semester. Credit 2 (30-0). D. Redmond

**403 PDCH Community Dentistry.** This course provides dental students with some knowledge of dentistry's function in the delivery of total health care and in society at large. Lecturers represent several disciplines with dental health care including clinical specialties, the State Health Department, and organized dentistry. Topic areas in the course include: The Consumer and Health Care, The Dental Health Care Delivery System, Peer Review, the Public Practice of Dentistry, Continuing Education, and Career Choices in Dentistry. Lecture. Fall semester. Credit 1 (18-0). G. Hart

**405 PDCH - Applied Practice Management.** The Applied Practice Management (APM) course was developed to assure that every UTCoD graduate has been exposed to the “clinical” application of practice management principles and techniques. It is designed to follow the basic Practice Implementation and Management course and is scheduled to coincide with an awakening perception of relevancy as the senior student begins to fully recognize the importance of practice management skills. APM consists of four parts: an orientation describing course policies and faculty expectations; two half-day rotations in private dental offices to observe practice management skills being applied in “real life”; a follow-up seminar to share observations; and a full-day continuing education type program exposing students to a nationally known practice management speaker (Bowyer Lectureship). Lecture and clinical rotation. Spring semester. Credit (1P/F) (3-8). D. Redmond

**407 PDCH – Community Based Dental Education.** This course is more comparable to a clinical course than a didactic course. It will provide community based dental clinical learning opportunities for each student. The senior students will provide dental care to the underserved populations in the extramural rotation sites and understand the alternative methods of dental care delivery. The course will broaden the diversity of the students’ patient base and allow dental care provision in alternative, realistic health care venues. Clinical rotation. Winter – spring term. Credit (1P/F) (0-40). L. Hong.

## **Department of Periodontology**

*Department Chair and Associate Professor: Paul S. Bland, D.D.S.*

**103 PERI - Pathobiology.** The objective of the course is to provide the student with fundamental information applicable to the understanding of the major oral diseases, namely periodontal diseases, caries and pulpal pathology. Lectures cover the histopathology, epidemiology, etiology, microbiology, immunology and prevention of these diseases. This is an interdisciplinary course involving faculty from the Department of Periodontology, Department of Restorative Dentistry, and Department of Diagnostic Sciences and Oral Medicine, Division of Endodontics. Lecture. Fall semester. Credit 2 (27-0). S. Stein

**203 PERI - Clinical Periodontology.** This introductory course introduces students to the diagnosis and non-surgical treatment of gingivitis and periodontitis as well as the relative importance of local and systemic factors in the etiology of the periodontal lesion. Information is given regarding the histopathology, epidemiology, classification, diagnosis and management of periodontal diseases. Lectures and laboratory exercises are used to teach the concepts of periodontal instrumentation. A clinic clerkship follows that is designed to introduce students to the clinical procedures required in the management of the periodontal patient. Each student will perform a complete periodontal examination on a classmate, followed by scaling and polishing and disease control evaluation. Students will gain experience in infection control, patient health assessment, clinical periodontal examination, data recording, treatment planning, initial periodontal treatment, and the evaluation of the results of this treatment. Thus, this course serves to prepare students to meet the basic periodontal needs of their patients. Lecture, technique laboratory and clinical simulation. Fall semester. Credit 3 (39-23). P. Bland

**301 PERI - Basic Periodontal Surgery.** This course is designed to provide the students with the necessary understanding of the principles and techniques of basic periodontal surgery procedures that he/she will perform in the clinic and to introduce the more complicated procedures that the student will observe being performed. Through lectures, and the use of various audiovisual aids, the potentials of periodontal surgery in the rehabilitation of the periodontally diseased mouth are explored. Emphasis is placed on recognizing indications for, and limitations to, periodontal surgery, as well as the ability to accurately evaluate the results of treated cases. Lecture. Fall semester. Credit 2 (26-0). J. Shiloah

**302 PERI - Periodontics Clinic.** Practical application of previously presented didactic material is accomplished by students providing their assigned patients with appropriate treatment. A detailed periodontal examination of each patient is accomplished with the development of an appropriate treatment plan. The student gains experience in treating a variety of periodontal disease conditions by completing required treatment of several cases under the supervision of faculty. Patient-care. Fall through Spring semester. Credit 3 (0-115). J. Kimmelman

**303 PERI - Special Problems in Periodontal Therapy.** The objective of this lecture course is to familiarize the dental student with special periodontal problems exclusive of gingivitis and periodontitis. Emphasis is placed on etiology, clinical manifestations, prognosis, treatment and preventive procedures. The topics that are covered include: Diagnosis of Juvenile Periodontitis (Periodontosis), Hyperplastic and Desquamative Changes in the Periodontium, Periodontal and Gingival Disease in Childhood, Diagnosis of Acute Periodontal Conditions; ANUG and Pericoronitis, the Periodontal Abscess, Perio-Ortho Interrelationship, Role of Dental Hygienist in the Dental Office, Root Sensitivity and Desensitizing Agents, Periodontal Splinting and the Perio-Endo Lesion. Lecture. Spring semester. Credit 2 (23-0). R. Livada

**401 PERI - Advanced Periodontology.** Advanced periodontology is a lecture course presented to fourth year dental students. The general objective of this course is to familiarize the student with the most current developments in important areas of periodontology. Topics to be discussed include advances in understanding the microbial etiology of periodontal diseases, use of topical antiplaque and anticalculus agents, regenerative procedures in periodontal therapy, recent advances in mucogingival surgery, management of furcation invasion, restorative procedures related to periodontics, longitudinal studies of periodontal therapy and new aspects of non-surgical therapy. Prerequisites: PERI 103, 201, 301, 303 or equivalents. Lecture. Fall semester. Credit 1 (7-0). A. Karydis (Discontinued 2013-14)

**402 PERI - Periodontics Clinic.** Students continue to improve their clinical skills in evaluation, diagnosis, treatment planning, and by providing treatment to the assigned patients under faculty supervision. Emphasis is placed on treatment of the more complex cases with as wide a variety of clinical needs as is practical. Patient-care. Fall through Spring semester. Credit 3 (0-115). J. Kimmelman

## **Department of Prosthodontics Dentistry**

*Department Chair and Professor: Russell A. Wicks, D.D.S.*

### **General Dentistry - Clinical and Didactic Courses**

**230 PROS - Basic Life Support (CPR).** This cardiopulmonary resuscitation course is designed to certify the student in basic life support by the American Heart Association standards. Certification in Basic Life Support is required for the student to continue clinical treatment of patients. Lecture and clinical simulation. Spring semester. Credit (1P/F) (1-3). M. Robbins

**334 PROS - CPR Recertification.** This cardiopulmonary resuscitation course is designed to continue certification of the student in basic life support as required by the American Heart Association standards. Certification in Basic Life Support is required for the student to continue treatment of patients. Lecture and clinical simulation. Fall semester. Credit (1P/F) (1-4). M. Robbins

**330 PROS, 336 PROS, 430 PROS and 432 PROS - Professionalism and Practice Management (Clinical Practice).** These courses involve applied principles of professionalism and practice management required in the care of clinical patients. Students will be evaluated each semester by clinical faculty and Group Practice Coordinators according to established criteria. Patient-care. Fall semester (330 & 430); Spring semester (336 & 432). Credit (1P/F)(0-57); Credit (1P/F)(0-57); Credit (1P/F)(0-57); Credit (1P/F)(0-57). J. Seeberg

**434 PROS - CPR Recertification II.** This cardiopulmonary resuscitation course is designed to continue certification of the student in basic life support as required by the American Heart Association standards. Certification in Basic Life Support is required for the senior student to continue treatment of patients. Lecture and clinical simulation. Fall semester. Credit (1P/F) (1-3). M. Robbins

## Division of Prosthodontics

**119 PROS - Occlusion (Lecture).** The fundamental of occlusion course are presented in two closely related segments, lecture and laboratory. The lecture module is designed to familiarize the student with the muscles of mastication, associated musculature, osseous structures and the relationship of these structures to the occlusion. Recognition of basic rotational axes and their influence on occlusion is stressed. Articulator recognition and use is also included. Articulated generation of occlusion is demonstrated by prosthetic teeth arrangement. Lecture. Spring semester. Credit 2 (26-0) R. Wicks

**120 PROS – Occlusion (Lab).** The fundamental of occlusion course are presented in two closely related segments, lecture and laboratory. The laboratory is designed to familiarize the student with the muscles of mastication, associated musculature, osseous structures and the relationship of these structures to the occlusion. Recognition of basic rotational axes and their influence on occlusion is stressed. Articulator recognition and use is also included. Articulated generation of occlusion is demonstrated by prosthetic teeth arrangement. Technique laboratory. Spring semester. Credit 2 (0-78) R. Wicks

**221 PROS – Prosthodontics-Complete Denture (Lecture).** An introductory course in prosthodontics which emphasizes the theory and technical procedures involved in the fabrication of complete dentures. Topics discussed in detail are: terminology, examination and treatment planning the edentulous patient, anatomic structures associated with complete dentures, impression making, interocclusal records, selection and arrangement of prosthetic teeth, processing and finishing of denture base resin, delivery of complete dentures, post operative care, and related matters. Lecture. Fall semester. Credit 1 (9-0) S. Ahuja

**222 PROS – Prosthodontics-Complete Denture (Lab).** An introductory course in prosthodontics in which the clinical and laboratory procedures in the fabrication of complete dentures are described in manuals (UT publications), demonstrated (video camera and models), and then performed by the student under direct supervision of an instructor. Some of the specific projects performed are: impressions, recording centric relation, arrangement of prosthetic teeth, finishing denture base resin, and correction of the occlusion. Technique laboratory. Fall semester. Credit 1 (0-39) S. Ahuja

**223 PROS – Prosthodontics-Removable Partial Denture (Lecture).** This is an introductory course in which the student learns the principles of removable partial prosthodontics. Diagnosis, treatment planning and technical procedures are covered along with the responsibilities of the dentist and laboratory technician. Lecture. Fall through Spring semester. Credit 1 (12-0) V. Jain

**224 PROS – Prosthodontics-Removable Partial Denture (Lab).** A basic course in the design, fabrication and fitting of removable partial dentures. Technique laboratory. Fall through Spring semester. Credit 1 (0-37) R. Wicks

**225 PROS - Fixed Prosthodontics I (Lecture).** An introductory didactic course in fixed prosthodontics to expose second year dental student to the basics of fixed prosthodontics. To begin development of diagnostic and treatment skills related to the re-establishment of form, function and esthetics in order to restore oral health. Topics discussed in detail are: terminology, examination, treatment planning and treatment of patients needing fixed prosthetic restorations. Lecture. Fall semester. Credit 1 (21-0) M. McBride

**226 PROS - Fixed Prosthodontics I (Lab).** An introductory laboratory course in fixed prosthodontics to expose second year dental student to the basics of fixed prosthodontics. To begin development of laboratory and clinical skills related to the re-establishment of form, function and esthetics in order to restore oral health. Technique laboratory. Fall semester. Credit 2 (0-72) M. McBride

**227 PROS - Fixed Prosthodontics II (Lecture).** This is a continuation of the Fixed Prosthodontics I Lecture course. Principles presented in the this course will be used to further the knowledge base of basic fixed prosthodontic principles as they relate to single and multiple restorations. These principles will also be applied to removable prosthodontics per the fabrication of survey crowns. Further information pertaining to biomaterials and treatment planning will be presented. Lecture. Fall through Spring semester. Credit 1 (20-0) M. McBride

**228 PROS - Fixed Prosthodontics II (Lab).** This is a continuation of the Fixed Prosthodontics I Lab. Principles presented in this lab course will be used to further the knowledge base of clinical techniques for basic fixed prosthodontic principles as they relate to single and multiple restorations. These principles will also be applied to removable prosthodontics per the fabrication of survey crowns. To continue to apply the didactic principles learned in the lecture course to basic fixed prosthodontic restorations. Technique laboratory. Fall through Spring semester. Credit 1 (0-66) M. McBride

**231 PROS - Oral Implantology.** Provides an introduction to dental implantology for the predoctoral student. Oral implantology provides a viable modality for effective treatment planning and delivery of quality oral health care. Knowledge of variations in types and purposes of oral implants is essential in the current practice of dentistry. Placement and restoration of oral implants must conform to acceptable anatomic and physiologic parameters as well as esthetic values of the oral functional systems. The purpose of the course is to supply the dental student with information that will enable him/her to diagnose and plan treatment for dental patients with appropriate dental implants as a foundation to establishment of occlusal harmony; to introduce the student to the biologic interrelationships essential to successful placement of dental implants within a functional system; to clarify for the student the technical complexities in the patient treatment involving implants. Lecture. Spring semester. Credit 1 (12-4). R. Brandt

**308 PROS - Fixed Prosthodontics Clinic.** The Junior Year in Fixed Prosthodontics offers the opportunity to apply the theories and techniques of Prosthodontics including diagnosis, treatment planning, and treatments learned in the preclinical courses. This knowledge is applied in the treatment of patients in the Fixed Prosthodontic Clinic. Patient-care. Fall through Spring semester. Credit 3 (0-150). M. McBride

**309 PROS - Advanced Prosthodontics.** A presentation of advanced theories, principles, and techniques in Fixed Prosthodontics, Removable Prosthodontics, and Maxillofacial Prosthodontics. Lecture. Spring semester. Credit 1 (19-0). R. Brandt

**310 PROS & 408 PROS - Removable Prosthodontics Clinics.** Clinical experience is gained in the department by treatment of completely and partially edentulous patients. Patient-care. Fall through Spring semester. Credit 4 (0-185); Credit 5 (0-215). R. Wicks

**311 PROS - Oral Implantology.** Provides an introduction to dental implantology for the predoctoral student. Oral implantology provides a viable modality for effective treatment planning and delivery of quality oral health care. Knowledge of variations in types and purposes of oral implants is essential in the current practice of dentistry. Placement and restoration of oral implants must conform to acceptable anatomic and physiologic parameters as well as esthetic values of the oral functional systems. The purpose of the course is to supply the dental student with information that will enable him/her to diagnose and plan treatment for dental patients with appropriate dental implants as a foundation to establishment of occlusal harmony; to introduce the student to the biologic interrelationships essential to successful placement of dental implants within a functional system; to clarify for the student the technical complexities in the patient treatment involving implants. Lecture. Fall semester. Credit 1 (15-4). R. Brandt (Discontinued 2013-14)

**313 PROS - Management of TMD.** This course provides an introduction and review of the complexities of TMD and Orofacial pain. The course will offer an approach in the examination, treatment and management of this multifaceted disorder. Lecture. Spring semester. Credit 1 (11-4). S. Ahuja

**406 PROS - Fixed Prosthodontics Clinic.** In the Senior Year the student is encouraged to become involved in increasingly more complex cases as knowledge and skills evolve into comprehensive patient care. The skilled student who demonstrates interest is encouraged to accomplish a complete occlusal reconstruction involving extensive prosthodontic therapy. Patient-care. Fall through Spring semester. Credit 5 (0-210). M. McBride

**407 PROS - Principles of Prosthodontics Practice.** This course is a compilation of clinically-relevant techniques and procedures in Prosthetic Dentistry. The intent of this course is to review principles and correlate theory into practice after the students have had clinical experience in Prosthodontics. This course will present and review concepts, clinical procedures and problem solving using prosthodontic principles. Critical thinking and case-based learning will be emphasized. It also serves as a critical thinking exercise in preparation Part II of the National Board Dental Examination. On-line. Fall semester. Credit (1P/F) (0-9). R. Wicks

**409 PROS Advanced TMD & Sleep Disordered Breathing.** The course will cover the anatomical and neurological components of the Temporomandibular joint as well as the basic treatment modalities for TMD. It will address the various aspects of sleep disordered breathing and treatment. Other topics include how to perform a proper clinical exam; the symptoms of TMD and SDB and how they are related; neuroanatomy; muscle anatomy of these structures and their function; differential diagnosis between TMD pain from pulpal, periodontal ligament, and other causes of pain; electro diagnostics; causes of bruxism; recapturing a displaced disc; pharmacology for orofacial/craniofacial pain; various types of headaches and the treatment of such; diagnosis, indications, and protocols for various orthotics; phototherapy; other physical medicine modalities; other craniomandibular disorders (typical and atypical neuralgias); arthrocentesis; nutrition as related to chronic TMD patient; stabilization of the TMJ followed by rehabilitation; and many case reviews. Lecture. Spring semester. Credit (1 P/F) (32-0). M. McBride

## Elective Program

The Elective Program offers students the opportunity to explore subject areas relative to the practice of dentistry in conjunction with the core curriculum. The program is strictly voluntary, scheduled for semester enrollment primarily in the junior and senior years. Although the students do not receive credit hours, the course director verifies participation in the specific elective course for official posting on the student's transcript. The listing of elective courses may vary yearly as the result of the students' participation, introduction of new topics of interest, and the need for review of the dental sciences.

**ELEC 504 - Student Research Fellowship Award.** This course is designed to expose research-oriented students to the experience of writing a competitive research proposal, including the formulation of research hypotheses, specific objective, and experimental rationale and design. Students will gain hands-on research experience by participating in on-going research activities in the basic sciences or clinical dentistry. The research projects will be targeted to provide increased understanding of the basic mechanisms of oral diseases in order to prepare the student to provide optimum oral health care and management. M. Dabbous

**ELEC 505 - Summer-Fall Research Elective.** This course will involve two projects. The first will look at the different ways an etch enamel surface can be damaged prior to placing a sealant or composite resin. Extracted human teeth will be used for this experiment. The etched enamel surface will be deliberately damaged than viewed under scanning electron microscopy. The other project will be an attempt to determine the fate of the artery, vein and nerve innervating a primary tooth once root resorption has begun. Monkey jaws will be utilized. Sections will be made beginning as the vessels and nerves exits from the interior trunk and followed until these structures enter the apical foramen. There will be an attempt to determine when there is no longer innervation and vascularity to these primary teeth. Additionally, an attempt will be made to determine if these anatomical structures are lying loose within the bone or if they are in a sheath once the root of the primary root has begun to resorb. H. Sharp

**ELEC 506 - Passive Endodontics.** Ultrasonic and sonic instrumentation along with warm lateral condensation will be taught. Laboratory and clinical time will give the student valuable "hands on" experience. Additional topics will be discussed, if requested by the students. Students will be allowed to use the techniques in the Endodontics Clinic after completion of the lecture and lab sessions. Student may work on one patient in a monitored clinic scheduled by student at the convenience of faculty and student. J. Uhles

**ELEC 507 - Table Clinics.** This elective is provided to help motivate the student to pursue any aspect of the dental field to a fuller extent. New techniques, new ideas and new concepts can be fully explored and presented by the innovative and dedicated students through the medium of the Table Clinic presentation. The Table Clinic presentations at The University of Tennessee Health Science Center College of Dentistry during the Annual Dental Alumni Meeting will follow the guidelines of the ADA. The "Table Clinic Presentations" will be suitable for presentation at state and national meetings. The overall 1st prizewinner will represent The University of Tennessee Health Science Center College of Dentistry with a table clinic at the Annual ADA Convention. An orientation session will be scheduled to clarify the organization, concepts and presentation of table clinics with each dental class. D. Tipton

**ELEC 508 - Oral Surgery Externship.** This course is designed to provide advanced clinical experience in oral surgery to a selected group of seniors. The students will be assigned to the Department of Oral and Maxillofacial Surgery on a full-time basis during the summer session of their senior year. During this period they will receive individual experience with advanced procedures such as preprosthetic surgery and surgical removal of impacted teeth. Experience in dentofacial trauma and hospital procedures will be derived from an on-call rotation with the oral surgery resident. L. Weeda

**ELEC 509 - Elective in Oral & Maxillofacial Surgery.** Goals of the elective course include: (1) operating room decorum and protocol including scrubbing and gowning; (2) hospital ward rounds; (3) pre- and post-operative planning; (4) out-patient surgery including familiarity with advanced dentoalveolar surgical procedures; (5) familiarity with advanced techniques in pain and apprehension control and pharmacology of selected drugs. The students will be assigned to a second or third year Oral and Maxillofacial Surgery resident. L. Weeda

**ELEC 510 - Forensic Dentistry.** The course will be an introduction to forensic odontology to include dental identification, bite mark investigation, mass disaster identification, and expert witness activities. It consists of lecture/seminars and hands-on laboratory instruction. H. Mincer

**ELEC 513 - Advanced Pediatric Dentistry.** Two (2) fourth year dental students are offered an elective course consisting of four clinical days for two (2) weeks. Students will be scheduled a variety of patients which will include case work-ups and treatment planning. A number of the patients will be medically or physically compromised in some manner. During the assignment students will be scheduled for hospital dentistry conferences and rounds, and may attend dental operating room cases as an assistant. H. Sharp

**ELEC 514 - Research Methods in Periodontal Pathobiology.** This course is designed to allow dental students (open to students at any stage of training, D-2 through D-4) to gain experience in the design, performance and documentation of a laboratory research project. Individuals are expected to devise their own research projects within a framework outlined by the Course Director. Projects will vary with students' previous experience and interests. S. Stein

**ELEC 515 - Elective Periodontal Surgery.** This course is designed to expand the knowledge of selected students in the field of Periodontology by assigning reading material, discussion in seminar sessions and clinical activities. Each participant will be required to perform at least two different periodontal surgeries and the necessary postoperative procedures. All clinical procedures performed in this course will be credited towards the requirements in perio for the Junior year. Attendance in the course is mandatory except when other blocks are assigned. Students must inform the course director if they have any conflict. J. Shiloah

**ELEC 518 - UT Endodontic Research Group.** The major purpose of this course is to officially recognize and organize a process that is already occurring. The purpose of the group shall be to promote faculty/student research within the division of Endodontics and to assure that proposed and current researches are progressing toward completion in a timely manner. This includes the assurance that all projects have adequate resources. Credit for this elective will be issued upon completion of the student project. A. Lloyd



**ELEC 519 - Comprehensive Implant Dentistry.** The course will consist of didactic and laboratory sessions in which participating students will learn the history, implant biomaterials, treatment planning, surgical placement, ridge augmentation and implant restoration of fixed and removal prosthetic appliances. Students will have the opportunity to surgically place implants in patients who are approved by the course instructor. If surgical procedures are performed within time allowances, students will uncover and restore implants that they have placed. R. Brandt

**ELEC 523 - Clinical Oral Pathology.** This elective course is designed to provide exposure to the clinical practice of oral pathology. The student(s) will experience and participate in examination of diagnosis and treatment of the diseases, conditions, and neoplasms that are typically seen in clinical practice. K. Anderson

**ELEC 524 – Project Smile.** This course will assist young dentists and dental students to achieve practical real world skills in dentistry in the areas of general, cosmetic and practice management while helping people in need. The objectives include: 1) serve the underserved and the poor; 2) learn real life dentistry; 3) develop relationships with practicing dentists; 4) learn some practice management principles; 5) learn some cosmetic dental procedures; 6) see how cases are diagnosed and worked up in private practice; and 7) complete general dental procedures. P. Kemp

**ELEC 525 – Advanced Clinical Experiences in Endodontics.** This elective course is designed to provide exposure to a higher competency level of endodontic clinical practice than found in the student doctor curriculum. The student doctor(s) will experience and participate in the examination, diagnosis and treatment of the diseases and conditions that are typically considered non-teaching cases at the College of Dentistry. Each student doctor will be work with course director one half day per week in the clinic. Ideally, students will work in pairs. This would mean the course will be limited to four D-4 student doctors. This number may change depending on student interest and experience with the logistics of the course. A. Lloyd

**ELEC 526 – Advanced Prosthodontics Elective.** Clinical and laboratory experience in complicated removable, fixed and implant combination cases. Treatment planning required of the student. Cases directed by a single case facilitator. The academic-year course is offered to junior (D-3) and senior (D-4) students that meet established prerequisites. R. Brandt

**ELEC 528 – Research in Oral Biology.** This elective is an introduction to research methodology to acquaint the students with evidence-based approaches to solving problems in oral and craniofacial health care. Research training areas include: Techniques in cell and organ culture; Characterization of connective tissue components of the gingival, periodontal ligament, and temporomandibular joint in health and disease; Adhesive glycoproteins in periodontal reattachment; Crevicular fluid components from normal and inflamed gingival; Saliva glycoproteins and their role in bacterial adhesion; cellular activities in invasive bone tumors; Cell migration and chemotaxis; Periodontal pathogens and the oral micro-organisms; inflammation and inflammatory mediator; Proteomics and tumor biomarkers; Interaction of oral tissues and micro-organisms with implant materials; Craniofacial development; Biomechanical properties of dental and implant materials. M. Dabbous

**ELEC 530 - Physical Examination of the Hospital Patient.** This course provides an overview of the basics of physical examination and history taking for the hospitalized patient. Learning objectives for students completing this course are 1) to have an understanding of history taking for the patient who will be or is a hospital admission; 2) complete a physical examination on a hospital patient; and 3) record the H & P in a systematic manner, consistent with hospital protocol. J. Christian

**ELEC 552 - Biochemical Research Techniques.** Designed primarily for students who are interested in research, this elective will provide a working knowledge of a variety of research techniques which best suit individual projects. The techniques are treated as independent units so that variable credit is given for each technique studied. The techniques offered will vary from year to year, and a list will be available prior to registration from the course coordinator. Techniques available will include radioimmunoassay, sub cellular fractionation, liquid chromatography, gas chromatography, and disc electrophoresis. M. Dabbous

**ELEC 553 - Microbiology Research.** Qualified students may undertake research in microbiology for which credit and hours will be arranged. J. Ryan

## FOREIGN TRAINED FACULTY DDS PROGRAM

The Foreign Trained Faculty DDS program at the University of Tennessee, School of Dentistry is open to full-time clinical faculty members of the College who have earned a dental degree in a non-U.S. dental program. Eligible faculty will typically have completed specialty training in a program accredited by the ADA's Commission on Dental Accreditation. Prior to initiating the program, the faculty must have passed Parts I and II of the Joint Commission's National Board Dental Examinations.

Once approved for the program, the candidate will work with their department chair in planning a program of study. Non-contact days and vacation time may be used to complete the requirements of the program. Clinical treatment must be scheduled during periods where regular clinics are operating.

A candidate for the Foreign Trained Faculty DDS program must be a faculty member of the UTHSC College of Dentistry at least two years prior to consideration for this program of study. Upon acceptance the faculty member must be enrolled in the program for a minimum of two semesters before a D.D.S. will be granted. A maximum of two years, or six academic terms will be allowed for completion of all requirements. All courses are one credit hour each. Each faculty member enrolled in the faculty D.D.S. program will be required to demonstrate clinical competency in all areas required for graduation from the regular pre-doctoral program.

### Curriculum Summary

#### Fall through Spring Semesters

Course	Credit Hours
FEND 602 Endodontics Foreign Trained DDS Course	1
FBID 604 Oral Diagnosis Foreign Trained DDS Course	1
FBID 606 Oral & Maxillofacial Pathology Foreign Trained DDS Course	1
FOMS 602 Oral and Maxillofacial Surgery Foreign Trained DDS Course	1
FORT 602 Orthodontics for Foreign Trained DDS Course	1
FPDC 602 Clinical Pediatric Dentistry	1
FPER 602 Advanced Placement Periodontology	1
FOPE 602 Operative Dentistry (Accelerated)	1
FPRO 604 Fixed Prosthodontics Dentistry (Accelerated)	1
FPRO 602 Removable Prosthodontics Dentistry (Accelerated)	1

### Course Descriptions

**FEND 602 - Endodontic Foreign Trained DDS Course.** This course is part of the Foreign Trained Faculty DDS program at the University of Tennessee, School of Dentistry is targeted at full-time clinical faculty members who have earned a dental degree in a non-U.S. dental program. The program is designed to determine the competency level of the student in Endodontics. Consideration has been given to the participants' background knowledge obtained through previous education and demonstrated on standardized examinations. At the end of the course a passing grade will be given if clinical competency has been demonstrated at the level of a new graduating student doctor. Any applicant in this program who holds a degree or certificate from an ADA-accredited graduate endodontics program will be exempted from this course. Patient-care. Fall through Spring semester. A. Lloyd

**FBID 604 - Oral Diagnosis Foreign Trained DDS Course.** This course is part of the Foreign Trained Faculty DDS program at the University of Tennessee College of Dentistry. It is designed for full-time faculty members who have earned a dental degree in a non-U.S. dental program. The course is designed to determine the competency level of the faculty member in Oral Diagnosis. The candidate will demonstrate competence in oral diagnosis, treatment planning, exposure and interpretation of radiographs, and diagnosis and management of dental emergencies. Experience is obtained by treatment of patients in the Oral Diagnosis Clinic. Consideration has been given to the participants' background knowledge obtained through previous education and as demonstrated on standardized examinations. At the end of the course a passing grade will be given if competency has been demonstrated at the level of a graduating student doctor of the College of Dentistry. Patient-care. Fall through Spring semester. M. Woods

**FBID 606 - Oral and Maxillofacial Pathology Foreign Trained DDS Course.** This course is part of the Foreign Trained Faculty DDS program at the University of Tennessee, School of Dentistry. It is designed for full-time faculty members who have earned a dental degree in a non-U.S. dental program. The program is designed to determine the competency level of the student in Oral and Maxillofacial Pathology. The candidate will demonstrate competence in the appropriate terminology and working concepts of the epidemiology, etiology, pathogenesis, clinical signs and symptoms, histology, radiographic appearance (if applicable), treatment, and prognosis of oral and maxillofacial lesions. Consideration has been given to the participants' background knowledge obtained through previous education and as demonstrated on standardized examinations. At the end of the course a passing grade will be given if competency has been demonstrated at the level of a new graduating student doctor. Any applicant in this program who holds a degree or certificate from an ADA-accredited graduate Oral and Maxillofacial Pathology program will be exempted from this course. Patient-care. Fall through Spring semester. K. Anderson

**FOMS 602 - Oral and Maxillofacial Surgery Foreign Trained DDS Course.** This course is part of the Foreign Trained Faculty DDS program at the University of Tennessee, College of Dentistry. It is available to full-time clinical faculty members who have earned a dental degree in a non-U.S. dental program. The program is designed to determine the competency level of the student in oral and maxillofacial surgery. Consideration is given to the participants' background knowledge obtained through previous education and demonstrated on standardized examinations. At the end of the course a passing grade will be given if clinical competency has been demonstrated at the level of a new graduating student doctor. Any applicant in this program who holds a degree or certificate from an ADA-accredited graduate oral and maxillofacial surgery program will be exempted from this course. Patient-care. Fall through Spring semester. L. Weeda

**FORT 602 – Orthodontics for Foreign Trained DDS Course.** This course, as part of the Foreign Trained Faculty DDS program at the University of Tennessee School of Dentistry is targeted at full-time clinical faculty members who have earned a dental degree in a non-U.S. dental program. The program is designed to determine the competency level of the student in Orthodontics. Consideration has been given to the participant's background knowledge obtained through previous education and demonstrated on standardized examinations. At the end of the course a passing grade will be given if clinical competency has been demonstrated at the level of a new graduating student doctor. Any applicant in this program who holds a degree or certificate from an ADA-accredited graduate orthodontics program will be exempted from this course. Patient-care. Fall through Spring semester. T. Trojan

**FPDC 602 - Clinical Pediatric Dentistry.** This course provides the individual with the clinical experience necessary to manage the diagnostic, prevention and treatment needs of the pediatric patient. Emphasis is given to detailed case workup, analysis of dental problems, provision of preventive services and comprehensive dental treatment, management of behavior, and evaluation of post-treatment results. Patient-care. Fall through Spring semester. B. McCann

**FPER 602 - Advanced Placement Periodontology.** This course provides the opportunity for an advanced placement applicant to demonstrate their clinical competency in the examination, diagnosis and treatment planning, periodontal instrumentation and disease control evaluation of chronic periodontitis patients. Patient-care. Fall through Spring semester. P. Bland

**FOPE 602 - Operative Dentistry (Accelerated).** This is a course in which the student reviews the principles of operative dentistry. Diagnosis, treatment planning and technical procedures are covered. Patient-care. Fall through Spring semester. J. Harrison

**FPRO 604 - Fixed Prosthodontics Dentistry (Accelerated).** This is a course in which the student reviews the principles of fixed prosthodontics. Diagnosis, treatment planning and technical procedures are covered along with the responsibilities of the dentist and laboratory technician. Patient-care. Fall through Spring semester. M. McBride

**FPRO 602 - Removable Prosthodontics Dentistry (Accelerated).** This is a course in which the student reviews the principles of removable complete and partial prosthodontics. Diagnosis, treatment planning and technical procedures are covered along with the responsibilities of the dentist and laboratory technician. Patient-care. Fall through Spring semester. R. Wicks

## **ADVANCED DENTAL EDUCATION PROGRAMS**

The College of Dentistry offers advanced postdoctoral education in the Departments of Oral and Maxillofacial Surgery, Periodontology, Pediatric Dentistry, Prosthodontics, Endodontics and Orthodontics that satisfy the educational requirements of the respective specialty boards. The Master of Dental Science (MDS) degree is awarded through the College of Graduate Health Sciences at the completion of the requirements of the Post-graduate Orthodontic Program, Prosthodontic Program and Periodontics Program and is optional in Pediatric Dentistry and Endodontics. A certificate of proficiency is awarded through the College of Dentistry following completion of the program in Oral and Maxillofacial Surgery and for non-masters students in Pediatric Dentistry and Endodontics. Course work for non-degree and non-specialty students may be provided in special circumstances.

### **Advanced Education in General Dentistry Program**

A one-year Advanced Education in General Dentistry (AEGD) Program is offered by the College of Dentistry, University of Tennessee Health Science Center. Administered by Lutheran Medical Center, Brooklyn, New York, the program offers additional didactic and clinical training in the different aspects of dentistry. Residents treat patients at the College of Dentistry, Church Health Center and Christ Community Health Centers. Prior to starting the residency, candidates must have passed Part I and II of the National Dental Board Exam and have graduated from a U.S. or Canadian dental school. Applicants applying to the program must do so through ADEA's PASS Application Service and the MATCH program. For additional information about Lutheran Medical Center's AEGD Programs, please call Dr. Anna D'Emilio at 718-630-8901. For information specific to the Tennessee Program contact Dr. Robert Brandt at 901-448-6380.

### **Graduate Orthodontic Program**

The graduate orthodontic program requires a minimum thirty-four months training in classroom and clinical work. Full-time attendance and satisfactory completion of course and clinical work, including completion of a thesis, is required to graduate from the program with a Master of Dental Science Degree. A maximum of four students are selected each year through the National Resident Match Program. At the beginning of the second year of the program, all students will attend the Tweed Study Course in Tucson, Arizona, as part of the requirements of the orthodontics program. Some financial aid will be provided to residents in need of assistance to attend the program. For more information on the graduate Orthodontic program, please refer to the College of Graduate Health Sciences website at <http://www.uthsc.edu/grad/Programs/index.php?page=DSCI>.

## Advanced Endodontic Program

The University of Tennessee Health Science Center offers an Advanced Education Program in Endodontics leading to a 24 month Certificate in Endodontics, awarded by the UTHSC College of Dentistry, and an optional 36 month Master of Dental Science degree, awarded by the UTHSC College of Graduate Health Sciences. The program provides advanced instruction and clinical training to prepare residents for practicing contemporary endodontics. To complete the program, residents must demonstrate proficiency in examination, diagnosis, non-surgical root canal treatment and retreatment, surgical endodontics and diagnosis of facial pain. The program complies with standards established by the Commission on Dental Accreditation of the American Dental Association and qualifies students for examination by the American Board of Endodontics. Both the Certificate and MDS programs run continuously throughout a 24 or 36 month period, respectively.

Admission to full standing in the Advanced Endodontic Program requires the following: (1) the applicant holds a D.D.S., D.M.D., or equivalent degree; and (2) the applicant has obtained at least a "B" course work average in dental school, or a 3.00 on a 4.00 scale. Dental school class rank is given substantial consideration during the resident application and selection process as well as the ability to work collaboratively within our team. Preference is generally given to graduates of U.S. and Canadian dental schools accredited by the American Dental Association's Commission on Dental Accreditation. A resident admitted to full standing in the Advanced Endodontics Program may be required to remedy specific deficiencies in past training as a condition of admission.

The curriculum is consistent with the expanding scope of knowledge in endodontics as determined by the American Board of Endodontics and the American Dental Association. The curriculum relates basic science principles to the practice of endodontics. Clinical applications are emphasized while maintaining didactic and research activities throughout the course of study. Direct patient contact constitutes approximately 60% of resident activity. In depth instruction and patient treatment, involving non-surgical and surgical root canal therapy, is an integral component of didactic and clinical activities. Third year endodontic residents will have the opportunity to surgically place dental implants.

Concurrently, graduate-level courses are conducted in anatomy, embryology, histology, oral biology, oral pathology, immunology, microbiology, pharmacology, human growth & development, experimental design, and biostatistics. Review of current and classic literature related to endodontics is accomplished on a regular weekly basis. Interdisciplinary seminars emphasize the importance of comprehensive dental care in the treatment of complicated oral conditions. Additionally, topical and case presentation seminars are conducted on a regular basis.

Up to three residents are accepted into the Advanced Program in Endodontics each year. All residents serve as Teaching Assistants in the Department of Endodontics as part of their CODA educational requirements. In accordance with mandates set forth by the American Dental Association in the Accreditation Standards for Advanced Specialty Education Programs in Endodontics, all residents are involved in an original, independent research project. This research displays a high level of scholarship and contributes to the existing fund of professional knowledge. Strong mentorship and state-of-the-art scientific resources are available in the Department of Endodontics clinical research facility, the College of Dentistry's dental research center and dental materials core facilities, the University's Biomedical Engineering & Imaging program, the University's Center for Cancer Research, and the University of Memphis Bioengineering program. A Master of Dental Science degree is awarded by the UTHSC College of Graduate Health Sciences upon fulfillment of all additional program requirements, completion of research, production and acceptance of a thesis, and successful public defense of the independent research effort. For more information on the Master of Dental Science degree, refer to <http://www.uthsc.edu/dentistry/Grad/Endo/>.

## **Certificate Program in Pediatric Dentistry**

The College of Dentistry, Department of Pediatric Dentistry, offers a postdoctoral program in pediatric dentistry designed to meet the needs of practitioners who wish to specialize in the practice of dentistry for children. The course extends over 24 months of postdoctoral study in advanced techniques and clinical procedures.

Continuous full-time attendance is a requisite of the course that leads to a Certificate of Specialty in Pediatric Dentistry. Successful completion of the program renders the student educationally qualified for specialty examination by the American Board of Pediatric Dentistry. On completion of an optional third year and fulfillment of the thesis requirement, students can receive the Master of Dental Science degree (MDS). Application to the program is through the ADEA Postdoctoral Application Support Service (PASS) and the National Resident Match Program (MATCH) is utilized in the selection of residents. The curriculum for this course of study includes head and neck anatomy, dental pediatrics, cephalometrics, growth and development, genetics, biostatistics, embryology and histology, child behavior management, oral pathology, pediatrics, experimental design, dental materials, pharmacology, nutrition, microbiology and immunology, pediatric dental laboratory techniques, and clinical pediatric dentistry. The student also receives training in the treatment of non-ambulatory patients under general anesthesia at Crittenden Regional Hospital and Le Bonheur Children's Medical Center. A one-month rotation in general anesthesia, a two week pediatric medicine and a two week in the emergency room, on a rotation basis, is also required. Each student must complete a research project and paper, with data collection and analysis, and suitable for publication, during the 24 months in the program. The clinical setting of the program is located in Crittenden Regional Hospital, with additional clinical assignments in the University of Tennessee College of Dentistry, St. Jude Children's Research Hospital and Le Bonheur Children's Medical Center. Students take part in many activities at all locations and are expected to enter all phases of these assignments. Six students are selected for matriculation each July 1st. Postdoctoral students receive a tuition waiver.

A Certificate of Specialty in Pediatric Dentistry will be awarded on the satisfactory completion of the 24 months of study. For more information, see <http://www.uthsc.edu/dentistry/Grad/Pedo/>.

## **Master of Dental Science in Pediatric Dentistry**

For students successfully completing the certificate program interested in additional research training, a third year of full-time study (12 months) is available leading to the Master of Dental Science Degree in Pediatric Dentistry, offered through the College of Graduate Health Sciences. The degree will be awarded on completion of an original research project together with the writing of a thesis on the investigation. Although the student will maintain clinical skills through active patient care during this time, the emphasis of the third year will be gaining experience in research methodologies and interdisciplinary research activities. A wide range of latitude will be available for students during the research year in that the program will be suited to the individual research interests of each student. Students wishing to pursue the Masters Degree must inform the program director and chairman at the beginning of the first year of postdoctoral study. This will allow the student time to develop a research protocol leading to their thesis research. For more information, <http://www.uthsc.edu/grad/Programs/index.php?page=DSCI>.

## **Oral and Maxillofacial Surgery Residency Program**

The College of Dentistry offers a formal four-year Advanced Oral and Maxillofacial Surgery training program leading to a certificate (an optional six-year program leading to an MD degree is available in specific cases) that is officially affiliated with the Memphis Veterans Affairs Medical Center and the Regional Medical Center at Memphis (The MED). LeBonheur Children's Medical Center, Baptist East Memorial Hospital, and Methodist University Hospital provide the other primary sites of activity for the program. The four-year program is academically divided into eight six-month terms. The Commission on Dental Education of the American Dental Association authorizes acceptance of two trainees each year. The National Resident Match Program is utilized in the selection of residents.

The faculty of the Department of Oral and Maxillofacial Surgery of the College of Dentistry is responsible for the direction and supervision of both the clinical services and didactic aspects of the program. Two generous endowment programs provide resources for additional program support. Physical facilities are exceptionally favorable for developing broad experience with balanced emphasis on the total scope of oral and maxillofacial surgery as practiced today and perceived for the near future. The facilities include a six-chair private practice module in a suite with supportive x-ray, recovery, consultation, laboratory, and instrument rooms, and a

seven-chair hospital outpatient clinic in a separate facility. Cases scheduled for general operating room suites follow the same protocol as other surgical specialties. Emergency services are provided in busy emergency rooms and at a regional Level I trauma center.

The curriculum has been developed to relate basic science principles to clinical application through the mechanism of rotation with other disciplines, regularly scheduled seminars, and conferences. Special courses are conducted for anatomy and oral pathology. Regular rotation to other disciplines includes general anesthesia, surgery, internal medicine, trauma, ENT, plastic surgery, and oculoplastics. There is also devoted time for research in the second and third years. Residents are certified in Advanced Cardiac Life Support and Advanced Trauma Life Support during the program.

The trainee's clinical involvement is progressive from simple to complex surgical procedures. The first year is more heavily didactic (anatomy and physical diagnosis) with rotations on the medicine service to develop proficiency in physical diagnosis and patient evaluation and the anesthesia service. The second year has required rotations on general surgery and pediatric anesthesia. The remainder of the second year has increased requirements relating to advanced dentoalveolar and impaction surgery and complicated trauma. Clinical applications in these areas continue in the third year with added emphasis on orthognathic surgery, implantology (including virtual treatment planning and guided surgeries), and other pre-prosthetic surgery, TMJ surgery, as well as off-service subsurgical specialty rotations. Major operating room oral and maxillofacial surgery and administrative responsibilities of a chief resident make up the last year.

A stipend is granted the trainee commensurate with the level of post-doctoral training and equal to Residents of other services at the same level at the University of Tennessee Health Science Center. For more information, see <http://www.uthsc.edu/dentistry/Grad/OMS/>.

### **Periodontology Program**

The University of Tennessee, in conjunction with the Memphis VA Hospital, offers a residency in Periodontics providing advanced education and training in preparation for the practice of the specialty of Periodontics. The training program complies with the standards established by the Council on Dental Education of the American Dental Association and qualifies candidates for specialty examination by the American Board of Periodontology. Additionally, periodontics residents must be enrolled in the Masters of Dental Science Program offered through the College of Graduate Health Sciences.

The course of study extends over a period of 36 months. This period is consistent with the expanding scope and knowledge in periodontics and training requirements set forth by the American Academy of Periodontology and the American Dental Association. Continuous full-time attendance is a requisite for the course of instruction that leads to a Master of Dental Science degree. Students must complete a thesis that is based on original research, demonstrates individual thought, and is of substantive literary and scientific merit.

The curriculum has been developed to relate basic science principles meaningfully to the practice of periodontics. The program emphasis is on clinical application, with significant didactic content and research activity maintained over a thirty-six month period. Direct patient contact constitutes approximately 50% of the program activity. Special courses are conducted in anatomy, histology, oral pathology, pharmacology, biostatistics, experimental design and research methodology. Special seminars are conducted in immunology and microbiology coupled with current and topical reviews of the periodontal literature. Case presentation seminars are conducted on a regular basis at both University of Tennessee and The Veterans Administration Medical Center. Special rotations in general anesthesia and internal medicine are also included. Instruction in implant therapy is also an integral part of the didactic and clinical instruction.

Two students are selected for matriculation each summer (July). A variable stipend is granted each student commensurate with their level of post-D.D.S. training, and funding level availability. Applicants are reminded that the deadline for application to the Periodontics Graduate Program is August 15. For more information, refer to <http://www.uthsc.edu/grad/Programs/index.php?page=DSCI>.

## Advanced Prosthodontic Program

The advanced dental education program in prosthodontics leads to a Certificate of Proficiency in prosthodontics, awarded by the College of Dentistry, and a Master of Dental Science degree, awarded by the College of Graduate Health Sciences. The program provides advanced instruction and clinical training to prepare residents for the practice of prosthodontics. To complete the program, residents must demonstrate proficiency in the examination, diagnosis and reconstruction of complex edentulous, partially edentulous, and dentate oral conditions. The program complies with standards established by the Commission on Dental Accreditation of the American Dental Association and qualifies students for examination by the American Board of Prosthodontics. Continuous, full time attendance for this 36-month program is required.

The curriculum is consistent with the expanding scope of knowledge in prosthodontics as determined by the American College of Prosthodontists and the American Dental Association. The curriculum relates basic science principles to the practice of prosthodontics. Clinical applications are emphasized while maintaining didactic and research activities throughout the course of study. Direct patient contact constitutes approximately 60% of resident activity. In depth instruction and patient treatment involving dental implant therapy is an integral component of didactic and clinical activities. Prosthodontic residents are encouraged to both surgically place and restore dental implants. Instruction in laboratory technology is an integral part of all treatment rendered.

Concurrently, graduate-level courses are conducted in anatomy, embryology, histology, oral biology, oral pathology, immunology, microbiology, pharmacology, human growth & development, experimental design, material science, and biostatistics. Review of current and classic literature related to prosthodontics is accomplished on a regular basis. Interdisciplinary seminars emphasize the importance of comprehensive dental care in the treatment of complicated oral conditions. Case presentation seminars are also conducted on a regular basis.

In accordance with mandates set forth by the American Dental Association in the Accreditation Standards for Advanced Specialty Education Programs in Prosthodontics, all residents are involved in an original, independent research project. This research displays a high level of scholarship and contributes to the existing fund of professional knowledge. Strong mentorship and state-of-the-art scientific resources are readily available in the Department of Prosthodontic's clinical research facility, the College of Dentistry's dental research center and dental materials core facilities, the University's Biomedical Engineering & Imaging program, and the University of Memphis Bioengineering program. A Master of Dental Science degree is awarded by the College of Graduate Health Sciences upon fulfillment of all program requirements, completion of research, production and acceptance of a thesis, and successful public defense of the independent research effort.

Two postdoctoral students are accepted into the Advanced Prosthodontics Program each year. All students serve as Teaching Assistants in the Department of Prosthodontics for which they receive an annual stipend. For more information on the Master of Dental Science, see <http://www.uthsc.edu/grad/Programs/index.php?page=DSCI>. For more information on the Advanced prosthodontics program, refer to <http://www.uthsc.edu/dentistry/Grad/Pros/>.

## CONTINUING DENTAL EDUCATION PROGRAMS

Continuing education is offered to graduates of professional programs as an ongoing commitment to professional development. The first continuing dental education program presented by the College of Dentistry was in 1953. Since then, there has been an increasing awareness of the need for continuing education to become a part of the lifelong educational experience of all health professionals. As a result, there has been a steady increase in the quality and number of courses presented by the College of Dentistry, as well as a greater distribution of meeting sites throughout Tennessee and Arkansas. Due to popular demand, the majority of courses presented are in the clinical sciences, with more emphasis now being placed upon those requiring clinical and/or laboratory participation. As resources permit, a series of courses have been planned for live video conferencing throughout the Mid-South utilizing facilities

available on The University of Tennessee Health Science Center Memphis campus.

Participants of all University of Tennessee sponsored continuing education courses earn CEU (Continuing Education Units) credit, which is awarded by institutions to those who have satisfied certain regional and national accreditation requirements. for more information, <http://www.uthsc.edu/dentistry/CE/>.



## FACULTY LIST

Ahuja, Swati Amitkumar, Assistant Professor, 2007; Bachelor in Dental Surgery, Maharashtra University of Health Sciences (2002); Master of Dental Surgery in Prosthodontics, University of Tennessee Health Science Center (2009)

Albright, Jimmy E., Professor, 1974; Doctor of Dental Surgery, University of Tennessee Health Science Center (1963)

Alley, Nader E., Assistant Professor, 2007; Doctor of Dental Surgery, University of Tennessee Health Science Center (1992)

Anderson, Kenneth Mark, Associate Professor, 2003; Doctor of Dental Surgery, University of Tennessee Health Science Center (1989)

Aubertin, Mary A., Associate Professor, 2002; Doctor of Dental Medicine, Washington University in St. Louis (1988)

Babu, Jegdish P., Associate Professor, 1982; Doctor of Philosophy, Mississippi State University (1981); Master of Science in Medical Microbiology, West Virginia University (1974)

Ballard, Steve D., Assistant Professor, 2005; Doctor of Dental Surgery, University of Tennessee Health Science Center (1993)

Barron, Melody A., Assistant Professor, 2010; Doctor of Dental Surgery, University of Tennessee Health Science Center (1992)

Belland, Robert J., Associate Professor, 2003; Doctor of Philosophy, University of Victoria (1987)

Binkley, Jr., Lesley H., Assistant Professor, 2004; Doctor of Dental Surgery, University of Tennessee Health Science Center (1974); Master of Science in Dentistry, Ohio State University (1978)

Bland, Paul S., Associate Professor, 1994; Doctor of Dental Surgery, University of Tennessee Health Science Center (1992)

Blen, Bernard J., Assistant Professor, 2000; Doctor of Dental Surgery, University of Tennessee Health Science Center (1968)

Brandt, Robert L., Professor, 2005; Doctor of Dental Surgery, Ohio State University, (1964)

Braxton, Ashanti D., Assistant Professor, 2011; Doctor of Dental Surgery, Meharry Medical College School of Dentistry (2008)

Brooks, Jeffrey H., Associate Professor, 2008; Doctor of Dental Medicine, University of Mississippi Medical Center (1988)

Buras, Daniel E., Assistant Professor, 2006; Doctor of Dental Surgery, Loyola University Dental School (1971)

Burrows, John Michael, Assistant Professor, 2011; Doctor of Dental Surgery, University of Tennessee Health Science Center (2002)

Burton, Eddie L., Associate Professor, 1976; Doctor of Dental Surgery, University of Iowa (1976)

Caldwell, Jr., William D., Assistant Professor, 1990; Doctor of Dental Surgery, University of Tennessee Health Science Center (1987)

Callahan III, William R., Assistant Professor, 2012; Doctor of Dental Surgery, University of Tennessee Health Science Center (1984)

Cantrell, Angela R., Associate Professor, 1999; Doctor of Philosophy, University of Tennessee Health Science Center (1994)

Caplan, Stuart A., Assistant Professor, 2010; Doctor of Dental Surgery, Marquette University (1963)

Christian, James Mintzer, Associate Professor (2010); Doctor of Dental Surgery, Temple University (1978)

Clement, David J., Professor, 2012; Doctor of Dental Surgery, University of Minnesota (1981)

Cohen, Alka V., Associate Professor, 1989; Doctor of Dental Surgery, University of Oklahoma (1981); Master of Science in Pedodontics, University of Tennessee Health Science Center (1987)

Cohen, James C., Associate Professor, 1968; Doctor of Dental Surgery, University of Tennessee Health Science Center (1967)

Cook, George A., Professor, 1983; Doctor of Philosophy, Auburn University (1974)

Cooper, Terrance G., Professor, 1985; Doctor of Philosophy, Purdue University (1969)

Covington, John S., Professor, 1981; Doctor of Dental Surgery, University of Tennessee Health Science Center (1981)

Dabbous, Mustafa K., Professor, 1970; Doctor of Philosophy, University of Tennessee Health Science Center (1967)

Darnell, Laura, Assistant Professor, 2009; Doctor of Dental Medicine, University of Pennsylvania (2009)

Dehghan, Mojdeh, Assistant Professor, 2005; Doctor of Dental Surgery, Baylor College of Dentistry (1990)

Dingeldein, Patricia P., Assistant Professor, 2012; Doctor of Dental Surgery, University of Tennessee Health Science Center (1984)

Donaldson, Donald J., Professor, 2010; Doctor of Philosophy, Tulane University (1968)

Donaldson, Martin E., Associate Professor, 2003; Doctor of Dental Surgery, University of Detroit (1976)

Drake, Jackie D., Assistant Professor, 2009; Doctor of Dental Surgery, University of Tennessee Health Science Center (2007)

Fereira, Cimara Fortes, Assistant Professor, 2010; Doctor of Philosophy in Dental Implantology, Universidade Federal de Santa Catarina (2007); Master of Science in Dental Implantology, Universidade Federal de Santa Catarina (2004)

Ford, John Charles, Assistant Professor, 2011; Doctor of Dental Surgery, University of Tennessee Health Science Center (1981)

Futris, Steve C., Assistant Professor, 1967; Doctor of Dental Surgery, University of Tennessee Health Science Center (1955)

Gano, Daniel R., Instructor, 2012; Doctor of Dental Surgery, University of Tennessee Health Science Center (2010)

Gano, Kari Lynn, Instructor, 2012; Doctor of Dental Surgery, University of Tennessee Health Science Center (2011)

George, Lloyd A., Professor, 2002; Doctor of Dental Surgery, University of Texas Health Science Center at Houston (1976)

Godat, Mitchel S., Instructor, 2000; Doctor of Dental Surgery, University of Tennessee Health Science Center (1997); Master of Science in Periodontology, University of North Carolina at Chapel Hill (2000)

Gregory, Paul N., Assistant Professor, 1993; Doctor of Dental Surgery, University of Missouri-Kansas City (1971); Master of Health Administration, University of Memphis (1998)

Hackmyer, Steven P., Associate Professor, 2012; Doctor of Dental Surgery, New York University College of Dentistry (1978)

Hamre, Kristin Marie, Associate Professor, 1991; Doctor of Philosophy, University of Iowa (1991)

Harris, Edward F., Professor, 2011; Doctor of Philosophy, Arizona State University (1977)

Harrison, Janet A., Professor, 2002; Doctor of Dental Surgery, University of Texas Health Science Center at Houston (1981)

Hart, Glenn T., Associate Professor, 1972; Doctor of Dental Surgery, University of Tennessee Health Science Center (1970)

Hasty, Karen A., Professor, 1977; Doctor of Philosophy, University of Tennessee Health Science Center (1981)

Hatch, Robert H., Assistant Professor, 2007; Doctor of Dental Surgery, University of Tennessee Health Science Center (1977)

Hedges, Jr., Posey G., Associate Professor, 1954; Doctor of Dental Surgery, University of Tennessee Health Science Center (1946)

Herron, Paul, Associate Professor, 1989; Doctor of Philosophy, Michigan State University (1980)

Higdon, Mary Gillihan, Assistant Professor, 2007; Doctor of Dental Surgery, University of Tennessee Health Science Center (1982)

Hilger, Terence C., Assistant Professor, 2011; Doctor of Dental Surgery, Case Western Reserve University (1969)

Hollis, Wainscott, Assistant Professor, 2005; Doctor of Dental Surgery, University of Tennessee Health Science Center (1991)

Hong, Liang, Associate Professor, 2010; Doctor of Philosophy in Oral Science, University of Iowa, 2004, Master of Science in Dental Public Health, University of Iowa (2001)

Hori, Roderick T., Associate Professor, 1998; Doctor of Philosophy in Biology, University of California, San Diego (1993)

Hottel, Timothy L., Professor and Dean, 2009; Doctor of Dental Surgery, Case Western Reserve University (1973); Master of Science in Biomedical Engineering, Case Western Reserve University (1975)

Hughes, Thomas A., Professor, 1987; Doctor of Medicine, Washington University in St. Louis (1975)

Jaggar, Jonathan H., Professor, 2000; Doctor of Philosophy, University of Sheffield (1995)

Jain, Vinay, Assistant Professor, 2007; Bachelor of Dental Surgery, Maharashtra University of Health Sciences (2003); Master of Dental Surgery in Prosthodontics, University of Tennessee Health Science Center (2010)

Johnson, Eldridge F., Professor, 2012; Doctor of Philosophy in Anatomy, University of Alabama in Birmingham (1960)

Kalmowicz, Jeffrey A., Assistant Professor, 2012; Doctor of Dental Surgery, University of Tennessee Health Science Center (1991)

Karunagaran, Sanjay, Assistant Professor, 2012; Doctor of Dental Surgery, University of Detroit Mercy (2009); Master of Science in Dentistry, Indiana University (2008)

Karydis, Anastasios, Assistant Professor, 2008; Doctor of Philosophy, University of California, San Francisco (2009); Master of Science, University of California, San Francisco (2004)

Kemp, Phillip A., Instructor, 2009; Doctor of Dental Surgery, University of Tennessee Health Science Center (1988)

Kimmelman, James R., Professor, 2005; Doctor of Dental Surgery, West Virginia University (1965); Master of Science in Periodontology, University of Iowa (1969)

Lane, James Allen, Assistant Professor, 2012; Doctor of Dental Surgery, University of Tennessee Health Science Center (1974)

Langham, Sue Elizabeth, Assistant Professor, 2011; Doctor of Dental Medicine, University of Florida (1980)

Levy, Layne Constant, Assistant Professor, 2005; Doctor of Dental Surgery, University of Tennessee Health Science Center (1989)

Lewis III, John W., Assistant Professor, 2007; Doctor of Dental Surgery, University of Tennessee Health Science Center (2000)

Lewis, Maurice W., Assistant Professor, 2001; Doctor of Dental Surgery, West Virginia University (1978)

Livada, Rania, Assistant Professor, 2011; Doctor of Dental Surgery, National and Kapodistrian University of Athens (2003); Master of Science in Dentistry, University of Alabama at Birmingham (2009)

Lloyd, Adam, Associate Professor, 2009; Bachelor of Dental Surgery, University of Wales (1994); Master of Science, Baylor College of Dentistry (2003)

Lothstein, Leonard, Associate Professor, 1988; Doctor of Philosophy in Molecular Biology, Vanderbilt University (1983)

Madubonwu, Paul Nweze, Assistant Professor, 2004; Bachelor of Medicine, Bachelor of Surgery, University of Jos Nigeria (1982)

Malik, Kafait U., Professor, 1975; Doctor of Philosophy in Pharmacology, University of Sarajevo (1966)

Matheny, Harvey Earl, Assistant Professor, 2011; Doctor of Dental Surgery, University of Tennessee Health Science Center (1973), Master of Science in Dentistry, University of Washington (1982)

Mayall, Rebecca E., Assistant Professor, 2009; Doctor of Dental Surgery, University of Tennessee Health Science Center (2011)

McBride, Michael A., Associate Professor, 2003; Doctor of Dental Surgery, University of Tennessee Health Science Center (1982)

McCann Sr., Billy Westmoreland, Professor, 1992; Doctor of Dental Surgery, University of Tennessee Health Science Center (1958)

McCreary, Bryce F., Assistant Professor, 2011; Doctor of Dental Surgery, University of Missouri-Kansas City (2002)

McCullar, Bruce H., Associate Professor, 1987; Doctor of Dental Surgery, University of Tennessee Health Science Center (1979)

McGuire, Judith W., Associate Professor, 2012; Doctor of Dental Medicine, Medical College of Georgia (1977)

McHarris, William H., Assistant Professor, 1996; Doctor of Dental Surgery, University of Tennessee Health Science Center (1964)

McRae, J. Lawrence, Associate Professor, 1985; Doctor of Dental Surgery, University of Tennessee Health Science Center (1979)

Meekins, Richard D., Assistant Professor, 2004; Doctor of Dental Surgery, Howard University (1997)

Migliorati, Cesar A., Professor, 2009; Dental Surgeon, University of Sao Paulo (1972); Master of Science in Oral Biology, University of California, San Francisco (1984)

Migliorati, Erica Krohn Jany, Assistant Professor, 2010; Dental Surgeon, University of Sao Paulo (1973)

Miller, David C., Assistant Professor, 2004; Doctor of Philosophy in Microbiology and Immunology, University of Tennessee Health Science Center (1984)

Mincer, Harry H., Professor, 2005; Doctor of Dental Surgery, University of Tennessee Health Science Center (1955); Doctor of Philosophy, University of Tennessee Health Science Center (1974)

Mulvany, Ruth D., Associate Professor, 1981; Doctor of Physical Therapy, University of Tennessee Health Science Center (2007)

Naren, Anjaparavanda P., Professor, 2001; Doctor of Philosophy, Indian Institute of Science (1993)

Nelson, David R., Associate Professor, 1994; Doctor of Philosophy in Biochemistry, University of Texas Health Science Center at San Antonio (1985)

Nelson, Randall J., Professor, 1984; Doctor of Philosophy in Anatomy, Vanderbilt University (1980)

Nosrat, Christopher, Professor, 2006; Doctor of Dental Surgery, Karolinska Institute (1994); Doctor of Philosophy, Karolinska Institute (1997)

Nutting, David F., Associate Professor, 1971; Doctor of Philosophy in Physiology, Duke University (1969)

O'Connell, Kristen, Assistant Professor, 2008; Doctor of Philosophy in Pharmacology, University of Rochester (2003)

Ostrom, Rennolds S., Associate Professor, 2003; Doctor of Philosophy in Pharmacology and Toxicology, University of California, Irvine (1998)

Owens, Barry Mark, Associate Professor, 1990; Doctor of Dental Surgery, University of Tennessee Health Science Center (1986)

Paprocki, Gregory J., Assistant Professor, 2011; Doctor of Dental Surgery, University of Minnesota (1983)

Park, Edwards A., Professor, 1991; Doctor of Philosophy in Physiology, Pennsylvania State University (1984)

Park, Melburn R., Associate Professor, 1983; Doctor of Philosophy in Physiology, State University of New York, Buffalo (1974)

Parris, William G., Associate Professor, 1985; Doctor of Dental Surgery, University of Tennessee Health Science Center (1983); Master of Science in Orthodontics, University of Tennessee Health Science Center (1985)

Patel, Nishel, Instructor, 2011; Doctor of Dental Surgery, University of Tennessee Health Science Center (2011)

Patters, Mark R., Professor, 1988; Doctor of Dental Surgery, Case Western Reserve University (1972); Doctor of Philosophy, State University of New York, Buffalo (1977)

Pennington, Vernon C., Assistant Professor, 1985; Doctor of Dental Surgery, University of Tennessee Health Science Center (1984)

Phebus, Jeffrey G., Associate Professor, 1996; Doctor of Dental Surgery, University of Tennessee Health Science Center (1987)

Pivnick, Eniko K., Professor, 2002; Doctor of Medicine, Semmelweis University of Medical Sciences (1979)

Pledger II, James W., Assistant Professor, 2012; Doctor of Dental Surgery, University of Tennessee Health Science Center (2001)

Pourmotabbed, Tayebeh, Professor, 1989; Doctor of Philosophy in Biochemistry, University of Maryland, Baltimore County (1986)

Prophete, Adeline, Assistant Professor, 1996; Doctor of Dental Surgery, University of Tennessee Health Science Center (1992)

Radic, Marko Z., Associate Professor, 2000; Doctor of Philosophy in Biological Sciences, University of California, Irvine (1987)

Raghow, Rajendra, Professor, 1988; Doctor of Philosophy in Biochemistry, Australian National University (1974)

Rawal, Swati Y., Associate Professor, 2006; Bachelor in Dental Surgery, Calcutta University (1987); Master of Science in Dentistry, Ohio State University (2004)

Rawal, Yeshwant B., Associate Professor, 2005; Bachelor in Dental Surgery, Annamalai University (1986); Master of Science in Dentistry, Ohio State University (2005)

Rawls, William Nathan, Professor, 1987; Doctor of Pharmacy, University of Tennessee Health Science Center (1976)

Reaves, Daniel L., Associate Professor, 1994; Doctor of Dental Surgery, University of Tennessee Health Science Center (1974)

Redmond, David C., Assistant Professor, 2007; Doctor of Dental Surgery, University of Tennessee Health Science Center (1981)

Robbins Jr., Morris L., Professor, 2001; Doctor of Dental Surgery, University of Tennessee Health Science Center (1958)

Robinson, Quinton C., Associate Professor, 1986; Doctor of Dental Surgery, University of Tennessee Health Science Center (1984); Master of Science, University of Tennessee Health Science Center (1988)

Rosebush, Molly Susan, Assistant Professor, 2008; Doctor of Dental Surgery, University of Michigan (2005); Master of Science in Dentistry, Ohio State University (2008)

Ross, Judith A., Associate Professor, 1996; Doctor of Dental Medicine, Washington University in St. Louis (1984); Master of Science in Restorative Dentistry, Washington University in St. Louis (1986)

Rubin, David M., Associate Professor, 2011; Doctor of Dental Surgery, University of Toronto (1988)

Ryan, James Patrick, Associate Professor, 1988; Doctor of Philosophy, University of North Carolina Chapel Hill (1985)

Sadeghi, Mehdi, Assistant Professor, 2001; Doctor of Dental Surgery, University of Tennessee Health Science Center (1998)

Savage, Michael K., Assistant Professor, 2004; Doctor of Dental Surgery, University of Tennessee Health Science Center (1992)

Scarbecz, Mark, Professor, 1999; Doctor of Philosophy in Sociology, University of Arizona (1991)

Schmidt, Bryan Timothy, Assistant Professor, 1995; Doctor of Dental Surgery, University of Tennessee Health Science Center (1995)

Scott, Robert W., Assistant Professor, 1997; Doctor of Dental Surgery, University of Tennessee Health Science Center (1972)

Scroggs, Reese Schiller, Associate Professor, 1992; Doctor of Philosophy in Pharmacology, University of Illinois at Chicago (1989)

Seeberg, John Douglas, Assistant Professor, 2010; Doctor of Dental Medicine, University of Pennsylvania (1969)

Seeberg, Marcia Scott, Instructor, 2010; Master of Science in Counseling Psychology, Nova Southeastern University (1989)

Selecman, Audrey Marie, Assistant Professor, 2011; Doctor of Dental Surgery, University of Tennessee Health Science Center (2004)

Sharp, Harry K., Professor, 1983; Doctor of Dental Surgery, University of Tennessee Health Science Center (1971)

Shelton, Felicity Hope, Assistant Professor, 2012; Doctor of Dental Surgery, University of Tennessee Health Science Center (2007); Master of Science in Biomedical Science, University of Maryland, Baltimore (2010)

Shiloah, Jacob, Professor, 1977; Doctor of Dental Medicine, The Hebrew University, Hadassah School of Dental Medicine (1971)

Shintaku, Werner Harumiti, Associate Professor, 2011; Doctor of Dental Surgery, University of Sao Paulo (1998); Master of Science in Dental Diagnostic Science, University of Texas Health Science Center at San Antonio (2010)

Simon, James F., Professor, 2000; Doctor of Dental Surgery, University of Iowa (1969); Master of Education in Curriculum and Instruction, University of New Orleans (1982)

Smith, Robert K., Assistant Professor, 1987; Doctor of Dental Surgery, University of Tennessee Health Science Center (1982)

Smith, Robert Wood, Assistant Professor, 1978; Doctor of Dental Surgery, Howard University (1973)

Smith, Toddrick, Instructor, 2010; Doctor of Dental Surgery, University of Tennessee Health Science Center (2007)

Springfield, Felix O., Assistant Professor, 1999; Doctor of Dental Surgery, University of Tennessee Health Science Center (1991)

Stamatacos, Catherine, Assistant Professor, 2012; Doctor of Dental Surgery, University of Maryland, Baltimore (1983)

Staples, Ronald C., Assistant Professor, 2000; Doctor of Dental Surgery, University of Tennessee Health Science Center (1986)

Stein, Sidney H., Associate Professor, 1998; Doctor of Dental Medicine, Washington University in St. Louis (1982); Doctor of Philosophy in Microbiology and Immunology, University of Rochester (1992)

Sun, Wen Lin, Assistant Professor, 2006; Doctor of Philosophy in Pharmacology, University of Arkansas for Medical Sciences (2000)

Suttle, Dale Parker, Associate Professor, 1993; Doctor of Philosophy in Chemistry, University of Texas at Austin (1975)

Sweatman, Trevor W., Professor, 1983; Doctor of Philosophy, Southampton University Medical School (1981)

Taylor, Darton D., Assistant Professor, 2005; Doctor of Dental Surgery, University of Tennessee Health Science Center (2002)

Thomas, Edwin L., Professor, 1990; Doctor of Philosophy, University of Michigan (1970); Master of Science, University of Michigan (1966)

Thomason, Donald B., Professor, 1990; Doctor of Philosophy in Physiology and Biophysics, University of California, Irvine (1986)

Tigyi, Gabor Joseph, Professor, 1992; Doctor of Philosophy in Cellular and Molecular Neurobiology, Hungarian Committee of Scientific Qualifications (1993); Doctor of Medicine, University Medical School of Pecs (1982)

Tipton, David A., Professor, 1984; Doctor of Dental Surgery, University of Tennessee Health Science Center (1978), Doctor of Philosophy in Biology, University of Memphis (1988)

Trojan, Terry Martin, Associate Professor, 2009; Doctor of Dental Surgery, University of Michigan (1970); Master of Science in Orthodontics, University of Michigan (1974)

Uhles, Jonathan P., Instructor, 2009; Doctor of Dental Surgery, University of Tennessee Health Science Center (2011)

Umsted, David E., Assistant Professor, 2011; Doctor of Dental Surgery, University of Tennessee Health Science Center (1977)

Versluis, Antheunis, Professor, 2010; Doctor of Philosophy, University of Greenwich (1994)

Versluis, Daranee, Associate Professor, 2010; Doctor of Dental Surgery, Chulalongkorn University (1987); Doctor of Philosophy in Oral Biology, University of Minnesota (1998); Master of Science in Dentistry, University of Alabama at Birmingham (1991)

Wasson, Waletha, Associate Professor, 1988; Doctor of Dental Surgery, University of Tennessee Health Science Center (1979); Master of Science in Restorative Dentistry, University of Michigan (2001); Master in Public Administration, University of Memphis (1988)

Waters, Christopher M., Professor, 1999; Doctor of Philosophy in Biomedical Engineering, Vanderbilt University (1991)

Waters, Robert S., Professor, 1985; Doctor of Philosophy in Biobehavioral Science, University of Connecticut (1978)

Watsky, Mitchell Aaron, Professor, 1992; Doctor of Philosophy in Physiology, Medical College of Wisconsin (1989)

Weeda, Lawrence W., Professor, 1998; Doctor of Dental Surgery, University of Missouri-Kansas City (1974)

Wells, Larry K., Assistant Professor, 2011; Doctor of Dental Medicine, University of Mississippi Medical Center (2006)

Wells, Martha H., Assistant Professor, 2010; Doctor of Dental Medicine, Georgia Health Sciences University (2006); Master of Science in Restorative Dentistry, Ohio State University (2008)



West, Constance Ann, Assistant Professor, 2012; Doctor of Dental Surgery, Emory University (1985)

Wible, Linda O., Assistant Professor, 1982; Doctor of Dental Surgery, University of Tennessee Health Science Center (1976)

Wicks, Russell Anthony, Professor, 1993; Doctor of Dental Surgery, University of Tennessee Health Science Center (1978); Master of Science in Prosthodontics, University of Texas Health Science Center at San Antonio (1993)

Williams, Darren R., Assistant Professor, 2000; Doctor of Dental Surgery, University of Tennessee Health Science Center (1991)

Williams, Micheal A., Assistant Professor, 2000; Doctor of Dental Surgery, University of Tennessee Health Science Center, (1992)

Williams, Nancy Johnson, Professor, 1980; Doctor of Education in Higher Education, University of Memphis (1992); Bachelor of Science in Dental Hygiene, University of Tennessee Health Science Center (1980)

Wills, Joseph Whitley, Assistant Professor, 2000; Doctor of Dental Surgery, University of Tennessee Health Science Center (1989)

Wilson, Gary Trent, Associate Professor, 1985; Doctor of Dental Surgery, University of Tennessee Health Science Center (1978)

Wilson, Jack L., Professor, 1968; Doctor of Philosophy in Anatomy, University of Mississippi (1968)

Wingo, Jeffrey L., Assistant Professor, 1994; Doctor of Dental Surgery, University of Tennessee Health Science Center (1990); Bachelor of Science in Pharmacy, Mercer University (1982)

Woods, Marjorie A., Professor, 1987; Doctor of Dental Surgery, University of Tennessee Health Science Center (1984)

Yates, Jere L., Associate Professor, 1986; Doctor of Dental Surgery, University of Tennessee Health Science Center (1972); Master of Science in Pedodontics, University of Tennessee Health Science Center (1975)

Zhou, Fu-Ming, Associate Professor, 2004; Doctor of Medicine, SuZhou Medical College (1985)

**THE UNIVERSITY OF TENNESSEE  
HEALTH SCIENCE CENTER**

**CATALOG 2012 - 2013**



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**COLLEGE OF GRADUATE HEALTH SCIENCES**

**920 Madison Ave, Suite 407 • Memphis, TN 38163 • Tel: (901) 448-5538**

Donald B. Thomason, Ph.D., Dean

Isaac O. Donkor, Ph.D., Associate Dean, Recruitment, Admissions and Students

Larry Tague, Assistant Dean, Academic Affairs

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## GENERAL INFORMATION

### Mission

The mission of the College of Graduate Health Sciences (CGHS) is to improve the knowledge about human health through education, research, and public service, with an emphasis on improving the health of Tennesseans.

### Administrative Structure

The executive and administrative head of the College of Graduate Health Sciences is the Dean, who reports to the Chancellor of The University of Tennessee Health Science Center. The College's senior administration consists of the Associate Dean for Student Affairs and Recruitment, and the Assistant Dean for Academic Affairs. The Dean receives recommendations on College issues from the Graduate Studies Council. The Council is chaired by the Dean and consists of the Chair or Director of each program within the College, a representative from St. Jude Children's Research Hospital, and a student representative. The Council is advised by the following standing committees that are appointed by the Dean upon consultation with the other colleges: Credentials Committee and Curriculum Committee. The Graduate Studies Council is responsible for reviewing new courses and programs in the CGHS. The Council also recommends the appointment of faculty to the Dean. It shall be within the province of the Council, on its own initiative, to plan and to recommend institution of programs of graduate instruction; to set standards of admission and curricula; and to assemble, organize, and interpret information pertaining to the graduate programs at UTHSC. Recommendations arising from these activities shall be submitted to the Dean.

**The Dean** of the College is Donald B. Thomason, Ph.D. Dr. Thomason received his B.A. in 1980 from the University of Virginia as a University Major (thesis titled "Mathematical Modeling in Biochemical Systems") and a Ph.D. in Physiology and Biophysics in 1986 from the University of California, Irvine. After postdoctoral research in the Department of Physiology and Cell Biology at the University of Texas Health Science Center, Houston, Dr. Thomason joined the faculty in the Department of Physiology, College of Medicine, at The University of Tennessee Health Science Center in 1990. Dr. Thomason served as the Associate Dean for Student Affairs in the College from 2007 until being appointed Dean in June 2012.

### History

The College of Graduate Health Sciences at UTHSC was organized as the Graduate School under the leadership of Dr. T. P. Nash, Jr., in 1923. The presentation of a master's thesis by Ben King Hamed marked the formal beginning of the Graduate School in 1925 when the Graduate Committee at Knoxville accepted Hamed's thesis for the M.S. with a major in Pharmacology. Subsequently, the graduate program leading to the Doctor of Philosophy degree was approved for presentation in the School of Biological Sciences in 1928. Dr. E. Foster Williams was the first to complete the program and was awarded the Doctor of Philosophy degree in Biochemistry in 1932. This was the first doctorate of philosophy awarded at any of the campuses of The University of Tennessee. Until 1960, the Graduate School in Memphis operated as a division of the Graduate School in Knoxville with Dr. R. H. Alden as Associate Dean of the Graduate School. The Graduate School of Medical Sciences was then established as a separate entity with its own Graduate Council and bylaws. Dr. Alden was named the first dean. Graduate training was offered in Anatomy, Biochemistry, Microbiology, Pharmacology, Physiology and Biophysics, and Pathology. Later, programs in the Pharmaceutical Sciences were organized and included the academic disciplines of Medicinal Chemistry, Pharmaceutics, and Health Science Administration (now Health Outcomes and Policy Research). In 2004, the Integrated Program in Biomedical Sciences was created by combining the programs in Anatomy and Neurobiology, Molecular Sciences, Pathology, Pharmacology, and Physiology (becoming the Integrated Biomedical Sciences Program in 2011). Master's and doctorate training in Biomedical Engineering and Imaging, master's programs in Epidemiology and Dental Sciences, and an academic doctorate in Nursing completed the graduate offerings up until July of 2009 when the Ph.D. Program in Speech and Hearing Science (physically located on the UTK campus) was added. An accelerated one-year master's in Pharmacology began to be offered in 2010. The Graduate School became the College of Graduate Health Sciences in October 1987.

The College is campus-wide with respect to its faculty, policies, and programs. The faculty of the College of Graduate Health Sciences consists of faculty members whose primary appointments are in one of the Colleges of Allied Health Sciences, Dentistry, Medicine, Nursing, or Pharmacy and who are actively engaged in research. Members of the Graduate Faculty are responsible for the instruction of students pursuing academic M.S., M.D.S., and Ph.D. degrees. Faculty from the professional colleges who wish to teach, serve on student faculty committees, or to direct student degree research in a graduate program in the College of Graduate Health Sciences may apply to the Credentials Committee for graduate faculty status. The Committee will make a recommendation to the Dean and Graduate Studies Council, with the final decision made by the Dean. Students select their faculty advisor and faculty committee from the credentialed faculty.

The College of Graduate Health Sciences is located in Suite 407 of the 920 Madison Avenue Building. Research locations for students and faculty are located on the UTHSC Memphis campus; at Le Bonheur Children's Hospital, St. Jude Children's Research Hospital, and the VA medical Center also located in Memphis; and in Knoxville, on the University of Tennessee – Knoxville campus.

## ACADEMIC CALENDAR 2012 – 2013

**Biomedical Engineering, Dental Science (Orthodontics and Prosthodontics), Epidemiology, Health Outcomes and Policy Research, Integrated Biomedical Sciences, Nursing, Pharmaceutical Sciences, Speech and Hearing Science**

Date	Activity	Class
Sunday, July 1, 2012	Tuition and Fees Due	All continuing students
Monday, July 2, 2012	Academic year begins for continuing students	All continuing students
Monday, July 16, 2012	14 <sup>th</sup> Day Count	All continuing students
Thursday, August 9, 2012	Orientation	1st year students
Friday, August 10, 2012	Arena registration	1st year students
Monday, August 13, 2012	Tuition and Fees Due	1st year students
Monday, August 13, 2012	Fall semester begins	1st year students
Monday, September 3, 2012	University Holiday (Offices Closed)	All students
Thursday, November 22, 2012	Thanksgiving	All students
Friday, November 23, 2012	No classes	All students
Friday, December 7, 2012	Graduation	
Friday, December 21, 2012	Last Day of Classes	All students
Monday, December 24, 2012 - Wednesday, January 2, 2013	University Holiday (Offices Closed)	All students
Thursday, January 3, 2013	Tuition and Fees Due	All students
Thursday, January 3, 2013	Spring semester begins	All students
Monday, January 21, 2013	University Holiday (Offices Closed)	All students
Wednesday, January 23, 2013	14 <sup>th</sup> Day Count	All students
Monday, March 18, 2013 - Friday, March 22, 2013	Spring Break	All students
Friday, March 29, 2013	University Holiday (Offices Closed)	All students
Monday, May 27, 2013	Memorial Day Break (Offices Closed)	All students
Friday, May 31, 2013	Graduation	
Friday, June 28, 2013	Academic year ends for non-graduating students	All students

### Calendar for Pediatric Dentistry and Periodontics

Date	Activity	Class
Sunday, July 1, 2012	Tuition and Fees Due	All students
Monday, July 2, 2012	Academic year begins for continuing students	All students
Monday, July 16, 2012	14 <sup>th</sup> Day Count	All students
Thursday, August 9, 2012	Orientation	All students
Friday, August 10, 2012	Arena registration	All students
Monday, September 3, 2012	University Holiday (Offices Closed)	All students
Thursday, November 22, 2012	Thanksgiving	All students
Friday, November 23, 2012	No classes	All students
Friday, December 7, 2012	Graduation	
Friday, December 21, 2012	Last Day of Classes	All students
Monday, December 24, 2012 - Wednesday, January 2, 2013	University Holiday (Offices Closed)	All students
Thursday, January 3, 2013	Tuition and Fees Due	All students
Thursday, January 3, 2013	Spring semester begins	All students
Monday, January 21, 2013	University Holiday (Offices Closed)	All students
Wednesday, January 23, 2013	14 <sup>th</sup> Day Count	All students
Monday, March 18, 2013 - Friday, March 22, 2013	Spring Break	All students
Friday, March 29, 2013	University Holiday (Offices Closed)	All students
Monday, May 27, 2013	Memorial Day Break (Offices Closed)	All students
Friday, May 31, 2013	Graduation	
Friday, June 28, 2013	Academic year ends for non-graduating students	All students

## ADMISSIONS REQUIREMENTS AND OPTIONS

### Admissions

**Regular students** are students who seek admission to one of the doctoral or master's degree programs offered by the College of Graduate Health Sciences. Regular students must register for at least nine semester hours to be considered full-time, with the exception of the final semester in which students may register for three semester hours and be considered full-time. These students must submit an official application and must fulfill the admission criteria for the College, as well as the criteria of the respective program. Applications for regular students are available on The University of Tennessee Health Science Center Admissions page (<http://www.uthsc.edu/admissions/cghs.php>).

Admission as a regular student requires a bachelor's degree or its equivalent with an undergraduate grade point average of at least 3.0 from an accredited college or university and a revised Graduate Record Examinations (GRE) combined score totaling at least 300 for verbal and quantitative sections. Some programs may require a higher GRE score for admission, and may accept other standardized entrance examinations. Three letters of recommendation from previous instructors or persons capable of judging the applicant's qualifications for graduate study are also required. For foreign applicants, evidence of proficiency in English or a Test of English as a Foreign Language (TOEFL) score of at least 79 (earned within 2 years prior to application) on the internet-based exam is also required. Each graduate program may have additional requirements hence prospective students are advised to visit the webpages of program of interest for such requirements.

Students applying to the Joint Program in Biomedical Engineering may apply through either the University of Tennessee Health Science Center or the University of Memphis websites. Applicants accepted into the Joint Program are admitted to both universities. For each student, one campus is designated as the administrative site. All actions related to assistantships, financial aid, immigration or other government forms, and graduation (e.g., application for candidacy, appointment of faculty committee, thesis or dissertation review and acceptance) are processed based on and follow the policies of the administrative campus. In almost all cases, the administrative campus chosen will be that of the student's Research Advisor.

If an applicant does not enter the College of Graduate Health Sciences in the semester in which admission is requested, the student may enter at the beginning of any of the next two semesters; some programs restrict entry to the Fall semester. Once admitted and registered, students are expected to maintain continuous enrollment, unless permission is given for interrupted registration.

Admission to the College of Graduate Health Sciences entitles the student to register for graduate courses, but does not mean that he/she is admitted as a candidate for an advanced degree. Candidacy for an advanced degree will be determined after the student has satisfied criteria established by the program in which the student seeks training and by the College of Graduate Health Sciences.

### Options related to Student Status

**Regular students** may enroll on a full-time or part-time basis. Students are required to enroll as full-time students upon becoming a candidate for their degree. Students who register for less than nine semester hours, with the exception of the final semester, are considered to be **part-time**. Specific requirements and restrictions for duration of study and number of credit hours are detailed in the College bylaws (<http://grad.uthsc.edu/CollegeInfo/index.php?page=Bylaws>)

**Non-degree students** are those who wish to take courses offered by the college but who are not seeking admission to one of the degree programs. Students eligible to enroll under this mechanism are those who are employed by The University of Tennessee Health Science Center, students enrolled in other University of Tennessee Health Science Center colleges, or students who are enrolled at The University of Memphis. All others must apply for and be admitted to a program in the College of Graduate Health Sciences. A non-degree application must be completed six weeks prior to enrollment.

Individuals who wish to attend certain classes regularly, without taking examinations, receiving grades, or obtaining credit, may do so by registering as **auditors** and paying appropriate fees. Approval is provided on a space-available basis and requires permission of the Instructor and/or Program Director.

**International applicants** must present (1) a complete and accurate chronological outline of all previous education; (2) authorized college or university records, with certified translations if the records are in a language other than English; (3) evidence of financial resources sufficient to provide the student with adequate support during the period of registration as a student; (4) evidence of proficiency in English; (5) documentation that he/she can provide transportation from his/her country to The University of Tennessee Health Science Center and return; and (6) his/her transcripts evaluated by a professional credential evaluation service that includes calculation of the GPA (i.e., by a member of the National Association of Credential Evaluation Services (<http://naces.org>)). Any applicant whose first language is not English and who has earned neither a bachelor's nor a master's degree from a college or university in the United States, Canada, Great Britain, or Australia must have achieved a TOEFL score of at least 79 (earned within 2 years prior to application) to be admitted. Any applicant whose first language is not English but who has earned a baccalaureate or master's degree from a college or university in the United States, Canada, Great Britain, or Australia, may be exempted from the requirement for the TOEFL. If there is cause to doubt the student's proficiency in English (as determined by the Dean), the student may be required to take an English proficiency test prior to registration. The complete file, including the application, official certificates, descriptive titles of courses taken, and detailed transcripts with marks gained in final examinations, must be submitted to the Office of Enrollment Services (910 Madison Ave., Suite 520, The University of Tennessee Health Science Center, Memphis, TN 38163) at least three months in advance of the semester in which admission is desired. Transcript evaluation must be completed upon acceptance of the offer of admission and no later than July 1 in the year of matriculation. Successful applicants will receive a certificate of acceptance to be presented to the United States Consul with the application for a student visa. The University of Tennessee Health Science Center will not accept visas issued for admission to other colleges or universities.

All graduate students, except those on active military duty, will enroll each semester. Students who need to leave the University for greater than four weeks must discuss their need with their advisor before making a written request for a leave of absence to their Program Chair. The Program Chair will forward the request, along with a recommendation, to the Dean. Non-compliance will result in non-passing grades in all courses for which enrolled and withdrawal. To reenter the University after withdrawal, students must formally reapply.

Registration must be accomplished no later than the first day of classes each semester. The academic calendar indicating these dates are listed above and appear on the College of Graduate Health Science web page (<http://grad.uthsc.edu>). Each student should consult with the Program Chair or Director to devise a course schedule for each semester. Each student must ascertain that their status is correct and is correctly noted during registration; tuition and fee status will be determined through the Office of the Bursar based on this information.

At the discretion, and with the permission, of the student's Research Advisor, courses may be dropped, added, or changed from credit to audit (or vice versa) within 15 calendar days after the beginning of the course. The course instructor's permission is not required. After this time, course changes require approval of the student's Research Advisor, the Course Director, and the Program Chair. Such course changes will be approved only under extreme circumstances and only within the first seven weeks of the semester. After that time, no changes will be approved.

### **Technical Standards and Accommodations**

The minimum abilities for eligibility to participate successfully in educational programs and activities by students enrolled in the College of Graduate Health Sciences are listed below. All persons who wish to enter one of the programs in the College should be aware of the minimum abilities required for success. Admission decisions for the College programs do not take disabilities into consideration; students may disclose their disabilities after admission.



Minimum abilities are as follows:

1. To make proper assessments and ethical judgments regarding research and professional decisions.
2. To communicate effectively with colleagues and professional staff.
3. To acquire necessary information developed through classroom instruction, laboratory experience, independent learning, and consultation.
4. To search and evaluate articles in the scientific literature.
5. To obtain, interpret, and accurately document research data.
6. To complete computer-based assignments and use computers.
7. To understand and carry out safety rules and precautions in the laboratory.
8. To handle emergencies in the laboratory, including fire, exposure to dangerous agents, and explosions.

These abilities may be accomplished through direct student response, use of prosthetic devices, or personal assistance (e.g., readers, signers, and note takers). Purchase of prosthetic devices to aid the student in meeting these requirements is the responsibility of the student. On a case-by-case basis and upon written request of the student, the College may assist in providing attending services.

Upon admission, students are invited to disclose any disabilities (with certification) to the Student Academic Support Services (SASS). The college will provide reasonable accommodations, as required by the student's documented disabilities with SASS, and at the student's written request to the Dean, College of Graduate Health Sciences. In summary, the mission of the college is to prepare students for the practice of biomedical research and teaching. The College of Graduate Health Sciences, in accord with Section 504 of the 1973 Vocational Rehabilitation Act and the Americans with Disabilities Act (ADA) (Public Law 101-336), has established the aforementioned essential functions of graduate students. The college will consider for admission applicants who demonstrate the ability to perform or to learn to perform the essential skills required for a career in biomedical research. Students will be judged primarily on their scholastic accomplishments in demanding academic courses as well as the ability to perform research and prepare a thesis or doctoral dissertation of high quality. Candidates will also be judged on physical and emotional capacities for a career in biomedical research.

## **DEGREES OFFERED**

### **Doctoral Programs**

The College of Graduate Health Sciences has seven programs leading to the degrees of Doctor of Philosophy:

- Biomedical Engineering;
- Biomedical Sciences;
- Health Outcomes and Policy Research;
- Integrated Biomedical Sciences;
- Nursing Sciences;
- Pharmaceutical Sciences; and,
- Speech and Hearing Science.

The program in Biomedical Engineering is a joint program with the University of Memphis for which students may apply through the websites of either institution. Students admitted to the Biomedical Engineering program take courses and do research on both campuses. For more information, refer to <http://www.uthsc.edu/bme/>.

The course of study leading to the Doctor of Philosophy degree is usually completed in five or six years. The exact sequence will vary from program to program. Generally, the first two years are spent taking various required courses and seminars and choosing a Research Advisor. Subsequently, four additional faculty are selected to participate on the student's Faculty Committee. The student is admitted to candidacy for the degree after successful completion of an oral and/or written examination. The last two or three years are spent in actual research on a specific problem, taking other elective or specialty courses, and writing and defending the dissertation.

Combined Au.D./Ph.D., D.D.S./Ph.D., M.D./Ph.D., D.N.P./Ph.D., and Pharm.D./Ph.D. curricula in conjunction with the colleges of Allied Health Sciences, Dentistry, Medicine, Nursing, and Pharmacy are available for exceptionally

qualified students. Combined professional degree/Ph.D. programs generally take less time to complete than each degree program individually because of the correspondence of course requirements between the programs.

## **Master's Programs**

The College of Graduate Health Sciences has three programs leading to a Master of Science degree (Biomedical Engineering, Epidemiology, and Health Outcomes and Policy Research), with a fourth master-level degree leading to a Master of Dental Science. Finally, individuals enrolled in doctoral program in Biomedical Sciences may be granted a Master of Science degree in Biomedical Sciences under unique circumstances.

The course of study leading to the Master of Science or the Master of Dental Science degree is usually completed in two or three years. Generally, the first year is spent taking required courses and seminars and choosing a Research Advisor. Subsequently, two additional faculty are selected to participate on the student's Faculty Committee. The student is admitted to candidacy for the degree after successful completion of an oral and/or written examination. The last one to two years are spent in actual research on a specific problem, taking other elective or specialty courses, and writing and defending the thesis or project.

## **TUITION, FEES, AND SOURCES OF FUNDING**

Information about tuition and fees for the individual programs in the College of Allied Health Sciences may be found at <http://www.uthsc.edu/finance/bursar/pdfs/Gradhs1213.pdf> with additional information regarding estimated cost of attendance at <http://www.uthsc.edu/finaid/GHS.php>. Books and software are specific to the courses and research environment in each program and research mentor setting. Estimates of these costs can be found in the cost of attendance document noted above.

Some programs may provide a stipend and recommend a tuition waiver for some students. Upon recommendation of the Program Chair and approval of the Dean, applicable tuition may be waived. Such a waiver of tuition will be made available to students in return for creditable service as determined by the program. Fees cannot be waived.

Doctoral students may be granted a waiver of tuition for up to six years and the College may grant master's-only students a waiver of tuition for up to four years. If a student fails to complete all the requirements for the degree by the allotted time, the student or the program will be responsible for paying tuition until the requirements for the degree are completed. Only full-time students, as defined by the College, are eligible to receive a waiver of tuition.

Students who choose to obtain employment at another institution or attend another educational institution while continuing to pursue their degree will not be eligible to receive a stipend, insurance, or waiver of tuition.

## **Scholarships and Other Types of Funding**

The University of Tennessee Health Science Center has available Graduate Teaching Assistantships (GTA) that may be awarded to successful applicants to the various Ph.D. degree programs and to applicants to the M.S. degree Joint Program in Biomedical Engineering. Recipients of these assistantships will assist in teaching. Graduate Research Assistantships (GRA) are also available to Ph.D. students; research performed by recipients of a GRA is under the direct supervision of the student's Research Advisor. In addition, a limited number of fellowships and scholarships are awarded on a competitive basis and may be continued so long as the student is making exemplary progress toward the degree.

During the first, and in some cases part of the second, year of study, The University of Tennessee Health Science Center provides a limited number of GTA/GRA appointments with stipends to qualified students; these are generally accompanied by a waiver of tuition and payment of the student's health insurance premium for up to six years of study. Stipend support following the first year is funded from research grants, training grants, or special pre-doctoral fellowships awarded by outside agencies. The student makes applications for these latter fellowships directly to the awarding agency; the Dean of the College will periodically announce the availability of these fellowships.

Scholarships in particular areas of research are also available, depending upon current financial obligations. Details on these scholarships are located at <http://grad.uthsc.edu/StudentInfo/Funding/index.php?page=Scholarships>. Financial aid is also available through the UTHSC Office of Financial Aid (<http://www.uthsc.edu/finaid>).

Under some circumstances, full-time graduate students are permitted to supplement the stipend by employment within or outside the University. It is a conflict of interest for a student to work for a member of the student's Faculty Committee. It is the responsibility of the Program Chair and the student's Faculty Committee to determine whether such employment interferes with the expectations of that program regarding the student's acceptable progress in course and research work and in the amount of time the student is expected to spend in research and service. If the Program Chair determines that employment would interfere or would be a conflict of interest with the student's program, the Chair may limit such employment.

## POLICIES

Complete information on all College of Graduate Health Sciences policies is available at <http://cghs.uthsc.edu/CollegeInfo/index.php?page=Bylaws>.

### Attendance Policy

Students are expected to attend the various experiences as an expression of their professional commitment and dedication. Each program or instructor will specify attendance policies related to specific events within their curriculum. A student who misses a required event for good cause will be given the opportunity to make up the experience, if possible.

A student may request to withdraw from their program on a temporary basis, generally for less than a year. Upon approval of their Program Chair or Director, and the Dean, a temporary withdrawal may be granted without the need to re-apply to the program. Failure to return to the program on the specified date of return will result in permanent withdrawal. A student who is absent for more than four weeks without permission will be withdrawn from their program and must re-apply.

### Grading Policies

The College grading policies, using A, B, C, etc., do not provide sufficient resolution to be fair to all students. Therefore, the following system of grades, with equivalent quality point value, is adopted:

- A 4.0
- A- 3.67
- B+ 3.33
- B 3.00
- B- 2.67
- C+ 2.33
- C 2.00
- C- 1.67
- D 1.00
- F 0

Grades **P** (for progress) and **N** (for no progress) are used for grading work in research. These grades are not included in calculating the grade point average (GPA).

The following grading policies are applicable for graduate students:

- The grade of **D** is computed in the scholastic average but does not carry credit toward a degree. No graduate student will be allowed to repeat a course for the purpose of raising a grade.
- The designations **WP** or **WF** will be recorded to indicate pass or failure in those instances in which a student withdraws from a course before completing the work. Withdrawals are not allowed after the seventh week of the class.

- The designation **G** will be recorded in those instances in which a student completes all requirements for a course but performance is at such a low level that further evaluation is necessary to determine if the student is performing at the minimum pass level (**D**). The designation **G** can be replaced only by a permanent grade of **D** or **F**.
- The designation **I** will be used in those instances in which a student is unable to complete a course at the regular time because of an acceptable reason, but is performing at a passing level. In such cases, arrangements are to be made by the instructor for the student to complete the work, and the **I** is to be replaced by whatever grade the instructor considers the student to have earned.
- The **G** and **I** designations cannot be permanent on a student's record, and must be removed by the end of the semester or term following that in which it was received. In the case of a graduating student, either of these designations must be removed no later than the day before commencement. Failure on the part of a student to remove a **G** satisfactorily or failure to remove a **G** or **I** within the time limit allowed will result in the grade of **F** being reported and recorded as a permanent grade.

Certain marginally failing students, as specified and recommended by appropriate progress and promotions committees, may record a passing score in a course previously failed by self-study review of the course and re-examination. In such cases, a \$50 re-examination fee will be assessed. Students are required to register for the examination at the Registrar's Office and pay the fee prior to taking the reexamination. When courses are repeated or credit is earned through reexamination, both the original grade and the repeat grade are computed in the grade point average.

### Grade Point Average Requirements

The minimum cumulative GPA needed for successful progress is established and communicated to the student in writing by each program. This GPA level may be higher, but no lower, than 3.0, which is the standard of the College. If, after 18 semester hours of regular class work, a student's cumulative GPA falls below the minimum, or if, in the view of the student's Faculty Committee, the student is not making adequate progress, including research, the case is reviewed by the program's Graduate Studies Committee or equivalent. The committee will then submit a recommendation to the Program Chair or Program Director for resolution of the deficiency. The plan will be communicated to the Dean for review. After consideration of the plan and other factors relevant to the student's progress, the Dean will decide whether to allow the student to continue in the program.

### Appeal of Grades

Students may appeal grade if they feel that the grade was assigned inappropriately and not in accord with the course statement of policy distributed at the beginning of the course. The appeal is directed to the course director and then to the Program Chair. If resolution of the issue is not made at the program level, then appeal is made in writing to the Dean. The Dean or designee may appoint an Ad Hoc Committee of faculty to review the appeal and make a recommendation to the Dean for decision.

## PROGRESS, PROMOTION, AND GRADUATION

### Admission to Candidacy

Graduate education requires continuous evaluation of the student. This evaluation includes not only periodic objective evaluations such as the GPA, performance on comprehensive examinations, and acceptance of the thesis or dissertation, but also subjective appraisal by the faculty of the student's progress and potential. Continuation of graduate study within the College results from positive action taken by the program's Graduate Studies Committee. Grades are not necessarily the sole criterion used in determining whether or not a student is permitted to continue. Other attributes, primarily those concerned with the level of professionalism expected of a student in a particular discipline, may be considered.

Programs may have requirements for continuation or graduation in addition to the minimum requirements as set forth in the present Catalog. It is the student's responsibility to be familiar with the special requirements of the program.

## Academic Due Process

If a student is denied continuation in a program, the student has a right to a hearing at the program level before the Graduate Studies Committee or any other appeals committee that the Program Chair deems appropriate. The student must be informed in writing of the reason for termination from the program and of the right to appeal. A written request by the student to the Program Chair for such a hearing must be filed within 5 working days after receipt of the written notification of the original action. The hearing should be scheduled by the Chair promptly but should allow sufficient time for the student and the program to prepare. At the appeals hearing, both the student and the program should present pertinent written and oral documentation, which may include statements by and examination of witnesses. The student may bring any person(s), excluding legal counsel, whom the student feels can contribute to the presentation. Committee consideration is conducted without the presence of legal counsel. Confidential records will be kept of all proceedings. The result of this hearing will be communicated in writing to the student within 5 working days of the hearing excluding holidays and administrative closings.

If the student is not satisfied with the outcome of this hearing, the student has the right to appeal this recommendation before an ad hoc appeals committee appointed by the Dean. A written request for such an appeal must be filed with the Dean within five days of the notification of the results of the program hearing. If the student does not file such an appeal within this time, the Dean will inform the student in writing of the dismissal from the program.

The ad hoc appeals committee will be formed from the graduate faculty and may include a student member. The ad hoc appeals committee has the right to examine witnesses appearing before the Graduate Studies Committee of the program in support of the student or in support of the action taken by the program. The appeals committee will make a recommendation to the Dean or designee who will then make a decision and communicate this decision in writing to the student within 10 working days.

During the period in which appeals are scheduled at the program or College level, the student will continue to receive a stipend. However, if the student is dismissed after decision by the Dean or designee, stipend support will cease. Students not satisfied with the result of this second-level hearing have the right for further appeal to the Chancellor of UTHSC.

## Degree Completion and Graduation

Policies related to promotion and degree completion College of Graduate Health Sciences programs are located in the College Bylaws (<http://grad.uthsc.edu/CollegeInfo/index.php?page=Bylaws>). Programs may specify additional requirements as outlined in their program descriptions, located at (<http://grad.uthsc.edu/Programs/index.php?page=Programs>).

Students are required to attend commencement. Those students unable to attend must petition the Dean in writing to receive their degree in absentia. A student who successfully defends and submits their final thesis or dissertation by noon May 1 will participate in the May graduation ceremony and receive their diploma at that time.

## PROFESSIONALISM

The goal of the College of Graduate Health Sciences is the broad preparation of students for the practice of research. This goal is achieved in part by graduate education in preparation for life-long learning. Modern graduate education requires that the accumulation of scientific knowledge be accompanied by the simultaneous acquisition of skills, attitudes, and behavior. The faculty has the responsibility to graduate the best possible scientists; thus, admission to the college is offered to those who present the highest qualifications for graduate study.

Students matriculating to the college must possess the following general qualities: critical thinking, sound judgment, emotional stability and maturity, empathy, physical and mental stamina, as well as the ability to learn and function in a wide variety of educational settings. Students must also be able to communicate effectively in oral and written form. They must possess essential functions of conceptual, integrative, and quantitative skills, including measurement, calculation, reasoning, analysis, and synthesis. Problem solving in research requires all of these intellectual abilities. In addition, applicants should be able to comprehend three-dimensional relationships and to understand the special relationships of structures.

Students must exhibit behavioral and social skills and professionalism. Empathy, integrity, interpersonal skills, interest, and motivation are all personal qualities that will be assessed during the admissions process and throughout graduate education. Students must possess the emotional well-being required for the full use of their intellectual abilities; the exercise of sound judgment; and the development of mature, sensitive, and effective relationships with their peers. Students must be able to tolerate the generally taxing demands of laboratory research and to function effectively when stressed. They must be able to adapt to changing environments, to display flexibility, and to learn to function in the face of the uncertainty inherent in research.

## OFFICIAL MODE OF COMMUNICATION

The University of Tennessee Health Science Center provides every student with an e-mail account that enables the administration, faculty, and staff of the College of Graduate Health Sciences to send official electronic correspondence to students. The College uses e-mail as its official mode of communication (<http://grad.uthsc.edu/CollegeInfo/index.php?page=Bylaws#Email>).

## STUDENT SOCIETIES AND CLUBS

The Graduate Student Executive Committee (GSEC) represents the students of the College of Graduate Health Sciences. Each program of the College elects student representatives to sit on the GSEC for one year. Officers are elected, and the President of the GSEC is a member of the Student Government Association Executive Council (SGAEC) along with student presidents from other colleges. The President of GSEC nominates or appoints representatives to the College standing committees (Curriculum Committee and Credentials Committee) and to the Graduate Studies Council. The President of GSEC also nominates or appoints representatives to various University committees: Student Health Committee, Parking Authority, Parking Appeals, Entertainment Committee, Student/Faculty Disciplinary Appeals Board, Campus Recreation Committee, and Intramural Rules Committee. The GSEC representatives are responsible for disseminating information to the students of their respective programs and for presenting suggestions from the students to the GSEC. The SGAEC determines how a portion of the activities fee is apportioned for student programs and services, such as entertainment and cultural programs. Student representatives welcome suggestions for expenditures.

## CURRICULUM REQUIREMENTS

The curriculum requirements for each program in the College are outlined in the program descriptions available at <http://grad.uthsc.edu/Programs/index.php?page=Programs>.

## COURSE DESCRIPTIONS (by Department)

### Anatomy and Neurobiology

The Department of Anatomy and Neurobiology offers courses that prepare graduate students for active careers in the rapidly growing fields of neuroscience and cellular and structural biology. The research facilities are state-of-the-art, and its numerous program members are pursuing vigorous and diverse research programs. The Neuroscience track in the IBS program emphasizes in-depth training in basic neuroscience and anatomical disciplines during the first year, while advanced training in research specialties is emphasized in later years. A key part of this training involves independent research under the guidance of the student's Research Advisor. The students in this track take courses in the areas of neurobiology, neuropharmacology, and neurophysiology. Due to the diverse nature of the training program, students can expect to become accomplished in the skills required for research in any of several specialized areas, including neurochemistry, neuroanatomy, neurophysiology and membrane biophysics, molecular biology, or animal behavior.

**ANAT 611. Histology.** A study of human histology and organology, with special emphasis on the oral cavity. Didactic, lab-based course. Credit: 5. Offering: *Course not currently offered.*

**ANAT 615. Human Gross Anatomy.** The gross structure of the human body, studied by means of complete dissection supplemented by lectures. Didactic, lab-based course. Prerequisite(s): Permission of instructor. Credit: 7. Offering: *Course not currently offered.*

**ANAT 616. Microscopic Anatomy.** A lecture and laboratory study of general histology and organology, with emphasis on human material. Didactic, lab-based course. Prerequisite(s): Permission of instructor. Credit: 3. Offering: *Course not currently offered.*

**ANAT 622. Head and Neck Anatomy.** A lecture and laboratory study of the gross structures of the head and neck, designed primarily for postdoctoral dental students. Didactic, lab-based course. Prerequisite(s): Permission of instructor. Credit: 3. Offering: Spring semester. Instructor: Randall Nelson.

**ANAT 812. Introduction to Neuroscience.** This required course is designed to introduce new graduate students in the Neuroscience Graduate Program to the field of neuroscience. Lectures, provided by the faculty of the Neuroscience Institute, provide extensive coverage of the field from cellular and molecular neurobiology to behavioral and cognitive neuroscience. This lecture course provides a comprehensive overview of modern neurobiology and serves as a prerequisite to more advanced graduate courses in neuroscience. Didactic course. Prerequisite(s): Permission of instructor. Credit: 5. Offering: *Course not currently offered.*

**ANAT 815. Research.** Qualified students may undertake specific research projects in the laboratories of faculty members. Lab-based course. Prerequisite(s): Permission of Program Chair. Credit: variable (1-9). Offering: Fall and spring semesters. Instructor: Joseph Callaway.

**ANAT 821. Neuroscience Seminar.** Graduate students and postdoctoral fellows are exposed to the latest concepts, techniques, and developments in basic and clinical neuroscience. Weekly seminars are presented by participating students, postdoctoral fellows, University of Tennessee Health Science Center faculty, and prominent outside speakers each year. Didactic course. Prerequisite(s): Permission of instructor. Credit: 1. Offering: Fall and spring semesters. Instructor: Reese Scroggs.

**ANAT 823. Cellular Neuroscience.** This course provides the student with an overview of the cellular and molecular processes by which nerve cells communicate. The course covers classical theories and concepts as a basis for appreciation of recent research advances. Lectures by the faculty will provide core material to guide students in presentation of current research topics in Neurochemistry, Neuropharmacology, and Neurophysiology. Extensive reading of the literature will supplement lectures and presentations. Didactic course. Prerequisite(s): Permission of instructor. Credit: 3. Offering: Spring semester of odd numbered years. Instructor: Robert Foehring.

**ANAT 824. Techniques in Neuroscience.** This course will train the student in the use of standard and state-of-the-art research techniques in neuroanatomy, neurophysiology, and neurochemistry. Instruction will be by faculty actively employing these techniques in their own research and who, in several cases, have contributed to the innovation and improvement of a method. It is intended to provide practical experience in the major techniques of neuroscience. This course is intended to (1) acquaint the student with the theoretical basis of each technique, (2) teach the student the laboratory skills necessary to perform each technique, (3) teach the student how to critically evaluate the results and to be aware of the pitfalls of each technique, and (4) acquaint the student with the possible combinations of any single technique with others in designing experiments. Didactic/Lab-based course. Prerequisite(s): Permission of instructor. Credit: 3. Offering: *Course not currently offered.*

**ANAT 825. Developmental and Molecular Neurobiology.** This one-semester course will serve as an introduction to developmental neurobiology with special emphasis on the molecular analysis of nervous system development. A brief introduction to molecular analysis will be followed by lectures and student-led discussions of research papers that focus on major epochs/events in the development of the nervous system. Didactic course. Prerequisite(s): Permission of instructor. Credit: 3. Offering: Spring semester of even numbered years. Instructor: Kristin Hamre.

**ANAT 826. Neuroscience Student Symposia.** Students make scientific presentations, and participate in the discussion of presentations by other students. Presentations are to be based on the students' own research or on research closely related to their own interests. The presentations are to be given in the style of a scientific meeting, with time allotted for individual talks and discussion. Didactic course. Prerequisite(s): Permission of instructor. Credit: 1. Offering: Spring semester. Instructor: William E. Armstrong.

**ANAT 827. Functional Neuroanatomy.** A lecture and laboratory course dealing with the structure and function of the mammalian central nervous system. The emphasis of the course is on human neuroanatomy, but comparisons are made with the rodent brain using the rat and mouse as model systems. The first one-third of the course provides a synopsis of core concepts and tools used in contemporary neuroanatomical research. This material focuses on an understanding of the principles underlying neuroanatomical approaches, as well as their advantages and potential pitfalls. The final two-thirds of the course covers the basic organization of the central nervous system, including in-depth consideration of its major sensory, motor, and limbic components. This part of the course includes laboratory study on the gross anatomy of the brain. An introductory course in neuroscience is highly recommended. Didactic/ Lab-based course. Prerequisite(s): Permission of instructor. Credit: 3. Offering: Fall semester. Instructor: Matthew Ennis.

**ANAT 840. Special Topics.** Directed readings or special course in topics of current interest. Credit: variable (1-5). Offering: Fall and spring semesters. Instructor: Joseph Callaway.

**ANAT 841. Behavioral Neuroscience.** This elective is designed to introduce graduate students to behavioral approaches to the study of neuroscience. This course combines lectures with review of both classic and current literature in order to develop an extensive appreciation of behavioral techniques used to study neuroscience questions. Didactic course. Prerequisite(s): Permission of instructor. Credit: 3. Offering: Fall semester of even numbered years. Instructor: John Boughter.

**ANAT 900. Doctoral Dissertation and Research.** Research performed under the direction and supervision of the respective student's research advisor, in partial fulfillment of the requirements for the degree of Doctor of Philosophy. Lab-based course. Credit: variable (1-9). Offering: Fall and spring semesters. Instructor: Joseph Callaway.

**ANAT 915. Research.** Continuation of Anatomy 815 Research. Qualified students undertake specific research projects in the laboratories of faculty members. Lab-based course. Credit: variable (2-9). Offering: Fall and spring semesters. Instructor: Joseph Callaway.

**ANAT 927. Special Topics in Neurobiology.** Seminars, lectures, and a laboratory experience in one or more specialized fields in the anatomical sciences, including but not limited to many aspects of neuroscience and cell biology. Prerequisite(s): Permission of instructor. Credit: variable (1-5). Offering: Fall and spring semesters. Instructor: Joseph Callaway.

## **Biomedical Engineering and Imaging**

The UTHSC Department of Biomedical Engineering and Imaging, together with the Department of Biomedical Engineering at The University of Memphis, offer a Joint Graduate Program leading to the M.S. and Ph.D. degrees in Biomedical Engineering (BME). As a special field, BME applies engineering, physical sciences, and mathematical methods to problems involving health care; it demands close integration of many areas and forms of knowledge including the areas listed above, the life and health sciences, and current practice in clinical care.

The program's primary faculty are divided equally between the two campuses and offer academic and research activities in four major sub-disciplines: (1) Biomechanics and rehabilitation engineering, including orthopedic implants, prosthetic devices and design engineering; (2) Cell and tissue engineering, focusing on the cardiovascular system and including artificial organs, biomaterials, and hemodynamics; (3) Electrophysiology, including measurement methods, modeling and computation, and signal analysis; and, (4) Imaging, including novel medical image-acquisition devices, computational image processing, and quantitative analysis techniques. These sub-disciplines are bolstered by collaborations with secondary and adjunct faculty at the two universities and other affiliated institutions.

Courses in the Joint Program in BME listed below follow the calendar for The University of Memphis, including the final examination schedules and all deadline dates. BME graduate students enrolled in courses in other programs or departments at either university must abide by the respective calendars under which such courses are listed.



**BIOM 800. Master's Thesis and Research.** Research performed under the direction and supervision of the respective student's Research Advisor, in partial fulfillment of the requirements for the degree of Master of Science. Research-based course. Credit: variable (2-9). Offering: Every semester. Instructor: *Thesis supervisor*.

**BIOM 801. Biomedical Engineering Analysis I.** The course includes analytical and numerical solution techniques used in analysis of biomedical engineering problems; introduction to software packages PV-Wave and Math CAD for experience with modern problem-solving methods. Didactic course. Credit: 3. Offering: Fall semester. Instructor: *University of Memphis faculty member*.

**BIOM 802. Biomedical Engineering Analysis II.** Continuation of 801 BIOM. The course uses advanced techniques for solution of complex problems related to biomedical engineering phenomena; emphasis on use of software packages PV-Wave and Math CAD for analysis of problems arising in biomedical engineering research. Didactic course. Credit: 3. Offering: Spring semester. Instructor: *University of Memphis faculty member*.

**BIOM 803. Professional Development.** This consists of three sections and is required of all students in the Joint BME Graduate Program. Section 1 is Professional Excellence in Engineering and includes computer literacy, professional presentation methods, the scientific method, report writing, problem solving techniques, and other topics. Students make one oral presentation and submit one written report using the techniques given in the course. Section 2 requires attendance at weekly research seminars given by nationally prominent speakers. Students must submit 50- to 100-word summaries of each seminar. Section 3 includes professional activities in the student's research track. The format is established by each research track and may include regular review meetings, track-based research seminars, reviews of prominent articles from research journals, and other similar activities. Didactic course. Credit: 3. Offering: Fall and spring semesters. Instructors: Denis DiAngelo and Erno Lindner.

**BIOM 804. Master's Project I.** Independent study in biomedical engineering on a topic selected in conjunction with instructor. Oral and written reports required. Use BIOM 824 if already taken BIOM 804. Research-based course. Credit: variable (1-3). Offering: Every semester. Instructor: *Thesis Supervisor*.

**BIOM 809. Special Topics in Biomedical Engineering.** Courses using this number present in-depth development of frontier topics of biomedical engineering by eminent researchers in their fields. Course material will be appropriate as background for graduate research. Particular descriptions are contained in semester course offerings. Didactic/lab-based course. Prerequisite: permission of the instructor. Credit: 3. Offering: Every semester. Instructor: *varies by topic*

**BIOM 811. Life Sciences for BME I.** The course serves as an introduction and application to aspects of the entire body, the course provides engineers and physical scientists with an understanding of aspects of the chemical, physical, and mechanical basis of cell shape, function, and motility. Integrated treatment of topics in cellular biochemistry, protein synthesis, energy releasing pathways, and membrane biophysics. Didactic course. Credit: 3. Offering: Fall semester. Instructor: Richard Smith.

**BIOM 813. Bioelectricity.** Introduction to electrical propagation through human tissue; membrane biophysics, action potentials, subthreshold stimuli, electrophysiology of heart, and neuromuscular junction. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Amy Curry.

**BIOM 815. Biomedical Measurements and Instrumentation.** This is a course on measurement techniques applicable in biomedical engineering; data acquisition systems, mechanical instrumentation, interface systems, signal analyses, biocompatibility requirements. Didactic/ lab-based course. Credit: 3. Offering: Fall semester. Instructor: Brian Kelly.

**BIOM 818. Experimental Techniques in Cell and Tissue Engineering.** The course covers basic biochemical and biophysical measurement techniques used by biomedical engineers. Topics include antibody production, light spectroscopy, dialysis, ultrafiltration, chromatography, ultracentrifugation, electrophoresis, Western blotting, protein purification, and ELISA. Lab-based course. Credit: 3. Offering: Spring semester of even years. Instructor: Joel Bumgardner.

**BIOM 821. Life Sciences for BME II.** Continuation of BIOM 811, Life Sciences for BME I, concentrating on human physiology. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Richard Smith.

**BIOM 824. Master's Project II.** Independent study in biomedical engineering on a topic selected in conjunction with instructor. Oral and written reports required. Research-based course. Credit: 3. Offering: Every semester. Instructor: *Thesis Supervisor*

**BIOM 825. Clinical/Industrial Internship in Biomedical Engineering.** Independent study for biomedical engineering students in the master's program; investigation in at least one area selected from a master list and approved by the student's advisor. Lab-based course. Credit: 3. Offering: As needed. Instructor: Richard Smith.

**BIOM 827. Movement, Joint, and Implant Mechanics.** The course consists of the following sections: muscle and bone anthropometry; kinetics-the link model, mechanical work, energy, and power; kinematics and dynamics of rigid bodies; and the development of mechanically equivalent models of the human musculoskeletal system. Didactic/lab-based course. Credit: 3. Offering: Fall and spring semesters. Instructor: Denis DiAngelo.

**BIOM 834. Statistics.** This course will provide an introduction to statistical techniques used for analysis of basic and clinical biomedical engineering data: sampling theory, hypothesis testing, ANOVA, and nonparametric techniques. Didactic course. Credit: 3. Offering: Fall semester. Instructor: Erno Lindner

**BIOM 840. Special Topics.** This course includes directed readings or special course in topics of current interest. Didactic course. Credit: 3. Offering: Fall semester.

Section 001: Applied Biomedical Engineering. Instructor: Graduate Faculty.

Section 002: Biomechanics and Rehabilitation Engineering. Instructor: Denis DiAngelo.

Section 003: Cell and Tissue Engineering. Instructor: Joel Bumgardner.

Section 004: Electrophysiology. Instructor: Amy Curry.

Section 005: Medical Imaging. Instructor: Thad Wilson.

Section 006: Biocomputing. Instructor: Graduate Faculty.

Section 007: Applied Finite Element Analysis. Instructor: Esra Roan.

**BIOM 845. Biosensors.** Provides graduate and upper-level students with a deeper understanding of chemical sensors and biosensors, with special emphasis on electrochemical biosensors and their in vivo applications. The course will provide the theoretical basis and hands-on experience with macro and micro sensors and their fabrication. Didactic/lab-based course. Credit: 3. Offering: Fall or spring semesters. Instructor: Erno Lindner.

**BIOM 871. Theory of Continuous Media.** This course studies the fundamentals of the mechanics of continua. It concerns the basic principles common to fluids and solids. A knowledge of continuum mechanics provides a foundation for studies in fluid and solid mechanics, material sciences, and other branches of science and engineering. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Michael Yen.

**BIOM 876. Biomaterials.** Introduction to materials used in biomedical engineering; biocompatibility and uses of implantable materials such as ceramics, polyethylene, metals, composites and other materials. Didactic course. Credit: 3. Offering: Fall semester. Instructor: Joel Bumgardner.

**BIOM 879. Biomechanics I.** This course is an introduction to physiological systems with emphasis on structure and function of tissue and organs; application of continuum mechanics to understanding of tissue and organ behavior at microscopic and macroscopic levels; design analyses of surgical procedures and prosthetic devices. Didactic course. Credit: 3. Offering: Fall and spring semesters. Instructor: Michael Yen.

**BIOM 886. Advanced Biomaterials.** This course covers materials used in biomedical applications in relationship to corrosion, crack propagation, creep, and related topics; tissue ingrowth into materials. Didactic course. Credit: 3. Offering: Spring semester of even years. Instructor: Warren Haggard.

**BIOM 889. Biomechanics II.** This course covers mechanics of body movement, the stress and strain in tissues and organs, the strength, trauma, and tolerance limits of organs; and growth and change of living organs in response to stress and strain. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Michael Yen.

**BIOM 892. Introduction to Chemical Sensors and Biosensors.** This course covers measurement techniques, recognition processes, application of chemical sensors and biosensors for analysis of real samples. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Erno Lindner.

**BIOM 894 Physiologic Control Systems.** Topics including modeling, representation, and analysis of engineering control systems using classical control theory. Latter part of the course focuses on special topics and physiological systems including advanced and adaptive control systems, blood glucose modeling and control, human movement control, and brain machine interfacing. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Brian Kelly.

**BIOM 900. Doctoral Dissertation and Research.** Research based course performed under the direction of the student's Research Advisor in partial fulfillment of the requirements for the Ph.D. degree. Lab-based course. Credit: by arrangement. Offering: Fall and spring semesters. Instructor: *Dissertation Supervisor*

**BIOM 909. Special Topics in Biomedical Engineering.** Courses using this number present in-depth development of frontier topics of Biomedical Engineering by eminent researchers in their fields. Course material will be appropriate as background for doctoral research. Particular descriptions are contained in semester course offerings. Admission by permission of the instructor. Didactic courses. Credit: 3. Offering: Fall or spring semesters. Instructor: Arranged by Graduate Program Director.

## Comparative Medicine

The Department of Comparative Medicine faculty are engaged in collaborative and independent research in a variety of disciplines focusing on animal models and translational research. Areas of special interest include animal model development, experimental surgery, toxicologic and pharmacokinetic studies, pain pathophysiology, and studies on analgesics and anesthetics. Graduate courses are designed to prepare the student with appropriate knowledge of effective use of animals in biomedical research.

**CMED 711. Essentials of Animal Experimentation.** This course is designed to provide an overview of appropriate and effective use of animals in biomedical research. Topics to be covered include regulatory requirements, biomethodology, principles of experimental animal surgery, postoperative veterinary care, and animal care and use procedures. Emphasis is placed on practical experience with living animals and practice of techniques under anesthesia. No text is required. Didactic/lab-based course. Credit: 2. Offering: Fall semester. Instructor: Timothy Mandrell.

**CMED 712. Biology and Pathophysiology of Laboratory Animals I.** This course expands on much of the material covered in CMED 711. Emphasis will be placed on the following species: mice, rats, guinea pigs, rabbits, and hamsters. Subjects to be covered include the taxonomy, applied anatomy and physiology, pharmacology, genetics, immunology, nutrition, behavior, husbandry, use as an animal model, and in-depth pathophysiology of significant diseases of each species. Emphasis will be placed on features that make a particular species uniquely suitable for certain types of research. Didactic course. Prerequisite(s): CMED 711, Essentials of Animal Experimentation. Credit: 2. Offering: Spring semester, every other year. Instructor: David Hamilton.

**CMED 713. Biology and Pathophysiology of Laboratory Animals II.** Continuation of 712. Emphasis will be placed on the following species: dogs, cats, sheep, goats, pigs and a variety of nonhuman primates. Rarely used research species, such as amphibians, reptiles, fish, avian species, and certain invertebrates will be covered to a lesser degree. Subjects to be covered include the taxonomy, applied anatomy and physiology, pharmacology, genetics, immunology, nutrition, behavior, husbandry, use as an animal model, and in-depth pathophysiology of significant diseases of each species. Emphasis will be placed on features that make a particular species uniquely suitable for certain types of research. Didactic course. Prerequisite(s): CMED 712, Biology and Pathophysiology of Laboratory Animals I. Credit: 2. Offering: spring semester, every other year. Instructor: David Hamilton.

## Dental Science

The University of Tennessee Health Science Center College of Dentistry has established a Master of Dental Science program under the auspices of the College of Graduate Health Sciences. The purpose of the program is to provide a contemporary research experience in the areas of orally related sciences to dentists enrolled in the clinical specialty programs of the College of Dentistry. The course and research requirements of the Master of Dental Science (MDS) should provide individuals with both a traditional and contemporary knowledge of the role of research in the clinical management of orofacial abnormalities and diseases. The goal of the program is to train dental specialists to pursue several career possibilities, including specialty practice, research, or teaching, with the increased knowledge of the interrelationship among clinical dentistry, basic science and research.

The Master of Dental Science degree is awarded at the completion of the requirements of the Post-graduate Orthodontic Program, Prosthodontic Program and Periodontics Program and is optional in Pediatric Dentistry and Endodontics.

**DSCI 659. Radiology and Cephalometrics.** The course is designed to acquaint the student with the use of radiographs, radiation hygiene, radiographic evidence of pathology, and cephalometric techniques to assure proficiency in technical skills and in interpretation as needed for diagnostic procedures. The student is exposed to the history of cephalometrics in orthodontics. Both 2 dimensional and 3 dimensional analyses of facial morphology are presented and used to demonstrate the use of cephalometrics in orthodontic treatment planning. Lecture and laboratory based course. Credit: 2. Offering: Fall semester. Instructor: Terry M. Trojan.

**DSCI 705. Advanced Oral and Maxillofacial Pathology.** This is a course on pathology of the jaws and contiguous soft tissues and their relationship to systemic disease. Special emphasis is placed on developing a logical approach to clinical, roentgenographic, and histopathologic diagnosis; the relationships between local and systemic disease; and consideration for appropriate treatment. Lecture course. Credit: 2. Offering: Spring semester. Instructor: Yeshwant Rawal.

**DSCI 710. Advanced Dental Applied Pharmacology.** This graduate course focuses on the clinical application of advanced pharmacologic and pharmacotherapeutic principles for specialty practitioners in dentistry. Topics covered include general pharmacology principles, alternative (herbal) products, emergency medicine drugs, drugs affecting the central & autonomic nervous systems, drugs affecting the cardiovascular system, agents used in conscious sedation, local analgesics & vasoconstrictors, chemotherapy drugs, immunosuppressant drugs, antihistamines, autacoids, and anti-inflammatory medications. Issues of age-related alterations in pharmacodynamics, the problems of poly-pharmacy, and important drug-drug interactions are highlighted and discussed. The course incorporates self-study through an online instructional instrument and seminar sessions devoted to evidence-based literature reviews covering topics of interest to dental specialists. Participants are expected to have a basic understanding of pharmacology and pharmacokinetics. Lecture course. Credit: 1. Offering: Spring semester. Instructor: Trevor Sweatman.

**DSCI 717. Orthodontics-Periodontics Seminar.** This seminar is conducted weekly during one semester of the three year residency by members of the Orthodontics and Periodontics faculties. Included are lectures on the interrelationships of orthodontic and periodontic approaches to common treatment situations. Selected literature of common interest to the students of Orthodontics and Periodontics is reviewed. Residents present cases for diagnosis and treatment planning as well as cases treated in an interdisciplinary manner. The purpose of this seminar is to encourage greater interaction and understanding between orthodontists and periodontist, including the identification of patients to be treated jointly by residents in orthodontics and periodontics. Lecture and seminar course. Credit: 1. Offering: Fall semester. Instructor: Swati Rawal.

**DSCI 800. Thesis.** Upon achieving candidate status, this course must be elected. The preparation of the thesis is finalized, the results presented, and the oral defense is conducted under this course number. Lecture, laboratory, clinical and web-based hybrid course. Credit: 1-9 (may be repeated for up to 24 credit hours). Offering: Fall and spring semesters. Instructor: *Thesis Supervisor*.

**DSCI 805 Biomedical Core I.** Biomedical Core 1 is the first in a series of four core courses making up a four semester long core curriculum for dental residents. Core 1 is designed to teach dental residents how to integrate into their clinical specialties (i.e., periodontics, prosthodontics, pediatric dentistry, endodontics, and orthodontics) what is currently known about Histology, Embryology, Microbiology, Immunology, and Experimental Research Design. Upon completion of the course the student will be able to: (1) integrate established knowledge and newly published research and techniques across the fields of histology, embryology, microbiology, immunology, and experimental research design; (2) apply established knowledge in the fields of histology, embryology, microbiology, and immunology to their respective clinical practices, and utilize new information acquired from current research to pioneer new techniques of diagnosis and treatment in their respective clinical practices; and (3) design sound clinical studies to test new hypotheses regarding the diagnosis and treatment of dental diseases. Credit: 1 (per section). Offering: fall semester.

Section 001: Histology/Embryology. Lecture course. Instructor: Yeshwant Rawal.

Section 002: Experimental Design. Hybrid lecture and web-based course. Instructor: Mark Scarbecz. Section 003: Microbiology/Immunology: Lecture Course. Instructor: David Tipton.

**DSCI 806 Biomedical Core II.** Biomedical Core 2 is the second in a series of four core courses making up a four semester long core curriculum for dental residents. Core 2 is designed to teach dental residents how to integrate into their clinical specialties (i.e., periodontics, prosthodontics, pediatric dentistry, endodontics, and orthodontics) what is currently known about Oral Biology, Biostatistics, Biomechanics/Biomaterials, and Craniofacial Anatomy. Upon completion of the course the student will be able to: (1) integrate established knowledge and newly published research and techniques across the fields of Oral Biology, Biostatistics, Biomechanics/Biomaterials, and Craniofacial Anatomy; (2) apply established knowledge in the fields of Oral Biology, Biostatistics, Biomechanics/Biomaterials, and Craniofacial Anatomy to their respective clinical practices, and utilize new information acquired from current research to pioneer new techniques of diagnosis and treatment in their respective clinical practices; and (3) design sound clinical and in vitro studies to test new hypotheses regarding the diagnosis and treatment of dental diseases. Credit: variable by section (1-2). Offering: spring semester.

Section 001: Oral Biology. Lecture course. Credit: 1. Instructor: Mustafa Dabbous.

Section 002: Biostatistics. Lecture and web-based hybrid course. Credit: 1. Instructor: Mark Scarbecz.

Section 003: Biomechanics & Biomaterials. Lecture course. Credit: 1. Instructor: Antheunis Versluis.

Section 004: Craniofacial Anatomy. Lecture and laboratory course. Credit: 2. Instructor: Randall Nelson.

## Endodontics

**ENDO 611. Contemporary Evidence-Based Journal Club I.** Ongoing review of current, pertinent, professional literature is fundamental to the successful practice of endodontics. For postdoctoral students, knowledge of current professional literature is essential to developing theoretical and practical patient management skills. The assessment of current literature for its evidence-based value is critical. Journal Club provides a mechanism for surveying dental periodicals with high impact factors to identify important articles, reviewing those articles, and discussing each article in an open seminar format. Seminar course. Credit: 2. Offering: Fall semester. Instructor: Adam Lloyd.

**ENDO 612. Contemporary Evidence-Based Journal Club II.** Ongoing review of current, pertinent, professional literature is fundamental to the successful practice of endodontics. For postdoctoral students, knowledge of current professional literature is essential to developing theoretical and practical patient management skills. The assessment of current literature for its evidence-based value is critical. Journal Club provides a mechanism for surveying dental periodicals with high impact factors to identify important articles, reviewing those articles, and discussing each article in an open seminar format. Seminar course. Credit: 2. Offering: Spring semester. Instructor: Adam Lloyd.

**ENDO 614. Classic Literature Review I.** Continuous weekly seminar devoted to review of endodontic and related literature and discussion of research methods. Selected articles in a particular topic are carefully reviewed and analyzed. Through this sequence, residents learn to critically read and evaluate the scientific evidence that supports endodontic principles and practice. Seminar course. Credit: 4. Offering: Fall semester. Instructor: David Clement

**ENDO 615 Classic Literature Review II.** Continuous weekly seminar devoted to review of endodontic and related literature and discussion of research methods. Selected articles in a particular topic are carefully reviewed and analyzed. Through this sequence, residents learn to critically read and evaluate the scientific evidence that supports endodontic principles and practice. Seminar course. Credit: 4. Offering: Spring semester. Instructor: David Clement

## **Orthodontics**

**ORTH 655. Clinical Specialty Seminars I.** This course is a companion to clinical training in orthodontics and involves faculty and student evaluations of historically significant as well as contemporary orthodontic literature. Current research articles in the key journals in orthodontics are reviewed as they are published. Key historical literature based on readings compiled by the American Association of Orthodontists, the American Board of Orthodontics and the faculty is presented in lecture format by the graduate students. The students are also exposed to the historical development of orthodontics, additional treatment philosophies through guest speakers, and new developments in treatment. Seminar course. Credit: 2. Offering: Fall semester. Instructor: Edward F. Harris.

**ORTH 664. Biomechanical Principles.** This course is a comprehensive survey of biomechanical principles utilizing Newtonian mechanics to describe the interplay between forces applied by fixed and removable orthodontic appliances and the resulting movement of teeth. Lecture course. Credit: 1. Offering: Spring semester. Instructor: David Crowder.

**ORTH 667. Clinical Specialty Seminars II.** This course is a companion to clinical training in orthodontics and involves faculty and student evaluations of historically significant as well as contemporary orthodontic literature. Current research articles in the key journals in orthodontics are reviewed as they are published. Key historical literature based on readings compiled by the American Association of Orthodontists, the American Board of Orthodontics and the faculty is presented in lecture format by the graduate students. The students are also exposed to the historical development of orthodontics, additional treatment philosophies through guest speakers, and new developments in treatment. Seminar course. Credit: 2. Offering: Spring semester. Instructor: Edward F. Harris.

**ORTH 755. Craniofacial Growth.** This course provides an overview of the events of human growth and the analytic approaches used to study growth, particularly from birth to adulthood. Discussions center around the nature of growth, mechanisms of growth, general body development, and genetic and environmental influences on growth. Emphasis is given to the head and neck region. Topics in growth malformations and dysplasias are presented. The etiology, presentation, differential diagnosis, and orthodontic treatment of comparatively common pharyngeal arch syndromes and sequences are described, with extended discussion of cleft lip and palate. Didactic course. Credit: 1. Offering: Spring semester. Instructor: Edward F. Harris.

**ORTH 767. Clinical Specialty Seminars III.** This course is a companion to clinical training in orthodontics and involves faculty and student evaluations of historically significant as well as contemporary orthodontic literature. Current research articles in the key journals in orthodontics are reviewed as they are published. Key historical literature based on readings compiled by the American Association of Orthodontists, the American Board of Orthodontics and the faculty is presented in lecture format by the graduate students. The students are also exposed to the historical development of orthodontics, additional treatment philosophies through guest speakers, and new developments in treatment. Seminar course. Credit: 2. Offering: Fall semester. Instructor: Edward F. Harris.

**ORTH 768. Clinical Specialty Seminars IV.** This course is a companion to clinical training in orthodontics and involves faculty and student evaluations of historically significant as well as contemporary orthodontic literature. Current research articles in the key journals in orthodontics are reviewed as they are published. Key historical literature based on readings compiled by the American Association of Orthodontists, the American Board of Orthodontics and the faculty is presented in lecture format by the graduate students. The students are also exposed to the historical development of orthodontics, additional treatment philosophies through guest speakers, and new developments in treatment. Seminar course. Credit: 2. Offering: Fall semester. Instructor: Edward F. Harris.

**ORTH 770. Speech and Myofunctional Therapy.** This course explores current concepts regarding speech development and production, and diagnostic and therapeutic interventions for speech, swallowing, structural, and myofunctional disorders, primarily in children. The main focus will be toward detailed definition, description, evaluation, and treatment, providing an overall understanding of the speech-language pathology profession and available services; thereby, enhancing collaboration between the professions of dentistry, orthodontics and speech-language pathology. This course includes traditional lecture as well as live-video conferencing with direct interaction and communication between the faculty and students. Lecture, web-based hybrid course. Credit: 1. Offering: Spring semester. Instructor: Kristin King.

**ORTH 785. Scientific Writing: Thesis.** The theory and practice of writing a scientifically based thesis are presented. The purpose, structure, and style of all the parts of a thesis are described. The practical application of this series of lectures is the development of a defensible thesis proposal. The course lectures describe the rationale, sample selection and methodology of the original research project. Didactic course. Credit: 1. Offering: Fall semester. Instructor: Edward F. Harris.

**ORTH 786. Scientific Writing: Thesis Protocol.** The theory and practice of preparing a sound protocol preparatory to thesis-level research is discussed in detail. Various research designs are discussed. Additionally, style and content of a grant proposal are reviewed. Building on ORTH 785, the student is expected to develop a thorough review of the literature relating to his research topic, develop the written methodology in greater detail, complete IRB approval as needed, and initiate sample collection and data acquisition as indicated. The course consists of some lecture material common to all students in the class, but most contact time involves one-on-one discussions between the faculty and student. Pre-requisite: ORTH 785. Lecture and laboratory course. Credit: 1. Offering: Fall semester. Instructor: Edward F. Harris.

**ORTH 789. Independent Research.** This course encompasses the activities necessary to conduct an original research project pertinent to the general field of craniofacial biology or the specific discipline of orthodontics. It involves the development of a problem, the writing of a formal research proposal including a full literature review, statement of material and methods, and the execution of the research and appropriate analysis and interpretation of data. Didactic and laboratory course. Credit: 4. Offering: Spring semester. Instructor: Edward F. Harris.

**ORTH 840. Special Topics.** Directed readings or special course in topics of current interest. The student can select a specific topic. Approval must be obtained from student's advisor and course instructor prior to enrollment. Seminar course. Credit: 1. Offering: As needed. Instructor: Terry M. Trojan.

**ORTH 856. Craniofacial Anomalies.** The orthodontic graduate student must be trained to deal with and to competently treat patients who present with various skeletal and dental anomalies. This course's purpose is to cover the literature on the various syndromes and developmental anomalies that affect the teeth and the face. With emphasis on the interdisciplinary care required during the treatment of such anomalies, visiting lecturers from across the spectrum of healthcare delivery address the class and explain the intricacies of dealing with these problems from the perspective of their respective specialty. Lecture and seminar course. Credit: 1. Offering: Spring semester. Instructor: William G. Parris.

**ORTH 857. TMD and Occlusal Concepts.** Orthodontic treatment has many ramifications for the stomatognathic system and the temporomandibular joint. This course requires the student to read the appropriate literature, understand the intricacies of the interrelationship of the occlusion and the TMJ, and apply these principles to the correction of orthodontic malocclusion. Lecture and laboratory course. Credit: 1. Offering: Fall semester. Instructor: Joe L. Wasson.

**ORTH 858. Orthodontic History and Ethics.** This course is an introduction to the history of the development of the specialty of orthodontics with emphasis on the personalities involved in the development and evolution of the specialty. Ethical dilemmas occurring in orthodontics are discussed during the study and critical evaluation of the literature and other information pertaining to the field of ethics. Didactic and seminar course. Credit: 1. Offering: Fall semester. Instructor: David H. Crowder.

**ORTH 867. Clinical Specialty Seminars V.** This course is a companion to clinical training in orthodontics and involves faculty and student evaluations of historically significant as well as contemporary orthodontic literature. Current research articles in the key journals in orthodontics are reviewed as they are published. Key historical literature based on readings compiled by the American Association of Orthodontists, the American Board of Orthodontics and the faculty is presented in lecture format by the graduate students. The students are also exposed to the historical development of orthodontics, additional treatment philosophies through guest speakers, and new developments in treatment. Lecture and seminar course. Credit: 2. Offering: Fall semester. Instructor: Edward F. Harris.

**ORTH 868. Clinical Specialty Seminars VI.** This course is a companion to clinical training in orthodontics and involves faculty and student evaluations of historically significant as well as contemporary orthodontic literature. All of the current research articles in the key journals in orthodontics are reviewed as they are published. Key historical literature based on readings compiled by the American Association of Orthodontists, the American Board of Orthodontics and the faculty is presented in lecture format by the graduate students. The students are also exposed to the historical development of orthodontics, additional treatment philosophies through guest speakers, and new developments in treatment. Lecture and seminar course. Credit: 2. Offering: Spring semester. Instructor: Edward F. Harris.

**ORTH 888. Scientific Writing: The Journal Article.** Students receive instruction on writing a research article and preparing the manuscript for submission to a professional journal. Topics consist of essential tools for scientific writing, the structural components of a journal article, writing techniques, design of tables and illustrations, critical and editorial scrutiny of the manuscript, and the journal publishing process. Prerequisite: possession of a recently completed research project conducted in-residence (i.e., the graduate student's thesis) judged by the supervising faculty member to be worthy of publication. Lecture course. Credit: 1. Offering: Spring semester. Instructor: Edward F. Harris.

**ORTH 895. Independent Research.** This course involves performance of an original research project leading to completion of the MDS thesis. Laboratory course. Credit: 4. Offering: Fall and spring semesters. Instructor: Edward F. Harris.

**ORTH 896. Independent Research.** This Course encompasses the activities necessary to conduct an original research project pertinent to the general field of craniofacial biology or the specific discipline of orthodontics. It involves the development of a problem, the writing of a formal research proposal including a full literature review, statement of material and methods, and the execution of the research and appropriate analysis and interpretation of data. Laboratory course. Credit: 8. Offering: Fall and spring semesters. Instructor: Edward F. Harris.

## **Pediatric Dentistry**

**PDCH 622. Dental Pediatrics I.** The course entails discussions pertaining to the physical, craniofacial, and oral development of the child. Fluoride therapy, and childhood injury and prevention is presented. The student is also introduced to hospital and medical emergency protocol. Lecture course. Credit: 1. Offering: Fall semester. Instructor: Martin Donaldson.

**PDCH 623. Dental Pediatrics II.** The course entails discussions pertaining to the emotional, cognitive, language, and social changes in the maturing child. Theory regarding nonpharmacologic behavior management is presented. Lecture course. Credit: 1. Offering: Spring semester. Instructor: Martha Wells.

**PDCH 635. Pediatric Dental Research I.** The student is required to complete a research project in the field of pediatric dentistry and write a publishable research paper prior to program graduation. This course teaches the theory and practice of investigative research studies including methods for designing experiments, evaluating experimental data and writing a research proposal. This course includes traditional lecture, web-based content, clinical and laboratory components. Lecture course. Credit: 1-5. Offering: Fall semester. Instructor: Martin Donaldson.



**PDCH 636. Pediatric Dental Research II.** This course encompasses the activities necessary to write a formal research proposal including a full literature review, statement of material and methods, appropriate data analysis techniques and associated resource requirements. This course includes traditional lecture, web-based content, clinical and laboratory components. Lecture course. Credit: 1. Offering: Spring semester. Instructor: Martin Donaldson.

**PDCH 646. Literature Review I.** The literature review is designed to keep the postdoctoral student familiar with the current scientific literature as well as to prepare the individuals for board certification. Topics that are addressed throughout this series across four years of study include physical, psychological and social child development, behavior management, infant oral health, oral prevention of disease and trauma, histophysiology of pulp and oral disease, pain and anxiety control, dental materials, management of the developing dentition, management of the medically compromised patient, trauma, and medical ethics. Lecture course. Credit: 2. Offering: Fall semester. Instructor: Martin Donaldson.

**PDCH 647. Literature Review II.** The literature review is designed to keep the postdoctoral student familiar with the current scientific literature as well as to prepare the individuals for board certification. Topics that are addressed throughout this series across four years of study include physical, psychological and social child development, behavior management, infant oral health, oral prevention of disease and trauma, histophysiology of pulp and oral disease, pain and anxiety control, dental materials, management of the developing dentition, management of the medically compromised patient, trauma, and medical ethics. Lecture course. Credit: 2. Offering: Spring semester. Instructor: Martin Donaldson.

**PDCH 746. Literature Review III.** The literature review is designed to keep the postdoctoral student familiar with the current scientific literature as well as to prepare the individuals for board certification. Topics that are addressed throughout this series across four years of study include physical, psychological and social child development, behavior management, infant oral health, oral prevention of disease and trauma, histophysiology of pulp and oral disease, pain and anxiety control, dental materials, management of the developing dentition, management of the medically compromised patient, trauma, and medical ethics. Lecture course. Credit: 2. Offering: Fall semester. Instructor: Martin Donaldson.

**PDCH 747. Literature Review IV.** The literature review is designed to keep the postdoctoral student familiar with the current scientific literature as well as to prepare the individuals for board certification. Topics that are addressed throughout this series across four years of study include physical, psychological and social child development, behavior management, infant oral health, oral prevention of disease and trauma, histophysiology of pulp and oral disease, pain and anxiety control, dental materials, management of the developing dentition, management of the medically compromised patient, trauma, and medical ethics. Lecture course. Credit: 2. Offering: Spring semester. Instructor: Martin Donaldson.

**PDCH 648 - Case Analysis and Presentations I.** The student presents patient clinical examination records, models, radiographs and other diagnostic aids utilized to form a diagnosis and treatment plan. The diagnosis and treatment plan is presented to faculty and colleagues for critical review and analysis. Pediatric dental laboratory techniques and clinical dentistry are introduced to the postgraduate student. Seminar course. Credit: 1. Offering: Fall semester. Instructor: Martin Donaldson.

**PDCH 649 - Case Analysis and Presentations II.** The student presents patient clinical examination records, models, radiographs and other diagnostic aids utilized to form a diagnosis and treatment plan. The diagnosis and treatment plan is presented to faculty and colleagues for critical review and analysis. Pediatric dental laboratory techniques and clinical dentistry are introduced to the postgraduate student. Seminar course. Credit: 1. Offering: Fall & Spring semesters. Instructor: Martin Donaldson.

**PDCH 748 - Case Analysis and Presentations III.** The student presents patient clinical examination records, models, radiographs and other diagnostic aids utilized to form a diagnosis and treatment plan. The diagnosis and treatment plan is presented to faculty and colleagues for critical review and analysis. Pediatric dental laboratory techniques and clinical dentistry are introduced to the postgraduate student. Seminar course. Credit: 1. Offering: Fall & Spring semesters. Instructor: Martin Donaldson.

**PDCH 749. Case Analysis and Presentations IV.** The student presents patient clinical examination records, models, radiographs and other diagnostic aids utilized to form a diagnosis and treatment plan. The diagnosis and treatment plan is presented to faculty and colleagues for critical review and analysis. Pediatric dental laboratory techniques and clinical dentistry are introduced to the postgraduate student. Seminar course. Credit: 1. Offering: Fall & Spring semesters. Instructor: Martin Donaldson.

**PDCH 722. Dental Pediatrics III.** The course entails discussions pertaining to genetics, physically and mentally disabled patient and/or associated craniofacial syndromes. Indications and preparation for pharmacologic behavior management is introduced. Lecture course. Credit: 1. Offering: Fall semester. Instructor: Martin Donaldson.

**PDCH 723. Dental Pediatrics IV.** Recognition of infection, differential diagnosis for disease and treatment of infectious diseases, pediatric dental techniques and appliances for physical tissue destruction, and nutrition are presented. Lecture course. Credit: 1. Offering: Spring semester. Instructor: Martha Wells.

**PDCH 735. Pediatric Dental Research III.** This course encompasses the activities necessary to conduct a formal research investigation in the field of pediatric dentistry and prepare a publishable paper based on the findings of the investigation. Laboratory course. Credit: 2. Offering: Fall semester. Instructor: Martin Donaldson.

**PDCH 736. Pediatric Dental Research IV.** This course encompasses the activities necessary to complete a formal research investigation in the field of pediatric dentistry and prepare a publishable paper based on the findings of the investigation. Lecture, laboratory and clinical course. Credit: 2. Offering: Spring semester. Instructor: Martin Donaldson.

**PDCH 840. Special Topics.** This course includes directed readings or special course in topics of current interest and can include laboratory and clinical assignments as well as lecture. Lecture and laboratory course. Credit: 2. Offering: Fall semester. Instructor: Martin Donaldson.

## **Periodontics**

**PERI 614. Research in Periodontal Pathobiology.** This course will provide each resident with the opportunity to engage in periodontal research. It may include both clinical and laboratory research, with the emphasis in one or the other research areas. Each resident will be assigned a research mentor who is trained and experienced in research methodologies and writing of scientific papers. Instruction will be given by appropriate faculty members on an individualized basis. Resident activities will include research of relevant literature, writing of appropriate literature reviews, hands on research, gathering and analysis of data, interpretation of results, drawing conclusions and writing papers appropriate for publication. The course will be integrated with the remainder of the curriculum throughout the 36 month duration of the program. Lecture and laboratory course. Credit: 2. Fall and spring semesters. Instructor: Sidney Stein.

**PERI 615. Research in Periodontal Pathobiology.** This course will provide each resident with the opportunity to engage in periodontal research. It may include both clinical and laboratory research, with the emphasis in one or the other research areas. Each resident will be assigned a research mentor who is trained and experienced in research methodologies and writing of scientific papers. Instruction will be given by appropriate faculty members on an individualized basis. Resident activities will include research of relevant literature, writing of appropriate literature reviews, hands on research, gathering and analysis of data, interpretation of results, drawing conclusions and writing papers appropriate for publication. The course will be integrated with the remainder of the curriculum throughout the 36 month duration of the program. Prerequisite: PERI 614, Research in Periodontal Pathology. Lecture and laboratory course. Credit: 2. Fall and spring semesters. Instructor: Sidney Stein.

**PERI 621. Introduction to Periodontal Pathobiology.** This is an overview of periodontics in a combination textbook-literature-lecture seminar format. Subject areas covered include periodontal anatomy and histology, etiology and histopathology or periodontal diseases. Clinically related seminars include examination, diagnosis, prognosis and treatment planning for the patient with periodontal disease. A variety of approaches to treatment, as well as the importance of supportive therapy for the treated patient, is emphasized. Appropriate reading material from standard textbooks and the periodontal literature is assigned for each seminar period. Lecture course. Credit: 3. Offering: Fall and spring semesters. Instructor: Jacob Shiloah.

**PERI 641. Topical Literature Review Seminar I.** This seminar is conducted weekly throughout the first two years of the residency program under the direction of the postgraduate periodontics staff. The purpose of this seminar series is exposure to classic and current concepts in various subject areas, as well as written and verbal evaluation of the literature reviewed. Seminar course. Credit: 4. Offering: Fall semester. Instructor: Rania Livada.

**PERI 642. Topical Literature Review Seminar II.** This seminar is conducted weekly throughout the first two years of the residency program under the direction of the postgraduate periodontics staff. The purpose of this seminar series is exposure to classic and current concepts in various subject areas, as well as written and verbal evaluation of the literature reviewed. Seminar course. Credit: 4. Offering: Spring semester. Instructor: Rania Livada.

**PERI 741. Topical Literature Review Seminar III.** This seminar is conducted weekly throughout the first two years of the residency program under the direction of the postgraduate periodontics staff. The purpose of this seminar series is exposure to classic and current concepts in various subject areas, as well as written and verbal evaluation of the literature reviewed. Seminar course. Credit: 4. Offering: Fall semester. Instructor: Rania Livada.

**PERI 742. Topical Literature Review Seminar IV.** This seminar is conducted weekly throughout the first two years of the residency program under the direction of the postgraduate periodontics staff. The purpose of this seminar series is exposure to classic and current concepts in various subject areas, as well as written and verbal evaluation of the literature reviewed. Seminar course. Credit: 4. Offering: Spring semester. Instructor: Rania Livada.

**PERI 643. Review of Current Periodontal Literature Seminar I.** This seminar series is conducted weekly throughout the three year residency period. Four of the major journals devoted to periodontics are reviewed selectively. Selected articles are also reviewed from other major journals. The purpose of this seminar is to provide experience in reading, abstracting, and evaluating the most recently published ideas and concepts in the field of periodontal biology. Seminar course. Credit: 2. Offering: Fall semester. Instructor: Swati Rawal.

**PERI 644. Review of Current Periodontal Literature Seminar II.** This seminar series is conducted weekly throughout the three year residency period. Four of the major journals devoted to periodontics are reviewed selectively. Selected articles are also reviewed from other major journals. The purpose of this seminar is to provide experience in reading, abstracting, and evaluating the most recently published ideas and concepts in the field of periodontal biology. Seminar course. Credit: 2. Offering: Spring semester. Instructor: Swati Rawal.

**PERI 743. Review of Current Periodontal Literature Seminar III.** This seminar series is conducted weekly throughout the three year residency period. Four of the major journals devoted to periodontics are reviewed selectively. Selected articles are also reviewed from other major journals. The purpose of this seminar is to provide experience in reading, abstracting, and evaluating the most recently published ideas and concepts in the field of periodontal biology. Seminar course. Credit: 2. Offering: Fall semester. Instructor: Swati Rawal.

**PERI 744. Review of Current Periodontal Literature Seminar IV.** This seminar series is conducted weekly throughout the three year residency period. Four of the major journals devoted to periodontics are reviewed selectively. Selected articles are also reviewed from other major journals. The purpose of this seminar is to provide experience in reading, abstracting, and evaluating the most recently published ideas and concepts in the field of periodontal biology. Seminar course. Credit: 2. Offering: Spring semester. Instructor: Swati Rawal.

**PERI 843. Review of Current Periodontal Literature Seminar V.** This seminar series is conducted weekly throughout the three year residency period. Four of the major journals devoted to periodontics are reviewed selectively. Selected articles are also reviewed from other major journals. The purpose of this seminar is to provide experience in reading, abstracting, and evaluating the most recently published ideas and concepts in the field of periodontal biology. Seminar course. Credit: 2. Offering: Fall semester. Instructor: Swati Rawal.

**PERI 844. Review of Current Periodontal Literature Seminar VI.** This seminar series is conducted weekly throughout the three year residency period. Four of the major journals devoted to periodontics are reviewed selectively. Selected articles are also reviewed from other major journals. The purpose of this seminar is to provide experience in reading, abstracting, and evaluating the most recently published ideas and concepts in the field of periodontal biology. Seminar course. Credit: 2. Offering: Spring semester. Instructor: Swati Rawal.

**PERI 714. Research in Periodontal Pathobiology III.** This course will provide each second-year student with a continuing opportunity to engage in periodontally related research for 6 hours per week. It may include both clinical and laboratory research. Each student will be assigned a research mentor who is trained and experienced in research methodologies and writing of scientific papers. Instruction will be given by appropriate faculty members on an individualized basis. Student activities will include research of relevant literature, writing of appropriate literature reviews, hands-on research, gathering and analysis of data, interpretation of results, drawing conclusions, and writing papers appropriate for publication. Lecture, clinical and laboratory course. Credit: 3. Offering: Fall semester. Instructor: Sidney Stein.

**PERI 715. Research in Periodontal Pathobiology IV.** This course will provide each second-year student with a continuing opportunity to engage in periodontally related research for 6 hours per week. It may include both clinical and laboratory research. Each student will be assigned a research mentor who is trained and experienced in research methodologies and writing of scientific papers. Instruction will be given by appropriate faculty members on an individualized basis. Student activities will include research of relevant literature, writing of appropriate literature reviews, hands-on research, gathering and analysis of data, interpretation of results, drawing conclusions, and writing papers appropriate for publication. Lecture, clinical and laboratory course. Credit: 3. Offering: Spring semester. Instructor: Sidney Stein.

**PERI 814. Research in Periodontal Pathobiology V.** This course will provide each third-year student with a continuing opportunity to engage in periodontally related research for 8 hours per week during the fall semester. It may include both clinical and laboratory research. Each student will be assigned a research mentor who is trained and experienced in research methodologies and writing of scientific papers. Instruction will be given by appropriate faculty members on an individualized basis. Student activities will include research of relevant literature, writing of appropriate literature reviews, hands-on research, gathering and analysis of data, interpretation of results, drawing conclusions, and writing papers appropriate for publication. Additionally, this research will be described in a thesis submitted in partial fulfillment of a Master of Dental Science degree. Credit: 4. Offering: Fall semesters. Instructor: Sidney Stein.

**PERI 815. Research in Periodontal Pathobiology VI.** This course will provide each third-year student with a continuing opportunity to engage in periodontally related research for 8 hours per week during the fall semester. It may include both clinical and laboratory research. Each student will be assigned a research mentor who is trained and experienced in research methodologies and writing of scientific papers. Instruction will be given by appropriate faculty members on an individualized basis. Student activities will include research of relevant literature, writing of appropriate literature reviews, hands-on research, gathering and analysis of data, interpretation of results, drawing conclusions, and writing papers appropriate for publication. Additionally, this research will be described in a thesis submitted in partial fulfillment of a Master of Dental Science degree. Credit: 4. Offering: Spring semesters. Instructor: Sidney Stein.

## **Prosthodontics**

**PROS 710. Prosthodontic Literature Seminar.** This weekly seminar provides exposure to historically relevant, scientific literature in various subject areas associated with prosthodontics and related sciences. Periodic and critical abstracting of this literature is accomplished by seminar attendees in order to maintain a database of condensed, topic-oriented summaries. Students in the Advanced Prosthodontic Program participate in this seminar each semester of their three-year residency. Twenty-four broad topics pertinent to prosthodontics are covered on a rotational basis over a three-year period. Eight topics are covered during each year of the students' three-year residency program. Seminars are led by the director of the Advanced Prosthodontic Program. Other members of the University of Tennessee Health Science Center faculty are invited to participate when their expertise with regard to the seminar topic is considered beneficial to the learning experience. Lecture and seminar course. Credit: 3. Offering: fall and spring semester. Instructor: Greg Paprocki.

**PROS 711. Contemporary Evidence-Based Journal Club.** Ongoing review of current, pertinent, professional literature is fundamental to the successful practice of prosthodontics. For postdoctoral students, knowledge of current professional literature is essential to developing theoretical and practical patient management skills. The assessment of current literature for its evidence-based value is critical. Journal Club provides a mechanism for surveying major dental periodicals to identify important articles, reviewing those articles, and discussing each article in an open seminar format. Twice weekly, one-hour seminars are conducted throughout the three-year program. This schedule is necessary to stay abreast of the ever-expanding volume of prosthodontic literature. Seminar course. Credit: 2. Offering: fall and spring semesters. Instructor: David Cagna.

**PROS 800. Thesis.** This course provides opportunity for students to engage in research in prosthodontics and related sciences. Though involvement is arranged to suite individual needs, time commitment will be approximately 4 hours per week during each semester of the program. Students work with advisors experienced in research methodologies and scientific writing. Instruction is given by appropriate faculty on individual bases. Student activities include library research, writing a literature review, developing a research protocol, hands-on research, gathering and analyzing data, interpreting experimental results, developing conclusions, and publishing outcomes. Public defense of the research effort and publication of a thesis in accordance with regulation established by the College of Graduate Health Sciences are required. Research, public defense, and thesis accomplished during this course are in partial fulfillment of the requirements for the Master of Dental Science degree awarded by the UTHSC College of Graduate Health Sciences. Seminar, laboratory and web-based hybrid course. Credit: 4. Offering: fall and spring semesters. Instructor: Greg Paprocki.

## Epidemiology

Epidemiology is the study of the distribution and determinants of health and disease in populations. Its role has expanded over the past 20 years to involve all facets of health care, disease prevention, and health promotion. In addition to being the basic science of public health, epidemiology has emerged as an important discipline for nursing, allied health science, and clinical medicine, especially in the managed-care environment. The Master of Science program (36 credit hours minimum) is designed to provide the necessary methodological skills for students to be able to independently pursue epidemiological research in their chosen areas. As part of the program, students receive training in epidemiology, biostatistics, health research methods, and health behavior and promotion.

The program is offered to qualified applicants holding a baccalaureate, master's, or professional degree in a variety of disciplines, including physical, biological, and social sciences, health and medical sciences. The program emphasizes training current health professionals to develop and enhance their knowledge of epidemiology, research design, and data analysis skills. Students holding an advanced degree at the master's or doctoral level may opt for a nonthesis track in which the student prepares a quantitatively based research article, approved by the student's committee, which must be submitted for publication in a professional epidemiology-related, peer-reviewed journal. Track selection, for clinical investigation or traditional epidemiology, should be made by the end of a student's first year in the program. Regardless of track, students present their thesis or submitted article in an announced forum with subsequent defense before the student's committee.

**BIOE 718. Program Evaluation for Public Health.** This course will teach basic public health skills necessary to evaluate a community health program. The course will focus on the overviews of community evaluation approaches and their direct application to efforts within health department settings. Evaluation planning, design, determining evaluation questions, goals and program outcomes will constitute the primary content of this course. Process evaluation as well as impact/outcome evaluation will be covered. Course content will introduce both qualitative and quantitative methods of data collection and analysis. The course will apply practical examples of potential problems typically encountered in the community health evaluation process as well as potential solutions. The course will be evaluated by participation in weekly discussion boards, mid-term exams, weekly homework assignments, and the creation of a public health program evaluation plan. Prerequisite: Admission into the Certificate Program of the Tennessee Consortium for Public Health Workforce Education or permission of the instructor or permission of the instructor. Online didactic course. Credit: 3. Offering: As needed. Instructor: Pam Connor.

**BIOE 719. Concepts of Health Systems and Policy, Part I.** This course will provide an introduction to basic concepts of health systems functions and health policy. Topics for this course include the basic structural and functional characteristics of health care systems, the features and rationale for health-related public policy, the determinants of healthcare use, and methods to assess the functions of a health care system. Section 001: Online didactic course. Credit: 1. *Course not currently offered.*

**BIOE 720. Biostatistics for Public Health.** This course provides an introduction to the use of statistical techniques in biomedical and public health research. The course will cover common descriptive statistics including the mean, median, and standard deviation as well as techniques for testing hypotheses (analysis of variance, t-tests, regression, nonparametric methods) and issues in sampling and design of experiments. The class will be taught using online methods for students in the Certificate in Clinical Research program. Prerequisite(s): Admission into Certificate in Clinical Research Program, or permission of the director in the Certificate in Clinical Research program. Online didactic course. Credit: 3. Offering: Fall, semester. Instructor: Pam Connor.

**BIOE 722. Principles of Epidemiology for Public Health Workforce Professionals.** The course introduces the basic principles and methods of epidemiology and demonstrates their applicability in the field of public health. Topics to be covered include the historical perspective of epidemiology, measures of disease occurrence and of association, clinical epidemiology, disease screening, causal inference, and study design. The class will be taught using online methods. Prerequisite(s): Permission of the instructor. Hybrid course. Credit: 3. Offering: *Course not currently offered.*

**BIOE 723. Overview of Public Health.** This course provides an introduction to public health concepts and practice by examining the philosophy, purpose, history, organization, functions, tools, activities, and results of public health practice at the national, state, and community levels. The course also addresses important health issues and problems facing the public health system. Case studies and a variety of practice-related exercises serve as a basis for learner participation in real world public health problem-solving simulations. The class will be taught using online methods. Prerequisite(s): permission of the instructor. Online didactic course. Credit: 3. Offering: *Course not currently offered.*

**BIOE 724. Environmental Epidemiology/Occupational Epidemiology.** This course introduces students to epidemiologic investigations of environmental health problems. Topics include both traditional and innovative subjects and strategies, such as the health effects associated with air and water contaminants, toxic waste sites, lead, and radiation, as well as environmental exposures that have received attention only recently, such as Agent Orange and electromagnetic fields. The course emphasizes epidemiologic methods, particularly exposure assessment, modeling, cluster analysis, and source of bias. Students gain experience in the critical review and design of related epidemiologic studies. The class will be taught using online methods. Prerequisite(s): permission of the instructor. Online didactic course. Credit: 3. Offering: *Course not currently offered.*

**BIOE 725. Statistical Software for the Health Professional.** Multiple computer software packages will be examined for their utility in health data analysis. Sample health data sets are analyzed using similar procedures from different packages. Strengths and weaknesses of the various packages are contrasted as they are applied to the needs of health data analysis. The class will be taught using online methods. Didactic course. Prerequisite(s): permission of the instructor. Credit: 3. Offering: *Course not currently offered.*

**BIOE 726. Advanced Epidemiology for Public Health Workforce Professionals.** The purpose of this course is to further develop the methodological concepts underlying the science of epidemiology. The material covered is intended to broaden and extend the student's understanding of the elements of study design, data analysis, and inference in epidemiologic research, including issues related to causation, bias, and confounding. The primary aims of the course are to provide a working knowledge of the fundamentals of epidemiology as well as to serve as a foundation for more advanced study of epidemiologic methods with a strong emphasis on quantitative aspects. The course consists of online lectures and laboratories using statistical software. The workshop sessions are designed to reinforce the concepts/topics covered in the lectures. The class will be taught using online methods. Prerequisite(s): permission of the instructor. Hybrid didactic course. Credit: 3. Offering: *Course not currently offered.*

**BIOE 727. Principles of Epidemiology.** This online course, which is part of the Certificate in Clinical Research Program, introduces the basic principles and methods of epidemiology and demonstrates their applicability in the fields of public health and clinical research. Topics to be covered include the historical perspective of epidemiology, measures of disease occurrence and association, study design, disease screening, and causal inference. Study design content will cover experimental, cohort and case-control studies as well as challenges in design and analysis including bias, confounding and random error. Students will be expected to participate in discussion boards, complete weekly homework assignments, and take a mid-term and final exam. Prerequisite(s): This is an online course for students in the Certificate in Clinical Research program. Students should be enrolled in the Certificate program before taking this course, or obtain permission of the program director in the Certificate of Clinical Research program. Online didactic course. Credit: 3. Offering: Spring semester. Instructor: Pam Connor.

**BIOE 730. Practicum in Public Health Leadership.** This course provides an opportunity for students to experience the practice of public health leadership in a real world setting and to apply the knowledge and skills developed in other Leadership Certificate courses to real public health leadership challenges under the preceptorship of an experienced public health leader. Students are assigned to a senior leader in a local, metropolitan, regional or state- level Department of Health and complete a project negotiated among the student, the Preceptor and the Course Director. Students will be expected to submit a report detailing the project as well as journal describing the activities undertaken during the course. These tasks will be supplemented by assigned readings and periodic conference calls with other students, Preceptors and faculty. Prerequisite(s): BIOE 714 Special Topic: Public Health Leadership, BIOE 717 Public Health Policy and Law, BIOE 718 Program Evaluation for Public Health, BIOE 723 Overview of Public Health, or permission of the Course Director. Online didactic course. Credit: 3. Offering: *Course not currently offered.*

**BIOE 740. Ethical and Legal Issues in Clinical Research.** This course will examine ethical and legal principles and issues in clinical research, including attention to topics such as the Nuremberg Code, Belmont Report, federal standards for protection of human subjects, FDA guidelines for drug and device development, good clinical practice standards, and how these guidelines may be applied to the development, conduct, and reporting of clinical research. Prerequisite(s): This is an online course for students in the Certificate in Clinical Research program. Students should be enrolled in the Certificate program before taking this course, or obtain permission of program director in the Certificate in Clinical Research program. Online didactic course. Credit: 3. Offering: Spring semester. Instructor: Terrence Ackerman.

**BIOE 750. Fundamentals of Clinical Investigation.** This course will present an introduction to the different types of clinical research and practical methods that investigators can use in the conduct of multidisciplinary clinical research. Observational cohort studies, case-control studies, and Phase I-IV intervention-based randomized controlled clinical trials will be presented. Design distinctions, sampling and randomization procedures, data integrity, data-analysis concerns, and practical conduct for these investigative approaches will be examined. This course will also review ethical issues in conducting research in people, federal guidance for the conduct of clinical research, and the dynamic influence of behavior on the conduct of clinical research particularly in regards to recruitment, retention, and adherence in clinical trials. This is an online course for the web-based Certificate in Clinical Research program. Prerequisite(s): Admission into Certificate of Clinical Research program or permission of the program director. Online didactic course. Credit: 3. Offering: Fall semester. Instructor: Mace Coday.

**BIOE 800. Master's Thesis and Research.** Research intensive course. Credit: Variable (2-9). Offering: Fall semester. Instructor: *Thesis Advisor.*

**BIOE 804. Master's Project.** Independent study in a community-health topic selected in conjunction with project advisor. Oral and written reports required, including oral presentation and defense of project. Course enrollment is restricted to those students in the Community Health track with project option for the MS in Epidemiology. Research intensive course. Prerequisite(s): Consent of the project advisor. Credit: variable (1-3). Offering: Fall and spring semesters. Instructor: Pam Connor.

**BIOE 810. Independent Study.** An in-depth study of some aspect of epidemiology in which the student has special interest. Study is done independently with faculty approval and supervision. Research intensive course. Prerequisite(s): Permission of instructor. Credit: variable (1-3). Offering: Fall and spring semesters. Instructor: Pam Connor.

**BIOE 811. Biostatistics for the Health Sciences I.** The first semester material includes descriptive statistics, estimation, and one and two sample hypothesis testing, including paired and unpaired situations. Instruction includes assisting the student attain mastery-level skill in data entry and use of SAS software system for statistical analysis of data on the UT VAX. Didactic course. Credit: 3. Offering: Fall semester. Instructor: Elizabeth Tolley.

**BIOE 812. Fundamentals of Epidemiology.** The course introduces the basic principles and methods of epidemiology and demonstrates their applicability in the field of public health. Topics to be covered include the historical perspective of epidemiology, measures of disease occurrence and of association, clinical epidemiology, disease screening, causal inference, and study design. Hybrid didactic course. Credit: 3. Offering: Fall semester. Instructor: Simonne Nouer.

**BIOE 813. Fundamentals of SAS for Epidemiology.** This course provides the foundation computing skills for independent analysis of epidemiologic data. Topics to be covered include an introduction to SAS as a research tool; Operating with SAS for Windows environment; Reading internal and external data into SAS; Working with variables and SAS functions; Using logical statements; Introducing SAS procedures - especially those that produce descriptive statistics; Performing simple inferential tests and power analysis; combining datasets; Reshaping data; and Introducing macro language. This course consists of 2 hour lecture and 1 hour laboratory session per week. Didactic course. Credit: 3. Offering: Fall semester. Instructor: Jim Wan.

**BIOE 814. Health Behavior Theory and Intervention Design.** Understanding health behavior and community approaches to health promotion is vital to designing public health interventions to reduce behavioral risk factors and to increase health care utilization. This course provides students the opportunity to learn major theories of individual behavior such as reasoned action, health belief models, and social learning, as well as community approaches such as media advocacy, social marketing, and community organization and to apply these theories to designing community interventions. Didactic course. Credit: 3. Offering: As needed. Instructor: Maggie DeBon.

**BIOE 815. Introduction to Public Health and Preventive Medicine.** The course introduces students to the identification, understanding, and application of preventive and public health approaches to the wide range of infectious diseases and chronic disease epidemics. Methods to conduct an outbreak investigation will be included in the course. The infectious disease epidemics used as examples will be AIDS and TB. Chronic diseases will mainly focus on cardiovascular disease and methods to assist students in understanding the causal pathways from behavior to morbidity. Students will develop research proposals for identifying, understanding, and intervening on public health problems that are common in urban America. These written proposals, as well as midterm and final written exams, will prepare the students for Master's thesis and research. Didactic course. Prerequisite(s): BIOE 811, Biostatistics for the Health Sciences I; BIOE 812, Fundamentals of Epidemiology. Credit: 3. Offering: As needed. Instructor: Phyllis Richey.

**BIOE 818. Mixed Linear Models in Epidemiology.** This course provides the advanced skills necessary for independent statistical analysis of epidemiologic and clinical data containing clustered observations and random effects. Topics to be covered include unrestricted and restricted maximum likelihood estimation, Akaike's information criterion, standard general linear models, linear random effects models, linear covariance pattern models, and linear random coefficient models. The course focuses on applications requiring flexible modeling of variance and covariance structures for clustered data when observations from a common cluster are correlated. The approaches covered in the course are particularly relevant for analysis of hierarchical and longitudinal data having Gaussian distributed error. Didactic course. Prerequisite(s): BIOE 821, Biostatistics for the Health Sciences II; BIOE 822, Advanced Epidemiology; instructor's consent. Credit: 3. Offering: As needed. Instructor: Wonsuk Yoo.



**BIOE 819. Master's Seminar: Survival and Self-Reliance in the Computer Age.** This seminar is designed to expose students to a wide variety of topics of professional relevance including discussions on current work in the field, presentations on specific topic areas within epidemiology, the use of tools important to epidemiologic research, and presentations of on-going master's research. Hybrid, lab-based course. Credit: 1. Offering: As needed. Instructor: Elizabeth Tolley.

**BIOE 820. Master's Seminar: Clinical Research in Special Populations.** This course will expose students to issues pertaining to clinical research in special populations including children, pregnant women, normal healthy subjects, and groups that may include international participants. Existing federal and international guidelines and the medical literature will be used in this course. Course grading will be pass/fail. Seminar-based course. Credit: 1. Offering: Fall and spring semesters. Instructor: Pam Connor.

**BIOE 821. Biostatistics for the Health Sciences II.** Second semester content pertains to methods of regression for observational and experimental data. Methods of analysis and hypothesis testing for three or more treatments are presented for various experimental designs and treatment combinations for normally distributed and ordinal data. Instruction includes helping the students attain mastery-level skill in programming with the SAS software system for statistical analysis of data on the UT VAX. Hybrid didactic course. Credit: 3. Offering: Spring semester. Instructor: Elizabeth Tolley.

**BIOE 822. Advanced Epidemiology.** This course provides the foundation skills for independent analysis of epidemiologic data. Topics to be covered include the analysis of vital statistics data, statistical analysis of simple epidemiologic measures, identification and control of confounding in epidemiologic data, model building using epidemiologic data, logistic regression, and proportional hazards modeling. At the end of the semester, students will be able to analyze data from matched and unmatched case-control studies, case-cohort studies, and traditional cohort designs. The course includes a mandatory statistical computing laboratory. Didactic course. Prerequisite(s): BIOE 811, Biostatistics for the Health Sciences I; BIOE 812, Fundamentals of Epidemiology. Credit: 4. Offering: Spring semester. Instructor: Simonne Nouer.

**BIOE 823. Randomized Clinical Trials.** This course will allow the student to understand and analyze the many critical facets of the most precise design for clinical studies in humans: randomized clinical trials. Using a case-based approach, students will learn the importance of precise hypothesis description, selection of an at risk cohort for study, and the power of randomization in helping balance the study groups on a number of known and unknown confounding factors. Important issues with regard to subject recruitment, patient management, and data quality control will be emphasized. Students will learn to perform their own sample size calculations and use actual statistical packages to outline real clinical trial results data. Hybrid didactic course. Prerequisite(s): BIOE 811, Biostatistics for the Health Sciences I; BIOE 812, Fundamentals of Epidemiology. Credit: 3. Offering: As needed. Instructor: Mace Coday.

**BIOE 829. Introduction to GIS for Use with Health-Related Data.** This course will introduce basic concepts and use of Geographic Information Systems (GIS) tools for working with data that can be spatially or geographically referenced. GIS are computerized systems for compiling, managing, analyzing, and mapping data linked to locations. This course will focus on the practical application of basic GIS software tools to work with health-related data. The course will include readings and discussions followed by hands-on exercises using GIS software. Because this course will be taught in a lab where instruction is integrated with hands-on exercises and participants' interaction in the lab, class size is limited to 12 students with the prerequisite of instructor's consent. Students will be expected to bring their own laptop computers for use in the lab. Computer Requirements are as follows: PC's only; Operating System support includes Windows 2000 – XP, Vista; CPU speed 1.6 GHz or higher; Processor Intel core Duo, Pentium 4 or Xeon Processor; Memory/Ram: 1 GB minimum; Disk Space 2.4 GB. Macintosh not supported. Lab-based course. Prerequisite(s): Instructor's consent. Credit: 1. Offering: Fall semester. Instructor: Simonne Nouer.

**BIOE 834. Epidemiology of Childhood Diseases.** This course will provide an overview of the epidemiology of selected conditions and diseases affecting children as well as demonstrate the childhood origins of some adult chronic disease. For most of these conditions, information about the pattern of occurrence, data about risk factors and effectiveness of various preventive or therapeutic interventions will be discussed. Public use sources of information such as the National Health and Examination Survey (NHANES), National Ambulatory Medical Care Survey (NAMCS), CDC "Pink Book", Child and Adolescent Health Measurement Initiative (CAHMI) and Youth Risk Behavior Surveillance System (YRBSS) will be introduced and discussed. Additionally, some of the unique and challenging aspects of research in pediatric epidemiology such as issues of childhood growth and development, maternal (intrauterine) origins of disease and parental role in disease diagnosis and treatment will be introduced. In the last weeks of the course, students will be asked to synthesize the information presented in the course by identifying, presenting and evaluating the available epidemiological information on a childhood disease or condition of their choice. Didactic course. Prerequisite(s): BIOE 812, Fundamentals of Epidemiology or by permission of instructor. Credit: 1. Offering: Fall semester. Instructor: Marion Hare.

**BIOE 835. Resampling Methods for Biostatistical Analysis Using R Software.** This course provides essential skills for independent statistical analysis of epidemiologic and clinical data using permutation and bootstrap procedures. Course topics will incorporate introduction to permutation and rearrangement methods, Monte Carlo procedures for discrete and continuous distributions, percentile and parametric bootstrap, bias-corrected nonparametric bootstrap and an introduction to the R environment. The methods covered in the course are particularly relevant for data for which analyses based upon asymptotic statistics are not readily available or are of questionable validity. Didactic course. Prerequisite(s): BIOE 811, Biostatistics for the Health Sciences I; Consent of instructor. Credit:1. Offering: As needed. Instructor: Fridtjof Thomas.

**BIOE 840. Special Topics.** Directed readings or special course in topics of current interest. Prerequisite(s): permission of instructor. Didactic course. Credit: variable by section (1-3).

Section 001: Independent Study. Offering: Fall and spring semesters. Instructor: Pam Connor.

Section 002: NIH Grant Writing in the Behavioral Sciences. Credit: 3. Offering: As needed. Instructor: Pam Connor.

Section 003: Fundamentals of Molecular Genetics for Clinical Research. Credit 3: As needed. Offering: Fall and spring semesters. Instructor: Pam Connor.

Section 004: Bayesian Approaches in Biostatistics. Credit: 3. Offering: As needed. Instructor: Pam Connor.

Section 005: Application of Statistical Methods Using R Software. Credit: 3. Offering: As needed. Instructor: Pam Connor.

Section 006: Recruitment and Retention of Ethnic Minority Participants in Research. Credit: 3. Offering: As needed. Instructor: Pam Connor.

Section 007: Informatics Design for Clinical and Community Interventions. Credit: 3. Offering: As needed. Instructor: Pam Connor.

Section 008: SPSS Software Use in Medical Research. Credit: 1. Offering: Fall and spring semesters. Instructor: Pam Connor.

**BIOE 841. Application of Statistical Methods Using R Software.** This course fosters statistical literacy and practical application of statistical principles by equipping students with the necessary skills in R programming to tailor a perceived statistical analysis to a particular research question. The course is delivered in a computer lab where instructional elements are interlaced with hands-on programming exercises and classroom discussions about the aims of particular scientific and statistical analyses. Course topics include production of publication-quality statistical graphics, permutation testing, resampling methods (bootstrap estimation), sequential testing of statistical hypotheses, learning from data, and aspects of planning a clinical trial (including Bayesian design ideas). Built around a number of statistical questions frequently arising in epidemiology and clinical research, the course introduces the necessary programming techniques to implement gained conceptual insights in R. R is a software environment for statistical computing and graphics and is easily extendable and customizable to the user's actual analysis needs. Upon successful completion of the course, students will be able to address a number of research situations in which statistical analysis by conventional means is intractable. Didactic course. Prerequisite(s): BIOE 811 Biostatistics for the Health Sciences I; permission of instructor. Enrollment limited to eight students. Credit: 3. Offering: As needed. Instructor: Fridtjof Thomas.

**BIOE 842. Applied Survival Analysis.** Survival analysis refers to the statistical approach to analyze the occurrence and timing of events. Students will gain familiarity with the characteristics of time-to-event data such as the presence of censoring and time-varying covariates, and will learn to master the necessary statistical methods and techniques to design and analyze studies with survival data, including the construction and interpretation of Kaplan-Meier estimates, the Cox proportional hazards model, and methods for life table analysis. This course also extends the standard Cox model by introducing time-varying covariates and stratification as a way of dealing with non-proportionality of hazards. The course utilizes the software SAS and especially its PROC LIFETEST and PROC PHREG functions. This course is taught in a SAS computer lab with hands-on exercises. Didactic course. Prerequisite(s): BIOE 811, Biostatistics for the Health Sciences I; BIOE 813, Fundamentals of SAS for Epidemiology; BIOE 821, Biostatistics for the Health Sciences II; permission of instructor. Enrollment is limited to eight students. Credit: 3. Offering: As needed. Instructor: Fridtjof Thomas.

**BIOE 843. Healthcare Epidemiology.** This course provides the concepts and methods of a focused application of epidemiology in healthcare settings. It also presents different methods of infection transmission and control, development of surveillance programs, and identification, investigation and control of outbreaks. Employee and patient safety practices and regulations will also be learned. Didactic course. Prerequisite(s): permission of instructor. Credit: 2. Offering: As needed. Instructor: Hana Hakim.

**BIOE 844. Introduction to Health Policy: Health Policy and Health Research.** This interdisciplinary course is designed to provide graduate students in any health-related program with a comprehensive overview of the interactions between basic science and clinical research and health-related public policy. Health policy has a tremendous impact on the direction and execution of health-related research. In addition, research findings can have a substantial impact on public policies that impact health care and health-related research. The case-based topics of the course will focus on examining how public policy can impact research, how investigators can demonstrate the value of research to policy makers, and how research results may be applied to promote meaningful health-related public policies. Didactic course. Prerequisite(s): Permission of the instructor. Credit: 3. Offering: As needed. *Course not currently offered.*

**BIOE 845. Biostatistics for Integrated Biomedical Sciences.** This course provides a basic introduction to the use of statistical techniques in biomedical research. The course will cover common descriptive statistics including the mean, median, and standard deviation, inferential statistics, and techniques for testing hypotheses, and will emphasize application of these concepts to case studies. This is an online course designed specifically for students enrolled in the Integrated Biomedical Sciences (IBS) program, but is open to other students given permission from the course director. Didactic online course. Prerequisite(s): All non-IBS students require instructor permission to register for the course. Credit: 2. Offering: Fall, semester. Instructor: Quynh Tran.

**BIOE 846. Economics of Health and Health Care.** This course provides an introduction to concepts and methods of health economics. Students will be introduced to a range of microeconomic tools, such as demand and cost theory, and learn how to apply these tools to healthcare issues and problems. The goal of this course is to better understand the economic aspects of health and healthcare so that institutions and policies can be better designed to meet the needs of the population. The primary focus of this course will be issues facing the US healthcare system, but the tools learned and the issues discussed will have international applicability. Hybrid, didactic course. Prerequisite: permission of the Instructor. This course presumes reasonably strong math skills (Algebra); calculus is not required (but helpful). Credit 3. Offering: Fall semester. Instructor: Teresa Waters

**BIOE 847. Advanced SAS Programming.** This course provides advanced programming techniques in SAS, SQL and MACRO languages. The natural flow of the course is intended to start with an introduction to simple SQL programming using a single dataset followed by discussions on how to work with multiple datasets with common primary key variables. Upon completing the SQL component, a smooth transition is planned to simple MACRO programming in SAS, which will be gradually advanced to more efficient yet complicated MACRO programming. This class will be taught onsite in the SAS-laboratory in the Department of Preventive Medicine as the students will need SAS access for hands-on practice of exercises. Lab-based course. Prerequisite: BIOE 813, Fundamentals of SAS for Epidemiology, or by permission of instructor. Credit 1. Offering: As needed. Instructor: Mehmet Kocak.

**BIOE 862. Advanced Categorical Data Techniques for Epidemiology.** This course begins by examining the sampling models and the associated distributions that are most closely identified with categorical data. Next are reviewed the most common chi-square tests and measure of association for standard contingency tables or sets of stratified contingency tables. The generalized linear model is introduced as the backbone for building models that focus on the estimation of effects, model inference, and model checking. Specific topics for the modeling of categorical data include logistic regression for dichotomous and polytomous response, conditional logistic regression, generalized estimating equations, and generalized linear mixed modeling for models with random effects. In addition, the course will explore loglinear modeling for count data and life estimation and Cox proportional hazards model for categorized time to event data. The relation of the various approaches and procedures using SAS will be demonstrated. The course focuses on application of the above approaches to observational and clinical trial data sets. Didactic course. Prerequisite(s): BIOE 812, Fundamentals of Epidemiology; BIOE 821, Biostatistics for the Health Sciences II. Credit: 3. Offering: fall semester. Instructor: Mehmet Kocak.

## **Health Outcomes and Policy Research**

The Master of Science (M.S.) degree in Pharmaceutical Sciences (with a concentration in pharmacy administration or pharmacoconomics) and the Doctor of Philosophy (Ph.D.) degree programs in Health Outcomes and Policy Research develop skills and knowledge in evaluating the appropriate use of drugs, economic and epidemiological aspects of health care, and the outcomes of pharmaceutical care. Specific areas of research include studies of health-related quality of life; patient compliance, methods of education, disease state knowledge and satisfaction with care; pharmacist compensation and reimbursement; pharmacy services in a managed care environment; economic and clinical outcomes of medication therapy management services, and health policy issues related to medication therapy management services.

**HOPR 800. Master's Thesis and Research.** Research performed under the direction and supervision of the respective student's advisor in partial fulfillment of the requirements for the degree of Master of Science. Credit: variable (1-9). Offering: Every semester. Instructor: David Solomon.

**HOPR 801. Research in Health Outcomes and Policy Research.** This course emphasizes the development and conduct of health science administration research. The course is required in conjunction with or prior to thesis/dissertation work. The goal is to assist students in acquiring a breadth of knowledge of theory, concepts, principles, processes, and skills necessary for the health science research endeavor. Students will use and build upon knowledge gained in prerequisite courses as they learn to carry out each step of the research process. The course will be taught in small group discussions using information available in the literature and research-based analysis. Didactic course. Prerequisite(s): BIOE 811, Biostatistics for the Health Sciences I; BIOE 812, Fundamentals of Epidemiology; permission of the instructor. Credit: 3. Offering: Fall semester. Instructor: Shelley White-Means.

**HOPR 810. Fundamentals of Health Care Systems and Policy.** This course is designed to provide a comprehensive knowledge and understanding of the origin and functions of major themes in U.S. health care policy and health care delivery systems. Major topics include the assessment of population health, models of health care delivery, the current U.S. health care delivery and finance systems, and access and quality of care issues. The course will use a mix of Internet-based self-learning and classroom-based discussion groups. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Brandi E. Franklin and Virginia Betts.

**HOPR 812. Research Techniques in Pharmacoconomics I.** Minor projects in pharmacoconomics for students whose interests and needs are not adequately met in other scheduled classes or in the masters or doctoral research program. Didactic course. Prerequisite(s): Permission of the instructor. Credit: variable (1-3). Offering: Fall semester. Instructor: Song Hee Hong.

**HOPR 816. Applied Pharmacoeconomics I.** This is the second in a two-course sequence and must be taken in sequence. These two coupled courses are an advanced study in economic principles and outcomes measures as applied to pharmacy and health care. The objective is to expand the student's appreciation of the nature of applied economic evaluation and its relevance to health care decision-making and policy formulation through didactic lectures and case study analysis. Emphasis will be on the application of methodological principles of economic evaluation and appraisal of current concepts and research in pharmacoeconomics. The student will participate in the development, implementation, and evaluation of a group pharmacoeconomic project, which focuses on the evaluation of a defined economic problem in health care. Didactic course. Prerequisite(s): HOPR 801, Research in Health Outcomes and Policy Research; HOPR 829, Data Analysis Methods in Health Outcomes and Policy Research; BIOE 812, Fundamentals of Epidemiology; and BIOE 821, Biostatistics for the Health Sciences II. Credit: 2. Offering: Fall semester. Instructor: Junling Wang.

**HOPR 827. Applied Pharmacoeconomics II.** This is the second in a two-course sequence and must be taken in sequence. These two coupled courses are an advanced study in economic principles and outcomes measures as applied to pharmacy and health care. The objective is to expand the student's appreciation of the nature of applied economic evaluation and its relevance to health care decision-making and policy formulation through didactic lectures and case study analysis. Emphasis will be on the application of methodological principles of economic evaluation and appraisal of current concepts and research in pharmacoeconomics. The student will participate in the development, implementation, and evaluation of a group pharmacoeconomic project, which focuses on the evaluation of a defined economic problem in health care. Didactic and computer lab-based course. Prerequisite(s): HOPR 801, Research in Health Outcomes and Policy Research; HOPR 829, Data Analysis Methods in Health Outcomes and Policy Research; BIOE 812, Fundamentals of Epidemiology; and BIOE 821, Biostatistics for the Health Sciences II. Credit: 2. Offering: Spring semester. Instructor: Lawrence Brown.

**HOPR 829. Data Analysis Methods in Health Outcomes and Policy Research.** Building upon the first research methods course (HOPR 801), this course seeks to help students lay a solid foundation in their understanding of basic data analysis methods, develop basic quantitative analytical skills, understand the application of basic data analysis methods, and develop a healthy skepticism toward the use of statistical techniques in research studies. Didactic course. Prerequisite(s): Permission of the instructor. Credit: 3. Offering: Fall semester. Instructor: Junling Wang.

**HOPR 840. Special Topics.** Directed readings or special course in topics of current interest. Section 001: Pharmacoeconomics; Section 002: Health Policy; Section 003: Humanistic Outcomes; Section 004: Medication Management System; Section 005: Research Methods; Section 006: Technology Assessment; Section 007: Health Services Research. Research based course. Credit: variable (1-3). Offering: Fall and spring semesters. Instructor: Lawrence Brown.

**HOPR 850. Leadership Effectiveness in Health Care.** This course focuses on identifying leadership traits; attributes of leaders; differences between leadership and management; identifying each student's leadership style; small-group dynamics; and examining the literature of leadership. The course meets weekly for 2 hours in a seminar discussion. Students will evaluate leadership case studies in health care, as well as the current literature of leadership. Self-assessment tools will be used to identify leadership preferences. Students will review and discuss empirically based studies from the leadership literature during each session. Didactic course. Prerequisite(s): Permission of the instructor. Credit: 2. Offering: Fall or spring semester Instructor: Dick Gourley.

**HOPR 878. Advanced Health Economics.** Microeconomics tools are applied to the study of key health care policy issues. Behavior and performance of the major health care institutions, hospitals, physicians, nursing homes, and the pharmaceutical industry are examined. Economic impacts and implications of key issues in health care are scrutinized. Didactic course. Prerequisite: A working knowledge of basic microeconomics tools is required. Credit: 3. Offering: Spring semester. Instructor: Shelley White-Means.

**HOPR 879. Pharmacoeconomics I.** This course is designed to provide students with the basic concepts and language of pharmacoeconomics. The course is divided into three sections. The first, Concepts of Pharmacoeconomics, introduces the principles, techniques, and methods of economic and humanistic outcomes assessment. The second, Assessment of Economic Outcomes, details the methodology of pharmacoeconomics. Specifically, it covers economic outcome evaluation techniques, with pertinent examples and problem exercises. Third, Assessment of Humanistic Outcomes, covers the methodologies for patient-based assessment, such as quality of life and patient satisfaction. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Song Hee Hong.

**HOPR 900. Doctoral Dissertation and Research.** Research performed under the direction and supervision of the respective student's Research Advisor in partial fulfillment of the requirements for the degree of Doctor of Philosophy. Fall and Spring Semesters. Research based course. Credit: variable (1-9). Offering: Fall and spring semesters. Instructor: Lawrence Brown.

**HOPR 919. Seminar.** Topics of current interest in the field are selected and reviewed by the students for their peers and faculty. Presentations followed by general informal discussion. In certain circumstances, reports of current research may be made by students and faculty. Research based course. Credit: 1. Offering: Fall and spring semesters. Instructor: Song Hee Hong.

## Integrated Biomedical Sciences

The Integrated Biomedical Sciences (IBS) program, a research-oriented interdisciplinary program, involves faculty from The University of Tennessee Health Science Center and affiliate faculty from St. Jude Children's Research Hospital, LeBonheur Children's Hospital, and the Veterans Affairs Medical Center all located in Memphis. The IBS consists of five tracks that cover the spectrum of contemporary biomedical science: Cancer and Developmental Biology; Cell Biology and Physiology; Microbiology, Immunology, and Biochemistry; Molecular and Systems Pharmacology; Neuroscience. More than 230 participating faculty have primary appointments in the IBS program. This creates a multitier structure in which faculty members from several different traditional departments contribute to a student's progress in a specific track, enhancing the interdisciplinary training of students. During the first year of study, students take a core curriculum providing a foundation in their discipline while rotating through laboratories of their choice. By the end of the first year, students will have chosen a laboratory in which pursue their research.

**IP 800. Master's Thesis and Research.** Research performed under the direction and supervision of the respective student's advisor, in partial fulfillment of the requirements for the degree of Master of Science. Research based course. Credit: variable (2-9). Offering: Fall and spring semesters. Instructor: Rennolds Ostrom.

**IP 801. Integrity in the Conduct of Scientific Research.** This course consists of a study of the ethical principles and related federal and state laws that govern scientific research. Through a combination of lecture and case study discussion, students learn both the substance and application to scientific research of ethical principles and related laws. Topics addressed include research with human subjects, research with animals, the use of human biological materials, privacy and confidentiality of research and medical records, conflicts of interest, scientific misconduct, ownership of research, responsible reporting of research, and ethical training practices. The grade awarded to a student is based on the student's performance on a written midterm examination and a written final examination. The grade awarded will be Pass (P) or Fail (F). The minimum score required to pass the course is 70, calculated as an average of the scores achieved on the midterm and final examinations. Didactic course. Credit: 1. Offering: Spring semester. Instructor: Terrence Ackerman.

**IP 805. Essentials of Molecular Biology.** This course covers the essentials of prokaryotic and eukaryotic molecular biology. Topics include DNA and RNA structure; DNA replication, repair, and recombination; the mechanism and regulation of transcription; and protein translation. Fundamental concepts are reinforced by the discussion of human genetic diseases. Didactic course. Credit: 3. Offering: Spring semester. Instructor: John Cox.

**IP 806. Biochemistry.** The course presents the fundamental aspects of biochemistry including biochemical and biophysical principles (bonding, properties of water, thermodynamics, ionization and acid-base theory, and enzymology); structure, synthesis, and function of proteins and enzymes; metabolism of sugars, amino acids, nucleotides, nucleosides, vitamins, coenzymes and lipids; energy production and conversion; mitochondria and bioenergetics; photosynthesis; membrane transport proteins; cytochrome P450 and cell signaling. Didactic course. Credit: 3. Offering: Fall semester. Instructor: David Nelson.

**IP 810. IPBS Seminars.** Assigned readings in the original literature with student presentation and critical discussion of papers. Didactic course. Credit: 1. Offering: Fall semester. Instructor: Rennolds Ostrom.

**IP 840. Special Topics.** Directed readings or special course in topics of current interest. Didactic course. Credit: variable (1-5). Offering: Fall and spring semesters. Instructor: Rennolds Ostrom.

**IP 841. Essentials of Cell Biology.** This course provides an introduction to the cell and includes topics such as: animal cell structure; membrane compartmentalization; membrane transport; nuclear structure and dynamics; protein transport and modification; receptor signaling; cell motility and migration; cell cycle regulation; extracellular matrix and cell adhesion; general principles of development; and bacterial cell structure. Didactic course. Credit: 3. Offering: Fall semester. Instructor: Aviv Hassid.

**IP 900. Doctoral Dissertation and Research.** Research based course. Credit: variable (1-9). Offering: fall and spring semesters. Instructor: Rennolds Ostrom.

**IP 940. Molecular Biology of Cancer.** The course will provide a comprehensive survey of cancer biology, describing the disrupted normal development processes, the altered molecular mechanisms that govern the functioning of malignant cells, the biology and treatments of common types of cancer, and the development of therapies for treatment of resistant and metastatic cancer cells. Didactic course. Credit: 4. Offering: Fall semester. Instructor: Parker Suttle.

## Library and Biocommunications

**LBC 711. Effective Oral Communication Skills.** Skills in oral presentation of scientific data are developed through student reports from the appropriate literature with evaluation of performance emphasizing improvements in communication skills. Each student will make two presentations, which are videotaped and critiqued by the class and instructors. Preparation of effective visuals is required as part of each presentation. The first three lectures are required. Didactic course. Credit: 1. Offering: Fall and spring semesters. Instructor: David Armbruster.

## Microbiology, Immunology and Biochemistry

The Microbiology, Immunology, and Biochemistry track in the IBS program is designed to prepare students for research-oriented careers in academic institutions, government, and private or industrial laboratories. Courses, seminars, and laboratory rotations provide students with fundamental concepts, hands-on access to state-of-the-art technologies, and exposure to current developments in biochemistry, enzymology, signal transduction, prokaryotic and eukaryotic molecular biology, immunology, virology, genetics, pathogenesis, and microbial physiology. The first-year curriculum consists of in-depth courses in biochemistry, cell biology, molecular biology, and associated techniques. These courses provide a broad foundation in the molecular and cell biology of both prokaryotic and eukaryotic systems. The interdisciplinary nature of current biomedical research is then presented in subsequent courses organized along specialized research topics.

**MSCI 612. Elements of Microbiology.** A course on the fundamental aspects of microbial growth, nutrition, and genetics; mechanisms of infection and resistance; and a survey of disease-producing microorganisms with emphasis on those associated with the oral cavity. Didactic course. Credit: 5. Offering: Fall semester. Instructor: J. Pat Ryan.

**MSCI 800. Master's Thesis and Research.** Research performed under the direction and supervision of the respective student's advisor, in partial fulfillment of the requirements for the degree of Master of Science. Research-based course. Credit: variable (2-9). Offering: Every semester. Instructor: Elizabeth Fitzpatrick.

**MSCI 812. Physical Biochemistry and Applications in Structural Biology.** A lecture course in physical biochemistry that is divided into two parts. The first part covers the major experimental techniques used in physical biochemistry, including X-ray crystallography, NMR spectroscopy, general spectroscopy, and thermodynamics. The theoretical and experimental bases of the techniques will be emphasized. The second part addresses the structure and mechanisms of biological macromolecules, and many of the major classes of proteins will be discussed, as well as the structures of DNA and RNA. Emphasis will be on the physicochemical processes that control the folding and stability of macromolecules and on the processes that determine their unique structures and functions. The course will be accompanied by problem sets and practical sessions in the laboratory, and students will also be provided with software for viewing and manipulating structures on personal computers. Didactic course. Prerequisite(s): Calculus, physics, biology, organic chemistry, biochemistry, physical chemistry, or permission of the instructor. Credit: 3. Offering: Spring semester. Instructor: Stephen White.

**MSCI 814. Bioinformatics I.** This course consists of eleven 2.5-hour segments. The material will be introduced in a brief lecture format for 30-45 minutes as necessary. The majority of time will be spent using computer applications of bioinformatics tools. The course is designed to provide practical training in bioinformatics methods including accessing the major public sequence databases, using the five BLAST tools to find sequences, analyzing protein and nucleic acid sequences, detecting motifs or domains in proteins, assembling protein sequences from genomic DNA, detecting exons and finding intron-exon boundaries, aligning sequences (Clustal W), and making phylogenetic trees (Phylip). Basic proteomics methods and comparative genomics will also be discussed. Students should leave the course with a working knowledge of how to carry out research using these tools. Didactic course. Credit: 2. Offering: Spring semester. Instructor: David Nelson.

**MSCI 815. Bioinformatics II.** This course follows MSCI 814, Bioinformatics I, and consists of six 2.5-hour segments partially as lecture and partially as computer tutorial sessions to demonstrate advanced bioinformatics methods and the use of databases. Topics include knowledge base mining; 3D structure viewers like Cn3D, the VAST databases of 3D structure alignments; use of genome browsers like UCSC and Ensembl and NCBI's genomic biology section; gene arrays--their construction, use, and data analysis; mapping quantitative trait loci (QTLs) and radiation hybrid mapping; genome assembly and annotation. Pre-requisite: MSCI 814, Bioinformatics I. Didactic course. Credit: 1. Offering: Spring semester. Instructor: David Nelson.

**MSCI 828. Principles of Laboratory Instruction.** Conferences on methods of instruction and practice in supervision of students who are performing laboratory experiments. Research-based course. Credit: 3. Offering: Fall semester. Instructor: J. Pat Ryan.

**MSCI 829. Student Literature Presentations.** Assigned readings in the original literature with presentation and critical discussion of papers. Didactic course. Credit: 1. Offering: Fall and spring semesters. Instructor: Michael Whitt.

**MSCI 833. Virology.** An introductory course emphasizing bacterial and animal viruses. The nature, classification, physicochemical properties, molecular biology, multiplication, host cell relationships, immunology, and methods of propagation and quantitation of the viruses are considered. Didactic course. Credit: 3. *Course not currently offered.*

**MSCI 840. Special Topics in Molecular Sciences.** Directed readings or special course in topics of current interest. Section 001: Biochemistry; Section 002: Immunology; Section 003: Virology; Section 004: Bacterial Pathogenesis; Section 005: Gene Expression/Regulation; Section 006: Cell Biology. Didactic course. Credit: variable. Offering: As needed. Instructor: Elizabeth Fitzpatrick.



**MSCI 861. Cellular Signaling.** The course will provide a comprehensive survey of cellular signaling, describing mechanisms of signal transduction. The lectures will detail cellular signaling from the major classes of cell surface receptors to the impact on nuclear events. The class will emphasize the integration and coordination of signaling pathways in the cell and how this impacts on the fact of the cell. Prerequisite(s): IP 841, Essentials of Cell Biology; IP 806, Biochemistry. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Susan Senogles.

**MSCI 900. Doctoral Dissertation and Research.** Research performed under the direction and supervision of the respective student's advisor, in partial fulfillment of the requirements for the degree of Doctor of Philosophy. Research-based course. Credit: Variable (2-9). Offering: Fall and spring semesters. Instructor: Elizabeth Fitzpatrick.

**MSCI 910. Student Seminar.** Reports of current research are made by students for fellows and staff. Presentations are followed by general informal discussion. Under certain circumstances, topics of current interest in the field are selected and reviewed by students and staff members. Didactic course. Credit: 3. Offering: Fall and spring semesters. Instructor: Elizabeth Fitzpatrick.

**MSCI 931. Immunity and inflammation.** The course will provide a comprehensive overview of resistance to infection and immunity to viral and bacterial pathogens. Lectures will present in detail the molecular genetic, structural, and cellular mechanisms that determine innate and adaptive immune cell activation and effector function. The literature review will use landmark papers to document research that has elucidated innate and adaptive immune mechanisms that determine resistance to infection by bacteria and viruses. At the end of the course, students will have a comprehensive understanding of innate and adaptive immunity to viruses and bacteria. Didactic course. Prerequisites: IP 806, Biochemistry; IP 841, Essentials of Cell Biology and IP 805, Essentials of Molecular Biology; or permission of course director. Credit: 2. Offering: Fall semester. Instructor: Elizabeth Fitzpatrick.

**MSCI 932. Viral Pathogenesis.** The goal of this course is to explore the interactions between viruses and their hosts that result in pathogenic effects and disease. The course will provide an understanding of virus structure, entry, replication and assembly which will form the basis for a comprehensive overview of the molecular and cellular mechanisms responsible for pathogenesis resulting from infection of a host by viruses. The first portion of the course consists of lectures and discussion that present in detail the molecular, structural, and cellular mechanisms that determine virus tropism, entry, replication, dissemination, and responses by the host. The second half of the course will use defined virus-host model systems to provide a comprehensive and fundamental understanding of the concepts that govern virus-host interactions and that lead to disease. Upon completion of the course, students will have a comprehensive understanding of the molecular and cellular bases for pathogenesis resulting from infection of a host by viruses. The topics are discussed using a format involving a series of introductory lectures followed by a second series of classes consisting of in-class discussion of pertinent research papers. The papers to be read and discussed include classical papers establishing essential concepts and current papers that add detail to the topic under discussion. Prerequisite(s): IP 806, Biochemistry; IP 841, Essentials of Cell Biology. Didactic and research-based course. Credit: 2. Offering: Spring semester. Instructor: Michael Whitt.

**MSCI 933 Molecular Basis of Bacterial Pathogenesis.** The course will provide a comprehensive overview of bacterial pathogenesis from the perspective of both host and pathogen. The lectures are intended to provide a comprehensive and fundamental understanding of the concepts that govern host-pathogen interactions. Lectures will present in detail the molecular genetic, structural, and cellular mechanisms that bacterial pathogens use to infect cells and tissues of the host and the subsequent disease consequences of infection. At the end of the course, students will have a comprehensive understanding of bacterial virulence and pathogenesis. Students will understand in detail the molecular genetic, structural, and cellular basis for bacterial pathogenesis. Students will gain a comprehensive understanding of virulence factors, how their expression is controlled at both the molecular and cellular levels and how these bacterial factors affect cells and tissues of the host. Combined with the information learned in the prerequisite courses, students will also have a comprehensive understanding of host-pathogen relationships that ultimately lead to the elimination of infectious agents or the establishment of productive infections. Didactic course. Prerequisite: IP 806, Biochemistry and IP 841, Essentials of Cell Biology; or permission of the course director. Credit: 2. Offering: Spring semester. Instructor: Gerald Byrne.

**MSCI 934. Techniques I - Biochemical and Cellular Methods.** The theory and practical application of commonly used techniques in biochemistry, cell biology, immunology, and structural biology are considered, including absorption and emission spectroscopy; multiple chromatographic methods for use both with and without tags; protein purification strategies; protein electrophoresis and blotting; mass spectroscopy and proteomics; NMR and X-ray crystallography; generation and use of monoclonal and polyclonal antibodies; flow cytometry; light, fluorescence, and confocal microscopy; apoptosis and cell purification. Didactic course. Credit: 2. Offering: Spring semester. Instructor: Martha Howe.

**MSCI 935. Techniques II - Methods for Nucleic Acids.** The theory and practical application of commonly used techniques for working with nucleic acids are considered, including nucleic acid isolation, quantitation, and electrophoresis; hybridization, mini-and micro arrays; DNA sequencing; oligonucleotide synthesis, uses, PCR and qPCR; restriction and modification enzymes, and polymerases; prokaryotic and eukaryotic cloning vectors; library construction and clone detection; cDNA-expression and siRNA-silencing libraries; making transgenic mice; in vitro mutagenesis, gel retardation, footprinting, and chromatin assays. Didactic course. Credit: 2. Offering: Fall semester. Instructor: Martha Howe.

## Nursing

The PhD in Nursing emphasizes the critical evaluation of existing knowledge through hands-on-research preceptorships backed by rigorous coursework. Upon entering the PhD program, students become immersed in clinical research that develops and tests concepts of nursing care. Students completing the program take their place among today's foremost nursing research scientists and scholars. The UT PhD program began in the fall of 1988 and is offered by the College of Nursing through the College of Graduate Health Sciences. The PhD program concentrates on theories and models of nursing and intense research mentorship with accomplished faculty researchers. Faculty work with students on an individual basis to design a program of learning experiences and directed research that will assure successful preparation for a career as a scientist in clinical nursing research.

Upon completion of the PhD Program, the graduate will be able to: analyze, test, refine, extend, and expand the theoretical basis of nursing practice; conduct research that generates and advances nursing as a discipline; provide leadership as nurse researchers, educators, and/or administrators in current and emerging health care settings; collaborate with members of other disciplines in health related research of mutual concern; and, analyze, develop, and recommend health care policy at various levels.

**NSG 840. Special Topics.** Directed readings or special course in topics of current interest. Section 001: Chronic Health Issues; Section 002: Acute Health Issues; Section 003: Lifespan Issues. Didactic course. Credit: variable (2-4). Offering: Fall and spring semesters. Instructor: Patricia Cowan.

**NSG 900. Doctoral Dissertation.** Research performed under the direction and supervision of the respective student's faculty committee and resulting in a dissertation that meets the requirements for the degree of Doctor of Philosophy. Didactic, clinical, and/or lab-based course. Credit: Variable (2-12). Offering: Fall and spring semesters. Instructor: Patricia Cowan.

**NSG 911. Philosophy of Science.** A course focusing upon development of science in the Western world and epistemology. Ways of knowing and ways of thinking as they relate to the advancement of science will be covered. Didactic; Hybrid course delivery. Credit: 3. Offering: Fall semester. Instructor: Cheryl Stegbauer.

**NSG 912. Theory Construction and Analysis.** A course providing emphasis on the discovery of knowledge related to nursing and health care and the development of nursing theories. The course is aimed at assisting the student to develop the ability to evaluate existing knowledge critically and to engage in the use and creation of knowledge specifically applicable to nursing. Didactic; Hybrid course delivery. Credit: 3. Offering: Spring semester. Instructor: Carolyn Graff.

**NSG 913. Qualitative Research Methods.** One of a series of courses designed to provide the student a firm grounding in research methodologies and approaches to data analysis and interpretation. Focuses on qualitative research methodology. Didactic course. Credit: 3. Offering: Fall semester. Instructor: Carolyn Graff.

**NSG 919. Nursing Science Seminar.** A seminar with student and faculty participation that focuses on current topics such as issues, trends, and research in nursing and nursing care delivery. Didactic course. Credit: 1. Offering: Fall semester. Instructor: Patricia Cowan.

**NSG 923. Quantitative Research Methods.** One of a series of courses designed to provide the student firm grounding in research methodologies and approaches to data analysis and interpretation. Focuses on quantitative research methodology. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Donna Hathaway.

**NSG 924. Scientific Dissemination.** This seminar prepares participants to write scholarly documents clearly and effectively for dissemination as refereed articles for scientific and lay audiences. Discussion will focus on strategies for effective writing, identification and development of a topic, selecting a journal and using author guidelines, finding and documenting sources, the submission and revision process, legal and ethical issues, organization and time management, and the effective use of tables, graphs, and figures. Faculty will introduce students to a variety of Web-based and print resources to support writing skills development. Didactic; hybrid course delivery. Credit: 3. Offering: Fall semester. Instructor: Mona Wicks.

**NSG 925: Mixed Methods Research.** This course is designed to provide the graduate student with an overview of mixed methods research by building on the student's existing knowledge and experience with quantitative and qualitative research. Mixed methods research involves collection and analysis of quantitative and qualitative data and the integration of findings from both research approaches to increase understanding and corroboration. Didactic course. Prerequisites: NSG 923, Quantitative Research Methods, or the equivalent or permission from the course director. Credit: 3. Offering: Spring semester. Instructor: Carolyn Graff.

**NSG 960. Directed Study.** A course designed to provide the doctoral student with the opportunity to undertake additional guided study, research, and/or clinical experience in an area of the student's choice under faculty supervision. Didactic, Clinical, and/or Lab-based course. Credit: variable (1 – 6). Offering: Fall and spring semesters. Instructor: Patricia Cowan.

## Pathology

The Pathology department is the home department for specialized courses for IBS students enrolled in the Cancer and Developmental Biology track and the coursework is intended to equip students for careers as independent investigators and academicians with expertise in modern approaches to the study of disease. The focus of the program is to study disease mechanisms with a focus on understanding how the cell cycle, cell proliferation, apoptosis cell differentiation, cell migration, angiogenesis and stem cells modulate normal development and tumorigenesis. A distinctive character of this program is that it integrates training in the basic sciences of cell and molecular biology with training in the medical/clinical science of pathology. Techniques are drawn from a wide range of fields, including molecular and cell biology, biochemistry, structural biology, and therapeutics.

**PATH 834. Pathology Seminars.** Topics of current interest in the field are selected and reviewed by the student in conjunction with the course director and other faculty members. Presentations are followed by a general informal discussion. Under certain circumstances, reports of current research may be made by students. Didactic course. Credit: 1. Offering: Fall semester. Instructor: Tiffany N. Seagroves.

**PATH 840. Special Topics.** Directed readings or a special course in topics of current interest, including research techniques, career development and science writing. Didactic course. Credit: variable (1-5). Offering: Fall and spring semesters. Instructor: Tiffany N. Seagroves.

**PATH 900. Doctoral Dissertation.** Research performed under the direction of the student's Research Advisor in partial fulfillment of the requirements for the Ph.D. degree. Lab-based course. Credit: Variable (2-9). Offering: Fall and spring semesters. Instructor: Tiffany N. Seagroves.

**PATH 924. Introduction to Web-Based Bioinformatics and Computational Biology Tools.** This course teaches students the basic practices of Bioinformatics and Computational Biology. The integrated lectures and hand-on-sessions will focus on application of different analysis tools and public databases to analyze and interpret the biological meaning of data generated by high-throughput technologies. Didactic course. Credit: 2. Offering: Fall semester. Instructor: Meiyun Fan.

## Pharmaceutical Sciences

The Pharmaceutical Sciences Program offers both the M.S. and Ph.D. degrees, with an emphasis in either Medicinal Chemistry or Pharmaceutics. **Medicinal chemistry** research includes the design, synthesis, and biological evaluation of new chemical entities with potential for use in the treatment of diseases such as cancer, infections, or disorders of the endocrine, cardiovascular, central and peripheral nervous systems. The Pharmaceutics discipline offers three tracks of research emphasis namely: **Bioanalysis** research which involves the development and application of state-of-the-art analytical technology to detect and quantify molecular entities of biological and pharmaceutical interest, such as drugs or biomarkers; Drug Delivery research which involves the design, development and evaluation of drug delivery systems, injectables, and biotechnology drugs, including their production; and **Pharmacometrics** research which involves the quantitative assessment of drug disposition (pharmacokinetics) and effects (pharmacodynamics) using mathematical models based on biology, physiology, pharmacology and disease.

### Medicinal Chemistry

**MEDC 612. Organic Medicinal Chemistry I.** In addition to lectures attended jointly with professional students (Medicinal Chemistry 112, 122), advanced concepts are discussed in conference sessions, limited to graduate students. Didactic course. Prerequisite(s): Two semesters of organic chemistry or equivalent. Credit: 4. Offering: Fall and spring semesters. Instructor: Bob Moore.

**MEDC 622. Organic Medicinal Chemistry II.** Continuation of Medicinal Chemistry I. Didactic course. Credit: 4. Offering: Fall and spring semesters. Instructor: Isaac Donkor.

**MEDC 800. Master's Thesis and Research.** Research performed under the direction and supervision of the respective student's Research Advisor, in partial fulfillment of the requirements for the degree of Master of Science. Research based course. Credit: variable (2-9). Offering: Every semester. Instructor: Isaac Donkor.

**MEDC 813. Research Techniques in Medicinal Chemistry.** An introduction to current trends in the design and synthesis of potential medicinal agents. The course includes recent techniques applicable to the isolation and characterization of organic compounds, as well as contemporary methodology for the study and chemical and physical properties influencing biological response. The course content is tailored to the specific needs of students majoring in this field. Didactic course. Credit: 3. Offering: Fall semester of every other year. Instructor: Wei Li.

**MEDC 814. Computer-Aided Molecular Design in the Development of Chemotherapeutic Agents I.** This course is designed to teach students the essential elements of computer-aided drug design. It will cover (1) molecular models of small molecules, proteins, and nucleic acids and the validity of models created via computer of chemotherapeutic agents and/or lead drug agents; (2) use of protein and nucleic acid models in the development of lead drug agents; and (3) development of lead compounds or second-generation drugs using computational methodologies. Prerequisite(s): One year of organic chemistry (or equivalent), one semester of biochemistry (or equivalent), one year of calculus and/or physical chemistry (or equivalent), or permission of the instructor. Didactic course. Credit: 3. Offering: As needed. Instructor: John Buolamwini.

**MEDC 819. Seminar in Medicinal Chemistry.** Participation in the presentation and exhaustive discussion of topics directly or indirectly pertinent to medicinal chemistry. Didactic course. Credit: 1. Offering: Fall and spring semesters. Instructor: Ram Mahato.

**MEDC 824. Computer-Aided Molecular Design in the Development of Chemotherapeutic Agents II.** This course is a combined lecture and computer laboratory sequel to MEDC 814. It is designed for students to learn the essential elements of quantitative structure-activity relationship (QSAR) modeling and its applications in therapeutic agent design and drug development. It will cover both traditional 2D QSAR methods comprising property-based and 2D molecular structure-based techniques, as well as more recent 3D molecular structure-based QSAR methods like comparative molecular field analysis (CoMFA) and comparative molecular similarity indices analysis (CoMSIA). The use of multivariate analysis methods such as multiple linear regression (MLR), partial least squares (PLS), artificial neural networks (ANN), and genetic algorithms in QSAR will also be covered. Prerequisite(s): MEDC 814, Computer- Aided Molecular Design in the Development of Chemotherapeutic Agents I. Didactic course. Credit: 3. Offering: As needed. Instructor: John Buolamwini.

**MEDC 840. Special Topics.** Directed readings or special course in topics of current interest. Didactic course. Credit: 3. Offering: As needed.

Section 001: Heterocyclic Organic Chemistry. Instructor: Bob Moore.

Section 002: Asymmetric Organic Synthesis. Instructor: Michio Kurosu.

**MEDC 900. Doctoral Dissertation and Research.** Research performed under the direction and supervision of the respective student's advisor, in partial fulfillment of the requirements for the degree of Doctor of Philosophy. Research based course. Credit: Variable (2-9). Offering: Every semester. Instructor: Isaac Donkor.

**MEDC 919. Seminar in Medicinal Chemistry.** Participation in the presentation and exhaustive discussion of topics directly or indirectly pertinent to medicinal chemistry. Didactic course. Credit: 1. Offering: Fall and spring semesters. Instructor: Ram Mahato.

## Pharmaceutics

**PHAC 813. Advanced Pharmacokinetics.** Advanced analysis and modeling techniques in pharmacokinetics and pharmacodynamics relevant to preclinical and clinical drug development. Includes didactic lectures and practical analysis and interpretation of pharmacokinetic/pharmacodynamic data. Prerequisite(s): One year of calculus (or equivalent), permission of the instructor. Didactic course. Credit: 4. Offering: As needed. Instructor: Bernd Meibohm.

**PHAC 814. Parenteral Medications.** Techniques in the management of problems associated with the preparation, production, and distribution of medicinal agents in parenteral dosage forms are presented. Didactic and Lab-based course. Credit: 2. Offering: Fall and spring semesters. Instructor: George Wood.

**PHAC 817. Drug Metabolism.** Fundamental principles underlying human drug metabolism and the major drug metabolizing enzymes will be reviewed. One-third of the course will cover kinetic models, factors regulating drug metabolism, and methods for studying human enzymes. Two-thirds of the course will cover the biochemistry, substrate specificity, tests of phenotype and/or genotype in vitro and in vivo, population distribution, regulation, tissue distribution, and clinical and biologic significance for the P450s and several other important phase I and phase II enzymes. Prerequisite(s): IP805, Essentials of Molecular Biology, Pharmacokinetics, biochemistry, and permission of the instructor. Didactic course. Credit: 3. Offering: Fall semester of every other year. Instructor: Erin Schuetz.

**PHAC 818. Physical-Chemical Interpretation of Polyphasic and Disperse Drug Systems.** This course covers the physicochemical principles basic to the study and evaluation of pharmaceutical disperse systems. Studies are directed at a consideration of the impact of surface effects on the design of dosage forms. Included in the study are rheology, colloidal systems, adsorption, and surface and interfacial phenomena. Prerequisite(s): Physical chemistry. Didactic course. Credit: 3. Offering: Fall semester. Instructor: George Wood.

**PHAC 819. Seminars in Pharmaceutics.** Seminar presentation required of M.S. student candidates. Didactic course. Credit: 1. Offering: Fall and spring semesters. Instructor: Ram Mahato.

**PHAC 828. Principles of Radionuclide Methodology.** Principles of working with radionuclides in the research environment with emphasis on instrumentation and safe handling practices and procedures. Didactic course. Credit: 1. Offering: Fall semester. Instructor: Vivian Loveless.

**PHAC 831. Pharmaceutical Pre-formulation and Drug Product Development.** This course covers the underlying scientific principles and strategies employed in the assessment, characterization, and optimization of new drug products that will eventually be used in humans. Prerequisite(s): Basic collegiate level or graduate level Physical Pharmacy course. Didactic course. Credit: 4. Offering: Fall semester. Instructor: George Wood.

**PHAC 832. Entrepreneurship in Pharmaceutical and Biomedical Sciences.** This course will introduce fundamental concepts of business and entrepreneurship in the biomedical and pharmaceutical industries. The focus of the course will be on how to evaluate an idea for a new product or service, fundamentals of finance and law, how to prepare a business plan and elevator pitch, types of funding that are available for a new business, and how life science product development differs from research. Throughout the semester students will develop an elevator pitch and business plan based around an idea of their choice, culminating in presentations to the class and an outside panel. Didactic course. Credit: 2. Offering: As needed. Instructor: Richard Magid.

**PHAC 840. Special Topics.** Directed readings or special course in topics of current interest. Didactic course. Credit: Variable (1-3). Offering: Fall and spring semester.

Section 001: Instructional Design and Delivery. Instructor: George Wood.

Section 002: Educational Assessment. Instructor: George Wood.

Section 003: Drug Stability. Instructor: George Wood.

Section 004: Surface Modification of Adenoviral Vectors. Instructor: Terreia Jones.

Section 005: Site-Specific Delivery of Triplex Forming Oligonucleotides. Instructor: Ram Mahato.

Section 006: Research Techniques in Pharmaceutical Technology. Instructor: George Wood.

Section 007: Research Techniques in Pharmacokinetics, Pharmacodynamics, and Pharmacogenetics. Instructor: Bernd Meibohm.

Section 008: Population Pharmacokinetics. Instructor: Bernd Meibohm.

Section 012: Research Techniques in Pharmaceutical Technology II. Instructor: George Wood.

Section 013: Preclinical Pharmacokinetics. Instructor: Bernd Meibohm.

Section 011: Site-specific Delivery of Nucleic Acids. Instructor: Ram Mahato.

**PHAC 900. Doctoral Dissertation and Research.** Research performed under the direction and supervision of the respective student's Research Advisor. Research based course. Credit: variable (2-9). Offering: Every semester. Instructor: Isaac Donkor.

**PHAC 911. Delivery and Biocompatibility of Protein and Nucleic Acid Drugs.** This course is designed to teach students about the use of biomaterials for delivery and biocompatibility of proteins, peptides, and various nucleic acid drugs. It will cover (1) design, synthesis, and characterization of polymers; (2) biocompatibility; (3) various approaches to proteins and peptide delivery; (4) introduction to different types of nucleic acid drugs; and (5) antisense and nonviral gene therapy. Prerequisite(s): One year of organic, medicinal, or physical chemistry, or B.S. in Pharmacy, Bioengineering, Biotechnology, Biochemistry, Pharmacology, or Medical Sciences, or permission of the instructor. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Ram Mahato.

**PHAC 919. Seminar.** Seminar presentation required of Ph.D. student candidates. Didactic course. Credit: 1. Offering: Fall and spring semesters. Instructor: Ram Mahato.

## Physiology

The Cell Biology and Physiology track in the IBS program provides an optimal environment for a graduate student to pursue a course of study leading toward the degree of Doctor of Philosophy. The program faculty are dedicated to achieving the highest levels of teaching and one-on-one instruction. The program is designed to expose graduate students to the most current topics in the biomedical sciences, as well as specific topics in physiology from molecular and cellular to whole-animal physiology. Each student's program is designed to achieve individual development and consists of required and elective courses combined with an intensive research endeavor. In addition to a comprehensive medical physiology course and courses in specialized areas of physiology, the student must satisfy requirements in biochemistry, cell and molecular biology, biostatistics, and appropriate interdisciplinary courses in other programs as may be recommended. Students also experience training in lecture techniques, scientific writing, and methods of small-group laboratory instruction.

**PHYS 612. Physiology and Biophysics (Medical Physiology).** This course, required of physiology graduate students, consists of closely integrated series of lectures, conferences and laboratory experiences presenting the physical underpinnings and functional properties of living matter and its reactions to internal and external stimuli. The physiology of the body's various systems is detailed, and their integration into a coordinated functional unit is described. Didactic course. Credit: 5. Offering: Spring semester. Instructor: David Nutting.

**PHYS 800. Master's Thesis and Research.** Research performed under the direction and supervision of the respective student's research advisor, in partial fulfillment of the requirements for the degree of Master of Science. Research based course. Credit: variable (2-9). Offering: Every semester. Instructor: Radhakrishna K. Rao.

**PHYS 819. Physiology Seminar.** Masters program. Presentations by visiting scientists, local faculty, fellows, or graduate students are made weekly. All students are required to attend and participate in all seminars. Didactic course. Credit: 1. Offering: Fall and spring semesters. Instructor: David Nutting.

**PHYS 821. Physiological Research.** Masters program. Properly prepared students may undertake research for which hours and credit will be arranged. Prerequisite: Permission of instructor. Lab-based course. Credit: variable (2 – 5). Offering: Every semester. Instructor: Radhakrishna K. Rao.

**PHYS 823. Cellular Neuroscience.** This course provides the graduate student with an overview of the cellular and molecular processes by which nerve cells operate and covers theories and concepts in the fields of neurochemistry, neurophysiology, and neuropharmacology. Electrochemical conduction, synaptic transmission, the action of transmitters and neuropeptides, and molecular mechanisms underlying sensation, motor function and higher cognitive processes, such as learning and memory, are emphasized. Didactic course. Credit: 3. Offering: As needed. Instructor: Radhakrishna K. Rao.

**PHYS 840. Special Topics.** Directed readings or special course in topics of current interest. Section 001: Cell Physiology, Section 002: Functional Topics in Physiology, Section 003: Biophysics, Section 004: Biomedical Research Models. Research based course. Credit: variable (2-3). Offering: As needed. Instructor: Radhakrishna K. Rao.

**PHYS 900. Doctoral Dissertation and Research.** Research performed under the direction and supervision of the respective student's research advisor, in partial fulfillment of the requirements for the degree of Doctor of Philosophy. Research based course. Credit: variable (2-9). Offering: Every semester. Instructor: Radhakrishna K. Rao.

**PHYS 911. Advanced Topics in Physiology (Cardiovascular and Pulmonary Aspects of Perinatal Physiology).** A series of advanced courses (1-2 per semester, which may include appropriate laboratory exercises) required of physiology graduate students in endocrinology, cardiovascular physiology, gastrointestinal physiology, neurophysiology, respiratory physiology, renal physiology, etc. Prerequisite(s): PHYS 612 Physiology and Biophysics (Medical Physiology). Didactic/lab-based course. Credit: 2. Offering: As needed. Instructor: Charles Leffler.

**PHYS 912. Advanced Topics in Physiology.** A series of advanced courses (1-2 per semester, which may include appropriate laboratory exercises) required of physiology graduate students in endocrinology, cardiovascular physiology, gastrointestinal physiology, neurophysiology, respiratory physiology, renal physiology, etc. Prerequisite(s): PHYS 612 Physiology and Biophysics (Medical Physiology). Didactic/lab-based course. Credit: 2. Offering: As needed. Instructor: Radhakrishna K. Rao.

**PHYS 919. Physiology Seminar.** Doctoral program. Presentations by visiting scientists, local faculty, fellows, or graduate students are made weekly. All students are required to attend and participate in all seminars. Didactic course. Credit: 1. Offering: Fall and spring semesters. Instructor: David Nutting.

**PHYS 921. Physiological Research.** Doctoral program. Properly prepared students may undertake research for which hours and credit will be arranged. Lab-based course. Credit: Variable (2-9). Offering: Every semester. Instructor: Radhakrishna K. Rao.

## Speech and Hearing Science

The Ph.D. Program in Speech and Hearing Science is research oriented with primary emphasis on processes involved in normal or disordered speech, language, and hearing. The doctoral program fosters development of individuals who seek professional careers in research, teaching, or clinical practice in speech-language pathology, audiology, speech-language science, or hearing science. The program normally will consist of three or more calendar years of graduate study beyond the master's degree (or equivalent) with the first year being devoted primarily to formal coursework and the last year to full-time research culminating in the doctoral dissertation.

**ASP 502. Registration for use of the Facilities.** Required for the student not otherwise registered during any semester when student uses university facilities and/or faculty time before degree is completed. Self-study. May not be used toward degree requirements. Credit: no credit. Offering: Every semester. Instructor: Tim Saltuklaroglu.

**ASP 600 Doctoral Research and Dissertation.** Grading restriction: P/NP only. Repeatability: May be repeated. Research based course. Credit: variable (3-15). Offering: Every semester. Instructor: Ashley Harkrider

**ASP 601 Experimental Phonetics.** Acoustical and perceptual analyses of speech production and overall oral communication. Didactic course. Prerequisite: permission of instructor. Credit: 3. Offering: As needed. Instructor: Molly Erickson

**ASP 602 Psychoacoustics.** Auditory perception and reception of acoustic stimuli. Didactic course. Prerequisite(s): ASP 507, Anatomy and Physiology of Hearing, or consent of instructor. Credit: 3. Offering: Fall semester. Instructor: Jong Ho Won

**ASP 604 Molecular Genetics and Pharmacology of Hearing** Study of genetics, pharmacology, and general cellular processes as they relate to hearing. Didactic course. Prerequisite(s): ASP 507, Anatomy and Physiology of Hearing, or consent of instructor. Credit: 3. Offering: Fall semester. Instructor: Mark Hedrick

**ASP 605 Speech Perception and Hearing Impairment** Study of perception of speech stimuli, with particular emphases on the effects of hearing impairment on perception. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Mark Hedrick

**ASP 611 Experimental Design in Speech and Hearing.** Analysis of experimental design in theses and related journals. Generation of experimental designs. Didactic course. Prerequisite: permission of instructor. Credit: 3. Offering: As needed. Instructor: Tim Saltuklaroglu



**ASP 626 Advanced Seminar in Neurologically-based Communication Disorders.** Topics vary. Didactic course. Repeatability: May be repeated. Prerequisite(s): ASP 518, Adult Neurogenic Communication Disorders, and ASP 526, Dysphagia or permission of instructor. Credit: Maximum 6 hours. Credit: 3. *Course not currently offered.*

**ASP 650 Advanced Seminar in Audiology.** Topics vary. Didactic course. Repeatability: May be repeated. Prerequisite: permission of Instructor. Credit: variable (3-6); maximum 9 hours. Offering: As needed. Instructor: Tim Saltuklaroglu

**ASP 652 Advanced Seminar in Speech and Language.** Topics vary. Didactic course. Repeatability: May be repeated. Credit: 3; maximum 6 hours. *Course not currently offered.*

**ASP 655 Practicum in College Teaching.** Supervised experience in college teaching. Self-study. Grading Restriction: Satisfactory/No Credit grading only. Repeatability: May be repeated. Prerequisite: permission of instructor. Credit: variable (1-3); maximum 6 hours. Offering: Every semester. Instructor: Ashley Harkrider

**ASP 656 Directed Research.** Participation in ongoing or non-dissertational research. Lab-based. Repeatability: May be repeated. Prerequisite: permission of instructor. Credit: variable (1-4); maximum 9 hours. Offering: Every semester. Instructor: Ashley Harkrider

**ASP 657 Directed Study in Speech Pathology.** Lab based course. Repeatability: May be repeated. Prerequisite: permission of instructor. Credit: variable (1-3); maximum 9 hours. Offering: Every semester. Instructor: Ashley Harkrider

**ASP 658 Directed Study in Audiology.** Lab based course. Repeatability: May be repeated. Prerequisite: permission of instructor. Credit: variable (1-3); maximum of 9 hours. Offering: Every semester. Instructor: Ashley Harkrider

**ASP 659 Directed Study in Speech Science.** Lab based course. Repeatability: May be repeated. Prerequisite: permission of instructor. Credit: variable (1-3); maximum 9 hours. Offering: Every semester. Instructor: Ashley Harkrider

**ASP 660 Directed Study in Hearing Science.** Lab based course. Repeatability: May be repeated. Prerequisite: permission of instructor. Credit: variable (1-3); maximum 9 hours. Offering: Every semester. Instructor: Ashley Harkrider

**ASP 661 Advanced Seminar: Language Disorders in Children.** Topics vary. Didactic course. Repeatability: May be repeated. Prerequisite(s): ASP 561, Child Language Disorders, or consent of instructor. Credit: 3; maximum 6 hours. Offering: Fall semester. Instructor: Ilsa Schwarz

**ASP 662 Advanced Seminar in Audiologic Assessment.** Synthesis of information on audiologic and vestibular assessment and application of clinical cases. Didactic course. Prerequisite(s): ASP 542, ASP 546, ASP 574, ASP 576, and ASP 577 or consent of instructor. Credit: 3. *Course not currently offered.*

**ASP 663 Advanced Seminar in Aural Habilitation/Rehabilitation.** Synthesis of information on audiologic habilitation and rehabilitation cases. Didactic course. Prerequisite(s): ASP 543, Amplification Technology; ASP 544, Amplification for Adults with Hearing Impairment; ASP 584, Amplification for Children with Hearing Impairment; and 594, Aural Habilitation/Rehabilitation of the Hearing-Impaired; or consent of instructor. Credit: 3. Offering: Spring semester. Instructor: Elizabeth Humphrey

**ASP 664 Advanced Seminar in Amplification.** Synthesis of information amplification technology, amplification for adults with hearing impairment, and case studies. Didactic course. Credit: 3. Offering: Spring semester. Instructor: Patrick Plyler

**ASP 665 Research Ethics.** Overview of professional and ethical principles guiding researchers and scholars. Didactic course. Prerequisite(s): Admission into Ph.D. program in ASP or consent of instructor. Credit: 1. Offering: As needed. Instructor: Mark Hedrick

## FACULTY LIST

- Ackerman, Terrence, Professor, 1977; Doctor of Philosophy, University of Rochester (1975)
- Albritton, Lorraine, Professor, 1991; Doctor of Philosophy in Biomedical Sciences, The University of Tennessee, Knoxville (1986)
- Almoazen, Hassan, Assistant Professor, 2007; Doctor of Philosophy in Pharmaceutical Sciences, Long Island University (2002)
- Armbruster, David, Professor, 1984; Doctor of Philosophy, Vanderbilt University (1973)
- Armstrong, William, Professor, 1984; Doctor of Philosophy, Michigan State University (1979)
- Arnold, Sandra, Associate Professor, 2001; Master of Clinical Epidemiology, University of Toronto (2003); Doctor of Medicine, University of Toronto (1992)
- Babu, Jegdish P., Associate Professor, 1982; Doctor of Philosophy, Mississippi State University (1981)
- Bahouth, Suleiman W., Professor, 1988; Doctor of Philosophy in Pharmacy, New York University (1985)
- Bailey, James E., Professor, 1994; Master of Public Health, University of Alabama at Birmingham (1992); Doctor of Medicine, University of Alabama at Birmingham (1990)
- Baker, Suzanne J., Professor, 1996; Doctor of Philosophy in Biology, Johns Hopkins University (1991)
- Belland, Robert J., Associate Professor, 2003; Doctor of Philosophy, University of Victoria (1987)
- Beranova, Sarka, Associate Professor, 1996; Doctor of Philosophy in Chemistry, The University of Akron (1995)
- Betts, Virginia T., Professor, 2000; Doctor of Jurisprudence, Nashville School of Law (1978); Master of Science in Nursing, Vanderbilt University (1971)
- Bina, James, Associate Professor, 2004; Doctor of Philosophy in Microbiology & Immunology, University of British Columbia (1998)
- Binkley, Lesley H., Assistant Professor, 1978; Doctor of Dental Surgery, University of Tennessee Health Science Center (1974); Master of Science in Dentistry (Periodontics), Ohio State University (1978)
- Bland, Paul S., Associate Professor and Chair, 1994; Doctor of Dental Surgery, University of Tennessee Health Science Center (1992)
- Boughter, John D., Associate Professor, 2002; Doctor of Philosophy in Neuroscience-Psychology, Florida State University (1995)
- Brescia, William Fred, Director, 2006; Doctor of Philosophy in Instructional Systems Technology, Indiana University (2002); Master of Science in Curriculum & Instruction, University of Wisconsin – Madison, (1973)
- Brown, Lawrence M., Associate Professor, 2003; Doctor of Pharmacy, University of the Pacific (1999); Doctor of Philosophy in Social, Administrative and Clinical Pharmacy, University of Minnesota (2003)
- Bukiya, Anna N., Assistant Professor, 2005; Doctor of Philosophy in Physiology, Lomonosov Moscow State University (2005)
- Bumgardner, Joel, Associate Professor, 2006; Doctor of Philosophy in Biomedical Engineering, University of Alabama at Birmingham (1994)

Buolamwini, John, Professor, 2000; Doctor of Pharmacy, University of Alberta (1990)

Byrne, Gerald I., Professor and Director, 2002; Doctor of Philosophy in Microbiology, University of Chicago (1977)

Cagna, David Richard, Associate Dean and Director, 2004; Doctor of Dental Medicine, Medical University of South Carolina (1990)

Callaway, Joseph C., Associate Professor, 1995; Doctor of Philosophy in Zoology, University of Washington (1989)

Carter, Michael A., University Distinguished Professor, 1982; Doctor of Nursing Practice, University of Tennessee Health Science Center (2009), Doctor of Nursing Science, Boston University (1979)

Cashion, Ann K., Professor, 1998; Doctor of Philosophy, University of Tennessee Health Science Center (1998)

Chen, Hao, Assistant Professor, 2001; Doctor of Philosophy in Anatomy, Michigan State University (2001)

Chen, Taosheng, Associate Professor, 2009; Doctor of Philosophy in Cell & Molecular Biology, University of Vermont (1996)

Chi, Hongbo, Assistant Professor, 2008; Doctor of Philosophy in Pathology, University of Rochester (2001)

Clement, David J., Professor, 2012; Doctor of Dental Surgery, University of Minnesota (1981)

Coday, Mathilda C., Associate Professor, 1993; Doctor of Philosophy in Psychology, University of Memphis (1992)

Connor, Pamela D., Professor, 1987; Doctor of Philosophy in Health Education, University of Utah (1983)

Cook, George A., Professor, 1983; Doctor of Philosophy in Biochemistry, Auburn University (1974)

Cooper, Terrence G., Professor, 1985; Doctor of Philosophy, Purdue University (1969)

Cowan, Patricia A., Associate Professor, 1996; Doctor of Philosophy in Nursing, University of Tennessee Health Science Center (1999)

Cox, John V., Associate Professor, 1989; Doctor of Philosophy in Biology, University of Rochester (1984)

Crowder, David H., Associate Professor, 1982; Doctor of Dental Surgery, University of Tennessee Health Science Center (1968); Master of Science in Orthodontics, University of Tennessee Health Science Center (1974)

Cui, Yan, Associate Professor, 2002; Doctor of Science in Biophysics, Institute of Biophysics, Chinese Academy of Sciences (1998)

Cunningham, Patricia D., Associate Professor, 1992; Doctor of Nursing Science, University of Tennessee Health Science Center (2001)

Curry, Amy de Jongh, Associate Professor, 2001; Doctor of Philosophy in Biomedical Engineering, University of Memphis (1997)

Dabbous, Mustafa K., Professor, 1970; Doctor of Philosophy in Biochemistry, University of Tennessee Health Science Center (1967)

D'Azzo, Alessandra, Professor, 1999; Doctor of Philosophy, Erasmus University (1982)

DeBon, Margaret W., Professor, 2003; Doctor of Philosophy in Psychology, University of Memphis (1995)

Desiderio, Dominic M., Professor, 1978; Doctor of Philosophy, Massachusetts Institute of Technology (1966)

Dhanireddy, Ramasubbareddy, Professor, 2005; Bachelor of Medicine, Bachelor of Surgery, Kurnool Medical College (1974)

Diangelo, Denis J., Professor, 1993; Doctor of Philosophy, McMaster University (1993)

Dibianca, Frank, Professor, 1989; Doctor of Philosophy in Physics, Carnegie-Mellon University (1970)

Donaldson, Martin E., Associate Professor, 2003; Doctor of Dental Surgery, University of Detroit Mercy (1976)

Donkor, Isaac O., Professor and Vice Chair, 1993; Doctor of Philosophy in Medicinal Chemistry, Duquesne University (1988)

Dopico, Alejandro, Professor, 2000; Doctor of Philosophy in Pharmacology, University of Buenos Aires (1989); Doctor of Medicine, University of Buenos Aires (1984)

Downing, James, Professor, 1999; Doctor of Medicine, University of Michigan (1981)

Dragatsis, Ioannis, Associate Professor, 2002; Doctor of Philosophy in Biology, University of Athens (1995)

Dyer, Michael A., Professor, 2003; Doctor of Philosophy in Molecular & Cellular Biology, Harvard University (1997)

Eckstein, Eugene, Professor, 1992; Doctor of Philosophy, Massachusetts Institute of Technology (1975)

Elam, Marshall B., Professor, 1980; Doctor of Philosophy in Pharmacology, University of Tennessee Health Science Center (1976)

Elberger, Andrea June, Professor, 1985; Doctor of Philosophy in Psychology, State University of New York, Stony Brook (1977)

Engle, Veronica F., Professor Emeritus, 2012; Doctor of Philosophy, Wayne State University (1981)

Ennis, Matthew, Professor and Chair, 2003; Doctor of Philosophy in Neuroscience, New York University (1988)

Erickson, Mary Louise, Associate Professor, 1997; Doctor of Philosophy in Speech Science & Technology, University of Southern California (1989)

Franklin, Brandi E., Assistant Professor, 2006; Doctor of Philosophy in Health Science Administration, University of Tennessee Health Science Center (2009)

Fan, Meiyun, Assistant Professor, 2006; Doctor of Philosophy in Biochemistry & Molecular Biology, University of Arkansas for Medical Sciences (2000)

Fan, Zheng, Professor, 1998; Doctor of Philosophy in Medical Science, Tokyo Medical and Dental University (1992)

Fitzpatrick, Elizabeth A., Associate Professor, 2000; Doctor of Philosophy in Medical Microbiology and Immunology, Ohio State University (1990)

Fletcher, Max, Assistant Professor, 2010; Doctor of Philosophy in Zoology, University of Oklahoma (2005)

Flynn, Patricia Michele, Professor, 1985; Doctor of Medicine, Louisiana State University Health Sciences Center at New Orleans (1981); Master of Science in Epidemiology, University of Tennessee Health Science Center (2002)

Foehring, Robert C., Professor and Vice Chair, 1988; Doctor of Philosophy in Medical Sciences-Neuroscience, University of Florida (1985)

Funk, Amy J., Adjunct Assistant Professor, 2001; Doctor of Veterinary Medicine, Colorado State University (1995)

Geiger, Terrence L., Professor, 2000; Doctor of Philosophy in Molecular Biophysics and Biochemistry, Yale University (1993)

Giorgianni, Francesco, Assistant Professor, 2000; Doctor of Philosophy, University of Akron (1995); Master of Business Administration, University of Memphis (2002)

Gomes-Solecki, Maria, Assistant Professor, 2008; Doctor of Veterinary Medicine, Universidade Tecnica de Lisboa (1992)

Gourley, Dick R., Professor, 1989; Doctor of Pharmacy, University of Tennessee Health Science Center (1970)

Graff, Joyce Carolyn, Associate Professor and Director, 2001; Doctor of Philosophy in Nursing, University of Kansas (2001)

Gu, Weikuan, Professor, 2002; Doctor of Philosophy in Plant Breeding, Cornell University (1995)

Guntaka, Ramareddy V., Professor, 2001; Doctor of Philosophy, Kansas State University (1970)

Haggard, Warren, Associate Professor, 2000; Doctor of Philosophy in Biomedical Engineering, University of Birmingham at Alabama (1994)

Hakim, Hana, Assistant Professor, 2012; Doctor of Medicine, American University of Beirut (2000); Master of Science in Epidemiology, University of Tennessee Health Science Center (2008)

Hamilton, David J., Assistant Professor, 2005; Doctor of Veterinary Medicine, Atlantic Veterinary College, University of Prince Edward Island (1992)

Hamman, Nathan Reed, Assistant Professor, 2004; Doctor of Dental Surgery, University of Tennessee Health Science Center (2007)

Hamre, Kristin Marie, Associate Professor, 1991; Doctor of Philosophy in Anatomy, University of Iowa (1991)

Hare, Marion Elizabeth, Associate Professor, 1990; Doctor of Medicine, University of Tennessee Health Science Center (1989); Master of Science in Epidemiology, University of Tennessee Health Science Center (2004)

Harkrider, Ashley W., Associate Professor, 1994; Doctor of Philosophy in Communication Sciences & Disorders, University of Texas at Austin (1999)

Harris, Edward, Professor, 1980; Doctor of Philosophy, Arizona State University (1977)

Hartig, Margaret T., Professor, 1987; Doctor of Philosophy in Nursing, University of Tennessee Health Science Center (1993)

Hassid, Aviv I., Professor, 1984; Doctor of Philosophy in Chemistry, University of Minnesota (1974)

Hathaway, Donna K., Distinguished Professor, 1984; Doctor of Philosophy in Nursing, University of Texas at Austin (1984)

Heck, Detlef H., Associate Professor, 2003; Doctor of Philosophy, Tubingen and Eberhard-Karls-University (1994)

Hedrick, Mark S., Professor, 1997; Doctor of Philosophy in Hearing and Speech Sciences, Vanderbilt University (1991)

Heldt, Scott A., Assistant Professor, 2010; Doctor of Philosophy in Psychology, University of Wisconsin (1995)

Hendershot, Linda, Professor, 1994; Doctor of Philosophy in Microbiology, University of Alabama at Birmingham (1983)

Herron, Paul, Associate Professor, 1989; Doctor of Philosophy in Neurosciences-Psychology, Michigan State University (1980)

Hong, Song Hee, Associate Professor, 2006; Doctor of Philosophy in Pharmacy, University of Texas at Austin (1997)

Honig, Marcia G., Professor, 1987; Doctor of Philosophy in Neurobiology, Yale University (1980)

Hori, Roderick T., Associate Professor, 1998; Doctor of Philosophy in Biology, University of California, San Diego (1993)

Howe, Martha M., Professor, 1986; Doctor of Philosophy in Biology, Massachusetts Institute of Technology (1972)

Humphrey, Elizabeth Lynn, Clinical Assistant Professor, 1999; Doctor of Audiology, University of Tennessee, Knoxville (2005)

Hurwitz, Julia, Professor, 1999; Doctor of Philosophy in Biology, Johns Hopkins University (1981)

Jablonski, Monica, Professor, 1997; Doctor of Philosophy in Physiology, Medical College of Wisconsin (1991)

Jackson, John S., Instructor, 2003; Doctor of Veterinary Medicine, Auburn University (1983)

Jaggar, Jonathan, Professor, 2000; Doctor of Philosophy in Physiology, University of Sheffield (1995)

Jain, Vinay, Assistant Professor, 2007; Bachelor of Dental Surgery, Maharashtra University of Health Sciences (2003); Master of Dental Science in Prosthodontics, University of Tennessee Health Science Center (2010)

Jennings, Lisa, Professor and Director, 1985; Doctor of Philosophy in Biochemistry, University of Tennessee Health Science Center (1983)

Johnson, Dianna, Professor, 1996; Doctor of Philosophy in Biology, University of Kansas (1972)

Johnson, James, Associate Professor, 1996; Doctor of Philosophy in Pharmaceutics, University of Minnesota (1968)

Johnstone, Patti Michele, Associate Professor, 2006; Doctor of Philosophy in Communicative Disorders, University of Wisconsin – Madison (2006)

Jones, Terreia, Assistant Professor, 2004; Doctor of Pharmacy, University of Tennessee Health Science Center (2003)

Karydis, Anastasios, Assistant Professor, 2008; Doctor of Philosophy, University of California, San Francisco (2009)

Kaushik, Parthasarathi, Assistant Professor, 2008; Doctor of Philosophy in Bioengineering, Pennsylvania State University (1999)

Kelly, Brian P., Assistant Professor, 1999; Doctor of Philosophy, University of Tennessee Health Science Center (2005)

King, Kristin Anne, Assistant Professor, 2008; Doctor of Philosophy in Communication Sciences & Disorders, East Carolina University (2008)

Kita, Hitoshi, Professor, 1983; Doctor of Philosophy, Kyushu University (1978)

Kocak, Mehmet, Assistant Professor, 2011; Doctor of Philosophy in Mathematical Sciences, University of Memphis (2011)

Kriwacki, Richard, Associate Professor, 1998; Doctor of Philosophy in Chemistry, Yale University (1994)

Kurosu, Michio, Associate Professor, 2011; Doctor of Philosophy in Pharmacy/Organic Chemistry, Osaka University (1995)

Lahti, Jill M., Associate Professor, 2004; Doctor of Philosophy, Baylor College of Medicine (1986)

Laizure, Steven C., Professor, 1987; Doctor of Pharmacy, University of North Carolina at Chapel Hill (1983)

Larabee, Ronald N., Assistant Professor, 2008; Doctor of Philosophy in Microbiology & Immunology, Indiana University (2003)

Ledoux, Mark S., Professor, 1997; Doctor of Philosophy in Psychology, University of Alabama at Birmingham (1995); Doctor of Medicine, Louisiana State University Health Sciences Center at New Orleans (1988)

Lee, Richard E., Adjunct Professor, 2000; Doctor of Philosophy, University of Newcastle-upon-Tyne (1993)

Leffler, Charles, W., Distinguished Professor, 1977; Doctor of Philosophy in Zoology, University of Florida (1974)

Lieberman, Jay A., Assistant Professor, 2012; Doctor of Medicine, University of Tennessee Health Science Center (2006)

Leung, Wing-Hang, Professor, 2000; Doctor of Philosophy in Clinical Investigation, Johns Hopkins University (1998)

Levin, Michael C., Professor, 1997; Doctor of Medicine, Pennsylvania State University (1988)

Li, Kui, Associate Professor, 2008; Doctor of Philosophy in Epidemiology and Public Health, Beijing Medical University (1999)

Li, Wei, Associate Professor, 1999; Doctor of Philosophy in Chemistry, Columbia University in the City of New York (1999)

Liao, Francesca-Fang, Associate Professor, 2009; Doctor of Philosophy in Cell Biology, Albert Einstein College of Medicine - Yeshiva University (1993)

Likes, Wendy M., Associate Professor, 2005; Doctor of Philosophy in Nursing, University of Tennessee Health Science Center (2009); Doctor of Nursing Science, University of Tennessee Health Science Center (2004)

Lindner, Erno, Professor, 2005; Doctor of Science in Analytical Chemistry, Hungarian Academy of Sciences (1994); Doctor of Philosophy in Analytical Chemistry, Technical University of Budapest (1985)

Livada, Rania, Assistant Professor, 2011; Doctor of Dental Surgery, National and Kapodistrian University of Athens (2003); Master of Science in Dentistry, University of Alabama at Birmingham (2009)

Lloyd, Adam, Associate Professor and Chair, 2009; Bachelor of Dental Surgery, University of Wales (1994); Master of Science, Baylor College of Dentistry (2003)

Lothstein, Leonard, Associate Professor, 1988; Doctor of Philosophy in Molecular Biology, Vanderbilt University (1983)

Loveless, Vivian S., Associate Professor, 1974; Doctor of Pharmacy, University of Tennessee Health Science Center (1976)

Lowe, Tao, Associate Professor, 2011; Doctor of Philosophy in Polymer Chemistry, University of Helsinki, Finland (1998)

Lu, Yi, Associate Professor, 1995; Doctor of Philosophy, University of Nebraska Medical Center (1992)

Magid, Richard Allen, Adjunct Assistant Professor, 2005; Doctor of Philosophy in Biomedical Engineering, Georgia Institute of Technology (2003)

Mahato, Ram, Professor, 2001; Doctor of Philosophy in Pharmaceutics & Drug Delivery, University of Strathclyde, Glasgow (1992)

Malik, Kafait, Professor, 1975; Doctor of Philosophy in Pharmacology, University of Sarajevo (1966)

Mandrell, Timothy D., Professor and Chair, 1991; Doctor of Veterinary Medicine, University of Tennessee, Knoxville (1984)

Marion, Tony N., Professor, 1987; Doctor of Philosophy in Immunology, University of Alabama at Birmingham (1982)

Matta, Shannon, Professor, 1998; Doctor of Philosophy in Anatomy, University of Minnesota (1983)

McBride, Michael, Associate Professor, 1982; Doctor of Dental Surgery, University of Tennessee Health Science Center (1982)

McCullers, Jonathon Arnold, Professor and Chair, 2004; Doctor of Medicine, University of Alabama at Birmingham (1993)

McDonald, Michael Patrick, Associate Professor, 2007; Doctor of Philosophy in Psychology, University of Minnesota (1994)

McGargill, Maureen, Assistant Professor, 2011; Doctor of Philosophy in Molecular, Cellular, Developmental Biology and Genetics, University of Minnesota (2000)

McKeon, Leslie M., Associate Professor, 2001; Doctor of Philosophy in Nursing, University of Tennessee Health Science Center (2004)

McKinnon, Peter, Professor, 1996; Doctor of Philosophy in Biochemistry and Genetics, Flinders University of South Australia (1987)

Meibohm, Bernd, Professor, 1999; Doctor of Natural Sciences, Technical University Carolo-Wilhelmina (1994)

Miller, Mark A., Associate Professor, 1998; Doctor of Philosophy in Microbiology, Louisiana State University (1992)

Moore, Bob M., Professor, 1998; Doctor of Philosophy in Medicinal Chemistry, University of Kansas (1995)

Naren, Anjaparavanda, Professor, 2001; Doctor of Philosophy in Biochemistry, Indian Institute of Science (1993)

Nelson, David R., Associate Professor, 1994; Doctor of Philosophy in Biochemistry, University of Texas Health Science Center at San Antonio (1985)

Nelson, Randall J., Professor, 1984; Doctor of Philosophy in Anatomy, Vanderbilt University (1980)

Nouer, Simonne S., Assistant Professor, 2007; Doctor of Philosophy in Tropical Medicine, Federal University of Goias (2006)

Nowak, Thaddeus S., Professor, 1992; Doctor of Philosophy, Massachusetts Institute of Technology (1980)



Nutting, David F., Associate Professor, 1971; Doctor of Philosophy in Physiology and Biochemistry, Duke University (1969)

Ogg, Robert, Associate Professor, 2006; Doctor of Philosophy in Biomedical Engineering, University of Virginia (1991)

Opferman, Joseph Thomas, Assistant Professor, 2008; Doctor of Philosophy in Immunology, University of Chicago (2000)

Ostrom, Rennolds S., Associate Professor, 2003; Doctor of Philosophy in Pharmacology and Toxicology, University of California, Irvine, (1998)

Panetta, John, Adjunct Assistant Professor, 2004; Doctor of Philosophy in Computational Applied Math, Old Dominion University (1995)

Paprocki, Gregory J., Assistant Professor, 2011; Doctor of Dental Surgery, University of Minnesota (1983)

Park, Edwards A., Professor, 1991; Doctor of Philosophy in Physiology, Pennsylvania State University (1984)

Park, Melburn R., Associate Professor, 1983; Doctor of Philosophy in Physiology, State University of New York, Buffalo (1974)

Park, Vicki M., Associate Professor, 1993; Doctor of Philosophy in Biology, Yale University (1983)

Parker, Robert B., Professor, 1992; Doctor of Pharmacy, University of North Carolina at Chapel Hill (1987)

Parris, William, Associate Professor, 1985; Doctor of Dental Surgery, University of Tennessee Health Science Center (1983); Master of Science in Orthodontics, University of Tennessee Health Science Center (1985)

Partridge, Janet Fay, Associate Professor, 2005; Doctor of Philosophy, University of London (1993)

Persons, Derek A., Assistant Professor, 1998; Doctor of Philosophy in Cell & Molecular Biology, Duke University (1990); Doctor of Medicine, Duke University (1991)

Pfeffer, Lawrence M., Professor, 1991; Doctor of Philosophy in Biochemistry, Cornell University (1977)

Plyler, Patrick Norton, Associate Professor, 2003; Doctor of Philosophy in Speech and Hearing Science, University of Tennessee, Knoxville (1998)

Pourmotabbed, Tayebah, Professor, 1989; Doctor of Philosophy in Biochemistry, University of Maryland, Baltimore County (1986)

Radic, Marko Z., Associate Professor, 2000; Doctor of Philosophy in Biological Sciences, University of California, Irvine (1987)

Raghow, Rajendra, Professor, 1988; Doctor of Philosophy in Biochemistry, Australian National University (1974)

Rao, Gadiparthi N., Distinguished Professor, 2000; Doctor of Philosophy, Gujarat University (1979)

Rao, Radhakrishna, Professor, 2000; Doctor of Philosophy in Biochemistry, M.S. University of Baroda India (1986)

Rawal, Swati Y., Associate Professor, 2006; Bachelor in Dental Surgery, Calcutta University (1987); Master of Science in Dentistry, Ohio State University (2004)

Rawal, Yeshwant B., Associate Professor, 2005; Bachelor in Dental Surgery, Annamalai University (1986); Master of Science in Dentistry, Ohio State University (2005)

Ray, Ramesh, Associate Professor, 1996; Doctor of Philosophy in Microbiology, Sardar Patel University (1986)

Reaves, Daniel L., Associate Professor, 1994; Doctor of Dental Surgery, University of Tennessee Health Science Center (1974)

Rehg, Jerold E., Professor, 1992; Doctor of Veterinary Medicine, University of Missouri (1966)

Reiner, Anton J., Professor, 1987; Doctor of Philosophy in Psychology, Bryn Mawr College (1977)

Reiter, Lawrence T., Associate Professor, 2005; Doctor of Philosophy in Cell & Molecular Biology/Molecular & Human Genetics, Baylor College of Medicine (1997)

Relling, Mary V., Professor, 1988; Doctor of Pharmacy, University of Utah (1985)

Rex, Tonia, Assistant Professor, 2007; Doctor of Philosophy in Molecular, Cellular & Developmental Biology, University of California, Santa Barbara (2001)

Richey, Phyllis, Associate Professor, 1990; Doctor of Philosophy in Exercise Science, University of Mississippi (1996)

Roan, Esra, Assistant Professor, 2010; Doctor of Philosophy in Mechanical Engineering, University of Cincinnati (2007)

Rogers, Phillip David, Professor, 2001; Doctor of Philosophy in Microbiology, University of Mississippi Medical Center (2001); Doctor of Pharmacy, University of Tennessee Health Science Center (1995)

Rogers, Tiffani, Adjunct Assistant Professor, 1998; Doctor of Veterinary Medicine, Tuskegee University (1997)

Russell, Charles John, Assistant Professor, 2005; Doctor of Philosophy in Chemistry, University of California, Berkeley (1998)

Ryan, James Patrick, Associate Professor, 1988; Doctor of Philosophy in Microbiology, University of North Carolina at Chapel Hill (1985)

Sakata, Kazuko, Assistant Professor, 2008; Doctor of Philosophy in Medical Science, Osaka University (2001)

Saltuklaroglu, Tim, Associate Professor, 2004; Doctor of Philosophy in Communication Sciences & Disorders, East Carolina University (2004)

Savage, Michael K., Assistant Professor, 2004; Doctor of Dental Surgery, University of Tennessee Health Science Center (1992)

Scarbecz, Mark, Professor, 1999; Doctor of Philosophy in Sociology, University of Arizona (1991)

Schuetz, John David, Associate Professor, 1997; Doctor of Philosophy in Pharmacology and Toxicology, Virginia Commonwealth University (1984)

Schuetz, Erin Gallagher, Associate Professor, 1997; Doctor of Philosophy in Pathology, Virginia Commonwealth University (1983)

Schulman, Brenda, Professor, 2004; Doctor of Philosophy, Massachusetts Institute of Technology (1996)

Schultz-Cherry, Stacey Lynn, Associate Professor, 2012; Doctor of Philosophy in Pathology, University of Alabama at Birmingham (1995)

Schwarz, Ilsa, Professor, 2002; Doctor of Philosophy in Speech Pathology and Audiology, University of Oregon (1982)

Scroggs, Reese Schiller, Associate Professor, 1992; Doctor of Philosophy in Pharmacology, University of Illinois, Chicago (1989)

Seagroves, Tiffany, N., Associate Professor, 2005; Doctor of Philosophy in Cell & Molecular Biology, Baylor College of Medicine (1999)

Senogles, Susan E., Professor and Vice Chair, 1989; Doctor of Philosophy in Biochemistry, University of Minnesota (1984)

Shiloah, Jacob, Professor, 1977; Doctor of Dental Medicine, The Hebrew University, Hadassah School of Dental Medicine (1971)

Slominski, Andrzej, Professor, 2000; Doctor of Philosophy, Medical University of Gdansk (1983); Doctor of Medicine, Medical University of Gdansk (1979)

Smeyne, Richard, Associate Professor, 1997; Doctor of Philosophy in Anatomy, Thomas Jefferson University (1990)

Smith, Richard A., Associate Professor, 1983; Doctor of Philosophy in Cell Biology, University of Memphis (1997)

Snyder, Scott Eric, Adjunct Associate Professor, 2008; Doctor of Philosophy in Medical Chemistry & Pharmacognosy, Purdue University (1993)

Solomon, David K., Professor, 1990; Doctor of Pharmacy, University of Tennessee Health Science Center (1970)

Sorrentino, Brian P., Assistant Professor, 1994; Doctor of Medicine, State University of New York, Upstate Medical University (1985)

Sosa-Pineda, Beatriz, Assistant Professor, 2001; Doctor of Philosophy in Biological Sciences, University of Uruguay (1991)

Stegbauer, Cheryl, Professor, 1976; Doctor of Philosophy in Nursing, University of Tennessee Health Science Center (1994)

Stein, Sidney H., Associate Professor, 1998; Doctor of Dental Medicine, Washington University in St. Louis (1982); Doctor of Philosophy in Microbiology and Immunology, University of Rochester (1992)

Steinle, Jena Jean, Associate Professor, 2007; Doctor of Philosophy in Physiology, University of Kansas (2001)

Steketee, Jeffery D., Professor, 2001; Doctor of Philosophy in Biomedical Sciences, University of Texas Health Science Center at Houston (1989)

Stewart, Clinton F., Professor, 1991; Doctor of Pharmacy, University of Tennessee Health Science Center (1981)

Stokes, Dennis C., Professor, 2007; Doctor of Medicine, University of Kentucky Medical Center (1973)

Straughn, Arthur, Professor, 1974; Doctor of Pharmacy, University of Tennessee Health Science Center (1974)

Sun, Wen Lin, Assistant Professor, 2006; Doctor of Philosophy in Pharmacology, University of Arkansas for Medical Sciences (2000)

Suttle, Dale Parker, Associate Professor, 1993; Doctor of Philosophy in Chemistry and Biochemistry, University of Texas at Austin (1975)

Sweatman, Trevor W., Professor, 1983; Doctor of Philosophy in Clinical Pharmacology, Southampton University Medical School (1981)

Tavalin, Steven J., Associate Professor, 2001; Doctor of Philosophy in Pharmacology and Toxicology, Virginia Commonwealth University (1996)

Taylor, Michael R., Assistant Professor, 2010; Doctor of Philosophy in Biochemistry, University of Washington (2002)

Thomas, Fridtjof, Assistant Professor, 2007; Doctor of Philosophy in Statistics, Stockholm University (2001)

Tigy, Gabor Joseph, Professor and Chair, 1992; Doctor of Philosophy, Hungarian Committee of Scientific Qualifications (1993); Doctor of Medicine, University Medical School of Pecs (1982)

Tipton, David A., Professor, 1984; Doctor of Dental Surgery, University of Tennessee Health Science Center (1978); Doctor of Philosophy in Biology, University of Memphis (1988)

Tolley, Elizabeth A., Professor, 1985; Doctor of Philosophy in Animal Science, Virginia Polytechnic Institute & State University (1981)

Tran, Nhu Quynh T., Associate Professor, 2012; Doctor of Philosophy in Biology, University of Memphis (2011)

Trojan, Terry, Associate Professor and Chair, 2009; Doctor of Dental Surgery, University of Michigan (1970); Master of Science in Orthodontics, University of Michigan (1974)

Versluis, Antheunis, Professor, 2010; Doctor of Philosophy, University of Greenwich (1994)

VonHapsburg, Deborah, Associate Professor, 2001; Doctor of Philosophy in Communication Sciences & Disorders, University of Texas at Austin (2003)

Wan, Jim Y., Associate Professor, 1994; Doctor of Philosophy in Statistics, Yale University (1987)

Wang, Junling, Associate Professor, 2005; Doctor of Philosophy in Pharmaceutical Health Services Research, University of Maryland Baltimore (2005)

Wasson, Joseph L., Professor, 1964; Doctor of Dental Surgery, University of Tennessee Health Science Center (1960); Master of Science in Orthodontics, University of Tennessee Health Science Center (1962)

Waters, Christopher M., Professor and Vice Chair, 1999; Doctor of Philosophy in Biomedical Engineering, Vanderbilt University (1991)

Waters, Teresa Meyer, Professor, 2000; Doctor of Philosophy in Health Economics, Vanderbilt University (1992)

Webb, Thomas R., Adjunct Professor, 2009; Doctor of Philosophy in Organic Synthesis, University of California, Santa Cruz (1980)

Webby, Richard John, Associate Professor, 2004; Doctor of Philosophy in Virology, University of Otago (1998)

Webster, Robert G., Professor, 1999; Doctor of Philosophy in Microbiology, Australian National University (1963)

Weinberg, Jordan Allan, Associate Professor, 2004; Doctor of Medicine, University of Toronto (1969)

Wells, Martha H., Assistant Professor, 2010; Doctor of Dental Medicine, Georgia Health Sciences University (2006), Master of Science in Restorative Dentistry, Ohio State University (2008)

White, Stephen W., Professor, 1998; Doctor of Philosophy, University of Oxford (1978)

White-Means, Shelley Irene, Professor, 1998; Doctor of Philosophy, Northwestern University (1983)

Whitt, Michael A., Professor, 1991; Doctor of Philosophy in Microbiology, University of California, Davis (1987)

Wicks, Mona, Professor, 1987; Doctor of Philosophy in Nursing, Wayne State University (1992)

Williams, Robert, Professor, 1989; Doctor of Philosophy in Physiology, University of California, Davis (1983)

Wilson, Thaddeus, Associate Professor, 2000; Doctor of Philosophy in Medical Physics, University of Wisconsin - Madison (2000)

Wingo, Jeffrey L., Assistant Professor, 1994; Doctor of Dental Surgery, University of Tennessee Health Science Center (1990)

Won, Jong Ho, Assistant Professor, 2012; Doctor of Philosophy in Bioengineering, University of Washington (2010)

Wood, George C., Professor, 1974; Doctor of Philosophy, University of Illinois at Chicago (1971)

Wu, Zhaohui, Assistant Professor, 2008; Doctor of Philosophy, Fudan University (2001)

Wyatt, Robert, Professor, 1984; Doctor of Medicine, Medical School of Georgia (1973); Master of Science in Epidemiology, University of Tennessee Health Science Center (2001)

Yang, Jun J., Adjunct Assistant Professor, 2010; Doctor of Philosophy in Biochemistry & Molecular Biology, Purdue University (2006)

Yates, Charles Ryan, Professor, 1994; Doctor of Pharmacy, University of Tennessee Health Science Center (1997)

Yen, Michael, Professor, 2006; Doctor of Philosophy in Engineering Science & Bioengineering, University of California, San Diego (1973)

Yoo, Wonsuk, Assistant Professor, 2010; Doctor of Philosophy in Biometry, Medical University of South Carolina (2004)

Zakharenko, Stanislav S., Associate Professor, 2006; Doctor of Philosophy in Biological Sciences, Russian Academy of Science (1996); Doctor of Medicine, Russian State Medical University (1994)

Zambetti, Gerard P., Professor, 1999; Doctor of Philosophy in Medical Sciences-Immunology & Medical Microbiology, University of Florida (1989)

Zhang, Xin, Professor, 2000; Doctor of Medicine, University of Geneva School of Medicine (1992); Bachelor of Medicine, Wuhan University School of Medicine (1985)

Zheng, Jie, Associate Professor, 2000; Doctor of Philosophy in Physics, City University of New York (1991)

Zhou, Fuming, Associate Professor, 2004; Doctor of Philosophy in Physiology & Biophysics, University of Alabama at Birmingham (1995); Bachelor of Medicine, Suzhou Medical College (1985)

Zuo, Jian, Professor, 1998; Doctor of Philosophy in Physiology, University of California, San Francisco (1993)

**THE UNIVERSITY OF TENNESSEE  
HEALTH SCIENCE CENTER**

**CATALOG 2012 - 2013**



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**COLLEGE OF MEDICINE**

**910 Madison Ave, Suite 1000 • Memphis, TN 38163 • Tel: (901) 448-5529**

**David M. Stern, M.D. College of Medicine – Memphis Executive Dean**

David C. Seaberg, M.D., C.P.E., F.A.C.E.P.  
Dean, College of Medicine - Chattanooga

James Neutens, Ph.D.  
Dean, College of Medicine - Knoxville

Robert G. Shreve, Ed.D.  
Associate Dean, Office of Medical Education

Owen Phillips, M.D.  
Associate Dean, Admissions and Student Affairs

Eugene Mangiante, Jr., M.D.  
Associate Dean,  
Graduate Medical Education and Continuing Medical Education

Polly Hofmann, Ph.D. Associate Dean, Faculty Affairs

Tim Mashburn, M.B.A.  
Associate Dean, Finance and Administration

James Lacey Smith, M.D. Associate Dean, Clinical Affairs

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## GENERAL INFORMATION

### Mission Statement

The mission of The University of Tennessee College of Medicine is to improve the health of Tennesseans and our society as a whole by providing an exceptional and nurturing environment for the education of students and physicians, by contributing to advances in medical science, and by providing health services of the highest quality.

### Message from the Dean

Medical school provides the basis for a career that is among the most rewarding possible. The curriculum is demanding and requires your total effort. Our programs are exciting and innovative, combining the solid foundation needed for a great medical education, while instilling the habits and tools that are necessary to assimilate the rapid changes that will occur in the future.

Our faculty members are dedicated to providing the stimulus and environment to maximize your learning experience. The administration of the College is charged with providing support to you, as students, through our faculty and facilities that will ensure your development as practitioners who are as concerned about improving patient care as you are about providing care. The Dean's office is available to you. We hope that you will take full advantage of the opportunities offered by all aspects of the College of Medicine.

*David M. Stern, M.D.  
Executive Dean, College of Medicine*

### Historical Perspective

The University of Tennessee College of Medicine traces its origin to 1851 as the Medical Department of the University of Nashville. In 1909, the Medical Department of the University of Tennessee and the Medical Department of the University of Nashville were consolidated as The University of Tennessee Department of Medicine. The Department continued in the Nashville location for two years.

In 1911, the University of Tennessee Department of Medicine moved to Memphis and merged with the College of Physicians and Surgeons, founded in 1906, and with the Memphis Hospital Medical College, founded in 1876, to become The University of Tennessee College of Medicine. Later that same year, the name of the campus was changed to The University of Tennessee Medical Units, and the Colleges of Medicine, Pharmacy, and Dentistry were established.

In the early 1970's, the College moved toward a statewide system of medical education with the development of clinical education centers external to the Memphis campus. Since the opening of the Clinical Education Center in Knoxville in 1973, additional centers have been established in Chattanooga, Jackson, and Nashville. These centers have enabled the College to provide quality health care, education, and research throughout the State of Tennessee.

The designation of the campus as The University of Tennessee, Memphis -The Health Science Center was adopted in 1985 by The University of Tennessee Board of Trustees and was changed to The University of Tennessee Health Science Center in 1999. The College of Medicine has an enrollment of 165 students per class currently, has over 12,500 graduates.

### Administrative Structure

The College of Medicine includes a primary campus located in Memphis, as well as clinical campuses located in Knoxville and Chattanooga, an internal medicine program in Nashville, and a Family Practice Center in Jackson. In 2006-07, the College governance was reorganized to include an Executive Dean, a Dean Memphis Campus, Dean Knoxville Campus, and Dean Chattanooga Campus. The College is organized into departments and centers representing the various clinical and biomedical science disciplines that are our research emphases. The campus dean appoints a chair for each department who is responsible for the total operation of the department including teaching, research, service, patient care, personnel administration, and financial affairs. A number of associate deans, also appointed by the Executive Dean, are responsible for specific administrative areas within the College statewide. They chair standing faculty committees established by the Dean to make recommendations regarding policies and programs. The standing committees and subcommittees of the College of Medicine are:

- Committee on Undergraduate Medical Education (CUME)\*
  - Biomedical Sciences Subcommittee (BSS)\*
  - Clinical Sciences Subcommittee (CSS)\*
- College Appointment, Promotion and Tenure Committee (CAPT)
- Committee on Admissions\*
- Committee on Continuing Medical Education
- Committee on Graduate Medical Education (CGME)\*
- Progress and Promotions Committee for each class (P&P)
- Committee on Recognition and Awards\*

*\*indicates the committees on which there are voting student members, nominated by the Medical Student Executive Council (MSEC) and appointed by the Executive Dean.*

## Office of Medical Education

<http://www.uthsc.edu/Medicine/medicaleducation/>

The Office of Medical Education (OME) is responsible for the academic standards affecting the M.D. degree program in the College of Medicine. The Office oversees the development and implementation of policies and procedures affecting the academic progress, promotion, and graduation of medical students. The OME, in collaboration with faculty through the Committee on Undergraduate Medical Education (CUME) and its two subcommittees, Biomedical Sciences Subcommittee (BSS) and the Clinical Science Subcommittee (CSS), coordinates the four-year medical student curriculum. The OME coordinates curricular activities across the three (3) campuses. It establishes and manages course and clerkship scheduling and assessment, and course and student evaluation. This Office enforces academic standards through appointment and coordination of Progress and Promotions Committees for each class.

## Office of Admissions and Student Affairs

<http://www.uthsc.edu/Medicine/StudentAffairs/>

The Office of Student Affairs is concerned with the overall growth, development, and graduation of medical students. Thus, the goal of the Office is to meet students' individual needs and to serve in an advising capacity to various student activities. Programs sponsored by the Office of Student Affairs include: Freshman Orientation, Faculty Mentor Program, Peer Counseling Program, Student Publications, Residency Placement Assistance, Medical Student Performance Evaluation, Career Counseling, Student Organization Support Guidance, Student/Faculty Award Selections, Graduation Ceremonies, and the Caduceus Ball. Student Affairs personnel seek to enhance students' nonacademic experiences with a goal of assuring that problems are addressed before they have an adverse effect. Students with concerns, whether personal, financial, or social, should not hesitate to seek assistance.

The Office of Admissions oversees the admissions process for the College of Medicine. The Admissions Office advises prospective students, provides guided tours on interview days, manages the processing of application materials, screens applications as received, notifies applicants of interviews, and counsels unsuccessful applicants. The responsibility of the selection of students for admission to the College of Medicine is delegated to the Committee on Admissions by the Executive Dean under the authority of the Board of Trustees of the University. The Admissions Committee is charged with selecting those applicants who are deemed to be the most highly qualified for the study and practice of medicine. The Admissions Committee also establishes standards for admission to the College, which are approved by the College of Medicine, the Administration of The UT Health Science Center, and the University Board of Trustees.



## **Office of Graduate Medical Education**

<http://www.uthsc.edu/GME/>

The University of Tennessee College of Medicine's commitment to medical education is to provide "a broad array of programs targeted at the education and training of physicians at the undergraduate, graduate, and postgraduate levels." As the responsible institution for all ACGME accredited residency programs, the College of Medicine is responsible for the administrative oversight and academic quality of the residency programs that it sponsors. The policies of the University of Tennessee and College of Medicine govern the administration of the residency programs. Each resident is registered as a graduate student in the College of Medicine, and all residents are paid and provided benefits by the University of Tennessee. The UT GME Program is a statewide program with over 900 residents training in participating hospitals located in Chattanooga, Jackson, Knoxville, Memphis and Nashville.

## **Office of Faculty Affairs**

<http://www.uthsc.edu/Medicine/facultyaffairs/>

The Office of Faculty Affairs is responsible for issues relating to the COM faculty including recruitment, orientation, and faculty development. The office is responsible for the development and interpretation of policies and procedures for promotion and tenure, supporting the work of the COM Academic Appointments, Promotion and Tenure Committee (CAPT), grievance and appeal procedures, annual faculty performance evaluation, annual reappointment letters, and faculty retention.

## **Accreditation**

The College of Medicine is a member of the Association of American Medical Colleges (AAMC) and is accredited by the Liaison Committee on Medical Education (LCME), which represents the Council on Medical Education of the American Medical Association and the AAMC. The College also is accredited by the Southern Association of Colleges and Schools (SACS) through the Health Science Center.

## **DEGREES OFFERED**

The University of Tennessee College of Medicine offers an educational program leading to the Doctor of Medicine (M.D.) degree. The College of Medicine also participates in the Doctor of Medicine/Doctor of Philosophy (M.D./Ph.D.) combined degree program, with the College of Graduate Health Sciences.

## ACADEMIC CALENDAR 2012 – 2013

Date	Activity	Class
Sunday, July 1, 2012	Tuition and Fees Due, Fall Semester	M3, M4
Monday, July 2, 2012	Fall Semester Clerkships Begin	M3, M4
Monday, Aug 13, 2012	Orientation Week Begins	M1
Monday, Aug 13, 2012	Tuition and Fees Due, Fall Semester	M1, M2
Monday, Aug 13, 2012	Class Begins	M2
Monday, Aug 20, 2012	Class Begins	M1
Monday, Sept 3, 2012	University Holiday (Offices Closed)	M1, M2
Monday, Nov 19, 2012	Fall Break Begins	M3, M4
Thurs, Nov 22, 2012	Fall Break Begins	M1, M2
Sunday, Nov 25, 2012	Fall Break Ends	M1, M2, M3, M4
Friday, Dec 7, 2012	Graduation	
Friday, Dec 14, 2012	Fall Semester Clerkships End	M3, M4
Friday, Dec 21, 2012	Last Day of Classes	M1, M2
Mon, Dec 24, 2012 – Fri, Dec 28, 2012	University Holiday (Offices Closed)	All
Tues, Jan 1, 2013	University Holiday (Offices Closed)	All
Thurs, Jan 3, 2013	Tuition and Fees Due, Spring Semester	All
Monday, Jan 7, 2013	Classes Resume	All
Monday, Jan 21, 2013	Martin Luther King Holiday (Offices Closed)	All
Friday, Mar 15, 2013	M2 Classes End	M2
Mon, Mar 18, 2013 – Fri, Mar 22, 2013	Spring Break	M1
Friday, Mar 29, 2013	University Holiday (Offices Closed)	All
Mon, Apr 1, 2013 – Fri, Apr 5, 2013	Spring Break	M3, M4
Friday, Apr 26, 2013	End of M2 Curriculum	M2
Monday, May 27, 2013	University Holiday (Offices Closed)	M1
Friday, May 31, 2013	Spring Semester Ends and Graduation	M4
Friday, May 31, 2013	Classes End	M1, M3

## ADMISSIONS REQUIREMENTS AND SELECTION

### Admissions

The University Tennessee College of Medicine admits a class of 165 students in August each year. Applicants must be citizens or permanent residents of the United States at the time of application. Applications are accepted from:

- Tennessee residents;
- Residents of the eight states contiguous to Tennessee - Mississippi, Arkansas, Missouri, Kentucky, Virginia, North Carolina, Georgia, and Alabama;
- Children of UT System alumni regardless of their state of residence.

As a state supported institution, qualified Tennesseans are given priority in each entering class. A maximum of ten percent of the matriculants may be non-residents; therefore, nonresidents must possess superior qualifications to be seriously considered for admission. The College of Medicine uses the American Medical College Application Service (AMCAS). Applications must be received by AMCAS no later than November 15 of the year prior to admission. Upon initial review of AMCAS application, a secondary application is forwarded to applicants considered competitive for further review by the Committee on Admissions. The AMCAS application can be found at <https://www.aamc.org/students/applying/amcas/>.

Three major areas are considered in admissions decisions: undergraduate academic preparation and achievement; personal qualities as assessed from interviews with members of the Committee on Admissions, the pre-professional evaluation, recommendations, and the personal statement included in the application; and scores on the Medical College Admissions Test (MCAT). Each of these areas is important with no one area seen as more significant in the admission decision than another. Criminal background checks are required prior to matriculation.

### Technical Standards for Medical Students

The goal of The University of Tennessee College of Medicine is the broad preparation of students for the practice of medicine. This goal is achieved in part by undergraduate medical education, postgraduate medical education, and preparation for life-long learning. Modern medical education requires that the accumulation of scientific knowledge be accompanied by the simultaneous acquisition of skills and professional attitudes and behavior. Our faculty has the responsibility to graduate the best possible physicians; thus, admission to medical school is offered to those who present the highest qualifications for the study and practice of medicine.

Applicants to the College of Medicine must possess the following general qualities: critical thinking, sound judgment, emotional stability and maturity, empathy, physical and mental stamina, and the ability to learn and function in a wide variety of educational settings. In all phases of medical education, students of medicine must use their intellectual ability and must maintain emotional stability, particularly when under stress. Graduates of the College must have the knowledge and skills to function in a wide variety of clinical situations and to render a broad spectrum of patient care. Prospective students must meet certain minimum technical standards.

Candidates for the M.D. degree must have the following essential functions: motor skills; sensory and observational skills; communication skills; conceptual, integrative, and quantitative skills; behavioral and social skills; and professionalism.

- **Motor Skills:** Candidates should have sufficient motor function to elicit information from patients by palpation, auscultation, percussion, and other diagnostic maneuvers. Candidates should be able to execute motor movements necessary to provide general care and emergency treatment to patients.
- **Sensory and Observational Skills:** Candidates must be able to observe demonstrations and participate in experiments as required in the curriculum. They must be able to observe a patient accurately at a distance as well as close at hand and be able to obtain a medical history directly from the patient, while observing the patient's medical condition. This observation necessitates the functional use of the sense of vision, hearing, and other sensory modalities.

- **Communication Skills:** Candidates must be able to communicate effectively and sensitively in oral and written form with patients. These skills must be demonstrated at times in clinical settings when the time available for communication may be limited.
- **Conceptual, Integrative, and Quantitative Skills:** These skills include measurement, calculation, reasoning, analysis, and synthesis. Problem solving and diagnosis, the critical skills demanded of physicians, require all of these intellectual abilities. In addition, candidates must be able to comprehend three-dimensional relationships and to understand the spatial relationships of structures.
- **Behavioral and Social Skills, and Professionalism:** Empathy, integrity, concern for others, interpersonal skills, interest, and motivation are all personal qualities that will be assessed during the admissions process and throughout medical education. Candidates must possess the emotional well-being required for the full use of their intellectual abilities; the exercise of sound judgment; the prompt completion of all responsibilities attendant to the diagnosis and care of patients; and the development of mature, sensitive, and effective relationships with patients. Candidates must be able to tolerate physically taxing workloads and to function effectively when stressed. They must be able to adapt to changing environments, to display flexibility, and to learn to function in the face of the uncertainty inherent in the clinical problems of many patients.

In summary, the mission of the faculty is to prepare students for the comprehensive practice of medicine. The Committee on Admissions and the College of Medicine, in accordance with Section 504 of the 1973 Vocational Rehabilitation Act and the Americans with Disabilities Act (ADA) {Public Law 101 -3367}, has established the aforementioned essential functions of medical students and physicians. The Committee on Admissions will consider applicants for admission who demonstrate the ability to perform or to learn to perform the essential skills listed in this document. The College must ensure that patients are not placed in jeopardy by students or physicians with substantially impaired intellectual, physical, or emotional functions. Students will be judged not only on their scholastic accomplishments, but also on their physical and emotional capacities to meet the full requirements of the school's curriculum and to graduate as skilled and effective practitioners of medicine.

### Undergraduate Academic Preparation

Because the College of Medicine recognizes the importance of a broadly based undergraduate education in the liberal arts and sciences, no specific major is required for medical school admission. Prospective candidates are encouraged to major in their area of greatest interest; and regardless of choice of major, are encouraged to pursue a course of study which achieves a balance between both science and non- science course work. Further, because of the relevance of a broadly based education to success in medical school, the Committee is particularly impressed by students whose education has provided a range of intellectual experience, including opportunities for analytical thinking and independent study. With rare exception, the completion of an undergraduate degree will be necessary in order to fulfill educational expectations. In addition to the pattern and content of courses taken, consideration is given to achievement in these courses. Generally, the grade point average for entering classes is 3.6 overall and in prescribed course work. In support of this philosophy of education, the following are the only courses required for admission:

#### REQUIRED COURSES

<b>Subjects</b>	<b>Semester Credit Hrs</b>
Biology	8
General Chemistry	8
Organic Chemistry	8
Physics	8
English Composition/Literature	6
Electives	<u>52</u>
<b>TOTAL</b>	<b>90</b>

**Chemistry**

A minimum of sixteen semester hours of chemistry is required, eight semester hours of organic chemistry and eight semester hours of inorganic chemistry, which may include analytical chemistry. Each of these courses must be a complete, standard, college-level course utilizing full laboratory facilities. In instances where students feel uncertain of their preparation in chemistry and wish to take additional course work, biochemistry is recommended.

**Physics**

Acceptable courses in physics must include laboratory credits and must adequately cover mechanics, heat, light, sound, electricity, and magnetism. Survey types of courses will not satisfy this requirement.

**Biology**

Eight semester hours in modern concepts of mammalian biology, including laboratory are required. Courses in botany do not meet this requirement. Applicants, particularly non-science majors, are strongly encouraged to pursue upper level coursework in the biological sciences beyond the minimum requirement. Such courses might include biochemistry, cell biology, comparative anatomy, embryology, general genetics, histology, immunology, mammalian physiology, microbiology or related courses.

**English Composition**

Facility in the use of both oral and written English is considered highly essential to the successful study of medicine. Introductory freshman English (six semester hours) will meet the admission requirement. Students who qualify for advanced placement credit in English will not be required to take additional English courses, although they are encouraged to do so.

**Electives**

In as much as the medical curriculum is devoted largely to the biological and physical sciences, a student should acquire a broad cultural background in the pre-medical preparation. The behavioral sciences, including psychology, sociology, etc., are considered valuable. Additional dimensions are derived from higher mathematics, computer sciences, languages, literature, philosophy, history, political science, economics, etymology and statistics.

Advanced placement credit or other non-traditional credit in prescribed science courses will be honored in fulfilling requirements for the College of Medicine, provided such placement has been followed by a more advanced course in the same discipline. (Example: A student granted credit for biology will be required to complete the eight semester hour requirement by taking advanced courses in that discipline.) The Committee on Admissions will consider grade averages attained in both prescribed and elective courses. A grade of "C" or better in each of the prescribed pre-medical courses is required. If a prospective student is uncertain of the acceptability for premedical credit of a proposed course of study, and if the pre-professional advisor cannot advise in the matter, the prospective student is invited to make inquiry to the Office of Admissions, College of Medicine, The University of Tennessee Health Science Center, Memphis, TN 38163.

## Medical College Admission Test (MCAT)

Candidates admitted to the College of Medicine must achieve a satisfactory score on the MCAT. Average scores for recent entering classes have been 10's in each subject area (total of 30). The MCAT is offered over 25 times a year on a national basis by the Association of American Medical Colleges (AAMC). Registration for the MCAT is done online through the AAMC at <https://www.aamc.org/>. The test must be taken no later than September of the year preceding the desired date of admission. The College of Medicine will accept scores taken no longer than 5 years prior to the year of desired matriculation.

## Additional Considerations for Admissions

### Personal Qualities and Motivation toward Medicine

An applicant's interest in and motivation toward the medical profession is an important factor in the admissions decision. In order to assess the motivation and personal qualities of an applicant, selected individuals are invited to campus for interviews with members of the Committee on Admissions. Both academic achievement and MCAT scores are considered by the Committee in determining who will be invited to interview. Each year, 450-500 applicants are invited for admission interviews. Interviews take place between October and March.

The personal statement on the application and evaluations submitted on behalf of the candidates allow further insight into the values and motivation of the candidates. An evaluation from the official Pre-professional Advisory Committee (where such a committee exists), or letters from three faculty members, is required.

A maximum of three additional recommendations may be submitted.

### Medical Experience

The Committee of Admissions considers it vital that prospective students enhance their knowledge of medicine through direct, patient-centered clinical experience in a variety of settings. Such experience, which is frequently gained through volunteer work, should provide a greater understanding of the realities of medicine as well as an opportunity for service.

## Deferred Matriculation

Students who are accepted for admission are offered the opportunity of deferring their matriculation for one year, with a guaranteed position in the following class. During the intervening period, students may earn money to finance their medical education, take advantage of additional educational experiences they may not have pursued otherwise, or take care of personal or family obligations. Those who desire to delay their entrance must notify the Chair of the Committee on Admissions of the College of Medicine in writing by July 1, prior to the originally scheduled enrollment date.

## Advanced Standing

Transfer or advanced standing applications will be considered for the third year only. Regardless of availability of spaces, only students clearly demonstrating outstanding academic and personal achievement will be considered for transfer into the third year of the College of Medicine curriculum. The selection of transfer students is on a competitive basis. Deadline for application is April 1. In order to be considered by the Committee on Admissions, a candidate must supply evidence of the following:

- The completion of the basic requirements for admission to the College of Medicine, including Tennessee residency\* at the time of admission to the medical school in which the student has been enrolled;
- Satisfactory completion of the equivalent of the biomedical sciences portion of the College of Medicine curriculum at an LCME accredited institution and be in good academic standing;
- A passing score on the Step 1 United States Medical Licensing Examination; and,
- Evidence of circumstances necessitating a transfer.

By right of official affiliation with the UT College of Medicine, immediate family members of UT faculty and interns or residents selected for UT programs may apply for admission with advanced standing regardless of state of residence. However, as always, the candidates' credentials will be the sole determinant of admission.

## Diversity/Groups Underrepresented in Medicine

The College values diversity in its medical education programs. Individuals from different backgrounds and experiences not only enhance the quality of education for all students, but also translate into graduates who are more effective and better prepared to serve multiple patient populations. The UT Health Science Center College of Medicine actively encourages applications from members of groups who are underrepresented in medicine, e.g., students from ethnic minority groups underrepresented in medicine, rural areas, disadvantaged socioeconomic or educational backgrounds, or students with past or present military service. The Committee on Admissions evaluates nonacademic, as well as, academic factors in the selection process, with consideration being given to the unique backgrounds and challenges of these applicants. Among American medical schools, the UT Health Science Center College of Medicine is a national leader in the admissions, matriculation, and graduation of students from groups underrepresented in medicine.

## TUITION, FEES, AND EXPENSES

### Tuition, Fees and Estimated Cost of Attendance

The Bursar's Office is a unit of the UT Health Science Center Office of Finance and Operations. The mission of the Bursar's Office is to serve the student community by providing assistance with receivable accounts and various other financial activities. The Bursar's Office also functions as the central depository for the UTHSC. Information regarding tuition and fees is available at [http://www.uthsc.edu/finance/bursar/colleges\\_fee\\_information.php](http://www.uthsc.edu/finance/bursar/colleges_fee_information.php). Additional information regarding estimated cost of attendance is available at <http://www.uthsc.edu/finaid/Medicine.php>.

### Book, Computer, and Equipment Expenses

Outside of certain college expenses where cost is "fixed," the most expensive single item that students face is the purchase of books - required or recommended. Following are suggested guidelines regarding the purchase of textbooks:

- Wait to buy any textbook until the instructor has been consulted or has held a class. The bookstore typically has a sufficient number of all required textbooks.
- Consider buying used textbooks from bulletin board notices or the MSEC book sale at the beginning of each semester.
- Consult upperclassmen for advice on textbooks and about the possibility of borrowing/buying their books.

Students are required to purchase certain **clinical equipment** as outlined in the website for use in M1-M4 courses.

All incoming students to the UT College of Medicine are required to have a laptop computer that is capable of access to the Internet. The College of Medicine provides students with access to campus-based computer labs, but due to the limited number of workstations available and use by other colleges, it is necessary for students to have their own computers. Students also are expected to possess at least minimal computer literacy. Students are required to purchase an Audience Response System keypad (available in the Bookstore). Students are encouraged to purchase an electronic device that will download a drug database prior to beginning the clinical portion of the curriculum. Specific information regarding network availability, the minimum computer specifications, and software recommendations is available at: [http://www.uthsc.edu/Medicine/medicaleducation/computer\\_requirement.php](http://www.uthsc.edu/Medicine/medicaleducation/computer_requirement.php).

## Medical Student Medical Liability Insurance Coverage

Medical students enrolled in the COM UTHSC have liability insurance for clinical activities performed while under the direction of UT faculty (regular and clinical faculty) and/or residents. Medical students are also covered if enrolled in preapproved visiting electives at outside institutions. Medical students are not covered for clinical activities performed outside UTHSC or under the supervision of non-University faculty or residents.

## SOURCES OF FUNDING

### Financial Aid

The University of Tennessee Health Science Center offers a comprehensive financial aid program to qualified students on the basis of need and ability. Financial aid is available to students in the form of grants, scholarships, loans, and part-time work. The University of Tennessee Health Science Center believes that the cost of education is the primary responsibility of the student and/or the student's family. The purpose of aid is to reduce the difference between the cost of education and what a family can reasonably be expected to pay. A limited number of aid programs are available that do not require that students establish need. Personnel in the Financial Aid Office are available to help students explore possible financial aid sources to meet their individual needs. The goal of the office is to see that students do not forego an education because of financial need.

Careful and realistic financial planning is a necessary part of college preparation. Other services offered by the Financial Aid office include budget counseling, debt management information, and pre-loan counseling.

The Free Application for Federal Student Aid ([FAFSA](#)) is the only application required for financial aid at the University of Tennessee Health Science Center. Further information concerning the application process for financial aid and specific financial aid programs may be found at <http://www.uthsc.edu/finaid/>.

### Emergency Loans

Emergency loans are available to medical students for up to \$500 through the Office of Student Affairs. Loans are based on need and availability of funds. Interest is six percent (6%) per annum and repayment is within thirty days. Loans are based on need and availability of funds. Students experiencing financial difficulty are also encouraged to contact the Office of Financial Aid Services, 910 Madison Avenue #1034, (901) 448-5568.

### Policy on Employment

The College of Medicine supports the view that a successful medical school experience requires a full time commitment on the part of most students. Medical students' primary responsibility must be to scholarship and to their academic pursuits. The College of Medicine recognizes that financing the cost of medical training may require, under very compelling circumstances, that some medical students seek employment during the academic year.

Any student considering employment is encouraged to contact the Office of Student Affairs to seek voluntary counseling. Students will be advised on (1) alternative employment options, especially those that promote further professional growth and development, (2) the impact that employment may have on academic performance, and (3) the availability of other sources of income.

Under no circumstances should the nature of the student's work experience misrepresent the level of professional skill or knowledge. In addition, the work experience should not require a level of time commitment that could adversely affect academic performance. It should be clearly understood that the minimal standards for progress and promotion must be met by all students, regardless of employment.



## GENERAL POLICIES AND PROCEDURES

### Class Attendance

The instructional program in the biomedical sciences portion of the curriculum has been developed by the faculty to provide students with the knowledge and background necessary for the study of clinical medicine. Students are expected to attend the various experiences as an expression of their professional commitment and dedication. Some curricular experiences, because of their special nature (e.g. laboratories, small group conferences, Team-based Learning, active learning, self-directed learning and related activities), may be designated by faculty as required experiences. Students will be informed of these requirements at the beginning of the course.

### Code of Professional Conduct

The University of Tennessee medical community believes that professionals gain their credibility by their commitment to society. As a professional group, we recognize our obligation to our patients, colleagues, community, families, and ourselves. Realizing that it is a privilege and an honor to be a medical professional, we the students, residents, fellows, and faculty of the UT Memphis College of Medicine embrace the following ideals:

- **Patient welfare is our primary concern**, for only by commitment do we justify the trust placed in us by patients and the community at large. Although we hold the acquisition of knowledge and the development of technical skills essential to patient care, we shall strive to balance the science with the art of medicine by maintaining respect and compassion for the dignity of all patients. Each patient shall receive our best efforts regardless of personal feelings or biases. Desires for social or economic gain shall not affect the honesty and integrity with which we deal with patients. Nor shall the pressures placed upon the members of our profession compromise the quality of care we provide.
- **Relationships with our colleagues** are an exceedingly important part of professional conduct. Our interactions with colleagues provide us a sense of support, trust, and sharing. As members of a professional community, we shall be aware that our personal conduct reflects upon others of that community. Professionalism includes being respectful in our communications and behavior toward colleagues and others. We shall avoid comments and actions that might reasonably be perceived as offensive or demeaning by others. This applies also to communications on web-based social media and other electronic media.
- We shall be willing to **share our knowledge and expertise** with colleagues and remain open to their advice and criticism. We shall know our own limitations and ask for advice when needed. We shall fulfill our own responsibility and, in the spirit of professional cooperation, accommodate a colleague if our assistance is requested. We shall be sensitive to the physical and emotional weaknesses of a colleague and shall lend support in time of need. Further, our responsibility to patient care implies identification of colleagues whose ability to provide care is impaired. This must be followed by our full support toward the rehabilitation of those colleagues, and their reintegration into the professional community.
- **Integrating personal growth into our professional development** is essential to our commitment to medicine. To this end, we shall be attentive to our needs for physical, spiritual, and emotional well-being. We shall allow time for personal and family relations which enrich our lives and promote self-knowledge. Attention to personal maturation, family commitments and professional growth represent a continuing challenge throughout our career.
- As medical professionals, we realize that **we share with all citizens certain civic duties**. We shall strive to be responsible citizens. Our professional status shall not be used as a means to power and control. Rather, we seek to offer informed and compassionate leadership.

## Honor Code

The Honor Code of The University of Tennessee Health Science Center (UTHSC) is promulgated so that student academic affairs are conducted under the highest standards of individual responsibility. Students are bound by this Honor Code and pledge to act in accordance with the highest principles of ethical and professional conduct. These principles condemn any act of dishonor relating to the academic, clinical, research, and professional programs at UTHSC. The pledge states that any knowledge of a violation shall be reported in accordance with the provisions and procedures of the Honor Code. The College's Honor Code has been in effect for more than 50 years. It is a tradition of which we are proud. Additional information may be found at: <http://www.uthsc.edu/studentlife/honorcode.php>.

Excerpts from the Honor Council Statement, College of Medicine, written by members of the Honor Council are as follows:

“Upon admission to the University of Tennessee College of Medicine, each student accepts the responsibility of acting with honor in course work, clinics and research, and requires the same of his/her peers. We have an Honor Code, a system based on the idea of personal integrity and the belief that we share a common responsibility to our profession. The success of this system rests firmly with each individual . . . rather than accept outside monitoring of our actions, we elected to monitor ourselves. During our four years here, we face significant intellectual and personal challenges. The ethical challenges of medicine are just as important and just as demanding. If the University of Tennessee College of Medicine seeks to train good physicians and to promote a sense of honor and professional responsibility, then the Honor Code is a valuable institution. The medical undergraduate years are not too early to begin training ourselves to act with integrity and to expect the same from our peers.”

## Student Records

A student's official or permanent record pertains to academic progress, promotion and graduation, and is maintained in the Office of the Registrar. Academic, health, and disciplinary records are kept separately. Confidential records of all misconduct reports, investigations, and disciplinary actions are kept in the University of Tennessee Health Science Center Student Affairs Office. Medical records are maintained by the University Health Service, and financial aid records are maintained in The Office of Financial Aid. Transcripts of academic records are available to the individual student or his/her legal representative and to authorized members of the administration and faculty. Academic and health records are not available to others except by student request.

The University of Tennessee Health Science Center is in compliance with all provisions of the Family Educational Rights and Privacy Act (FERPA) of 1974, which provides enrolled students and former students the right to review the contents of certain student records that are maintained by the University. Students have the right of access to their permanent record maintained in the Registrar's Office. Students do not have the right to access financial records of parents, or the personal memory notes of a University official or faculty member. Students do have the right of access to their academic records in the College's Student Affairs Office. Students have access to individual transcripts online via the Student Information System (SIS).

## Student Mistreatment

The policy on student mistreatment has three main components: a statement of College of Medicine standards of behavior with regard to mistreatment, a description of methods used in the ongoing education of the college community concerning the standards of behavior and the process by which they are upheld, and a description of the College of Medicine process for responding to allegations of mistreatment. The statement of College of Medicine standards of behavior with regard to mistreatment is as follows: The University of Tennessee College of Medicine has a responsibility to foster in medical students, postgraduate trainees, faculty, and other staff the development of professional and collegial attitudes needed to provide caring and compassionate health care. To nurture these attitudes and promote an effective learning environment, an atmosphere of mutual respect and collegiality among teachers and students is essential. While such an environment is extremely important to the educational mission of the College of Medicine, the diversity of members of the academic community, combined with the intensity of interactions that occur in the health care setting may lead to incidents of inappropriate behavior or mistreatment. The victims and perpetrators of such behavior might include students, preclinical and clinical faculty, fellows, residents, nurses, and other staff. Examples of mistreatment include: sexual harassment; discrimination based on race, gender, religion, ethnic background, sexual orientation, handicapped condition, or age; and purposeful humiliation, verbal abuse,

threats, or other psychological punishment. Such actions are contrary to the spirit of learning, violate the trust between teacher and learner, and will not be tolerated by the College of Medicine.

To promote an environment respectful of all individuals, the College of Medicine will provide ongoing education to students, residents, fellows, faculty, and other staff emphasizing the importance of professional and collegial attitudes and behavior. Also, the college will make available a readily accessible neutral party (called a mediator) whom students may approach if they believe they have been mistreated. A process has been established to seek reconciliation between the parties in cases of alleged mistreatment. This process seeks to protect the accuser from retaliation and to protect the rights of all parties involved in a complaint. Through these efforts, the college will maintain an atmosphere essential to its educational mission in the training of physicians. To mistreat is to treat in a harmful, injurious, or offensive way. For example:

1. to speak insultingly or unjustifiably harshly to or about a person;
2. to belittle or humiliate;
3. to threaten with physical harm;
4. to physically attack (e.g., hit, slap, kick);
5. to require to perform personal services (e.g., shopping, baby-sitting);
6. to threaten with a lower grade for reasons other than course/clinical performance.

Individuals wishing to discuss possible violations of these policies should contact the College of Medicine Office of Student Affairs at (901) 448-5684. All inquiries will be held in strict confidence.

Accusations of racial or gender discrimination or harassment are referred to the UTHSC Affirmative Affairs Director. Disputes over grades are handled in accordance with College of Medicine academic policies. Additional information regarding the Mistreatment Policy and procedures can be found on the Student Affairs website: <http://www.uthsc.edu/Medicine/StudentAffairs/>

#### **If Mistreatment or Abuse Occurs**

When an allegation of mistreatment occurs, the parties directly involved should first try to resolve the matter themselves. Many incidents are amenable to resolution. In some situations, however, this informal approach might be hindered by reluctance of the accuser to approach the accused. In such cases, a more formal alternative process is available for resolving the matter through the "Mediator."

The role of the mediator, as the name implies, is to mediate between the conflicting parties and strive for reconciliation. It is anticipated that the mediator's assistance will result in the resolution of most cases brought to her/his attention. If a reasonable effort on behalf of the Mediator does not yield a solution or the accuser or the accused is not satisfied with the results obtained through the Mediator's efforts, the Mediator may contact the Conflict-Resolution Council to help resolve the case.

The Conflict-Resolution Council will assess the evidence as objectively as possible, be fair in its deliberations, and protect the rights of the accused and accuser. It is the function of this council to decide whether the matter should be brought to the attention of the Dean.

When it is the Dean's judgment that a violation of university policy has occurred, the accused will be put on notice that he/she has violated such policy, and appropriate action will be taken.

#### **Confidentiality and Protection from Retaliation**

Every effort will be made to protect alleged victims of mistreatment from retaliation if they seek redress. Although it is impossible to guarantee freedom from retaliation, it is possible to take steps to try to prevent it and to set up a process for responding to it. To help prevent retaliation, those who are accused of mistreatment will be informed that retaliation is regarded as a form of mistreatment. Accusations that retaliation has occurred will be handled in the same manner as accusations concerning other forms of mistreatment, using the mediator and council if needed.

#### **Full-time Status**

The College of Medicine enrolls full time students only for the M.D. degree. Part-time students are not accepted. Students may not drop or add specific courses during the first or second year due to the full-time nature of the curriculum.

## Leave of Absence/Withdrawal

Any student who feels that he/she cannot continue in the regular curriculum is expected to contact the Office of Medical Education immediately. Officials within the Office of Medical Education will notify the appropriate administrative offices regarding the leave or withdrawal of the student.

## Grading Policies

The faculty evaluates the academic achievement, acquisition of skills, and attitudes of medical students and uses the marks of A, B, C, F, W, WP, WF, I, and R in all official reports. In certain instances, some courses may be graded on a PASS/FAIL (P/F) basis. The performance level and quality value assigned to performance are outlined in the following table:

<b>Grade Level</b>	<b>Performance</b>	<b>Quality Points</b>
A	Consistently outstanding	4
B	Exceeds expectations	3
C	Satisfactory	2
F	Failure	0
P	Pass	0
WP	Withdrew Passing	0
WF	Withdrew Failing	0
W	Withdrew Before Evaluation	0
I	Incomplete	0
IP	In Progress	0
R	Retake of Written Clerkship Exam	0

The letters “**WP**” or “**WF**” are recorded to indicate pass or failure in those instances in which a student withdraws from a course/clerkship before completion, and is either passing or failing, respectively. The letter grade of “**W**” will be recorded when a student withdraws from a course/clerkship before there has been evaluation of the student to determine whether he/she is passing or failing.

The designation of “**I**” (Incomplete) will be used when a student is unable to complete the course/clerkship at the regular time. In such cases, arrangements will be made by the course/clerkship director for the student to complete the requirements, and the “**I**” will then be replaced by whatever grade the student earns. It is the responsibility of the student to work with the course/clerkship director in determining when and under what circumstances the “**I**” grade can be changed.

The designation of “**IP**” serves as a place holder in the student record system. It indicates that a student is currently enrolled in the course.

The designation of “**R**” (Retake) will be recorded in those instances in which a student completes all requirements in a clerkship and passes the clinical portion but fails the written exam.

## Role and Calculation of the Cumulative Grade Point Average

The cumulative grade point average (GPA) recorded on the transcript from the Registrar is used by the Progress and Promotions Committee (P&P), in part, to make recommendations about the promotion and continuation of students in the curriculum. For a student who must retake either courses or clerkships to correct academic deficiencies, the cumulative GPA is calculated by averaging the final grades attained in all courses or clerkships in which he/she has been enrolled for academic credit. This includes those courses or clerkships repeated at the University of Tennessee Health Science Center and those courses approved by the P&P to be taken at other AAMC institutions. GPA's are calculated to two decimal places.

## **Appeal of Grades**

A student may appeal his/her final grade if he/she feels that the grade was assigned inappropriately and not in accordance with the course or clerkship statement of policy distributed at the beginning of the program. The appeal is directed initially to the course/clerkship director, and then to the department chair. If resolution of the issue is not made at the department level, then the appeal is made in writing to the Office of Medical Education. Any student wishing to appeal to the Dean concerning the recommendation must make a written request within five (5) working days of receipt of written notification of the recommendation from the Office of Medical Education.

## **General Policy on Retaking Examinations in the Core Clerkships**

Students who fail the written examination but have passed the clinical portion of a core clerkship can retake the written exam once. The student will be assigned a letter grade of "R" until the written examination is retaken. A student unable to take a clerkship examination due to illness or other emergency situation must notify the director of that clerkship. Concerns affecting individual examination questions or other forms of evaluation, as well as final grades, should be directed to the appropriate clerkship director.

The retake of exams in clerkships taken in Blocks 5 through 10 must be completed by the first day of class in January. For those clerkships taken after Block 11 of the M3 year, the retake must be completed no later than the end of Block 8 prior to the year of graduation. The student will retake the written exam and the clerkship director will assign the appropriate grade. A second failing score on the exam, or failure to retake the exam on time, will result in the assignment of a failing grade for the clerkship. The P&P will review the overall academic record of any student who fails more than one (1) written examination in the third-year clerkships. Each student may have no more than one Retake ("R") grade simultaneously posted in the required third-year clerkships. An alteration of the student's schedule that provides a period of time when the student is taken out of the core clerkships and scheduled into one or more option blocks may be recommended. During these option blocks, the student would prepare to retake one or more written examinations that had been failed on the first attempt on a schedule specified by the P&P.

## **Course and Clerkship Evaluation: Hall S. Tacket Society**

The Hall S. Tacket Society is a student-run course and clerkship evaluation system. Student feedback on the quality of educational experiences is highly valued. Evaluations are done at the end of courses and clerkships. The data is shared with course and clerkship directors, faculty and department chairs. Curriculum committees review the data extensively to assist in curriculum assessment and improvement.

## **Tutoring Services**

Tutoring services are available for students. Tutors are assigned based on availability and an assessment of students' need. For further information, contact Student Academic Support Services (SASS), (901) 448-5056.

## **Inclement Weather Policy**

The administration at UTHSC decides when the campus is closed due to inclement weather. Closure indicates that classes and scheduled meetings are cancelled. In the event that the school is closed, faculty and students with clinical responsibilities are professionally obligated to provide that care even during inclement weather. Students on clinical services are expected to continue to provide care for their patients, provided traveling would not place the student at serious risk of injury. Students should consult with their resident and physician supervisors to determine the risks/benefits involving travel during these periods. Students who are unable to travel to the rotation sites should contact preceptors as soon as possible to advise them of the individual situation and whether the student could reach the site later in the day.

Since weather conditions will vary across the state, clerkship students on the three campuses will follow the schedules dictated by those campuses.

## Dress and Identification

All students are expected to dress as professional school students. Recognizing the need to identify members of the professional medical team and to distinguish them from other hospital personnel or patients, they must wear clinic coats of a type described below while in patient contact situations:

- Attending staff wear coats of their choice.
- Interns and resident staff are expected to wear coat length, long sleeve clinic coats, generally white; however, color variations may be uniformly adopted by any department.
- Medical students wear white long sleeve jacket-length coats and display their name tags at all times.

## Name Badges

Medical student name badges are to be worn at all times. Badges will be provided during orientation. Replacements are available in the GEB, for a fee. Students interested in access to various buildings after business hours are required to present identification badges for access and to display them while on the premises.

## POLICIES AND PROCEDURES FOR CLERKSHIPS AND ELECTIVES

### Counseling for Clerkships and Electives

Departments have designated contact faculty for their educational programs. These faculty members should be a student's first point of contact in matters of specific departmental concern in the curriculum. In addition, administrative details can be handled by the designated contact person. For more information, see <http://www.uthsc.edu/Medicine/medicaleducation/clerkships/>.

### Clerkship Locations

All required rotations must be taken at an institution within the University of Tennessee System. There may be extenuating circumstances exempting selected students from this policy. A student who wishes to be granted an exemption must present his/her case to the Office of Medical Education for review.

Selected clerkships and electives may be taken in the College of Medicine at Memphis, Knoxville, Chattanooga, Nashville, or Jackson. The sites at Knoxville, Chattanooga, and Nashville offer a variety of clerkships, as well as clinical and basic science electives. Senior programs are available at all five (5) sites (although not in each discipline). Not all electives are offered on a continuing basis. Students should refer to the individual elective description for additional information.

### Option Periods (OPM1-4001/F) or (Option Half-Period OPM1-4001/H)

Students in the College of Medicine have twelve option weeks usually taken in the fourth year. Students should use these option weeks to interview for residencies and other personal business. Jobs and/or non-credit work can be arranged during option weeks with faculty members. Any student interested in applying for a research award during option weeks should contact the office of the Vice Chancellor for Research for additional information.

### Electives at Other Institutions

A maximum of twelve weeks of electives may be taken by students at other institutions. Any student applying for an elective at another institution must be in good standing in the College of Medicine, have satisfactorily completed the core clerkships of the third year, and have permission from the appropriate clinical department chair as well as the Office of Medical Education. Electives at other institutions are normally taken for credit and, thus, tuition is paid at the University of Tennessee. The cooperating institution must be affiliated with an accredited medical school, must agree to accept and evaluate the student, and must certify that the elective being applied for is a regularly offered medical student elective at that institution.

An "Elective Away Application" form is available electronically at [http://www.uthsc.edu/Medicine/Acad\\_Affairs/Students/index.php?doc=forms.htm](http://www.uthsc.edu/Medicine/Acad_Affairs/Students/index.php?doc=forms.htm) or in the Office of Medical Education. This form must be completed and on file in the Office of Medical Education before the elective begins in order for formal academic credit to be awarded.

## Dropping/Adding Rotations

All rotations (i.e., the required clerkships, selective and electives) may be dropped/added if the process is at least thirty (30) days prior to the beginning of the Block. Routine changes are effected by accessing the web-based program for scheduling the rotations.

## Student Workload – Clinical Clerkships

The educational experiences in the clinical clerkships of the UTHSC College of Medicine are presented in various formats, which include: patient experiences in a hospital or physician's office, procedural workshops, skills laboratories, reading assignments, tutorials and didactic lectures. These clerkships provide a breadth of clinical experiences whereby students, under supervision by residents and faculty as well as other health professionals in the teaching hospitals, assist in the care of patients in order to master clinical knowledge, skills and attitudes. In these clinical experiences, students observe the patient, the illness, the effects of procedures and treatment over an adequate span of time in order to learn the natural history of the diseases and the specific effects of interventions to include treatment and/or prevention. This often is best done by being present and working with the patient over a relatively long period of time as the expression of the illness unfolds. Accomplishing this requires that students be assigned continuous patient care and in house call for prolonged periods on some specific rotations. To address the time commitment required of medical students during clinical rotations, and taking into account the effects of fatigue and sleep deprivation on learning, clinical activities, student health and safety, and patient safety, the medical school has adopted the following policy.

- Duty hours must be limited to 80 hours per week averaged over a four-week period, inclusive of all in-house call and patient care activities.
- Continuous on-site duty, including in-house call, must not exceed 30 consecutive hours.
- Students may remain on duty additional hours to participate in transferring care of patients, conducting outpatient clinics, maintaining continuity of medical and surgical care, and attending required didactic activities.
- Students must be provided with one day in seven (7) free from all educational and clinical responsibilities, averaged over a rotation, inclusive of call. One day is defined as one continuous 24-hour period free from all clinical, didactic, and administrative activities.
- Students should be provided with a 10-hour period after in-house call during which they are free from all patient care activities
- Students are responsible for entering their work hours into the web-based work hour's log, which is accessed through the Student Information System web page. . (Approved by the CUME, August 13, 2007).

The director for each clerkship will be responsible for scheduling student work hours, monitoring the intensity of each rotation, assuring that undue stress and fatigue among students is avoided, and arranging adequate resident and faculty supervision. This supervision by the attending faculty member ensures that students are assigned only patient care responsibilities for which they are qualified and that students are required only to perform functions appropriate to their educational program. The clerkship director also will be responsible for ensuring that the students' acquisition of knowledge, skills and attitude necessary to progress are documented. The Office of Medical Education will be responsible for reviewing each clerkship's compliance with this policy on a periodic basis. Students may appeal the workload in a particular clerkship if they feel that it is inappropriate. The appeal is directed initially to the clerkship director and then to the department chair. If resolution of the issue is not made at the department level then the concerns of the students should be presented in writing to the Office of Medical Education.

## Visiting Students Application Service

The Visiting Student Application Service (VSAS) is a new AAMC application designed to streamline the application process for senior "away" electives at other U.S. LCME medical schools. This service requires students to submit just one application for all schools, effectively reducing paperwork, miscommunication, and time. VSAS also provides a centralized location for managing offers and tracking decisions. It was created at the request of two GSA committees: Committee on Student Records (COSR) and Committee on Student Affairs (COSA). <https://www.aamc.org/students/medstudents/48860/vsas/>.

### Guidelines for Visiting Medical Students

The University of Tennessee, College of Medicine has elective opportunities available at its sites in Memphis, Knoxville, Chattanooga, Nashville and Jackson for medical students from other medical schools. To be eligible for consideration, students must meet the following criteria:

- Visiting students must be a candidate for the M.D. or D.O. degree in good standing in an accredited US school or from institutions with which UTHSC has a formal exchange program.
- Visiting students shall be limited to a maximum of (12 weeks) of experiences during their medical school career. Electives will be assigned to visiting students only after all University of Tennessee students have been scheduled.
- All visiting students must have:
  - coverage for malpractice/liability insurance in the amount of \$1 million per incident and \$3 million aggregate from their institution or from acceptable other sources;
  - health insurance;
  - required immunizations for measles and rubella;
  - completed the hepatitis vaccine series;
  - taken a TB skin test within the past year;
  - certified in CPR within the past year;
  - a recent background check;
  - completed HIPAA training.
- Visiting students must have completed instruction in the basic physical examination and have a working knowledge of general ward procedures. All electives require that the student has the basic Family Medicine, Medicine, Neurology, Pediatrics, Surgery, Psychiatry, and Obstetrics- Gynecology Clerkships.
- Visiting students who attend an LCME approved school must apply in VSAS (Visiting Student Application Service). <https://www.aamc.org/students/medstudents/48860/vsas/>.

Interested students can apply in VSAS no earlier than May of the junior year and at least four weeks prior to beginning the rotation. Others should request applications from the College of Medicine Office of Medical Education. All completed applications should be submitted first to the respective Departmental Office at UT before being sent to the Office of Medical Education.

It is expected that clerkship work completed at The University of Tennessee will be part of the graduation requirements of the visiting student's program. For this reason, an authorization for taking an elective is required from the visiting student's Dean's Office. Section II of the "visiting student" application provides for this authorization. The visiting student must be in good standing in his/her final year and authorized to take an elective. Currently, students who are regularly enrolled in another medical school and paying tuition at that school are not charged tuition at The University of Tennessee for brief elective periods. This policy may change in the future, and the school reserves the right to charge tuition at any time.

It is the individual student's responsibility to secure housing. The campus housing office can be contacted (901) 448-5690 regarding availability. Further specifics about housing can be obtained from the department in which the elective rotation will be taken. Criminal background checks may be a requirement for training at some affiliated clinical sites. Based on the results of these checks, an affiliated clinical site may determine not to allow your presence at their facility.



## COMMUNICATION

### College E-mail Policy

The College continuously seeks ways to improve the lines of communication between the various College of Medicine offices/departments and medical students. Upon acceptance to the College of Medicine, each student is assigned an email account which enables the College to send official electronic correspondence. Each student is responsible for checking and maintaining his/her email account since it is where he/she will receive official college communications. The format of an official University email address is: NETID@uthsc.edu. Students can forward email from their official University email account to any external email account. Please note, however, that if a student elects to forward e-mail and that process fails, the student will still be responsible for reading and responding to any official information sent to their official University email account. Failure to comply may result in a referral to the Professionalism Committee.

## PROGRESS, PROMOTION, AND GRADUATION

### Progress & Promotion Requirements

A Progress and Promotions Committee (P&P) is appointed for each matriculating class. The committee is charged by the Executive Dean of the College of Medicine with monitoring and making recommendations concerning the results of individual student performance in the curriculum until graduation.

The following are the minimum standards for student promotion to the next year of the curriculum and for graduation as set by the College. No student may be promoted to the next year of the curriculum or certified for graduation without having met all of these standards, unless a recommendation for an exception is justified in writing by the appropriate Progress and Promotions Committee (P&P) and accepted by the Executive Dean. An exception to any minimum standard is made only under extremely extenuating circumstances.

The statements following the minimum standards are potential recommendations for the disposition of marginal or failing performance regarding that minimum standard.

Any student not having met the minimum standards may be allowed to repeat the curriculum in lieu of regular progress only under extremely extenuating circumstances. The P&P should recommend that a student repeat the curriculum in lieu of regular progress only in those situations in which the following three (3) criteria are met:

1. Committee identification of a specific circumstance(s) judged as having had a probable adverse effect on the student's academic performance;
2. Committee judgment that the identified specific circumstance(s) shows probability of resolution in a reasonable period of time;
3. Committee expectation that resolution of the identified specific circumstance(s) will result in subsequent satisfactory student performance in the curriculum.

The cumulative grade point average recorded on the transcript from the Registrar is used by the P&P, in part, to make recommendations about the promotion and continuation of students in the curriculum. For students who must retake either courses or clerkships to remove academic deficiencies, the cumulative grade point average is calculated by averaging the final grades attained in all programs in which they have been enrolled for academic credit, including those repeated at UTHSC and those taken in approved summer programs. GPA's are calculated to two decimal places.

## **First Year – Preclinical Courses**

### **Each student must obtain a passing grade in each course.**

The Progress and Promotions Committee (P&P), after consideration of all available information including academic performance to date, may make one of the following recommendations concerning student failure of a course(s) within the first year:

- Re-evaluation in the failed course(s).
- Repeat all or part of the first year.
- Academic dismissal from the College.

### **Each student must achieve a grade point average (GPA) of 2.0 (on a 4.0 scale).**

The P&P, after consideration of all available information including academic performance to date, may make one of the following recommendations concerning student failure to achieve an overall GPA of 2.0 by the end of the first year:

- Re-evaluation in specified course(s).
- Repeat all or part of the first year.
- Academic dismissal from the College.

## **Second Year – Preclinical Courses**

### **Each student must obtain a passing grade in each course.**

The P&P, after consideration of all available information including performance to date, may make one of the following recommendations concerning student failure of a course(s) within the second year:

- Re-evaluation in the failed course(s).
- Repeat part or all of the first and/or second year.
- Academic dismissal from the College.

### **Each student must achieve an overall GPA of 2.0.**

The P&P, after consideration of all available information including academic performance to date, may make one of the following recommendations concerning student failure to achieve an overall GPA of 2.0 by the end of the second year:

- Re-evaluation in specified courses.
- Repeat part or all of the second year.
- Academic dismissal from the College.

### **Each student must obtain a passing score at the national standard on the United States Medical Licensing Examination (USMLE) Step 1.**

All students must take the USMLE Step 1 examination and pass at the national standard in order to be officially promoted to the Clinical Sciences portion of the curriculum. This examination must be taken by all students in April following their second year unless deferred by the Office of Medical Education. Students who are approved for deferment will not begin clerkships until a passing score is submitted.

The P&P will review the total academic performance to date of any student failing to achieve a passing score on the USMLE Step 1 examination. Any student failing to submit a passing score on the first attempt will be withdrawn from the Clinical Sciences portion of the curriculum and will not be scheduled for clerkships until a passing score is submitted. For students who fail the exam a second time, the P&P will review the student's academic record and recommend a program for the student to follow while preparing to take the examination for a third time. Any student failing to submit a passing score after three attempts will be academically dismissed from the College. Any recommendation for an exception to the College of Medicine policy concerning the USMLE Step 1 examination will be justified in writing to the Executive Dean by the Progress and Promotions Committee.

## **Third Year – Clinical Rotations**

**Each student must obtain a grade of “C” or better in each core clerkship.**

The Progress and Promotions Committee (P&P), after consideration of all available information including academic performance to date, may make one of the following recommendations concerning a grade of “F” in a clerkship within the junior year:

- Re-evaluation in the clerkship in which an “F” was made.
- Repeat the clerkship in which an “F” was made and obtain a grade of “C” or better.
- Repeat all of the core clerkships.
- Academic dismissal from the College

## **Fourth Year – Clinical Rotations**

**Each student must obtain a grade of “C” or better, or a “P,” in each clerkship, selective, or elective program.**

The Progress and Promotions Committee (P&P), after consideration of all available information including academic performance to date, may make one of the following recommendations concerning a grade of “F” in a clerkship, selective or elective:

- Re-evaluation in the program in which an “F” was made.
- Repeat the program in which an “F” was made and obtain a grade of “C” or better.
- Academic dismissal from the College.

**Each student must obtain a passing score at the national standard on the United States Medical Licensing Examinations Step 2CK (Clinical Knowledge) and Step 2CS (Clinical Skills).**

All students must take the USMLE Step 2CK and Step 2 CS examinations and pass at the national standard in order to be certified for graduation. Students should take the Step 2 CK and the Step 2 CS examinations no later than December 31st of the senior year. Any student failing to submit a passing score on the first attempt will be allowed to retake the exam. Any student failing to submit a passing score on the second attempt may be allowed to retake it again after consultation with the P&P Committee. Any student failing to submit a passing score after three attempts will be academically dismissed from the College. Any student sponsored for a second or third attempt may be required to remain enrolled for 2 semester hours until the examination has been retaken, regardless of whether or not all other academic requirements have been met. Any recommendation for an exception to the College of Medicine policy concerning the USMLE Step 2CK and Step 2CS examinations will be justified in writing to the Executive Dean by the P&P.

## **Progress and Promotions Process and Roles**

### **The Progress and Promotions Committee (P&P)**

The Progress and Promotions Committee is charged by the Executive Dean of the College of Medicine with monitoring and making recommendations concerning the results of student performance in each academic year and certification of students for graduation. A committee is appointed for each academic class and will remain with that class through graduation. Each Committee is composed of faculty members, including a voting chair. The Executive Dean of the College of Medicine appoints all members, including the chair. The Office of Medical Education and the Office of Student Affairs appoint ex-officio non-voting members to the Committee. The Office of Medical Education and/or the Office of Student Affairs provides each Committee with all pertinent information available from the Registrar’s Office and College of Medicine student records for those students under consideration. The deliberations of a Committee are confidential. A recommendation by the P&P to the Executive Dean requires a majority vote of the members present. The meetings are called by the Office of Medical Education or the Committee Chair as necessary. The Committee maintains written records of the recommendations made to the Executive Dean. Summaries of Committee proceedings are on file in the Office of Medical Education.

### **Role of Course Directors Concerning Progress and Promotions**

Each Course Director is responsible for the evaluation of students and the assignment of student grades in the course(s) for which he/she is responsible, and for presenting to the appropriate Committee all pertinent data collected on any student during a course in which a student earned an “F” (failing) or “I” (incomplete) grade. In addition, each Course Director reports to the Committee the method, if any exists, by which any grade can be modified or changed.

### **Reconsideration of Progress and Promotions Committee Recommendations**

In the case of an adverse recommendation, the student has the right to reconsideration by the Progress and Promotions Committee (P&P) that made the original recommendation. The student must make a request to the Office of Medical Education within five (5) working days of receipt of written notification of the P&P recommendation. The student will meet with the P&P and have the opportunity to bring with him/her any person(s), excluding legal counsel, whom the student feels can contribute to his/her presentation to the P&P. Committee reconsideration is conducted without the presence of legal counsel. Should the original adverse recommendations be sustained by the P&P, the student may then appeal to the Office of Medical Education and subsequently to the Executive Dean of the College of Medicine.

### **Role of the Student in Reconsideration of Committee Recommendations**

It is the responsibility of the student requesting reconsideration by a Progress and Promotions Committee (P&P) to obtain and submit any information or documentation to support an alternative recommendation prior to P&P reconsideration. This includes any academic, psychiatric, personal, financial or physical information the student wishes to release to the P&P and the Associate and Assistant Deans. The Office of Medical Education and the Office of Student Affairs are responsible for assisting the student in obtaining this information.

### **Role of the Office of Medical Education Concerning Student Progress and Promotions**

The Office of Medical Education reviews all recommendations made by the Progress and Promotions Committee (P&P) and, after all Committee considerations have taken place, submits these to the Executive Dean for consideration and decision. At that time, the Office of Medical Education either concurs in the recommendation(s) of the P&P or makes alternative recommendation(s) to the Executive Dean. The recommendation(s) of the P&P, as well as the position of the Office of Medical Education, are communicated to the student in writing by the Office of Medical Education. The position of the Office of Medical Education and the decision of the Executive Dean will be reported to the P&P by the Office of Medical Education.

### **Role of the Executive Dean Concerning Student Progress and Promotions**

The Executive Dean may receive recommendations from the Progress and Promotions Committee, the Office of Medical Education, and other sources concerning the result(s) of individual student performance in the curriculum. Within the College, only the Executive Dean makes decisions concerning the result(s) of individual student academic performance. Any student wishing to appeal to the Executive Dean concerning recommendation(s) made in his/her case must make a written request to the Executive Dean within five (5) working days of receipt of written notification of the recommendation(s) concerning his/her case from the Office of Medical Education. The Executive Dean will review all documentation supplied by the P&P, the Office of Medical Education, and the student. The Executive Dean may meet with the student at his/her discretion. The student is considered to have been dismissed from the College of Medicine at the time of the Executive Dean's action. Any appeal to a higher level is an appeal for reinstatement.

## **Pre-clinical Courses Evaluation**

### **Biomedical Science (Years One and Two – Preclinical courses)**

Examinations are given at periodic intervals during this portion of the curriculum. The content of each examination is established by the course director. The questions are generally multiple choice and computer graded. Each student's individual examination score report is returned promptly through the student mailbox system. Scores are usually recorded in the course learning management system site for student access.

It is the responsibility of each course director to establish the criteria for awarding course grades and the role of examinations in the determination of those grades. Any concerns relative to individual examination questions, criteria for course evaluation, or final grades should be directed to the appropriate course director. Laboratory performance, participation in small group activities, special projects, etc., may also influence the final grade in each course. Each course director is responsible for communicating this information on the first day of class.

Students are expected to take examinations as scheduled. Those unable to take a scheduled examination because of illness or emergency situations must notify the Office of Medical Education and the appropriate course director prior to the examination.

All students must take the United States Medical Licensing Examination ([USMLE](#)) Step 1 and pass at the national standard in order to be officially promoted to the clinical portion of the curriculum. This examination is taken by all students following the sophomore year, unless specifically deferred by the Office of Medical Education.

### **M1 and M2 Remediation Policy**

The integrated courses of the revised curriculum present remediation challenges. With the exception of gross anatomy (covered in the Structural Basis of Normal Body Function), there are no summer courses that are inclusive of the content in our revised courses. Even in the case of SBNBF, histology and embryology may not be adequately represented in a summer course.

Course remediation will only be offered to students who fail a course with a final percentage in the range of 63-68%. These students will receive an "I" (incomplete) for the course which will be converted to a letter grade upon completion of remediation. Students who perform satisfactorily in remediation will receive a "C" grade (and no higher) for the course. Failure to pass remediation will result in an "F" grade for the course. Students who earn a final score below 63% will receive an "F" grade for the course.

Only one course per year may be remediated by students. If a student receives more than one "I" grade or a combination of "I" and "F" grades, the student will be required to withdraw from all classes upon receipt of the second deficient grade and will be referred to the standing Progress and Promotions Committee. The student may be allowed to attempt remediation of one "I" grade while all others will be converted to an "F" grade. Choice of which "I" grade to remediate will be made by the student after consultation with the Progress and Promotions Committee.

Remediation of a first year course will occur during the summer break between the first and second years. Remediation of a second year course will occur after the end of the second year curriculum but prior to sitting for Step 1. Students will not be allowed to sit for Step 1 until all courses are successfully completed. Students who fail a course will be reviewed by the standing Progress & Promotions committee and allowed all current standards of appeal for continuation in the curriculum.

### **Repeating First- and Second-Year Courses**

A student withdrawing from courses in the first or second year will receive a "W", "WP", or "WF" grade, as appropriate, on his/her official transcript. When a student does not complete a first- or second-year course at the University of Tennessee Health Science Center, he/she must repeat the course at the Health Science Center. The Progress and Promotions Committee has the option of recommending that a student who completes but fails first- or second-year courses, or a cumulative GPA less than 2.0 at the end of the first or second academic years, may correct the academic deficiency or unacceptable cumulative GPA requirement by successfully completing courses taken at other institutions, courses repeated at the University of Tennessee Health Science Center, or both. All courses taken for academic credit are recorded on the official transcript and computed in the GPA.

## Clerkship Evaluations

### Clinical Clerkships (Years Three and Four – Clinical rotations)

Student evaluation in the clerkships portion of the curriculum includes written examinations as well as an increased emphasis on other forms of evaluation. Clerkship examinations are normally multiple choice formats and obtained from the National Board of Medical Examiners (NBME). Oral examinations are utilized in some clerkships and are administered by faculty and house staff. In addition, clinical performance is evaluated by attending faculty and house staff in such areas as:

- history taking and physical exam
- progress notes and oral presentations
- fund of knowledge and understanding of disease mechanisms
- clinical application
- problem solving
- professional attributes and responsibilities
- self-improvement and adaptability
- information management
- relationships with patients
- interpersonal relationships.

The methods of evaluation are established by each clerkship director and communicated to students during clerkship orientations. Student evaluation reports are filed in the Office of Student Affairs and are available for review by the student. Student evaluations are also maintained by departmental offices. A student unable to take a clerkship examination due to illness or other emergency situation must notify the director of that clerkship at the earliest possible time. Concerns affecting individual examination questions or other forms of evaluation, as well as final grades, should be directed to the appropriate clerkship director. This must be done within one block of notification of the award of the final course grade. Evaluation of students in selectives and electives does not normally include a written examination. The evaluation method is established by the course director and available to the student on the first day of the rotation.

## Completion of the Degree of Doctor of Medicine

The College of Medicine offers an educational program leading to the Doctor of Medicine (M.D.) degree.

The M.D. degree is awarded after completion of degree requirements in either May or December. The Health Science Center holds one commencement exercise annually, in May. Only those students who will complete all requirements on time will be allowed to participate in commencement activities. The diploma, as well as each student's official transcript, reflects the awarding of the M.D. degree.

The transcript will be posted with the date of completion of all degree requirements for those students who complete requirements for the Doctor of Medicine degree out of phase. However, the degree will not be awarded until the next regularly scheduled commencement.

### Time for Completion of the Medical Degree

The College of Medicine curriculum is designed and coordinated for students to complete the requirements for the M.D. degree in four years. In the event that students feel they cannot continue in the regular curriculum they may choose to take a leave of absence (LOA) through the Office of Medical Education. Similarly, as a passing score on USMLE Step 1 is required to enter the clinical portion of the curriculum and a passing score on Step 2 is required for graduation, students may need to delay entry into the clerkships or residency while completing the USMLE requirements.

Students will have six consecutive years to complete the COM curriculum, including time spent on LOA or out of the regular curriculum to complete the USMLE requirements. Failure to meet graduation requirements by the end of the sixth year following initial COM matriculation will result in dismissal. The limit of six total years applies to all medical students, but excludes time spent in other curricula for students in dual degree programs or other approved educational programs.

If for any reason students choose to delay normal progression through the curriculum, they must meet with the Associate Dean of Medical Education and acknowledge in writing that they understand the delay may jeopardize their ability to complete the course of study in the required number of years. Any appeal to extend the number of years beyond six years must be approved by the Progress and Promotions Committee and by the Associate Dean of Medical Education or designee.

### **Convocation and Commencement Activities**

The College of Medicine has instituted a Deans' Convocation in honor of the graduating class and their families. This ceremony includes an address by the Executive Dean of the College of Medicine, presentation of doctoral hoods, recognition of honors and award recipients, administration of the Oath of Hippocrates, and addresses by faculty and student representatives. UTHSC commencement activities are held in May and December of each year. The UTHSC Office of Student Affairs provides information concerning commencement activities.

Attendance at the commencement ceremony is required of all students. Graduation in absentia may be permitted by the Executive Dean after a petition for graduation in absentia is submitted to the College of Medicine's Office of Student Affairs at least two months before graduation. Students should contact the Office of Student Affairs for further information.

### **United States Medical Licensure Examinations (USMLE)**

Each individual state determines requirements for licensure to practice medicine in that state and maintains the standards of medical practice in accordance with its own rules and regulations. To this end, each state has a medical licensure board charged with maintaining the standards for licensure in that state and in evaluating credentials submitted to them for licensure. Regulations of state licensing boards are subject to change without notice and each board should be contacted concerning the specific requirements for licensure in that state.

The Federation of State Medical Boards of the United States (FSMB) and the National Board of Medical Examiners (NBME) have established a single common uniform examination for medical licensure in the United States, the United States Medical Licensing Examination (USMLE). The USMLE is a single examination program with three complementary steps. Step 1 assesses whether an examinee understands and can apply key concepts of basic biomedical science, with an emphasis on principles and mechanisms of health, disease, and modes of therapy. The USMLE Step 2 has two components. Step 2CK (Clinical Knowledge) assesses whether an examinee possesses the medical knowledge and understanding of clinical science considered essential for the provision of patient care under supervision, including emphasis on health promotion and disease prevention. The Step 2CS (Clinical Skills) assures that examinees have the information gathering and communication skills necessary to enter supervised postgraduate education and for subsequent licensure.

A passing score on the Step 1, 2CK, and 2CS examinations is a requirement for the M.D. degree at the University of Tennessee College of Medicine. A student will normally sit for the Step 1 examination at the end of the sophomore year and will sit for the Step 2 examinations by December 31st of the senior year.

USMLE Step 3 assesses whether an examinee possesses the medical knowledge and understanding of biomedical and clinical science considered essential for the unsupervised practice of medicine, and is taken during residency training. To be eligible for the Step 3 Examination, an individual must obtain the M.D. degree and must have completed successfully Step 1, Step 2 CK, and Step 2 CS examinations.

The USMLE Step 1 and Step 2 exams are administered by the National Board of Medical Examiners (NBME) for all eligible examinees. Further information can be found at <http://www.nbme.org>. The Step 3 examination is administered by licensing authorities for the State of Tennessee. Information can be obtained from the Tennessee State Board of Medical Examiners.

### **Taking USMLE Step 2 Exams During the Required Clerkships**

All students must take the United States Medical Licensing Examinations, Step 2CK and 2CS, and pass at the national standard in order to be certified for graduation. The Step 2CK and Step 2CS exams should be taken no later than December 31 of the M-4 year. Students must declare, in writing to the appropriate clerkship director, if they have registered to take the USMLE Step 2 exams during a required clerkship. Students are not permitted to schedule the USMLE Step 2 exams at times conflicting with the scheduled administration of any end-of-clerkship examinations.

The declaration must be done as soon as possible, but no later than two weeks prior to the orientation to the appropriate clerkship and be on file in the clerkship director's office. A student who is registered to take Step 2, and who has properly indicated such, will be provided with an excused absence from all clerkship activities to sit for the USMLE. The course director has the discretion to allow, on a case-by-case basis, an appropriate number of days with the excused absence prior to the examination date. If not notified properly, the clerkship director reserves the right to refuse a student's request for excused absence from the scheduled activities.

## PROFESSIONAL BEHAVIOR AND CONDUCT - CLERKSHIPS

### General Guidelines for Professional Behavior and Conduct in the Third- and Fourth-Year Clerkships

The clinical rotations in the third and fourth years of medical school place demands and requirements on the students that go significantly above and beyond academic achievement as measured by performance on tests and by the ability to field questions learned through didactic instruction and reading. The student also is accountable for his or her behavior in each of the following areas:

- **Professional and Ethical Conduct:** The welfare of patients and their families is of foremost concern. Students must show respect and courtesy for patients and their families, even under difficult situations such as being challenged or provoked. Students must safeguard their patients' confidentiality in compliance with the Health Insurance Portability and Accountability Act (HIPAA). For example, there are to be no casual communications regarding patients in public places, such as hallways, elevators, cafeterias, gyms, etc.
- **Punctuality, Responsibility and Reliability:** Students are expected to be available and present for all scheduled clerkship activities. Any absences must be approved by the clerkship director in advance. Make-up assignments will be determined by the clerkship director; absences due to illness may require a physician's statement. Tardiness is unacceptable. Students are expected to conform to the prevailing schedule at the sites where they are assigned for their clinical instruction.
- **Getting Along with Other Members of The Medical Team:** Good relationships with nurses, aides, ward clerks, and anyone else involved in the care of the patient are absolutely essential. Students are expected to be courteous to all medical staff at the sites where they are assigned for their clinical instruction.
- **Getting Along with Staff:** Students need to be polite and respectful to the patients, faculty and residents, and all hospital employees. Much of the daily work in keeping a clerkship going falls on the shoulders of administrative assistants, secretaries, receptionists, and other staff that deserve respect. Students are expected to be considerate of and courteous to all of these employees.
- **Getting Along with Peers:** Students are expected to have pleasant working relationships with their fellow students. This includes an equitable sharing of the workload and helping and supporting each other.

If clerkship directors receive consistent complaints about a student in any of these areas, the student's grade may be affected. Serious documented problems with unprofessional or unethical behavior, in the judgment of the clerkship director, may result in a failing grade even if the student has passed the written or oral examinations and has otherwise satisfactory clinical ratings. In addition, consistent or serious complaints about unprofessional or unethical behavior may be reflected in the Medical Student Performance Evaluation (MSPE).

There may be times when a student has a personal problem or a personality conflict that impairs his or her ability to function properly on the clerkship. It is the student's responsibility to promptly notify the clerkship director when this first occurs and not after the fact.



## **MENTOR/COUNSELING SYSTEMS**

### **Faculty Mentor System**

The Faculty Mentor System is comprised of College of Medicine faculty members who serve as ombudsmen for students. Scientists and/or clinicians are assigned by the Office of Student Affairs to a small group of entering students. A sophomore student is assigned to each group to facilitate meetings between mentors and students. Mentors meet with students individually and in groups, beginning with orientation and continuing throughout their medical education. Students are befriended and assisted by their mentors in taking full advantage of the institution's educational as well as extracurricular opportunities. The essential ingredient for the success of the Mentor System is the degree of responsibility assumed by mentors and students. Faculty Mentors are responsible for being accessible, caring, and equipped with accurate information. Students are responsible for availing themselves of the opportunity to meet with their mentors on a regular basis. For further information, contact the Office of Student Affairs.

### **Faculty Mentor/Peer Counselor System**

Peer Counselors are trained sophomore student volunteers who offer a support system to freshman students. The program teaches prospective physicians that it is acceptable to ask for and offer support. In addition, the program fosters positive development and a shared, cooperative approach to education. A national model, this unique program has been well received and utilized by the UT medical students.

### **Audience of One Peer Counseling**

In an ongoing effort to provide support for students, the College of Medicine Peer Counseling Program has extended its services with the introduction of "Audience of One." Audience of One is composed of M2 peer counselors with an interest in exploring special needs of M1 students that may be better addressed through private discussions rather than a group format. For information, contact the Office of Student Affairs.

### **Aid to the Impaired Medical Student (AIMS)**

The pressure and stress of a medical education can tax the coping skills of a student at times. Often this is a healthy means of developing the maturity and responsibility necessary for the profession; however, if a student cannot successfully adjust or employs inappropriate adaptive measures, such as the use of alcohol or other substances, he or she may become psychologically and professionally impaired, seriously jeopardizing his/her well-being and possibly that of others. In an effort to prevent impairment by early intervention, the Aid to Impaired Medical Students (AIMS) program was established in 1982 and was the first program of its kind among medical schools in the U.S.

The AIMS program is administered by a council composed of eight students (two elected by each class) and eight physicians/staff. The functional aspects of the AIMS program include detecting and reporting the existence of an impaired student to a member of the council, confronting the affected student in an appropriate and effective manner, evaluation of the extent of the student's impairment, and most importantly, treatment and monitoring of the student's progress.

The success of the AIMS program depends on three critical principles:

- AIMS must be perceived by the students and the faculty as a positive, student oriented program designed to assist the impaired student, while ensuring the development of highly professional young physicians;
- Confidentiality must be maintained at all costs in order to protect the impaired student;
- AIMS must function autonomously and separately from the UTHSC administration.

The Dean's office is notified of a student's impairment only upon refusal to participate in or failure to successfully complete the program. It must be emphasized that the goal of the AIMS program is to provide a positive system through which student quality and professionalism are enhanced.

### **Student Advisory Group**

The Student Advisory Group (SAG) is designed to provide advice and counsel to the Office of Student Affairs in exercising its responsibilities to students. The elected representatives (VP's for Student Affairs) from each class and elected OSR members provide student representation. Issues addressed are non-academic and deal with advancing the personal development and professional life of medical students.

## Career Counseling and Residency Placement

Choosing the specialty most congruent with interests, talents and long-term personal and professional goals is a major life decision. Programs and activities are available to support students as they contemplate their choice of specialties and residencies. The Career Counseling and Residency Placement program begins in the first year of medical education and continues through the NRMP Match in the fourth year. See the “Graduate Training” section of this Catalog or the Student Affairs website for more information [http://www.uthsc.edu/Medicine/StudentAffairs/studAffrs\\_cim/](http://www.uthsc.edu/Medicine/StudentAffairs/studAffrs_cim/).

## The UTHSC Careers in Medicine (CIM) Program

This is a student-led interest group, which is sponsored by the Office of Student Affairs in conjunction with the Association of American Medical Colleges (AAMC). Dedicated to helping students achieve their long-range professional goals, this group works with the Office of Student Affairs to promote a number of class-specific events designed to aid students in the decision-making process. The Office of Student Affairs:

- provides an individual, one-time user access code for CiM Web site access;
- organizes and implements workshops;
- obtains Student Guides from the AAMC national CiM office;
- selects and recruits faculty advisors;
- represents the College of Medicine in the ongoing implementation and expansion of the Careers in Medicine program developed by the AAMC.

## HONORS & RECOGNITION

Outstanding students are recognized for their achievement during the College of Medicine Dean’s Convocation each year. These awards are given in recognition of academic excellence, achievement in clinical medicine, research, leadership and service to the community and to the institution. The Committee on Recognition and Awards, with the support of the Office of Student Affairs, considers all candidates for these awards and makes the final selection of the recipient.

### Honors/ High Honors

The College of Medicine acknowledges the superior academic achievement of students by the designations of “With Highest Honors” (top 5%) and “With High Honors” (next 10%) on their transcripts. All academic programs taken through Block 3 of the fourth year are counted for the determination.

### Awards and Recognition

**Faculty Medal for Academic Achievement:** The award is presented by the faculty to the graduating senior with the highest academic standing in the class.

The Committee on Recognition and Awards under the direction of the Office of Student Affairs selects recipients for the following awards. Among the special awards given are the following:

**Alumni Achievement Award in Clinical Medicine:** This award is presented to an outstanding graduating senior who exemplifies the highest ideals of the practice of medicine. The recipient displays the best qualities of personal honesty, character, compassion for patients, and dedication to the highest ethical and professional standards. A plaque and stipend are provided by the College of Medicine Alumni Association for the continued pursuit of excellence in medical arts and skills.

**Alumni Achievement Award in Research:** This award is given to a graduating senior in recognition of outstanding achievement in biomedical research. A plaque and stipend are provided by the College of Medicine Alumni Association for continuation of research pursuits.

**Alpha Omega Alpha Distinguished Graduate Award:** An engraved plaque is presented to the graduating senior who, in the opinion of the Committee on Recognition and Awards and the AOA Executive Committee, will make the most significant contribution to the medical profession. The award is presented by the College of Medicine Chapter of the Alpha Omega Alpha Honor Medical Society.

**Robert L. Summitt, M.D. Distinguished Student Achievement Award:** The Committee on Recognition and Awards selects a graduating senior who has shown distinction in scholarship, leadership, service, and character during the period of medical education. An engraved plaque and a stipend are awarded by the College with sponsorship by the Upjohn Pharmaceutical Company.

**Departmental Awards:** The Departments of Medicine, Obstetrics and Gynecology, Pediatrics, Psychiatry, Surgery, Neurology, and Family Medicine, respectively, present an award to the graduating senior who illustrates the most outstanding abilities within each specialty. Additionally, The Tennessee Academy of Family Physicians sponsors The Outstanding Student in Family Practice Award.

**Charles C. Verstandig Award:** This award is presented to the member of the graduating class who surmounts the greatest difficulty in obtaining a medical education. The recipient is selected by the class with input from the Committee on Recognition and Awards.

**Anthony S. Ficalora Award:** This award is given to a graduating senior for his/her sensitivity to and respect for patients. The recipient is chosen by the Committee on Recognition and Awards.

**Distinguished Student Service Award:** An engraved plaque is given by the College of Medicine to a graduating senior for outstanding service to the student body and to the College of Medicine. The recipient is selected by the Medical Student Executive Council.

**Student Affairs Service Award:** This award is presented by the University of Tennessee Health Science Center Office of Academic, Faculty, and Student Affairs in recognition and appreciation of outstanding leadership and service as a member of the Student Government Association Executive Council.

**Outstanding Community Service Award:** This award is given to a graduating senior for outstanding service to the community and the medical profession while a medical student. It includes a set of CIBA Medical Illustrations Atlas. The recipient is selected by the Medical Student Executive Council.

**Alpha Omega Alpha Honor Medical Society:** Student membership is based entirely upon scholarship, honesty, and potential leadership. Students are elected to the chapter during their third or fourth year of medical school. The UT local chapter of AOA makes all selections.

**Outstanding Faculty Awards:** The graduating seniors select an outstanding faculty member from their basic science years and from their clinical years for recognition.

## EDUCATIONAL OBJECTIVES AND COMPETENCIES

Graduates of the University of Tennessee College of Medicine will complete a medical education program that prepares them for entry into a variety of advanced, differentiated physician training programs. To enable graduates to attain this objective, the medical education program will facilitate the development of the requisite knowledge, skills, attitudes, and beliefs. Graduating students will be expected to adhere to the STEEEP Principles, providing care that is safe, timely, effective, efficient, equitable and patient-centered, and will be expected to demonstrate competency in the following areas:

**Patient Care** that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of optimal health.

*Students are expected to:*

- provide compassionate treatment for all patients, respecting their privacy and dignity;
- conduct patient-centered encounters, perform and document both complete and focused histories and physical examinations appropriate for the level of training;
- evaluate data, identify problems, and plan proper action using scientific evidence and clinical judgment;
- demonstrate the ability to formulate a diagnosis, a treatment plan, and a prognosis based on an understanding of the patient, the natural history of the disease, and known intervention alternatives;
- apply principles of health promotion and disease prevention as high priorities;
- work effectively with other health professionals in order to provide patient-focused care;
- demonstrate basic skills in routine technical procedures;
- demonstrate literacy in the use of computers, medical informatics, and other technology to support patient care decisions.

**Medical Knowledge** about established and evolving biomedical, clinical, and cognitive (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care.

*Students are expected to:*

- demonstrate knowledge of the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis;
- demonstrate knowledge of the normal structure and function of the body (as an intact organism) and of each of its major organ systems;
- identify the principles that underlie normal human development and aging;
- demonstrate knowledge of disease processes, including symptoms, diagnosis, and treatment;
- recognize that health and illness involve psychological, biological, cultural, ethnic, gender, age, and socio-economic components;
- develop an analytical thinking approach to problem solving and clinical reasoning;
- understand the scientific basis, indications, and interpretation of common diagnostic modalities;
- demonstrate knowledge of therapeutics and therapeutic decision-making;
- recognize patients with immediately life threatening cardiac, pulmonary, or neurological conditions and be able to institute appropriate initial actions;
- know the principles of preventive medicine, health maintenance and how environment affects health and disease;
- demonstrate awareness of both traditional and non-traditional modes of care.

**Practice-Based Learning and Improvement** involving the investigation and evaluation of patient care practices, appraising and assimilating scientific evidence, and improving patient care practices.

*Students are expected to:*

- use information technology to access on-line medical information, and support their own education;
- use evidence-based medicine approaches and knowledge of study designs and statistical methods to appraise clinical studies on diagnostic and therapeutic effectiveness;
- understand continuous quality improvement practices;
- demonstrate the ability to pursue self-directed learning and self-assessment for the purpose of lifelong learning to stay abreast of scientific advances and for continual improvement in clinical practice.

**Interprofessional and Communication Skills** resulting in effective information exchange and teaming with patients, patients' families, and professional associates.

*Students are expected to:*

- demonstrate interpersonal skills that build rapport and empathic communication with patients and their families across socioeconomic, ethnic, and cultural boundaries;
- counsel and educate patients and their families;
- communicate effectively in oral and written formats with health care team members.

**Professionalism** based on a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

*Students are expected to:*

- advocate at all times the interests of one's patients over one's own interest;
- demonstrate the qualities of integrity, compassion, reliability, and dependability in interactions with colleagues, patients, and patients' families;
- recognize ethical issues relating to a physician's responsibilities and obligations to patients, colleagues, and society (e.g., end-of-life issues);
- demonstrate a sensitivity to the religious, mental, emotional, cultural, social-economic and physical needs of patients and their families, and maintain confidentiality of patient information;
- understand the importance of a commitment to excellence through the continuation of one's own professional education and growth, acceptance of scrutiny by peers and others, and dealing openly and honestly with professional mistakes;
- demonstrate a commitment to teach;
- understand the potential for personal impairment resulting from the high-stress environment of the practice of medicine, and recognize the availability of support resources.

**Systems-Based Practice** that demonstrates an awareness of and responsiveness to the larger context and system of health care and the ability to effectively utilize system resources to provide optimal care.

*Students are expected to:*

- develop a sense of social responsibility;
- understand the role of managed care and health care delivery systems and possess a knowledge of cost-effective and quality health care practices;
- identify weaknesses in the health care delivery system and the causes of medical errors, and be able to develop a plan of action to correct them;
- demonstrate knowledge of and respect for the overlapping roles and distinct competencies of different health professionals.

# CURRICULUM SUMMARY AND COURSE DESCRIPTIONS

## Four-year Curriculum at a Glance

### First Year – Preclinical Courses

COM 1011 - Structural Basis of Normal Body Function

COM 1012 - Molecular Basis of Normal Body Function

COM 1021 - Common Mechanisms of Disease

COM 1051 - Organ Systems – Pathogenesis/Diagnosis/Treatment: Hematological, Renal, Cardiovascular

COM 1041 - Principles of Clinical Medicine I

COM 1042 - Principles of Clinical Medicine II

### Second Year – Preclinical Courses

COM 2052 - Dermatological, Pulmonary, GI/Liver (9 credit hours)

COM 2053 - Endocrine, Reproductive/Breast, Urogenital (9 credit hours)

COM 2054 - Rheumatic, Musculoskeletal, Central-Peripheral Nervous Systems/Psychiatry (9 credit hours)

COM 2055 - Infectious Wrap-Up, Immunological Wrap-Up (2 credit hours)

COM 2043 - Principles of Clinical Medicine III (4 credit hours)

COM 2044 - Principles of Clinical Medicine IV (4 credit hours)

*Step 1 - United States Medical Licensing Examination (USMLE)*

### Third Year – Clinical Rotations

Principles of Clinical Medicine V - 2 weeks

Family Medicine - 8 weeks

Medicine - 8 weeks

Obstetrics & Gynecology - 8 weeks

Pediatrics - 8 weeks

Psychiatry/Neurology - 8 weeks

Surgery - 8 weeks

### Fourth Year – Clinical Rotations

Principles of Clinical Medicine VI - longitudinal

Ambulatory Medicine - 4 weeks

JI - Any - 4 weeks

JI - Medicine - 4 weeks

Specialty Clerkship - 4 weeks

Surgery Specialties - 4 weeks

Patient Safety/Quality Improvement Clerkship (PS/QI) - longitudinal

Electives - 16 weeks

Optional Blocks - 12 weeks

*Step 2 CK - United States Medical Licensing Examinations (USMLE) Clinical Knowledge Exam*

*Step 2 CS - United States Medical Licensing Examinations (USMLE) Clinical Skills Exam. Begin Residency*

### Training as M.D.

## First Year – Preclinical Courses

The biomedical sciences portion of the curriculum is approximately 72 weeks in duration. The first year curriculum runs from August through May, and is devoted to the basic scientific foundations of medicine and an introduction to clinical medicine. The first year format consists primarily of basic science activities in the General Education Building and clinical activities in the Robert Kaplan Clinical Skills Center. Approximately twenty hours weekly are devoted to scheduled activities.

## M1 – Foundations 1-4

### Fall Semester

	Title	Course #	Credit Hours
1.1	Structural Basis of Normal Body Function	COM 1011	10
1.2	Molecular Basis of Normal Body Function	COM 1012	8
4.1	Principles of Clinical Medicine I	COM 1041	4

### Spring Semester

	Title	Course #	Credit Hours
2.1	Common Mechanisms of Diseases	COM 1021	9
4.2	Principles of Clinical Medicine II	COM 1042	4
5.1	Organ Systems – Pathogenesis/Diagnosis/Treatment: Hematological, Renal, Cardiovascular	COM 1051	9

**COM 1011 - Structural Basis of Normal Body Function** (10 credit hours), preclinical course. Fall semester of year one. Complete dissection of the human body and virtual microscopy of tissue sections will provide students with knowledge of normal gross and tissue anatomy. Laboratory sessions will be supplemented with lectures, study guides, and the study of cross sections. Human embryology is included in the program. The course will provide a foundation for subsequent understanding of the physiology and pathophysiology of organ systems and common diseases. Course Director - Melburn R. Park, Ph.D.

**COM 1012 - Molecular Basis of Normal Body Function** (8 credit hours), preclinical course. Fall semester of year one. This integrated course will provide students the molecular biology, genetics, cell structure, and biochemistry of normal body function with an emphasis on clinical applications. Instruction includes live and pre-recorded lectures, team-based learning sessions, and clinical basic science conferences. Along with COM 1011, the course will provide a foundation for subsequent understanding of the physiology and pathophysiology of organ systems and common diseases. Course Director – S. Ken Nishimoto, M.D.

**COM 1021 – Common Mechanisms of Disease** (9 credit hours), preclinical course. Spring semester of year one. This course will cover fundamental information on mechanisms common to multiple diseases, to include basic aspects of cell injury, repair/regeneration, inflammation, immunopathology, neoplasia, nutrition, underlying genetic causes, and addictive life styles. It will also expose students to basic aspects of pharmacokinetics, pharmacodynamics, and pharmacotherapeutics; basic microbial structure, classification, physiology, and genetics; the immune response to infections; and fundamentals of laboratory diagnosis in the practice of medicine. Instruction includes live and pre-recorded lectures, small group sessions, team-based learning sessions, laboratory exercises, and clinical pathophysiology conferences. The course will provide a foundation for subsequent understanding of the causes, response, diagnosis, and pharmacologic treatment of common diseases as well as the pathology and pathophysiology of organ systems. Course Director – G. Stephen Nace, M.D.

**COM 1041 – Principles of Clinical Medicine I** (4 credit hours), preclinical course. Fall semester of year one. This course will cover a variety of topics that include HIPAA regulations, OSHA regulations, patient rapport skills, doctor/patient relationship, the biopsychosocial model of medicine, professionalism, communication and interviewing skills, history taking, nutritional assessment, performing physical exams, and documenting physical exams. All topics will be thoroughly integrated in concurrent foundation courses. Course Director – G. Stephen Nace, M.D.

**COM 1042 – Principles of Clinical Medicine II** (4 credit hours), preclinical course. Spring semester of year one. This course will cover a variety of topics that include patient rapport skills, doctor/patient relationship, the biopsychosocial model of medicine, professionalism, communication and interviewing skills, history taking, performing physical exams, documenting physical exams, tobacco counseling, weight loss counseling, drug dependence, challenging patient encounters, preventive services, diagnostic testing properties, and basic biostatistics. All topics will be thoroughly integrated with concurrent foundation courses. Course Director – G. Stephen Nace, M.D.

**COM 1051– Hematological, Renal, Cardiovascular.** Organ Systems – Pathogenesis, Diagnosis, and Treatment (9 credit hours each section), preclinical course. Spring semester of year one. This course, one of five modules for cohesive content and grading purposes, will provide a fully integrated presentation by multiple basic and clinical faculty on diseases of the major organ systems. The physiology, pathophysiology, pathology, pharmacology, and infections underlying these systems will be covered. Instruction includes live and pre-recorded lectures, small group sessions, team-based learning sessions, and clinical pathophysiology conferences. The course will provide a foundation of integrated basic and clinical sciences needed by students as they enter the clerkship phase of training. Course Director – Trevor W. Sweatman, Ph.D.

## Second Year – Preclinical Courses

The second year curriculum runs from August through March, and is devoted to the continued exposure to the basic scientific foundations of medicine and clinical medicine, focusing around organ systems. It consists primarily of basic science activities in the General Education Building and clinical activities in the Robert Kaplan Clinical Skills Center. Approximately twenty hours weekly are devoted to scheduled activities.

## M2 – Foundations 5

### Fall Semester

5.2 Organ Systems – Pathogenesis/Diagnosis/Treatment: Dermatological, Pulmonary, GI/Liver	COM 2052	9
5.3 Organ Systems – Pathogenesis/Diagnosis/Treatment: Endocrine, Reproductive/Breast, Urogenital	COM 2053	9
4.3 Principles of Clinical Medicine III	COM 2043	4

### Spring Semester

5.4 Organ Systems – Pathogenesis/Diagnosis/Treatment: Rheumatic, Musculo/Skeletal, Central-Peripheral Nervous Systems/Psychiatry	COM 2054	9
5.5 Organ Systems – Pathogenesis/Diagnosis/Treatment: Infectious Wrap-Up, Immunological Wrap-Up	COM 2055	2
4.4 Principles of Clinical Medicine IV	COM 2044	4
Pre-Clerkship		



**COM 2052 – Dermatological, Pulmonary, GI/Liver.** Organ Systems - Pathogenesis, Diagnosis, and Treatment (9 credit hours), preclinical course.. Fall semester of year two. This course will provide a fully integrated presentation by multiple basic and clinical faculty on diseases of the Dermatological, Pulmonary, GI/Liver organ systems. The physiology, pathophysiology, pathology, pharmacology, and infections underlying these systems will be covered. Instruction includes live and pre-recorded lectures, small group sessions, team-based learning sessions, and clinical pathophysiology conferences. The course will provide a foundation of integrated basic and clinical sciences needed by students as they enter the clerkship phase of training. Course Director – J. Patrick Ryan, Ph.D.

**COM 2053 - Endocrine, Reproductive/Breast, Urogenital.** Organ Systems– Pathogenesis, Diagnosis, and Treatment (9 credit hours), preclinical course. Fall semester of year two. This course will provide a fully integrated presentation by multiple basic and clinical faculty on diseases of the Endocrine, Reproductive/Breast, and Urogenital organ systems. The physiology, pathophysiology, pathology, pharmacology, and infections underlying these systems will be covered. Instruction includes live and pre-recorded lectures, small group sessions, team-based learning sessions, and clinical pathophysiology conferences. The course will provide a foundation of integrated basic and clinical sciences needed by students as they enter the clerkship phase of training. Course Director – J. Patrick Ryan, Ph.D.

**COM 2054 - Rheumatic, Musculoskeletal, Central-Peripheral Nervous Systems/Psychiatry.** Organ Systems – Pathogenesis, Diagnosis, and Treatment (9 credit hours), preclinical course. Spring semester of year two. This course will provide a fully integrated presentation by multiple basic and clinical faculty on diseases of the rheumatic, musculoskeletal, and central- peripheral nervous organ systems. The physiology, pathophysiology, pathology, pharmacology, and infections underlying these systems will be covered. Instruction includes live and pre-recorded lectures, small group sessions, team-based learning sessions, and clinical pathology conferences. The course will provide a foundation of integrated basic and clinical sciences needed by students as they enter the clerkship phase of training. Course Director – William Pulsinelli, M.D., Ph.D.

**COM 2055 – Infectious Disease and Immunological Wrap Up.** Organ Systems – Pathogenesis, Diagnosis, and Treatment (2 credit hours), preclinical course. Spring semester of year two. This course, one of five modules for cohesive content and grading purposes, will provide new perspectives on microbiology and immunology content previously presented in the other organ systems. Instruction may include live and pre-recorded lectures, small group sessions, team-based learning sessions, and clinical pathophysiology conferences. The course will provide a foundation of integrated basic and clinical sciences needed by students as they enter the clerkship phase of training. Course Director – J. Patrick Ryan, Ph.D.

**COM 2043 – Principles of Clinical Medicine III** (4 credit hours, 1 semester), preclinical course. Fall semester of year two. This course will cover a variety of topics that include patient rapport skills, doctor/patient relationship, the biopsychosocial model of medicine, professionalism, communication and interviewing skills, history taking, performing physical exams, documenting physical exams, tobacco counseling, weight loss counseling, drug dependence, challenging patient encounters, preventive services, diagnostic testing properties, and basic biostatistics. All topics will be thoroughly integrated with concurrent foundation courses. Course Director – G. Stephen Nace, M.D.

**COM 2044 – Principles of Clinical Medicine IV** (4 credit hours, 1 semester), preclinical course. Spring semester of year two. This course will continue with covering a variety of topics from the first semester, including patient rapport skills, doctor/patient relationship, the biopsychosocial model of medicine, professionalism, communication and interviewing skills, history taking, performing physical exams, documenting physical exams, tobacco counseling, weight loss counseling, drug dependence, challenging patient encounters, preventive services, diagnostic testing properties, and basic biostatistics. All topics will be thoroughly integrated with concurrent foundation courses. Course Director – G. Stephen Nace, M.D.

The Biomedical Science component of the curriculum is completed in March. Students then sit for the USMLE Step 1 Exam prior to beginning the clinical curriculum.

### Third Year - Clinical Rotations (Begins in May)

Students proceed directly into the Third Year Clinical Clerkships upon successful completion of the Biomedical Sciences, and obtaining a passing score on the United States Medical Licensing Examination (USMLE) Step 1. Occasionally, students may elect to delay entry into the clerkship program in order to pursue graduate studies. Criminal background checks are a requirement for training. Based on the results of these checks, an affiliated clinical site may determine not to allow your presence at their facility.

Students begin the third year with a week-long Principles of Clinical Medicine block which focuses on providing clinical skills essential to success in the M-3 clerkships. During the clerkships, students focus their attention and efforts on patient problem-solving and experience an increasing level of responsibility throughout the rotations. Student workload in the third year is controlled by the director of each clerkship. The total amount of time allotted for third-year clerkships is 48 weeks, which is taken over a 64-week period. After completion of a minimum of three core clerkships, students may choose one or more electives to enhance their skills and understanding in a specific discipline before completing all six required clerkships.

Clerkship	Duration
Principles of Clinical Medicine V	1 week
Family Medicine	8 weeks
Medicine	8 weeks
OB/GYN	8 weeks
Pediatrics	8 weeks
Psychiatry/Neurology	8 weeks
Surgery	8 weeks

These clerkships provide a breadth of clinical experiences in the major care areas. Students become an integral part of the health-care team in an academic setting involving both house staff and faculty as well as ancillary services of the teaching hospitals. Programs are available in facilities in Memphis, Knoxville, Chattanooga and Nashville.

**PCM-3001/F - The Principles of Clinical Medicine –V** (2 credit hours), preclinical course. The course is an “Introduction to Clerkships” week that consists of clinical knowledge, clinical skills and workshops. The goal is to provide students with basic clinical skills that will be useful on any clerkship. The content of the introductory week includes Code simulation with an Interprofessional team; introduction to clerkships by upper classmen; venipuncture; IV starts; Foley catheter insertion; clinical exam skills; patient safety and quality improvement; professionalism; surgical skills - knot tying, suturing and abscess drainage; blood and fluid replacement; EKG reading; X-ray reading; radiology; and more. Clinical reasoning and differential diagnosis of common complaints and communication skills are incorporated into the week and a panel of experts discuss risk management. Course Director – G. Stephen Nace, M.D.

**FME1-3001/F - Core Clerkship in Family Medicine** (14 credit hours), clinical rotation. The Family Medicine Clerkship is an eight-week clinical experience during which students participate in a unique breadth of patient care in the context of family and community. Students experience traditional office-based practice under the supervision of a community-based family physician preceptor. With the office practice as a base, the family physician serves all aspects of patient care involving both inpatient and outpatient settings, ranging from the hospital to the nursing home. Students are placed with family physicians that practice the full breadth of the discipline, including obstetrical care, whenever feasible. Clerkship Director – Jennifer Goodfred, D.O.

The department maintains a wide array of approved clinical training sites throughout the state of Tennessee and works closely with students to identify mutually agreeable clinical assignments. Student hardships will be considered in making the final assignment.

The clerkship is a full-time learning experience, typically mirroring the family physician preceptor and including both weekend responsibilities and night call. Students have several written assignments to complete as well as assigned readings during the eight weeks. This clerkship is also offered in Knoxville (FME2-3001/F) and Chattanooga (FME3-3001/F).

**MED1-3001/F - Core Clerkship in Medicine** (14 credit hours), clinical rotation. The clinical clerkship in medicine is designed to provide the medical student with an opportunity to learn by experience in patient care and by the examples set by the faculty and house staff. The student is a participating member of the clinical team responsible for patient care that includes residents and the attending physician. A student is expected to: 1) acquire skill and efficiency in history taking and physical examinations, in technical procedures, in the assembly and interpretation of laboratory data, and in patient diagnosis and management; 2) apply to clinical problems the knowledge and facts acquired in the biomedical sciences; and 3) read current medical journals as well as textbooks. Each student is assigned to the University Medical Services at the Veterans Affairs Medical Center, the Regional Medical Center or Methodist University Hospital for the eight-week rotation. At the mid-point of the clerkship, each student will switch from one hospital assignment to another. Alternatively, students may rotate through Baptist Hospital in Nashville for four weeks of their rotation (**MED4-3001/F**). This clerkship also is offered in Knoxville (**MED2-3001/F**) and Chattanooga (**MED3-3001/F**). Clerkship Director – Susan C. Brewer, M.D.

**NEU1-3001/F - Core Clerkship in Neurology** (7 credit hours), clinical rotation. This four-week experience is offered in an eight-week rotation in concert with the Psychiatry Clerkship. The clinical sites for the clerkship are at Baptist Memorial Hospital, Methodist University Hospital, and the Veterans Affairs Medical Center. The major emphasis is on developing skills in neurological history taking and in the performance and interpretation of the neurologic examination. The clinical correlations of neurostructure and function taught in Neurosciences are expanded upon in the clinical setting. An exposure to the various categories of neurologic disorders and their pathophysiology is provided. The diagnostic approach to the patient stresses both anatomic and etiologic considerations. Neurology is a focal point for the dynamic advances in our understanding of the pathogenesis of disease and related new therapies. This clerkship is offered in Memphis (**NEU1-3001/F**) and Chattanooga (**NEU3-3001/F**). Clerkship Director – William Pulsinelli, M.D., Ph.D.

**OBG1-3001/F - Core Clerkship in Obstetrics and Gynecology** (14 credit hours), clinical rotation. This required eight-week clerkship is designed to familiarize the student with female pelvic anatomy and the normal menstrual cycle. In addition, obstetric and gynecologic history taking and pelvic examination are taught, along with the normal physiology of pregnancy and care of the normal pregnant woman through the antepartum, intrapartum, and postpartum course. Basic complications of pregnancy are covered, as well as specific diseases as related to pregnancy outcome. The gynecologic portion of the clerkship focuses on basic diseases which occur in the female pelvis, including infection, endometriosis, and cancer. This clerkship also is offered in Knoxville (**OBG2-3001/F**) and Chattanooga (**OBG3-3001/F**). Clerkship Director – Thomas Elmore, M.D.

**PED1-3001/F - Core Clerkship in Pediatrics** (14 credit hours), clinical rotation. Four weeks of this eight-week required clerkship experience are in an ambulatory setting that includes: general outpatient care, subspecialty clinic experience and primary care in a private office setting. The other four weeks are spent on inpatient service, providing direct “hands-on” patient management. An eight-week lecture series covers the most relevant topics in pediatric care. Regular rounds with faculty and house staff provide opportunities for interaction with all members of the health care team in managing the pediatric patient. This clerkship also is offered in Chattanooga (**PED3-3001/F**). Clerkship Director – Valerie Jameson, M.D.

**PSY1-3002/F - Core Clerkship in Psychiatry** (7 credit hours), clinical rotation. This four-week clerkship is offered in an eight-week block in concert with the Neurology Clerkship. Students are assigned to a general inpatient service as their home base, gaining familiarity with diagnosis and treatment of severely disturbed patients. Additional time is organized around psychiatric services in a general medical setting (Consultation-Liaison or Emergency Room at the Regional Medical Center) or the Alcohol and Drug Rehabilitation Services at the Veterans Affairs Medical Center. Lectures, readings, case conferences, and outpatient clinic assignments round out the experience. The student is expected to gain a basic knowledge of psychiatric diagnosis, applied psychopharmacology, and non-pharmacologic treatment options. Emphasis is on information useful to students regardless of their future specialty choice. This clerkship is offered in Memphis (**PSY1-3002**), Chattanooga (**PSY3-3002/F**), and Knoxville (**PSY2-3002/F**). Clerkship Director – Renate H. Rosenthal, Ph.D.

**SUR1-3001/F - Core Clerkship in Surgery** (14 credit hours), clinical rotation. This eight-week clerkship encompasses general, vascular, and trauma surgery. The objective of this clerkship is to familiarize the student with the basic pathophysiologic, diagnostic and therapeutic modalities involved in the art and science of surgery. The fundamentals taught in this rotation will be of benefit to individuals even if they do not choose a field of surgery as a career. The clinical rotations are four weeks each in two different facilities. These facilities include the Veterans Affairs Medical Center, the Regional Medical Center, Baptist Hospital, St. Francis, and the Methodist University Hospital. In addition to this clinical involvement, each student is involved in small group conferences and an afternoon didactic lecture series delivered by members of the faculty. The student also participates in a skills laboratory, videotape presentations, grand round sessions, and generous outpatient experiences. This clerkship also is offered in Knoxville (**SUR2-3001/F**) and Chattanooga (**SUR3-3001/F**). Clerkship Director – Gayle Minard, M.D.

### Location of Clinical Clerkship and Elective Offerings:

	Memphis	Knoxville	Chattanooga	Nashville
Family Medicine	x*	x	x	
Medicine	x	x	x	x
Neurology <sup>a</sup>	x		x	
Ob/Gyn	x	x	x	
Pediatrics	x		x	
Psychiatry <sup>a</sup>	x		x	
Surgery	x	x	x	
Ambulatory Medicine	x	x	x	
Senior Clerkship Medicine	x	x	x	x
Senior Clerkship ( <i>any third year clerkship</i> )	x	x	x	
Surgery Specialties	x	x	x	

Specialty Clerkship	x	x	x	
Patient Safety/Quality Improvement Clerkship	x	x	x	
Electives	x	x	x	x

<sup>a</sup>Psychiatry and Neurology are scheduled in the same eight-week period.

\*The Department of Family Medicine seeks to expose all medical students to primarily ambulatory-based medicine in the real-life office setting of practicing community family physicians. The department places students in locales throughout the state of Tennessee including urban, suburban, rural, and under-served communities. Whenever possible, student preferences for specific locations are taken into consideration. Students may request approved settings in their hometown or communities where they may stay with family or friends. Students are responsible for the costs associated with transportation, housing, and food.

Additional information on each clerkship can be found at:  
<http://www.uthsc.edu/Medicine/medicaleducation/clerkships/>

### Fourth Year – Clinical Rotations

The fourth year is composed of six 4-week clerkships, Principles of Clinical Medicine VI (longitudinal), and four 4-week electives. These clerkships allow for increased responsibility in patient care as well as the opportunity to pursue areas of individual interest. The electives provide students with the opportunity to select the clinical or basic science experiences to best meet their particular career goals. More information is provided at [http://www.uthsc.edu/Medicine/Acad\\_Affairs/UME/index.php?doc=fourth\\_year.htm](http://www.uthsc.edu/Medicine/Acad_Affairs/UME/index.php?doc=fourth_year.htm).

Clerkships	Duration
Principles of Clinical Medicine VI	longitudinal
Ambulatory Medicine	4 weeks
Surgery Specialties	4 weeks
Specialty Clerkship	4 weeks
Senior Clerkship in Medicine	4 weeks
Senior Clerkship in any of the required M3 Clerkships	4 weeks
Patient Safety/Quality Improvement	longitudinal
Required Electives*	16 weeks
Optional Electives	12 weeks

\**Elective Programs*: 16 weeks of half-time/full-time electives are required. (320 electives are available in Chattanooga, Jackson, Knoxville, Memphis and Nashville.) Electives can be viewed at: [http://www.uthsc.edu/Medicine/Acad\\_Affairs/UME/Clerkships/Catalog.doc](http://www.uthsc.edu/Medicine/Acad_Affairs/UME/Clerkships/Catalog.doc).

**PCM-3002/F - The Principles of Clinical Medicine VI** (1 credit hour), clinical rotation. The curriculum is designed as a continuing medical education (CME) model. The goal is to provide direction for students in developing the skills necessary to become life-long learners and the ability to share their learning as effective teachers in both the academic as well as the community setting. Successful completion of the curriculum includes both required and optional didactic and experiential components. Workshops include interdisciplinary topics such as HIV/AIDS, hospital nutrition, end-of-life/palliative care, smoking cessation, integrative medicine, and medical disabilities. Course Director – G. Stephen Nace, M.D.

**MED1-3002/F - Senior Clerkship in Medicine (J.I. Med.)** (7 credit hours), clinical rotation. The Senior Clerkship in Medicine places the student in a more direct role in patient care similar to an internship, but closely supervised and directed. The senior clerkship student will record the principal database (with resident or faculty review and counter signature), develop an evaluation and treatment plan, and write orders on patients (to be reviewed, altered if necessary, and signed by the resident or faculty prior to implementation). The student is introduced to responsibility for inpatient care in a setting in which the student is the initial evaluator of the patient's problems as outlined in the general instructions. The student develops conceptual and manual skills for evaluation and care of internal medicine patients and becomes more familiar in dealing directly with hospital and other paramedical personnel with an appreciation for the team approach to patient care. The student participates in two-hour rounds at least four days per week with the attending physician assigned to the service and consults daily with the resident house staff on each assigned patient. This clerkship also is offered in Knoxville (**MED2-3002/F**), Chattanooga (**MED3-3002/F**), and Nashville. Clerkship Director – Susan C. Brewer, M.D.

**MED1-3003/F - Ambulatory Care** (7 credit hours), clinical rotation. The objectives of the ambulatory clerkship are to provide: 1) an in-depth orientation to the evaluation, management and long-term clinical course of common medical problems which are handled by internists; 2) guidelines for recognizing common clinical problems which may be cared for in an ambulatory setting versus those which require hospitalization and/or referral for specialty or subspecialty care; 3) instruction in the unique principles of successfully providing medical care in the ambulatory setting; and, 4) instruction in health maintenance, disease prevention, and relevant clinical epidemiology. The student will work in a variety of clinical areas including general medicine clinics at the Regional Medical Center and Veterans Affairs Medical Center. There are also opportunities to participate in the Adult Special Care Clinic, Sick Cell Clinic, Hypertension Clinic, and many of the subspecialty clinics such as Cardiology and Endocrinology. The student may spend some time with an internist in private practice. This clerkship also is offered in Knoxville (**MED2-3003/F**), and Chattanooga (**MED3-3003/F**). Clerkship Director – Susan C. Brewer, M.D.

**Senior Clerkship (J.I. Any) (FME, MED, OB/GYN, PED, PSY/NEURO, SUR) (3010/F to 3012/F) (7 credit hours).** Students are required to take a 4-week experience in any one of the core clerkships.

**SUR1-3002/F - Surgery Specialties** (7 credit hours), clinical rotation. This clerkship exposes the student to the Surgery Specialties of Orthopedics, Ophthalmology, Otolaryngology and Urology. The clerkship is graded "Pass/Fail." This clerkship also is available in Knoxville (**SUR2-3002/F**) and in Chattanooga (**SUR3-3002/F**). Clerkship Director – S. Terry Canale, M.D.

**SPE1-3001/F - Specialty Clerkship** (7 credit hours), clinical rotation. This clerkship is offered in each block throughout the calendar year. Students will have a week each in Anesthesiology and ICU and 2-weeks in Palliative Care. If a student has had a block of ICU or Anesthesiology, they may substitute with Cardiology or Infectious Disease during the four-week clerkship. The clerkship is graded "Pass/Fail." This clerkship is available in Knoxville (**SPE2-3002/F**) and Chattanooga (**SPE3-3002/F**). Clerkship Director – Russell W. Chesney, M.D.

**PSQ1-2002/F - Patient Safety/ Quality Improvement Clerkship** (7 credit hours), clinical rotation. The PSQI clerkship is a combination of an online course with an opportunity to review real patient safety cases or an opportunity to perform a quality improvement project. It allows an opportunity to participate in a structured, longitudinal curriculum while performing stepwise work on a Patient Safety/Quality Improvement Project (PSQI Project) under the tutelage of a quality improvement coach and requires a written report submission. Students will be involved in a Root Cause Analysis (RCA) session during their Ambulatory rotation in Memphis. Students who are offsite for the ambulatory clerkship will submit a written RCA report. Clerkship Director – Russell W. Chesney, M.D.

**Electives (7 credit hours each), clinical rotation.** Sixteen weeks of two-week (half-time) or four-week (full-time) elective work are required and normally taken during the senior year. Both basic science and clinical electives of varying lengths are offered in a variety of settings with maximal learning opportunities. During this time, each student has the opportunity to: 1) select experiences that meet individual career goals, 2) study in depth in a clinical or basic science area, and 3) have increased responsibility in patient care under the direct supervision of the faculty. Electives are offered by the University of Tennessee, UT-affiliated hospitals, and (with approval) at other accredited medical schools. The Elective Catalog is available at: [http://www.uthsc.edu/Medicine/Acad\\_Affairs/UME/Clerkships/Catalog.doc](http://www.uthsc.edu/Medicine/Acad_Affairs/UME/Clerkships/Catalog.doc).

With proper selection, the electives program provides a varied and appropriate educational experience. This imposes a high level of responsibility on each student and with the limited elective time available, each student is encouraged to seek advice from as many different people as is practical.

Although prior approval by the course coordinator is not required for all electives, the responsibility of verifying the availability of an elective for a particular scheduling period rests with each student. For courses which indicate, "Consent of Course Coordinator" as a prerequisite, permission must be obtained from the course coordinator prior to scheduling.

A student may request an elective not currently listed in the Electives Catalog. Any specially designed elective requires approval of the involved faculty member, the appropriate departmental chair, and the Clinical Sciences Subcommittee. The Office of Medical Education has forms available for this purpose. Since the approval process for a special elective could require considerable time, students are advised to begin this process well in advance of the time at which the requested elective is to be scheduled.

## **SPECIAL PROGRAMS**

### **NIH Medical Student Research Fellowship Program**

The Medical Student Research Fellowship Program was established in 1978 to provide medical students with opportunities to engage in biomedical research. Since the inception of the program, over 700 medical students have received grants on a competitive basis and have conducted a wide range of projects during option periods. These research projects have generated numerous papers and abstracts in the scientific literature. Approximately 200 student researchers have presented their research findings at national and regional conferences. By introducing students to the possibility of a career in research, the goal of the program is to ease a serious shortage of young physicians entering research fields.

A grant from the National Institutes of Health provides 24 fellowships per year including stipends for a maximum appointment of three months in research under the supervision of College of Medicine faculty members who are established biomedical investigators. The program has had continuous NIH funding for 33 years. A number of other research training programs are available in the Clinical Research Center, the University of Tennessee College of Medicine, St. Jude Children's Research Center, the Graduate School of Medicine at the University of Tennessee Medical Center, Knoxville, and through various private foundations. M-1 students may participate during the summer. The M-2, M-3, and M-4 students may apply for support during their option blocks. All participants are expected to devote full-time effort to their projects. The Medical Student Research Fellowships are available on a competitive basis to all students in the College of Medicine who are in good academic standing. All applicants are reviewed for their scientific merit and perceived value as a research training experience. Selection is based on evaluation of proposals submitted jointly by students and their preceptors, the student's academic record, and the preceptor's curriculum vitae. Students are encouraged to submit their applications as soon as possible. The deadlines are: Summer Period – March 31; other Option Blocks – two months before the start of the requested research block. Every effort will be made to provide notification of awards as soon as possible.

For further information on research training opportunities, please contact: Syamal Bhattacharya, PhD Executive Director, MSRF Program ([sbhattac@uthsc.edu](mailto:sbhattac@uthsc.edu)), 901-448-5676.

The COM also offers students other research opportunities. Additional program information can be found at [https://academic.uthsc.edu/sr/COM\\_Student\\_Research.html](https://academic.uthsc.edu/sr/COM_Student_Research.html).

## **M.D./PH.D. Program**

The M.D./Ph.D. Program provides highly motivated and unusually qualified students with an integrated clinical and basic biomedical training program leading to both an M.D. and a Ph.D. degree. The program's goal is to prepare graduates with the skills needed to function independently in both clinical and basic research environments. The first and last two-year periods of the program contain the medical curriculum. The intervening three years are devoted to graduate study in a selected program offered through the UTHSC College of Graduate Health Sciences. Students must be accepted to the College of Medicine to be considered for admission to the M.D./Ph.D. Program. Additional program information can be found at <http://www.uthsc.edu/grad/Programs/index.php?page=Programs>.

## **GRADUATE MEDICAL EDUCATION**

### **The National Resident Matching Program (NRMP)**

The NRMP Match is a mechanism by which appointments to residency programs are made at a uniform time. It provides an impartial venue for matching applicants' preferences for residency positions with program directors' preferences for applicants. Each year approximately 16,000 U.S. allopathic medical school seniors compete for residency positions through the Match.

In the Match, all steps of the admissions process are carried out (by computer) at uniform times. ERAS is the Electronic Residency Application Service developed by the Association of American Medical Colleges to transmit via the Internet residency applications, personal statements, recommendation letters, deans' letters, transcripts, and other supporting credentials from medical schools to residency program directors. Program directors decide on the order in which they will offer positions to candidates, and transmit their Rank Order List to the NRMP via the internet. Applicants decide on the order in which they will accept offers from programs, and transmit their Rank Order Lists to the NRMP via the internet also.

The Match obviates what can be possibly premature decisions and less than comfortable direct interchanges between program directors and applicants in the offering and acceptance or rejection of positions.

In the Match, applicants and program directors obtain their highest possible choices as determined by their Rank Order Lists. A position is "offered" to an applicant whenever his/her name appears within the quota of positions offered by a program. An applicant "accepts" (is matched to) a position in the program highest on his Rank Order List that "offers" him/her a position.

In the Match, the Confidential Rank Order Lists are the sole determinants of offers and acceptances of residency positions. The only reason an applicant does not "accept" an offer from a particular program director is that the applicant preferred (ranked higher) another program from which he/she also received an offer. The only reason an applicant does not "obtain" (match to) a position in a particular program is that the program director preferred (ranked higher) other applicants.

Top choices on Rank Order Lists can be made by applicants and program directors in the order of desirability - they should ignore probability of acceptance. When an applicant is "offered" his/her first choice position, the match is final. His/her name is removed from the lists of all other programs, and their Rank Order Lists are adjusted as necessary, to maintain their quotas by including the next person down the list. If an applicant matches to a lower ranked program, the match is tentative. His/her name is removed from the lists of all programs ranked lower but is maintained on the lists of his/her higher-ranked programs. If his/her name should subsequently be included within the quota of a program he/she has ranked higher, he/she will be moved to the higher choice position. No matter how many top-ranked applicants "decline" offers from a given program, lower-ranked applicants who rank that program first will be matched to it as long as they are included in the program's unfilled quota.



For the Match to work optimally applicants must list (rank) all acceptable programs to which they have applied and program directors must offer positions to (rank) all acceptable applicants. Applicants must, as in any admissions process, rank a range of programs on their Rank Order Lists including lower choices of less desired but satisfactory programs. Applicants who do not match tend to be those with shorter Rank Order Lists and those who list only highly competitive programs. Program directors who rank only a few more of their applicants than they have positions or concern themselves about “how far down” their Rank Order List they go do not understand the Match. If, on the average, each applicant were to apply to five programs, the average program director would have an acceptance from only one out of every five (5) applicants to whom he/she offered (ranked) a position.

## **NRMP Special Cases**

### **Public Health Services Programs**

Students on these scholarship programs are also required to participate in the NRMP.

### **Armed Forces**

Students on these scholarship programs are required to participate in the Armed Forces Residency Matching Program. This is conducted at an earlier time to allow students who are unmatched through the Armed Forces to secure a civilian position. Therefore, all students on Armed Forces scholarships are encouraged to enroll in NRMP as a backup.

### **Couples**

Married/engaged/etc. couples may go through NRMP as a single unit through a special procedure or make arrangements outside NRMP.

### **Academic Progress**

Students whose academic progress has been altered such that they will not complete all requirements for the M.D. degree on schedule may need to make special arrangements with the Office of Student Affairs.

## **NRMP approximate dates**

### **Spring, Junior Year**

- Initial information regarding NRMP distributed.

### **July, Senior Year**

- Letters of recommendation with individual faculty members arranged;
- Appointment made with Office of Student Affairs for writing the Medical Student Performance Evaluation (Dean's Letter);
- Applications made to programs of your choice with interviewing appointments made.

### **August, Senior Year**

- Students sign up with NRMP and send in registration fee.

### **February, Senior Year**

- Receipt of Applicant and Hospital Confidential Rank Order List by NRMP.

### **March, Senior Year**

- Results of “The Match.”

## **Letters of Recommendation**

It is suggested that students not seek letters of recommendation for residency training until the end of the third year. Every residency will require letters of recommendation from the chair of the department of the specialty you wish to enter and, generally, from two additional faculty members as well. Each student will be required to have a Medical Student Performance Evaluation (MSPE), which is prepared in the Office of Student Affairs.

## STUDENT GOVERNANCE

Rules and regulations governing the organization and structure for each class are the sole responsibility of the Medical Student Executive Council (MSEC) and each respective class. Each class elects a slate of officers to formally represent them on all matters concerning their class. The initial election for the freshman class is held during the first month of school and is conducted by the MSEC. Officers elected serve for an interim period. After a period of the freshman year and at the end of every academic year, elections are held to elect officers for the coming year. These elections are conducted by the MSEC or by any officer running unopposed. At any time during the year, a recall petition signed by at least 25% of the class is grounds for a new election. The class president is the official liaison between the class and the administration and faculty. The president is also a voting member of the MSEC. Each class elects vice-presidents, a secretary and a treasurer. Each class elects three representatives to the MSEC, three representatives to the Honor Council, two representatives to the AIMS Council, and two representatives to the Professionalism Committee. These representatives support the class' interest in their respective organizations and report the actions of their group to the class. Students are urged to contact their class representatives to voice any concerns regarding the areas of the student organizations' responsibilities. Additionally, each class has a social committee of two or three students who plan class social events, and athletic directors to coordinate involvement in intramurals.

### Medical Student Executive Council

*Matthew Barnes (M4), President*

*Benjamin Maddox (M3), Vice President*

The Medical Student Executive Council (MSEC) is the governing council of the student body of the University of Tennessee College of Medicine, representing the students to the administration and faculty of the University, and the Memphis community. The Council is headed by a President and Vice President, elected annually. Other members include:

- Each class president (4)
- Four class representatives (16)
- American Medical Association-Medical Student Section (1)
- American Medical Student Association (1)
- Family Practice Student Association (1)
- Organization of Student Representatives (OSR) to American Association of Medical Colleges (2)
- Phi Chi Medical Fraternity (1)
- Student National Medical Association (1)
- CIAO representative (1)
- Honor Council representative (1)
- BSS representatives (2)
- CSS representatives (2)
- CUME representatives (2)

The Council serves to represent all students in the College of Medicine, addressing academic, financial, social, and other issues affecting the students' overall learning experience. MSEC meetings are held Thursdays at noon in the Student Alumni Center and are open to all students in the College of Medicine. Meetings are periodically visited by the Executive Dean of the College of Medicine, Associate Dean of Medical Education, and Associate Dean of Admissions and Student Affairs. Student input is highly valued and sought by the administration. Many of the changes in the curriculum are a direct result of MSEC action and support, either from the Council itself or its representatives on the Committee on Undergraduate Medical Education, Clinical Sciences Subcommittee, and Biomedical Sciences Subcommittee. These representatives report directly to the MSEC, as do the various other committee representatives. The effectiveness of the Council is related directly to its leadership and participation.

Minutes of the weekly meetings of the Medical Student Executive Council (MSEC) are posted on class bulletin boards and the lobby of the Cecil C. Humphreys General Education Building (GEB), and the lobby of the Student Alumni Center (SAC). A copy of the minutes is emailed to students via the student listservs. A permanent record is kept on file in the Office of Student Affairs.

## **Student Government Association Executive Council (SGAEC)**

The Student Government Association Executive Council provides representation for all students at the UTHSC campus. The presidents of each college within the UTHSC system form this student government body. The president of the Medical Student Executive Council is the College of Medicine student representative on the SGAEC. The SGAEC studies matters of importance to students and submits recommendations expressing student views and concerns to the administration and faculty of the Health Science Center.

## **Honor Council**

The UTHSC College of Medicine's Honor Code was established in 1960 and is one of the oldest codes among U.S. medical schools. Please refer to the Honor Code section of this Catalog, for the special provisions of the UTHSC Honor Code that pertain to the College of Medicine.

## **Professionalism Committee**

The Professionalism Committee deals with unprofessional behavior between peers, peers and faculty, and toward patients and staff. The committee consists of three (3) elected members from each medical school class and is responsible for fostering patient welfare, colleague cooperation and teamwork, personal growth, civic duty, professional ethics, honesty, integrity, accountability, respectful attitudes, and commitment to excellence.

## **STUDENT ORGANIZATIONS, INTEREST GROUPS, AND ACTIVITIES**

### **Organization of Student Representatives (OSR)**

The Organization of Student Representatives provides student input to the AAMC and its Council of Deans. Each of the 133 American Medical Schools elects a student representative to this organization. The Medical Student Executive Council annually elects this representative. The OSR has annual national and regional meetings. During these meetings, the student members discuss the status and trends in medical education, and pass resolutions reflecting the organization's position on important issues. These positions are then sent to the Council of Deans, the governing body of the AAMC. OSR representatives sit as members of the Committee on Undergraduate Medical Education (CUME).

### **Alpha Omega Alpha Honor Medical Society (AOA)**

Alpha Omega Alpha (AOA) is an esteemed society whose purpose is to perpetuate excellence in medicine. Selection to AOA is competitively based upon academic achievement and demonstration of attributes exemplary of a physician. The society sponsors two programs annually: AOA Distinguished Professorship and AOA Student Research Day. [UTHSC Beta TN Chapter | Alpha Omega Alpha](#)

### **American Medical Student Association (AMSA)**

The American Medical Student Association is a national organization which offers students the opportunity to become involved in community outreach projects through locally organized chapters. AMSA is well known for its commitment to facilitating student impact on medical education and practice. As a national organization, AMSA offers many opportunities, such as preceptorships in a variety of specialties across the country, information regarding International Health Electives, participation in the International Medical Student Association, and access to experiences of other AMSA chapters. AMSA task forces include Nutrition and Preventive Medicine, Death and Dying, Women in Medicine, Law and Medicine, and many others. Involvement with AMSA also affords students the opportunity to meet and work with students attending other medical schools via regional and national conferences. Activities of the UT AMSA chapter have included discussion of clinics by M-3s and M-4s, ongoing M-1 support group, blood pressure screenings in the community with the Memphis High Blood Pressure Coalition and CPR training sessions. The UT AMSA chapter is a forum for student concerns, both personal and professional.

### **American Medical Association Medical Student Section (AMA-MSS)**

The AMA-MSS is a national organization of medical student members of the AMA which is dedicated to the health of America. The AMA-MSS offers students unique opportunities to interact with students and physicians from across the state and the country. UTHSC has a long tradition of producing national leaders for the AMA-MSS. As a member of the AMA-MSS, students are full members of the AMA and as such receive all the benefits that are available to physician members of the AMA including subscriptions to JAMA, AM News – a weekly update on issues facing medicine, and Members Matters - a newsletter published by the AMA with more immediate concerns facing medicine. Members receive a free copy of the Drug Evaluation textbook, a helpful resource during Pharmacology. UTHSC members also receive the Journal of the Tennessee Medical Association (TMA) and other publications from the TMA. On a local level, members receive Memphis Health Care News and updates from both our local chapter and the Memphis-Shelby County Medical Society. Members also receive special banking and insurance benefits through the AMA, as well as having the full resources of the AMA to call upon whenever needed for researching issues to finding information of externships and residencies. The local chapter also conducts a physician match program which matches M-1 and M-2 students with local physicians for a day to shadow them to learn more about the actuality of practicing medicine. UT's AMA-MSS chapter also conducts several seminars each year that offer students educational opportunities outside the traditional curriculum.

### **Council on International Outreach (CIAO)**

The Council on International Outreach is the umbrella organization for all student outreach initiatives in the College. It serves to strengthen student commitment to the local community, promote awareness of global health care needs and our responsibility to meet these needs. CIAO facilitates opportunities for education abroad and supports student organizations engaged in public service. CIAO helps to set a standard of global responsibility by demonstrating the willingness of future physicians to help others. The organization is composed of both students and faculty members from the College of Medicine as well as members from the community at large. Additional information may be obtained through the Office of Student Affairs.

### **Family Medicine Student Association (FMSA)**

The Family Medicine Student Association is a service organization open to all medical students and their spouses. FMSA provides opportunities for students to become involved in addressing vital concerns and issues facing medical students, e.g., malpractice insurance issues, practice management, primary care physician distribution and manpower needs, and planning for the medical marketplace. Many students participate in the Family Practice Preceptorships during the summer between their first and second years.

### **The Student National Medical Association (SNMA)**

The SNMA, founded in 1964, is a nonprofit corporate association of medical students of color. SNMA is committed to increasing the pipeline of students of color that consider and prepare for medical and scientific careers. The SNMA is dedicated to:

- 1) leadership development by augmenting and enhancing individual efforts as well as providing collective group development of medical students of color;
- 2) social awareness through student interaction with minority consumers and other health professional groups to keep abreast of social changes and their implications for the minority communities; and,
- 3) service to humanity through a commitment to professional excellence which will ultimately benefit others in their chapters and in the community.

The SNMA supports the concept of a well-rounded, thoroughly trained physician - one who can treat people, not just disease - and who can communicate with and understand the health needs of all Americans.

## Student Clinician's Ceremony (SCC)

The SCC is a transitional experience designed to provide guidance, information and support to medical students beginning their clerkships. Created by the Gold Foundation in collaboration with five medical schools, the event is developed by students with the assistance of a faculty mentor, and aims to address some of the anxiety felt by students entering their clerkships. By providing insight, discussing fears and expectations, and revisiting the oath taken during the White Coat Ceremony, the SCC provides a forum for collective and reflective discussion of the students' experiences in medicine to date. The ceremony also underscores the challenges and imperatives to providing humanistic care to patients at the same time as they are pressed to demonstrate high standards of skill performance. The Student Clinician's Ceremony also recognizes outstanding residents through the Gold Foundation's **Humanism and Excellence in Teaching Award**. Third year students select up to six residents to receive the Gold Foundation Humanism and Excellence in Teaching Award, based on their demonstration of commitment to teaching and compassionate treatment of patients and families, students and colleagues. Each award winner is presented with a certificate, a specially designed lapel pin and a check for \$250 from the Gold Foundation. The awardees are also showcased on the Accreditation Council for Graduate Medical Education (ACGME) website.

## Student Interest Groups

### Anesthesia Student Interest Group

*Faculty Advisor: Howard R. Bromley, M.D., MBA*

- a. **Purpose:** To inform medical students about the specialty field of Anesthesiology
- b. **Dates and location:** Meets PRN per call of the group's President
- c. **Membership Criteria:** Open to any faculty and students.

### Emergency Medicine Interest Group

- a. **Purpose:** Introduce students to the study of emergency medicine as a specialty and serve as a source of information for students who wish to pursue residency training in emergency medicine.
- b. **Dates and Location:** Meetings are monthly; location varies.
- c. **Membership Criteria:** Membership is open to anyone with an interest in emergency medicine. No dues are required.

### Family Practice Student Association

*Faculty Advisor: Frank Williams*

- a. **Purpose:** Introduce family practice residents and physicians to hands on training, educational opportunities and speakers.
- b. **Dates and Location:** Scheduled monthly on Tuesday evenings at the GEB or SAC.
- c. **Membership Criteria:** Ten dollars per year membership fee which entitles members to receive monthly and quarterly journals.

### Special Interest Group in Neurology (SIGN)

*Faculty Advisor: Mervat Wahba, M.D.*

- a. **Purpose:** Introduce students to the study of Neurology as a specialty and serve as a source of information for students who wish to pursue residency training in Neurology.
- b. **Dates and Location:** Meetings are semiannual; location varies
- c. **Membership Criteria:** Open to anyone with an interest in Neurology. No dues are required.
- d. **Additional benefits:** Scholarship funds are often available to those students who wish to attend the annual meeting of the American Academy of Neurology.

### Ob/Gyn Student Interest Group

*Faculty Advisor: Owen Phillips, M.D.*

- a. **Purpose:** The Ob-Gyn special interest group educates students about career opportunities in women's health through discussions of health related issues particular to women.
- b. **Dates and Location:** Meetings bi-monthly; location varies
- c. **Membership Criteria:** Open to any faculty and students.

### Pediatric Issues Student Association (PISA)

*Faculty Advisor: Valerie Jameson, M.D.*

- a. **Purpose:** PISA was founded in 1997 by a group of students interested in providing young physicians with

additional information and exposure to pediatrics. PISA arranges guests to speak on topics such as residency programs, childhood development, child abuse, and community service projects. The goal of this organization is to help students with difficult career decisions. PISA also serves to assist students interested in pediatrics with finding mentors, applying for residencies and making important class decisions.

**b. Dates and Location:** This group meets three times a semester at the Le Bonheur auditorium.

**c. Membership Criteria:** Open to any student or faculty member sharing an interest or love for children.

### **Psychiatry Student Interest Group (PSYCHSIGN)**

*Faculty Advisor: Iverson Bell, MD*

**a. Purpose:** To provide a forum for students interested in the psychological aspects of medical care, and to serve as a source of information and guidance for students who want to explore specialty training in psychiatry

**b. Dates and Locations:** TBA

**c. Membership Criteria:** Open to any student and faculty member sharing an interest in human behavior, and in the complex interplay between mental and physical processes in health and disease.

### **Student Surgical Society**

*Faculty Advisor: Gayle Minard, M.D.*

**a. Purpose:** Provide career counseling, fellowship and professional mentoring opportunities to medical students in pursuing professions in general surgery and the surgical subspecialties.

**b. Dates and Location:** Meetings are monthly; location varies.

**c. Membership Criteria:** Medical students enrolled at The University of Tennessee Health Science Center College of Medicine.

### **Student Interest Group in Ophthalmology (SIGIO)**

**a. Purpose:** Educating medical students at the University of Tennessee College of Medicine about the specialty of Ophthalmology as a career choice; Increasing students' knowledge of diseases of the eyes and their adnexae, examination techniques, and the eyes' relationship to systemic diseases; Offering opportunities for medical students to become involved in community service, research, or other scholarly activities of the Department of Ophthalmology at the University Of Tennessee Health Science Center College Of Medicine.

**b. Dates and location:** Approximately once quarterly

**c. Website:** <http://osha.eye.uthsc.edu/sigio>

### **Phi Chi Fraternity**

Phi Chi is the nation's largest medical fraternity with more than 45,000 members worldwide. The UT Chapter welcomes both male and female members and offers housing opportunities as well as social and professional programs and activities.

## INTERDISCIPLINARY PROGRAMS

A number of activities with clinical, educational or research components require active collaboration of a variety of disciplines. In order to facilitate development of programs with multi-department and multi-college participation, several programs have been designated as interdisciplinary programs. Interdisciplinary programs imply more than close cooperation on campus; they also involve coordination of all private and public efforts in a particular field. Thus, interdisciplinary programs fit the description of being organized scientific activities “without walls.”

### Center for Integrative and Translational Genomics

This interdisciplinary center builds upon a strong base in functional genomics and bioinformatics that extends from Knoxville, through Oak Ridge, to Memphis. The purpose of the Center is to provide infrastructure and expertise to catalyze a broad range of research projects and university-industry collaborations that exploit cutting edge techniques to delineate the function of genes in biology. The Center works closely with faculty across departments and schools throughout the UT System (UTK, UTHSC, and UTSI), Oak Ridge National Laboratory (ORNL), and St. Jude Children’s Research Hospital (SJCRH).

### Vascular Biology Center of Excellence

Research scientists in the Vascular Biology Center seek to define key risk factors for vascular disease and understand how these factors increase the risk of disease. To accomplish these goals the Center combines the basic research and clinical environments. As a result of combining these environments, the Center is ensuring rapid translation of research findings into patient care, thereby saving lives and improving the quality of life for vascular disease patients; heightening local and national awareness of vascular disease prevention and care; expanding and integrating existing research opportunities within the university to foster cooperative and effective research between various medical disciplines; and training tomorrow’s investigators to be individual thinkers.

### Center of Excellence for Diseases of Connective Tissue

Scientists in the Center of Excellence for Diseases of Connective Tissues conduct basic research in five broad areas: Autoimmune diseases (such as rheumatoid arthritis and lupus); degenerative diseases (such as osteoarthritis and degenerative disc disease); inflammation and the basic science of how the body reacts to injury; fibrotic diseases (such as heart failure and emphysema), and clinical research.

It is from clinical service, clinical and basic research and teaching that the center derives its strength. Major center components include research focused on understanding the cause and origin of connective tissue disease by using animal models and in vitro cell culture systems, designing new diagnostic tests for diseases of connective tissue, and developing novel therapies and prosthetics to treat these diseases.

### Carolyn P. and Edward J. Boling Center for Developmental Disabilities

The Child Development Center was established in January 1957, under a grant from the United States Children’s Bureau through the Maternal and Child Health Division of the Tennessee Department of Public Health. The current facility was constructed with a grant from the United States Public Health Service in March 1966. The building was renamed the Boling Center for Developmental Disabilities (BCDD) in honor of retired UT President Boling and his wife in 1988.

BCDD is one of sixty-one federally funded university centers for excellence in developmental disabilities, education, research, and service. Program goals are to: provide interdisciplinary training; develop innovative clinical service programs; and deliver technical assistance and consultation to those local, state, and federal programs that address the needs of individuals with developmental disabilities.

Training programs within the BCDD include: developmental pediatrics, biochemistry of metabolic disorders, clinical genetics, and child psychiatry, as well as audiology, dentistry, nursing, nutrition, occupational therapy, physical therapy, psychology, special education, speech pathology, and social work. Training efforts are largely directed at the graduate level, and fellowships are offered in most disciplines. Training opportunities are also available to students at the undergraduate level. Cooperative programs housed in the BCDD include: Harwood Day Training Center, Memphis Oral School, Exceptional Children’s Clinic, UT Child Care Laboratory, BCDD Demonstration School, and Adolescent Day Treatment Program.

A unique feature of the BCDD is the interdisciplinary approach to both service and training. Trainees in every discipline have opportunities to work with professionals in other disciplines and to understand each professional's contribution to the diagnostic and treatment process. The interdisciplinary environment also provides a setting in which children and adults with complex problems can receive diagnostic and treatment services.

### **University of Tennessee Center for Cancer Research**

The University of Tennessee Center for Cancer Research, established in its present form in early 1985, is dedicated to research and education in cancer and cancer-related disorders. Membership in the Cancer Center is voluntary, is open to any interested faculty or community health professional, and is intended to promote scientific collaborations among investigators from many disciplines. The Cancer Center and its members are responsible for the development and application of new knowledge to patient care and to the prevention and early detection of cancer. The Cancer Center is a full, active member of a national multidisciplinary cooperative clinical trial group funded by the National Cancer Institute and enrolls patients to investigational treatment protocols in leukemia, lymphoma, breast, and respiratory cancer. Basic research programs include population pharmacokinetics, cancer pharmacology, and tumor cell biology. The Cancer Center is also involved in funded research and community service projects in cancer control and cancer education.

### **Molecular Resource Center**

The Molecular Resource Center of Excellence (MRC) serves as an interdisciplinary resource for basic biomedical and clinical investigators. The Center was established to develop the facility and expertise needed for a basic science or clinical investigator to begin with a purified protein and isolate its cognate gene. Conversely, the investigator may begin with a gene that can be easily cloned and isolate its cognate protein. Once a desired gene has been cloned or a protein purified, the facility permits full structural determination and manipulation of both molecules. The Center consists of four facilities: Gene Cloning and DNA Sequencing, Oligonucleotide Synthesis, Peptide Synthesis, and DNA-chip array. Additional facilities include a laser-driven dual beam flow cytometer that will permit analysis and sorting of up to seven different cell types, and a protein analysis laboratory consisting of peptide isolation and mapping facilities, amino acid and primary sequence analysis facilities and computer-based molecular modeling capabilities.

### **The Center for Neuroscience**

The first of its kind in Tennessee, The Center for Neuroscience was established in 1985 through the State of Tennessee Better Schools Program. In 1988, the Tennessee Higher Education Commission designated it an Accomplished Center of Excellence because it had become one of the largest integrated neuroscience research and training programs in the U.S. and an internationally recognized center for neuroscience. The Center for Neuroscience is a multidisciplinary program, which includes faculty from twelve departments in the College of Medicine (four basic sciences and eight clinical sciences departments). The interdepartmental nature of the program provides the collaborative environment necessary for quality neuroscience research. Research directions are diverse, with emphases on movement disorders, including Parkinson's disease, Huntington's chorea, and muscular dystrophy; visual function and eye diseases; developmental neurobiology; and molecular neuroscience/genetics. Other areas include neuroendocrine regulation and the neuronal control of cardiovascular function, sleep, cerebral circulation and metabolism, the biochemical analysis of peptides, and brain modeling.



## Center for Pediatric Pharmacokinetics and Therapeutics

The Center for Pediatric Pharmacokinetics and Therapeutics (CPPT) was formally established in July 1986 at The University of Tennessee Health Science Center by a grant from the State of Tennessee. This grant provided the additional funding necessary to build a comprehensive, multidisciplinary Center of Excellence committed to the development of new knowledge related to drug disposition and effects in children. Prior to establishing the Center, faculty investigators at The University of Tennessee, Le Bonheur Children's Medical Center, St. Jude Children's Research Hospital, and the Regional Newborn Center had over \$1 million of extramurally funded research related to pediatric pharmacokinetics and pharmacodynamics. The CPPT was built upon this strong foundation, providing new resources and bringing together the requisite expertise in pediatrics, clinical pharmacokinetics, pharmacodynamics, pharmacology, pharmacogenetics and related disciplines. By establishing several CORE laboratories as shared resources for Center faculty, the CPPT has facilitated collaboration and coordination of a multidisciplinary group of investigators at the University of Tennessee Health Science Center. The CPPT has over 20 full-time faculty investigators who are directing extramurally funded research programs related to the pharmacokinetics and pharmacodynamics of drugs in children.

## The Brain Injury Research Center

The Brain Injury Research Center is a regional consortium that includes membership from ten participating institutions. The consortium includes the following: Colleges of Allied Health Science, Dentistry, Medicine and Nursing at The University of Tennessee Health Science Center; The Regional Medical Center at Memphis; the Baptist Memorial Hospital; the Veterans Administration Medical Center; the Semmes Murphey Clinic; the Le Bonheur Children's Medical Center; the Methodist University Hospital; Memphis Neuroscience Center; St. Jude Children's Research Hospital; and the Epi Care Center. The major aims of this Center are to standardize clinical therapies, to better assess new protocols, to increase research related to brain injury, and to heighten community awareness.

## The Center for Prevention and Health Services Research

The Center for Prevention and Health Services Research, in collaboration with the University of Memphis and other area universities and health care organizations, serves as a catalyst to stimulate the growth of important research whose purpose is to improve the database, quality, access and efficiency of clinical and prevention health services for adults of all races and economic status in the State of Tennessee. The major objective of the Center is to develop collaborative research relationships with many departments and colleges both at the University of Tennessee Health Science Center and in other area institutions.

## LECTURESHIPS

**Alpha Omega Alpha Lectureship:** The local chapter of Alpha Omega Alpha sponsors a visiting lectureship during the spring of each year.

**James H. Horner Distinguished Visiting Professorship:** James H. Horner was a medical student who died shortly before his medical school graduation in 1983. Dr. Horner's family established this distinguished Professorship "to promote education, compassion, and academic excellence in the practice of medicine." This Professorship is held in conjunction with the annual alumni weekend.

**Henry B. Brackin Lectureship:** This lectureship, sponsored by an anonymous donation honoring Dr. Brackin, makes possible an annual lectureship in some area of psychiatry.

**Eleanor and James N. Etteldorf Lectureship:** This annual lectureship in pediatrics, established by Dr. James N. Etteldorf, includes symposiums composed of visiting and resident faculty.

**T.S. Hill Lectureship:** This lectureship in psychiatry was established to honor Dr. T.S. Hill, Professor Emeritus and Chairman of the Department of Psychiatry from 1941 to 1963.

**McDonald Lectureship:** This lectureship was established for invited faculty to participate in lectures and rounds with students and residents and other members of the Section of Hematology in the Department of Medicine.

**Israel David Michelson Visiting Professorship:** This lectureship in pathology is funded through an endowment established by friends and colleagues of Dr. Michelson.

**R.R. Overman Lectureship:** This lectureship is funded through an endowment created from the gifts of former students and colleagues of Dr. Richard R. Overman and provides an annual lectureship.

**Quarterly Visiting Professorship in the Department of Pediatrics:** Various guest faculty lectures in the Department of Pediatrics are presented quarterly and funded by an anonymous source.

**Irving Shelton Lectureship:** Lectureships in psychiatry were established through a contribution of Mr. Irving Shelton, the publisher of Disease of the Nervous System (now the Journal of Clinical Psychiatry).

**Karl L. Smiley, Jr. Lectureship:** The purpose of this lectureship is to provide a participatory lectureship for graduate student education and enrichment reflecting current interests in the field of microbiology.

**Phineas J. Sparer Distinguished Visiting Professorship:** Established by a gift from Mrs. Florence Sparer in memory of her husband, the visiting Professorship rotates annually between the Departments of Psychiatry and Preventive Medicine.

**Therapeutics Lectureship:** This lectureship is to provide lectures in clinical pharmacology.

**Charles C. and Mary Elizabeth Lovely Verstandig Distinguished Visiting Professorship:** This endowment provides for an annual distinguished visiting Professorship in various areas of academic interest.

**Harwell Wilson Distinguished Visiting Professorship and The Harwell Wilson Visiting Lecture in Surgery:** An endowment created by the friends of Dr. Harwell Wilson provides a distinguished visiting Professorship and an annual lectureship in surgery.

**Edwin H. Beachey Distinguished Visiting Professorship:** Dr Ed Beachey, a former University of Tennessee professor, chief of Infectious Disease and associate chief of staff for research at the Memphis VA Medical Center has been honored in this annual lectureship since 1991. Dr. Beachey's life's work was dedicated to pathogenesis of Streptococcal disease and developing a vaccine for Group A Streptococcus.

**Neuton Stern Visiting Visiting Professorship:** Dr. Neuton Stern brought the first ECG to the South when he returned from Harvard to practice in Memphis. He was a founding member of the American Heart Association and the first diplomat of the National Board of Medical Examiners in Tennessee.

## **ADDITIONAL GENERAL INFORMATION FOR STUDENTS**

### **Additional Sources of Information**

The official Student Handbook, CenterScope, is available at <http://www.uthsc.edu/centerscope/>. Students also are strongly encouraged to refer to <http://www.uthsc.edu/Medicine/OLSEN/> for complete information on academics, exams, curriculum, clerkships, policies and guidelines, available resources, student services, available study space, and general information.

### **Campus Publications**

The College supports a number of publications that are of particular interest to medical students including: The Record, Student Life Newsletter, Activities Calendar, and MSEC Minutes. The Record, published by the Office of Communications and Marketing, is a bi-monthly newsletter for faculty, staff, and students. It is distributed both electronically and in hard copy format throughout campus and selectively to alumni, friends of the University, and others.

## Housing

### **Memphis**

Currently, there is no on-campus housing in Memphis. A variety of housing options are available off campus. UTHSC has contracted with Off Campus Partners to assist students seeking housing off campus. For listings and additional information please see <http://www.uthscoffcampus.com/>

### **Fraternity Housing**

Phi Chi is the nation's largest medical fraternity with more than 45,000 members in all parts of the world. There are over 350 Phi Chi alumni in Memphis alone, many of whom are active in the Alumni Association. The Phi Chi Fraternity houses 28 persons and is two blocks from the Wassell Randolph Student-Alumni Center. The house is completely furnished with central heat and air, washer, dryer, color TV, table tennis, and a kitchen where students may prepare meals and snacks. Nonmembers are welcomed. Phi Chi invites any medical student interested in additional information to write to:

#### **House Manager**

#### **Phi Chi Fraternity**

**687 Jefferson Avenue**

**Memphis, Tennessee 38105**

### **Chattanooga, Knoxville and Nashville**

Many junior and senior students choose to complete rotations in Chattanooga, Knoxville or Nashville. For questions or assistance on housing, contact the Office of Medical Education. The following persons can provide assistance relative to these campuses:

Ms. Liz McGhee, Medical Education Office

UT College of Medicine-Chattanooga

960 East Third St., Suite 104

Chattanooga, Tennessee 37403

Phone: (423) 778-7442

Ms. Missy Maples, Office of Student Affairs

Graduate School of Medicine at UTMCK

1924 Alcoa Highway, Third Floor

GSM Building, Room 327

Knoxville, Tennessee 37920

Phone: (865) 544-9618

Ms. Jeanne Stoker, Baptist Dept. of Internal Medicine

University of Tennessee, Nashville

2000 Church St. Nashville, TN 37236

Phone: (615) 284-3353.

## FACULTY LIST

- Adams, Carol J., Assistant Professor, 1992; Doctor of Medicine, Duke University (1985)
- Allen, Anton M., Associate Professor, 1994; Doctor of Medicine, Virginia Commonwealth University (1981)
- Bahouth, Suleiman W., Professor, 1988; Doctor of Philosophy in Pharmacy, New York University (1985)
- Bailey, James E., Professor, 1994; Doctor of Medicine, University of Alabama at Birmingham (1990); Master of Public Health, University of Alabama at Birmingham (1992)
- Bertorini, Tulio, Professor and Chair, 1977; Doctor of Medicine, San Marcos University School of Medicine (1970)
- Black, Dennis D., Professor and Director, 1998; Doctor of Medicine, University of Tennessee Health Science Center (1978)
- Blalack, Jeffrey A., Assistant Professor, 1990; Doctor of Medicine, University of Tennessee Health Science Center (1990)
- Boop, Frederick A., Professor and Chair, 1999; Doctor of Medicine, University of Arkansas for Medical Sciences (1983)
- Boughter, John D., Associate Professor, 2002; Doctor of Philosophy in Neuroscience-Psychology, Florida State University (1995); Master of Science in General Experimental Psychology, Florida State University (1992)
- Bradley, Yong Chol, Associate Professor, 2011; Doctor of Medicine, Medical College of Georgia (1990)
- Branca, Paul, Clinical Assistant Professor, 2007; Doctor of Medicine, University of Miami (1994)
- Brewer, Susan Crouch, Associate Professor, 1987; Doctor of Medicine, University of Tennessee Health Science Center (1990)
- Brit, Michael, Clinical Assistant Professor, 2007; Doctor of Philosophy, Russian State Medical University (1994); Doctor of Medicine, Russian State Medical University (1989)
- Bruns, Thomas B., Assistant Professor, 1990; Doctor of Medicine, University of South Dakota (1990)
- Canale, Sturla Terry, Professor, 1974; Doctor of Medicine, University of Tennessee Health Science Center (1967)
- Cantrell, Angela R., Associate Professor, 1999; Doctor of Philosophy in Anatomy, University of Tennessee Health Science Center (1994)
- Carbone, Laura D., Professor, 1993; Doctor of Medicine, Medical College of Wisconsin, (1989); Master of Science in Epidemiology, University of Tennessee Health Science Center (2001)
- Chesney, Carolyn M., Professor, 1974; Doctor of Medicine, Vanderbilt University (1968)
- Chesney, Patricia Joan, Professor, 1988; Doctor of Medicine and Master of Surgery, McGill University (1966)
- Chesney, Russell W., Professor, 1962; Doctor of Medicine, University of Rochester (1968)
- Chin, Thomas K., Professor, 2002; Doctor of Medicine, University of Michigan (1983)
- Chun, Joseph T., Associate Professor, 1985; Doctor of Medicine, Medical College of Virginia (1985)
- Cohen, Harris, Professor and Chair, 2008; Doctor of Medicine, State University of New York, Downstate Medical Center (1976)

Connelly, Stephanie A., Assistant Professor, 2002; Doctor of Medicine, Michigan State University (1996); Master of Public Health in Epidemiology, Tulane University (2000)

Cox, James W., Clinical Assistant Professor, 2005; Doctor of Medicine, University of Tennessee Health Science Center (1984)

Cox, John V., Associate Professor, 1989; Doctor of Philosophy in Biology, University of Rochester (1984)

Cramer, Timothy, Assistant Professor, 2008; Doctor of Medicine, University of Arkansas for Medical Sciences (1990)

Daley, Brian J., Professor, 1996; Doctor of Medicine, Tulane University (1986); Master in Business Administration, University of Tennessee, Knoxville (1998)

Dassow, Jeannie D., Assistant Professor, 2010; Doctor of Medicine, University of Kentucky (1987)

Dugdale, Marion, Professor, 1958; Doctor of Medicine, Harvard University (1954)

Elam, Marshall B., Professor, 1980; Doctor of Medicine, University of Tennessee Health Science Center (1979); Doctor of Philosophy in Pharmacology, University of Tennessee Health Science Center (1976)

Elberger, Andrea June, Professor, 1985; Doctor of Philosophy in Psychology, State University of New York, Stony Brook (1977)

Elmore, Thomas D., Associate Professor, 1997; Doctor of Medicine, University of Tennessee Health Science Center (1978)

English, Keith Boyce, Professor and Vice Chair, 1990; Doctor of Medicine, Baylor College of Medicine (1982)

Enjeti, Suresh, Associate Professor, 1984; Doctor of Medicine, Gandhi Medical College, Osmania University (1970)

Ennis, Matthew, Professor and Chair, 2003; Doctor of Philosophy in Neuroscience, New York University (1988)

Fabian, Timothy C., Professor, 1980; Doctor of Medicine, Loyola University (1974)

Fisher, Kristopher Reed, Instructor, 2005; Doctor of Medicine, University of Toledo (2005)

Fitzpatrick, Elizabeth A., Associate Professor, 2000; Doctor of Philosophy in Medical Microbiology and Immunology, Ohio State University (1990)

Goldman, Mitchell H., Professor and Chair, 1984; Doctor of Medicine, Harvard University (1970)

Goodfred, Jennifer Celeste, Assistant Professor, 2003; Doctor of Osteopathic Medicine, University of Pikeville - Kentucky College of Osteopathic Medicine (2003)

Greer, Michael S., Associate Professor, 1992; Doctor of Medicine, University of Tennessee Health Science Center (1978)

Handorf, Charles R., Professor, 2004; Doctor of Medicine, University of Tennessee Health Science Center (1977)

Hanna, Wahid T., Professor, 1978; Bachelor of Medicine, Bachelor of Surgery, Ain-Shams University (1969)

Hassid, Aviv I., Professor, 2004; Doctor of Philosophy in Chemistry, University of Minnesota (1974)

Hasty, David L., Professor, 1977; Doctor of Philosophy, University of Tennessee Health Science Center (1974)

Hawkins, Stephen S., Assistant Professor, 1981; Doctor of Medicine, University of North Carolina, Chapel Hill (1974)

Herron, Paul, Associate Professor, 1989; Doctor of Philosophy in Neuroscience-Psychology, Michigan State University (1980)

Hofmann, Polly A., Professor, 1991; Doctor of Philosophy in Physiology, University of Pittsburgh (1987)

Honig, Marcia G., Professor, 1987; Doctor of Philosophy in Neurobiology, Yale University (1980)

Hori, Roderick T., Associate Professor, 1998; Doctor of Philosophy in Biology, University of California, San Diego (1993)

Howard, Bobby Clayton, Associate Professor and Chair, 2007; Doctor of Medicine, University of Alabama at Birmingham (1993)

Hughes, Thomas A., Professor, 1987; Doctor of Medicine, Washington University School of Medicine (1975)

Hutchins, Eric B., Assistant Professor, 2006; Doctor of Medicine, University of Tennessee Health Science Center (1999)

Hutson, R. Kent, Associate Professor, 2000; Doctor of Medicine, Baylor College of Medicine (1991)

Jameson, Valerie P., Associate Professor, 1992; Doctor of Medicine, Tulane University (1982)

Johnson, Eldridge F., Professor, 1972; Doctor of Philosophy in Anatomy, University of Alabama at Birmingham (1972)

Johnson, Leonard R., Professor, 1989; Doctor of Philosophy in Physiology, University of Michigan (1967)

Kahn, Asma Sohail, Instructor, 2004; Bachelor of Medicine, Bachelor of Surgery, Rawalpindi Medical College of Pakistan (1989)

Kilgore, Larry Clinton, Professor, 2009; Doctor of Medicine, University of Tennessee Health Science Center (1980)

Kitabchi, Abbas E., Professor, 1968; Doctor of Medicine, University of Oklahoma (1965); Doctor of Philosophy in Physiology, University of Oklahoma (1958)

Kulkarni, Anand, Assistant Professor, 1999; Master in Surgery in Human Anatomy, Indira Gandhi Medical College (1987); Bachelor of Medicine, Bachelor of Surgery, Government Medical College, Nagpur (1981)

Lands, Ronald Herman, Associate Professor, 2007; Doctor of Medicine, University of Tennessee Health Science Center (1977)

Lazar, Linda Francine, Professor, 1984; Doctor of Medicine, Universidad Autonoma de Guadalajara (1978)

Leffler, Charles W., Distinguished Professor, 1977; Doctor of Philosophy in Zoology, University of Florida (1974)

Lew, Dukhee Betty, Professor, 1986; Doctor of Medicine, Temple University (1980)

Lewis, James B., Professor, 1980; Doctor of Medicine, Johns Hopkins University (1976)

Madubonwu, Paul, Assistant Professor, 2004; Bachelor of Medicine, Bachelor of Surgery, University of Jos Nigeria (1982)

Malakoff, Gary Lee, Associate Professor, 2009; Doctor of Medicine, George Washington University (1982)

Malik, Kafait U., Professor, 1975; Doctor of Philosophy in Pharmacology, University of Sarajevo (1966)

Martinez, Antonio, Professor, 1991; Doctor of Medicine, University of Madrid (1968)

Maxwell, Robert A., Professor, 1997; Doctor of Medicine, Medical College of Virginia (1992)

McCullers, Jonathan Arnold, Professor and Chair, 2004; Doctor of Medicine, University of Alabama at Birmingham (1993)

Mendiratta, Sudave Daniel, Clinical Assistant Professor, 2008; Doctor of Medicine, Vanderbilt University (2001)

Mileusnic, Darinka, Associate Professor, 2002; Doctor of Philosophy in Neuroscience, Loyola University (1999); Doctor of Medicine, University of Rijeka (1986)

Miller, Mark A., Associate Professor, 1998; Doctor of Philosophy in Microbiology, Louisiana State University (1992)

Minard, Gayle, Professor, 1989; Doctor of Medicine, University of Cincinnati (1981)

Morris, William R., Associate Professor, 1972; Doctor of Medicine, University of Tennessee Health Science Center (1964)

Muthiah, Muthiah Pugazhenth, Associate Professor, 1994; Bachelor of Medicine, Bachelor of Surgery, Madras Medical College (1986)

Nace, Gary, Associate Professor, 2011; Doctor of Medicine, Vanderbilt University (1980); Certificate in Public Health Informatics, University of Illinois, Chicago (2008)

Naren, Anjaparavanda, Professor, 2001; Doctor of Philosophy in Biochemistry, Indian Institute of Science (1993)

Nelson, David R., Associate Professor, 1994; Doctor of Philosophy in Biochemistry, University of Texas Health Science Center at San Antonio (1985)

Newman, Kevin, Professor, 1988; Doctor of Medicine, Drexel University (1977)

Nichols, Lawrence Carl, Professor, 2012; Doctor of Medicine, University of Wisconsin - Madison (1982)

Niell, Harvey, Professor, 1977; Doctor of Medicine, University of Tennessee Health Science Center (1969)

Nishimoto, Satoru Kenneth, Professor, 1988; Doctor of Philosophy in Biology, University of California, San Diego (1980)

Nutting, David F., Associate Professor, 1971; Doctor of Philosophy in Physiology and Biochemistry, Duke University (1969)

Nyenwe, Ebenezer Azbuike, Associate Professor, 2005; Bachelor of Medicine, Bachelor of Surgery, University of Port Harcourt College of Health Sciences (1989), Bachelor of Medical Science in Human Anatomy, University of Port Harcourt College of Health Sciences (1986)

Palmer, Frederick B., Professor and Director, 1994; Doctor of Medicine, University of Rochester (1972)

Park, Melburn R., Associate Professor, 1983; Doctor of Philosophy in Physiology, State University of New York, Buffalo (1974)

Park, Vicki M., Associate Professor, 1993; Doctor of Philosophy in Biology, Yale University (1983)

Perkins, Freedom Frederick, Assistant Professor, 2005; Doctor of Medicine, University of Texas (1995)

Phillips, Owen P., Professor, 1994; Doctor of Medicine, University of Mississippi Medical Center (1980)

Pourmotabbed, Tayeb, Professor, 1989; Doctor of Philosophy in Biochemistry, University of Maryland, Baltimore County (1986)

Pulsinelli, William A., Professor, 1992; Doctor of Medicine, University of Utah (1973); Doctor of Philosophy in Biological Chemistry, University of Utah (1972)

Purkey, Janet L., Associate Professor, 1987; Doctor of Medicine, University of Tennessee Health Science Center (1987)

Rao, Radhakrishna, Professor, 2000; Doctor of Philosophy in Biochemistry, M.S. University of Baroda India (1986)

Rasnake, Mark Steven, Assistant Professor, 2007; Doctor of Medicine, University of Tennessee Health Science Center (1994)

Rodgers, Larry E., Assistant Professor, 1977; Doctor of Medicine, University of Tennessee Health Science Center (1971)

Rosenthal, Renate H., Professor, 1975; Doctor of Philosophy in Psychology, University of Arizona (1975)

Ryan, James Patrick, Associate Professor and Assistant Chair, 1988; Doctor of Philosophy in Microbiology, University of North Carolina at Chapel Hill (1985)

Satterfield, Suzanne, Associate Professor, 1993; Doctor of Public Health in Epidemiology, Harvard School of Public Health (1990); Doctor of Medicine, University of Tennessee Health Science Center (1981)

Schoumacher, Robert A., Professor, 1993; Doctor of Medicine, Vanderbilt University (1982)

Schwab, Carol, Director, 2007; Doctor of Laws, University of Missouri – Columbia (1978); Master of Laws in Taxation, Washington University in St. Louis (1985)

Seaberg, David C., Dean, 2007; Doctor of Medicine, University of Minnesota (1987)

Senogles, Susan E., Professor and Vice Chair, 1989; Doctor of Philosophy in Biochemistry, University of Minnesota (1984)

Schoumacher, Robert A., Professor, 1993; Doctor of Medicine, Vanderbilt University (1982)

Shreve, Robert, Associate Professor and Associate Dean, 2002; Doctor of Education in Administration and Supervision, University of Virginia (1992)

Steketee, Jeffrey D., Professor, 2001; Doctor of Philosophy in Biomedical Sciences, University of Texas Health Science Center at Houston (1989)

Smith, Arthur Audie, Assistant Professor, 1985; Doctor of Medicine, University of Mississippi Medical Center (1984)

Smith, Scott T., Clinical Assistant Professor, 2009; Doctor of Medicine, University of Iowa (1991)

Spiegel, Kevin, Assistant Professor, 2011; Master of Business Administration in Hospital and Health Care Administration, Adelphi University (1987)

Sprabery, Laura R., Associate Professor, 1987; Doctor of Medicine, University of Mississippi Medical Center (1987)

Stevens, Cathy A., Professor, 1982; Doctor of Medicine, University of Tennessee Health Science Center (1982)

Stockton, M. David, Professor, 1987; Doctor of Medicine, University of Tennessee Health Science Center (1978); Master of Public Health, University of Tennessee, Knoxville (1996)

Strom, Ted S., Associate Professor, 2003; Doctor of Medicine, University of Chicago (1988); Doctor of Philosophy in Biochemistry, University of Chicago (1986)



Strong, Carson M., Professor, 1978; Doctor of Philosophy in Philosophy, University of Pennsylvania (1978)

Suttle, Dale Parker, Associate Professor, 1993; Doctor of Philosophy in Chemistry and Biochemistry, University of Texas at Austin (1975)

Sweatman, Trevor W., Professor, 1983; Doctor of Philosophy in Clinical Pharmacology, Southampton University Medical School (1981)

Talati, Ajay J., Professor, 1995; Bachelor of Medicine, Bachelor of Surgery, N.H.L. Municipal College, Ahmedabad, India (1989)

Tavalin, Steven J., Associate Professor, 2001; Doctor of Philosophy in Pharmacology and Toxicology, Virginia Commonwealth University (1996)

Tew, William Michael, Assistant Professor, 1995; Doctor of Medicine, Royal College of Surgeons, Dublin (1983)

Thomason, Donald B., Professor, 1990; Doctor of Philosophy in Physiology and Biophysics, University of California, Irvine (1986)

Thompson, Jerome W., Professor and Chair, 1994; Doctor of Medicine, University of California, Los Angeles (1976); Master of Business Administration, University of California, Los Angeles (1994)

Tylavsky, Francis A., Professor, 1992; Doctor of Public Health in Nutrition, University of North Carolina at Chapel Hill (1985)

Upadhyaya, Nirmala B., Associate Professor, 1991; Bachelor of Medicine, Bachelor of Surgery, Kurnool Medical College (1975); Diploma in Obstetrics and Gynaecology, Kurnool Medical College (1978)

Wake, Robert W., Professor and Chair, 1985; Doctor of Medicine, University of Tennessee Health Science Center (1985)

Wall, Barry, Professor, 1986; Doctor of Medicine, University of Tennessee Health Science Center (1980)

Wallace, Robert D., Professor and Chair, 1996; Doctor of Medicine, Jefferson Medical College (1984)

Ward, Jewell C., Professor, 1979; Doctor of Medicine, Indiana University (1971)

Waters, Christopher M., Professor and Chair, 1999; Doctor of Philosophy in Biomedical Engineering, Vanderbilt University (1991)

Weir, Alva B., Professor, 1985; Doctor of Medicine, University of Tennessee Health Science Center (1975)

Whitt, Michael A., Professor, 1991; Doctor of Philosophy in Microbiology, University of California, Davis (1987)

Williams, Robert, Professor, 1989; Doctor of Philosophy in Physiology, University of California, Davis (1983)

Wilson, Thaddeus, Associate Professor, 2000; Doctor of Philosophy in Medical Physics, University of Wisconsin - Madison (2000)

Wilson, Jack L., Professor, 1968; Doctor of Philosophy in Anatomy, University of Mississippi (1968)

Wyatt, Robert, Professor, 1984; Doctor of Medicine, Medical School of Georgia (1973); Master of Science in Epidemiology, University of Tennessee Health Science Center (2001)

Young, Thomas L., Assistant Professor, 1989; Doctor of Medicine, University of Tennessee Health Science Center (1979)

**THE UNIVERSITY OF TENNESSEE  
HEALTH SCIENCE CENTER**

**CATALOG 2012 - 2013**



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**COLLEGE OF NURSING**

**920 Madison Avenue • Memphis, TN 38163 • Tel: (901) 448-6128**

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**Laura A. Talbot, Ph.D., Ed.D., R.N., 2Dean**

Patricia A Cowan, Ph.D., R.N., Associate Dean for Academic Affairs  
Mona Wicks, Ph.D., Associate Dean for Research  
Leslie McKeon, Ph.D., Assistant Dean for Student Affairs  
Dianne T. Pace, Assistant Dean for Faculty Practice

**Program Directors:**

Tommie Norris, D.Ns., M.S.N. Clinical Nurse Leader Program  
Susan B Patton, D.N.Sc., PNP-BC, D.N.P. Program  
Patricia Cowan, Ph.D., Ph.D. program

**DNP Option Coordinators:**

Carol L. Thompson, Ph.D., D.N.P. Adult Gerontology Acute Care Nurse Practitioner  
Irma Jordan, D.N.P., Family Nurse Practitioner  
Patricia Cunningham, D.N.Sc., Family Psychiatric/Mental Health Nurse Practitioner  
Susan B. Patton, D.N.Sc., Forensic Nursing  
Bobby Bellflower, D.N.Sc., Neonatal Nurse Practitioner  
Jill D. Oswaks, D.N.Sc., Nurse Anesthesia  
Patricia Speck, D.N.Sc., Public Health Nursing

## GENERAL INFORMATION

### Mission

Preparing nurse leaders for excellence today and the future.

### Vision

National recognition for transforming health care through innovative preparation of nurse leaders

### Values

The College of Nursing core values are:

1. Innovation and excellence in educational programs, clinical research, and advanced practice;
2. Diversity of students, faculty, staff, and clients; and
3. Partnership with students, health care professionals, and the larger community.

### College of Nursing Philosophy

The philosophy of the College of Nursing is consistent with the goals and mission of UTHSC. The College philosophy focuses upon the nature of the PERSON, ENVIRONMENT, HEALTH, and NURSING. The faculty believes that the PERSON is a unique integrated being that is continuously evolving. Each person has the right to participate in making decisions that affect his/her health and to accept or refuse health care within the context of safety to society.

The faculty views ENVIRONMENT as all conditions influencing the life and development of the person. The health of individuals, families, and communities is affected by these conditions.

HEALTH is viewed as a dynamic state arising from a process of continuous change in the person and environment. The faculty views the promotion, maintenance, and restoration of health as a complex phenomenon involving the shared responsibility of the person, health care providers, and society. Faculty view nursing as stated in the second edition of Nursing's Social Policy Statement (ANA, 2003), "NURSING is the protection, promotion and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response and advocacy in the care of individuals, families, communities, and populations" (p.6). Nursing must provide leadership in influencing the organizational, social, economic, legal, and political factors within the healthcare system and society. "These and other factors affect the cost, access to, and quality of health care and the vitality of the nursing profession" (p.6).

Professional nursing is a science and an art. The science of nursing requires that nurses study, explore, and research nursing and related knowledge areas. From these areas nurses develop and test nursing theories for the improvement of nursing practice and health care. The art of nursing requires that nurses use knowledge gained from the humanities, arts, and sciences as the foundation for acceptance and appreciation of clients' values. Nursing care requires sensitivity as well as critical, logical, and analytical thinking to effect changes in clients and the health care system.

EDUCATION for professional nursing practice includes a sound theoretical knowledge base to support experiential learning. The faculty believes that the educational process facilitates continuing personal and professional growth. The intent of the educational programs is to focus on the learner with active participation of the student in the learning process. Education is a life-long process with the commitment of the learner to establish patterns of continued inquiry.

### History

The College of Nursing is an autonomous unit of The University of Tennessee Health Science Center (UTHSC) and has a history dating back to 1898. The first public hospital in Memphis was established by an act of the Tennessee Legislature in 1829. Twelve years later, this small hospital meant for river travelers was replaced with a facility that was used as a military hospital during the American Civil War. It later became the Memphis City Hospital.

Memphis Training School for Nurses was chartered September 28, 1887, at a time when nursing education in the United States was still in its infancy. It was one of the first schools of nursing in the South and was the first in

the Mid-South. In December 1887, the school accepted its first student, Lena Clark Angevine, who is now known as Tennessee's pioneer nurse. In 1898, a new city hospital along with the Nursing School of the Memphis City Hospital opened at 860 Madison Avenue, and the Memphis Training School for Nurses closed.

The medical staff of the hospital petitioned the Mayor to appoint Mrs. Lena Angevine Warner Superintendent of Nurses at the new nursing school. In 1913, the hospital became the teaching center of the College of Medicine of the University of Tennessee. In 1920, the Memphis General Hospital became a University hospital by contractual agreement when the University of Tennessee College of Medicine accepted responsibility for the medical care of the patients. In 1926, the University of Tennessee School of Nursing was created, and on November 9, 1926, The City of Memphis and The University of Tennessee entered into a contract governing the operation of the Memphis General Hospital by the College of Medicine. The University began operation of the School of Nursing in June 1927. In July 1949, the School of Nursing became an autonomous unit within the University.

In September 1950, the newly established Baccalaureate in Nursing (BSN) Program admitted 26 students. In 1972, the Master's program was developed and admitted students for the 1973 summer quarter. The PhD in Nursing began August 1988. The BSN program was held in abeyance in December 1997 allowing the College to focus entirely on graduate education. This focus provided the opportunity for development of the practice doctorate to meet future needs of an increasingly complex health care environment in Tennessee and the nation. The first students in the practice doctorate entered July 1999. The Doctor of Nursing Science (DNSc) degree designation for the practice doctorate transitioned to the Doctor of Nursing Practice (DNP) in 2005, in accordance with national trends.

In August 2003, the UTHSC and Methodist Healthcare of Memphis announced a unique partnership between the health system and the university's College of Nursing. The purpose of this partnership was to enhance delivery of nursing care by offering the full range of educational opportunities in nursing including an entry-level bachelor's degree in nursing, continuing with the master's degree, and concluding with the doctoral degree. Students entered College of Nursing programs at all levels of nursing education (BSN, MSN, DNP, and PhD) in July 2005. The BSN professional entry program was held in abeyance in 2009 when UTHSC opened an entry level master's Clinical Nurse Leader and post-BSN master's CNL program. The professional entry master's CNL program was granted initial approval by the Tennessee Board of Nursing in 2008, and the first professional entry students were admitted to the MSN-CNL program in June 2009 and graduated May 2011. Post-BSN/MSN-CNL admission to the DNP program occurred Fall 2009. The last advanced practice entry class at the master's level graduated December 2011. All UTHSC College of Nursing programs (MSN/CNL professional-entry, DNP advanced practice, and PhD research) were graduate level as of January 2010.

The College of Nursing provides innovative education, patient care, and research programs throughout Tennessee and the Mid-South. Most degree programs in the College use state-of-the-art telecommunications and World Wide Web methodology to bring nursing education to students in East Tennessee, rural West Tennessee, and across the nation. The faculty and staff deliver cutting-edge clinical services in many different locations. The faculty and students bring the science of caring to the daily lives of their patients. The internationally renowned research programs of the faculty advance the frontiers of knowledge in several areas.

*Information taken from: From Diploma to Doctorate: 100 Years of Nursing Education by E. Dianne Greenhill, RN, BS, EdD, and Professor Emeritus*

## **Biography of the Dean**

**Laura A. Talbot, Ph.D., Ed.D, R.N.,** is the Dean and Ruth Neil Murray Endowed Chair in Nursing in the College of Nursing. Dr. Talbot has extensive administrative, clinical and research experience, much of it gleaned during her more than 30 years of service in the U.S. Air Force, where she rose to the rank of colonel and commanded a medical squadron. Dr. Talbot assumed her responsibilities at UTHSC in June 2012. Originally from Texas, Dr. Talbot received her undergraduate education at Incarnate Word College School of Nursing in San Antonio. She obtained graduate degrees from California State University in Los Angeles, the University of North Texas in Denton, and Texas Women's University in Denton, focusing on college teaching, studies in aging and nursing. Her postdoctoral work was performed at the Gerontology Research Center and sponsored by the National Institute of Nursing Research and National Institute on Aging, parts of the National Institutes of Health.

## Faculty

In addition to the full-time and part-time faculty of the College of Nursing, faculty members from other UTHSC colleges teach in the College of Nursing. The faculty selects, instructs, examines and promotes students in the college; it organizes and maintains the curriculum in consultation with and with the consent of the Dean. The list of nursing faculty including academic credentials, degrees with conferring institution, and faculty rank is provided at the end of the nursing section of this catalog.

## Nursing Alumni Association

The UTHSC College of Nursing Alumni Association represents more than 4,500 UTHSC graduates and is an integral part of The University of Tennessee National Alumni Association. With the partnership between Methodist Healthcare of Memphis and the UTHSC College of Nursing, almost 4,000 additional graduates from the Methodist School of Nursing have joined the College of Nursing Alumni to participate in the Nursing Alumni Association activities. Alumni serve on several college committees where alumni representation is appropriate and advantageous to the future of the College of Nursing.

## Accreditation

The University of Tennessee is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools. The Master of Science in Nursing (MSN) and Doctor of Nursing Practice (DNP) degree programs in the UTHSC College of Nursing are accredited by the Commission on Collegiate Nursing Education (CCNE), One DuPont Circle, NW, Suite 530, Washington, DC 20036, (202) 887-6791. The DNP/Post BSN Nurse Anesthesia programs is also accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs (COA), 222 S Prospect Avenue, Park Ridge, IL 60068, (847) 655-1160. The master's CNL program is approved by the Tennessee Board of Nursing, 227 French Landing, Suite 300, Heritage Place Metro Center, Nashville, Tennessee 37243, (800) 778-4123.

## DEGREES OFFERED

The College of Nursing offers programs that lead to the Master of Science in Nursing (MSN) degree and the Doctor of Nursing Practice (DNP) degree. The Doctor of Philosophy (PhD) in Nursing degree is offered through the College of Graduate Health Sciences. The DNP/PhD program is a dual degree program that is based both in the College of Nursing (DNP) and the College of Graduate Health Sciences (PhD).

<b>DEGREE</b>	<b>DESIGNATION</b>	<b>CONCENTRATION</b>
Master of Science, Nursing	MSN	Clinical Nurse Leader
Doctor of Nursing Practice	DNP	Adult Gerontology Acute Care Family Nurse Practitioner Family Psych/Mental Health Neonatal NP Nurse Nurse Anesthesia Public Health Nursing

## ACADEMIC CALENDAR 2012 – 2013

Date	Activity	Class
Monday, June 4, 2012	Summer classes begin /Fee's due	MSN-CNL, DNP- (Post BSN or Master's Entry CNL) Nurse Anesthesia, 3 <sup>rd</sup> Year (Post BSN or Master's Entry CNL) FNP, DNP (as needed), PhD
Sunday, July 1, 2012	Fall classes begin/ Academic year begins/Fee's due	RETURNING PhD students
Friday, July 20, 2012	Summer classes end	MSN- CNL
Friday, July 27, 2012	Summer classes end	DNP -(Post BSN or Master's Entry CNL) Nurse Anesthesia, 3 <sup>rd</sup> Year (Post BSN or Master's Entry CNL) FNP, DNP (as needed)
Tuesday, July 31, 2012	Grades due for all summer coursework	DNP/MSN- CNL
Wednesday, Aug 1, 2012	Fall classes begin / Fee's due	DNP/MSN- CNL and 1 <sup>st</sup> year PhD
Monday, Aug 6, 2012- Friday, Aug 10, 2012	On Campus Week	ALL Nursing
Thursday, Oct 4- Friday, Oct 5, 2012	Fall Break	MSN- CNL
Friday, Nov 30, 2012	Last Day of Classes	Graduating Students
Monday, Dec 3, 2012 - Friday, Dec 7, 2012	On Campus Week	ALL Nursing
Wednesday, Dec 5, 2012	Grades due	Graduating Students
Friday, Dec 7, 2012	Classes end	DNP(not graduating)
Friday, Dec 7, 2012	Graduation	ALL Nursing
Wednesday, Dec 12, 2012	Grades due	DNP (not graduating)
Friday, Dec 14, 2012	Classes end	MSN- CNL (not graduating)
Wednesday, Jan 2, 2013	Classed begin/ Fee's due	ALL Nursing
Tuesday, April 30, 2013 - Friday, May 4, 2013	On Campus Week	ALL Nursing
Friday, May 17, 2013	Classes end	DNP (graduating)
Wednesday, May 22, 2013	Grades due	DNP (graduating)
Friday, May 24, 2013	Last day of classes	MSN – CNL, DNP (not graduating)
Wednesday, May 29, 2013	Grades due	DNP (not graduating)
Friday, May 31, 2013	Graduation	ALL Nursing

## ADMISSIONS REQUIREMENTS

### Admission Procedures

Applications to the MSN-CNL and DNP Program (excluding Nurse Anesthesia Entry) for the 2013 academic year are accepted through Nursing CAS, a national nursing centralized application service endorsed by the American Association of Colleges of Nursing (AACN). Interested applicants can access the Nursing CAS application site at: <http://nursingcas.org/>. The Nursing CAS requires applicants to enter all courses taken for credit, including course name, number, and grade. Applications to the DNP Nurse Anesthesia Entry program are made directly through the College of Nursing.

Only individuals whose application files are complete and have paid the application fee will be considered by the College of Nursing Admissions Committee. Preference is given to residents of Tennessee, but out-of-state applicants are also given full consideration. Applicants to a College of Nursing program who has attended, but not completed another nursing program, must provide a letter from the Dean/Director of the nursing program they previously attended. This letter must include a statement indicating that the student was in good academic standing when the student left the program and that the student is eligible to return to that program. *Individuals dismissed from other nursing programs are not eligible for admission to UTHSC College of Nursing.*

Guidelines used to classify applicants as in-state or out-of-state for purposes of admission and tuition are available online via <http://www.uthsc.edu/admissions/residency.php>. Additional questions regarding residency should be addressed to the UTHSC Assistant Director of Enrollment Services, Suite 525, 910 Madison Avenue, Memphis, TN 38163, (901) 448-5560.

### Master of Science in Nursing (MSN) Admissions

The College of Nursing offers the Master of Science in Nursing degree (MSN) for students completing the two year master's generalist Clinical Nurse Leader (CNL) program. Admission to the MSN/CNL program is available for non-nurses who hold a minimum of a bachelor's degree in another field as well as for Registered Nurses (RNs) who meet admission criteria for RNs. Detailed MSN CNL program description, admission requirements, and program curricula is presented below and can be found at: <http://www.uthsc.edu/nursing/bemorenursing/>.

Admission to the MSN Program is competitive. Applicants who meet minimum requirements are not guaranteed admission. Preference is given to residents of Tennessee, but out-of-state applicants are also given full consideration; Instructions are located at: <http://www.uthsc.edu/nursing/futurestudents/application101.php>.

Questions regarding residency status should be addressed to the UTHSC Assistant Director of Enrollment Services, 910 Madison Avenue, Suite 520, Memphis, TN 38163, (901) 448-5560. After admission to the College of Nursing, students pay a \$75 non-refundable admission fee to UTHSC.

### Admission Process and Minimum Requirements

Application deadline for the MSN-CNL Program is January 15, 2013. All applicant materials (for example, application, application fee, recommendations, and official transcripts) must be submitted by the application deadline in order for students to be considered for admission.

An on-campus interview is a required part of the admission process. Eligible applicants will be scheduled for an interview in mid-February and receive a decision letter in early March.

Students must complete a successful criminal background check prior to matriculation and provide evidence of CPR training. Background checks and drug screens may be repeated during the student's program of study.

**MSN/CNL non-nurse applicants:** The MSN-Clinical Nurse Leader (CNL) program is for applicants seeking professional entry to nursing practice and RN licensure. The Master's Entry CNL program is a 2 year, primarily face- to-face, program of study for individuals who have earned a bachelor's degree or higher in any field in addition to completing 14 hours of specified prerequisite courses detailed at: <http://www.uthsc.edu/nursing/bemorenursing/prereq.php> . Non-nurse Clinical Nurse Leader students enroll on a full-time basis.

**RN to MSN/CNL applicants:** Graduates of a Diploma, AD, or BSN nursing program may apply for admission to the MSN-CNL program post RN licensure. Registered nurse (RN) applicants who hold a diploma or associate degree in nursing must have completed 60 semester hours of general education (non-nursing) college credits that must include the following science prerequisite courses:

1. Anatomy & Physiology I (with lab) 4 hours
2. Anatomy & Physiology II (with lab) 4 hours
3. Microbiology (with lab) 4 hours

Diploma and ADN applicants to the CNL program are required to have a cumulative grade point average (GPA) of 2.6 or better for science pre-requisite courses; GPA calculation is based on the highest grade achieved. Students must earn a C or better on all pre-requisite science coursework. The ten-year age limit on the science prerequisite courses is waived for practicing RNs.

RN to MSN/CNL applicants must also submit a copy of an unencumbered Tennessee RN license or have unencumbered authority to practice as an RN via the multi-state privilege at the time of application. The following are requirements for all MSN-CNL applicants, unless otherwise noted. Applicants accepted post licensure must maintain an unencumbered RN license for the duration of their MSN CNL program.

### **Criteria for Selection**

There are five (5) major areas considered in admissions decisions. Acceptances will be offered based on the following criteria with no single criterion having more importance than another. Acceptance criteria include:

1. Undergraduate or graduate academic preparation and achievement;
2. Personal qualities as assessed from interviews;
3. Professional recommendations;
4. Personal statement; and
5. Test of Essential Academic Skills™ (TEAS) Standardized Test score. (Master's Entry Second Degree Applicants only).

### **Undergraduate or graduate academic preparation and achievement**

- The total academic performance is critically evaluated with attention given to the source, course load, and trends in performance, as well as, to the general commitment of scholarship. Recent entering Master's Entry CNL classes have had a mean grade point average (GPA) of 3.3.
- Master's Entry Second Degree students hold baccalaureate or higher degree in non-nursing field; Post-BSN students hold baccalaureate in nursing degree from an accredited nursing program; RN to MSN students hold associate degree or diploma from an accredited nursing program.
- Applicants are required to have a cumulative grade point average of 2.6 or better for science pre- requisite courses: Anatomy and Physiology I & II and Microbiology (calculation is based on highest grade achieved); Students must earn a C or better on all pre-requisite science
- coursework.
- Master's Entry Second Degree students must have completed their pre-requisites within 5 years of the application date; Post-BSN and RN to MSN applicants must have completed their pre- requisites within 10 years of application date if not currently practicing as an RN.



### Personal qualities as assessed from interviews

- CNLs are registered nurses, practicing at the bedside and caring for complex patients, with advance knowledge of quality, safety, error prevention, and teamwork. Personal qualities include a high degree of professionalism, strong commitment to providing quality care, advanced critical thinking and problem solving skills, and the ability to communicate effectively and engage in effective working relationships.

### Professional recommendations

- Professional recommendations submitted on behalf of the applicants allow further insight into the values and motivation of the applicants. Three recommendations (3 in total) from academic and work related professionals are required to support the applicant's ability to successfully complete the program and perform in the CNL role.

### Personal statement

- A personal statement indicating the applicant's interest in and motivation toward the nursing profession as a Clinical Nurse Leader is an important factor in the admissions decision.

### Standardized Test Scores

- Master's Entry Second Degree applicants must also present scores from Test of Essential Academic Skills™ (TEAS): a minimum composite score at the national 50% percentile is required for admission.

### Performance Standards and Expectations

In addition to the five major areas mentioned above, applicants must meet **Minimum Performance Standards**. All students admitted to the MSN-CNL program must meet the following core performance standards for admission and progression:

1. **Critical thinking** sufficient for clinical judgment;
2. **Interpersonal abilities** sufficient to interact with individuals, families, groups, and populations from a variety of social, emotional, cultural, and intellectual backgrounds;
3. **Communication** abilities sufficient for verbal and written interaction with others. Speak, write and comprehend the English language proficiently;
4. **Use computer** to word process, email, and access the World Wide Web;
5. **Physical abilities** sufficient to move from room to room, walk in hallways, maneuver in small spaces, and the strength necessary to lift and transfer patients, including the ability to exert up to 50 lbs. occasionally and 25 lbs. of force frequently. Physical activities include climbing, pushing, standing, reaching, grasping, kneeling, stooping, and repetitive motion.
6. **Gross and fine motor abilities** with good balance and coordination sufficient to provide safe and effective nursing care;
7. **Auditory ability** sufficient to monitor and assess health needs;
8. **Visual ability**, with close visual acuity including color, depth perception, and field of vision sufficient for observation and assessment necessary in nursing care;
9. **Tactile ability and manual dexterity** sufficient for physical assessment and to provide nursing intervention including manipulating equipment necessary for providing nursing care.
10. Provide current and relevant documentation of physical, learning, psychological, or other disabilities, if applicable. Documentation guidelines are available in the Student Academic Support Services (SASS) Office, GEB, room BB9. Students should call (901) 448-7746 and schedule an appointment to discuss accommodation needs as soon as possible following entry into the Program.
11. Provide a copy of a current certification in cardio-pulmonary resuscitation (CPR/BCLS) or advanced life support prior to enrollment and maintain current certification throughout their enrollment in the program.
12. Have ready access to a Web-connected, laptop personal computer. Computer literacy and adequate computer skills are required.
13. Present evidence of proficiency in English, if native tongue is not English, by submitting evidence of a minimum score on the Test of English as a Foreign Language (TOEFL). Minimum scores are 550 on TOEFL paper version, 213 on TOEFL computer version, and 80 on TOEFL Web-based version. TOEFL scores must have been earned within two years prior to application. *Applicants may request exemption from the TOEFL examination requirement, for example, an earned high school degree from a U.S. secondary education institution.*

Requests must be submitted before the application deadline to the Assistant Dean for Student Affairs, (901) 448-6125.

The College of Nursing, as a part of the University of Tennessee (UT) system, is a state supported institution and gives priority to Tennessee residents; however, out-of-state applicants are also given full consideration. Questions regarding residency status should be addressed to the UTHSC Assistant Director of Enrollment Services, Suite 525, 910 Madison Avenue, (901) 448-5560. Residency Classification Guidelines may be found at <http://www.uthsc.edu/admissions/residency.php>.

### **Doctor of Nursing Practice (DNP) Program Admissions**

The Doctor of Nursing Practice (DNP) program prepares registered nurses with bachelor's or master's degrees in nursing for advanced practice nursing in the following options: Nurse Anesthesia, Family Nurse Practitioner (FNP), Family Psych/Mental Health Nurse Practitioner, Adult Gerontology Acute Care Nurse Practitioner, Neonatal Nurse Practitioner, and dual FNP/Adult Gerontology Acute Care Nurse Practitioner and dual FNP/Forensics. Individuals with MSN degrees, who are not seeking to become nurse practitioners or nurse anesthetists, may apply to the Public Health Nursing or Forensics options. Applicants must designate the DNP option to which they are seeking admission. Detailed DNP program description, admission requirements, and program curricula can be found at <https://uthsc.edu/nursing/future%20students/DNP/index.php>.

### **Admission Process**

Deadlines for DNP Program application:

- September 1, 2012: DNP Nurse Anesthesia Program
- January 15, 2013: DNP Program (with the exception of DNP Nurse Anesthesia)

All applicant materials (for example, application, application fee, recommendations, and official transcripts) must be submitted by the application deadline in order for students to be considered for admission.

**Notification of DNP Interviews:** For the September 1, 2012, DNP Nurse Anesthesia application deadline, interviews are typically scheduled the last 2 weeks of September and applicants receive a decision letter in early October. For the January 15, 2013, DNP application deadline, interviews are typically scheduled the third week of March and applicants receive a decision letter in early April.

Admission to all Advanced Practice Programs is at the DNP level. An on-campus interview is a required part of the admission process. Students must complete a successful criminal background check prior to matriculation, show proof of a Tennessee RN license (or multistate license). Background checks and drug screens may be repeated during the student's program of study.

### **Criteria for Selection**

Two major areas considered in admissions decisions:

1. Academic Preparation and Achievement; and,
2. Personal Qualities.

The applicant's personal qualities are assessed in three ways: (1) through an essay, (2) through Reference Forms, and (3) through interviews.

### **Academic Preparation and Achievement**

Only applicants with a cumulative GPA of at least 3.0 based on all collegiate work or a cumulative GPA of at least 3.2 earned during the applicant's most recently completed degree program will be considered for admission. The GPA calculation for the most recently completed degree will be based only on those grades earned at the degree-granting institution. Applicants may submit additional documents to demonstrate professional scholarship and leadership abilities that could make them more competitive.

Applicants to the DNP program are considered for admission to their selected specialty options within the College of Nursing. The total number of students admitted to the DNP program will vary depending on the number of positions available in each specialty option. Additionally, applicants may be more or less competitive within an option based on previous performance in selected course work. Faculty in the Nurse Anesthesia Option, for example, review applicant performance in basic sciences in addition to the cumulative GPA necessary for application.

### **Personal Qualities**

An applicant's personal qualities are assessed in three ways: (1) through an essay; (2) through Recommendation Forms; and (3) through interviews.

- A. **Essay** - The purpose of the essay is to provide the College of Nursing Admissions Committee further insight into the professional goals, motivation, and expectations of the applicant and to evaluate written communication skills. Applicants are asked to respond to specific questions on the application essay form.
- B. **Recommendation Forms** - Applicants must submit or have references submit at least three (3) Recommendation Forms from graduate prepared nurses or faculty members who can address their potential or ability for functioning in the advanced practice or research role (clinical skills, critical thinking, independent decision making, collaborative skills with other health professionals, and nursing leadership). Applicants currently enrolled in a nursing program should have at least one (1) Recommendation Form submitted by a faculty member in that program.
- C. **Interview** - In order to assess the personal qualities of an applicant, selected individuals are invited to campus for interviews. Academic achievement, GPA ranking, previous experience, and the written essay are considered in determining who will be invited to participate in an interview. Match of applicant's educational goals with faculty programs of practice or research is an important factor assessed during the interview process. The interview will be in-person and face to face unless extraordinary circumstances warrant other arrangements. The Graduate Program Director is charged with decision responsibility related to "extraordinary circumstances."

### **Minimum Requirements for DNP Admission**

The DNP applicant must:

1. Submit official copies of transcripts for all college and university work. Submission of a copy of an unencumbered Tennessee RN license or have unencumbered authority to practice as an RN via the multi-state privilege at the time of application. Accepted students must maintain an unencumbered RN license for the duration of their program.
2. Have earned a minimum of a baccalaureate degree from a regionally accredited college or university. If the baccalaureate degree is in Nursing, it must be from a program accredited by a national organization (NLNAC or CCNE) responsible for nursing accreditation.
3. Only applicants with a cumulative GPA of at least 3.0 based on all collegiate work or a cumulative GPA of at least 3.2 earned during the applicant's most recently completed degree program will be considered for admission. The GPA calculation for the most recently completed degree will be based only on those grades earned at the degree-granting institution. Applicants may submit additional documents to demonstrate professional scholarship and leadership abilities that could make them more competitive.

4. Provide current and relevant documentation of physical, learning, psychological, or other disabilities, if applicable. Documentation guidelines are available in the Student Academic Support Services (SASS) Office, GEB, room BB9. Students should call (901) 448-7746 and schedule an appointment to discuss accommodation needs as soon as possible following entry into the Program.
5. Submission of three (3) recommendation forms. The recommendation forms should be from graduate prepared nurses or faculty members who can address the applicant's potential or ability for functioning in the advanced practice or research role (clinical skills, critical thinking, independent decision making, collaborative skills with other health professionals, and nursing leadership). Two recommendation forms should be completed by faculty members who can address academic ability and one recommendation form should be completed by an employer or professional who can address professional performance.
6. Submission of an essay of the applicants professional goals and expectations of the program.
7. Provide a copy of a current certification in cardio-pulmonary resuscitation (CPR/BCLS) or advanced life support prior to enrollment; students enrolled in the MSN or DNP program are expected to maintain current certification throughout their enrollment in the program. Some advanced practice options (e.g., Nurse Anesthesia) may have additional certification requirements.
8. Have ready access to a Web-connected, laptop personal computer. Computer literacy and adequate computer skills are required.
9. Provide evidence of having met the experience requirements for certain advanced practice options (e.g., Nurse Anesthetist and Neonatal Nurse Practitioner) prior to admission).
10. Present evidence of proficiency in English, if native tongue is not English, by submitting evidence of a minimum score on the Test of English as a Foreign Language (TOEFL). Minimum scores are 550 on TOEFL paper version, 213 on TOEFL computer version, and 80 on TOEFL Web-based version. TOEFL scores must have been earned within two years prior to application.
11. Complete a successful criminal background check prior to matriculation. Background checks may be repeated during the student's program of study.

Applicants meeting admission criteria and selected for further admission consideration must participate in an interview for the purpose of evaluating communication and decision-making skills, educational goals and current leadership, scholarship, practice roles and activities. The interview will be in-person, face-to-face unless extraordinary circumstances warrant other arrangements. The DNP Program Director is charged with the responsibility for making decisions related to "extraordinary circumstances." Match of applicant's educational goals with faculty programs of practice is an important factor assessed in the interview.

Full application instructions are found online at [http://www.uthsc.edu/nursing/future%20students/DNP/app\\_instructions.php](http://www.uthsc.edu/nursing/future%20students/DNP/app_instructions.php). Applicants who meet minimum program requirements are not guaranteed an interview or admission. Preference is given to residents of Tennessee, but out-of-state applicants are given full consideration. Questions regarding residency status should be addressed to the UTHSC Assistant Director of Enrollment Services, 910 Madison Avenue, Suite 525, Memphis, TN 38163, (901) 448-5560. A Residency Classification Guide may be found online at [http://www.uthsc.edu/registrar/documents/Residency\\_Classification\\_Guide.pdf](http://www.uthsc.edu/registrar/documents/Residency_Classification_Guide.pdf)

## **DNP-Nurse Anesthesia Admission**

The Nurse Anesthesia DNP Program is for individuals who have earned a minimum of a bachelor's degree in nursing and seek nurse anesthesia advanced practice specialization. The Nurse Anesthesia option is a 3 year, primarily face-to-face, program of study for individuals who have earned a minimum of a bachelor's degree in nursing and who have a minimum of one year of ICU experience at the time of application. Nurse Anesthesia students enroll on a full-time basis.

### ***The DNP-Nurse Anesthesia applicant must:***

1. Submit official copies of transcripts for all college and university work in sealed, unopened envelopes.
2. Submit a copy of an unencumbered Tennessee RN license or have unencumbered authority to practice as an RN via the multi-state privilege at the time of application. Accepted students must maintain an unencumbered RN license for the duration of their program.
3. Have earned a minimum of a baccalaureate degree in Nursing from a program accredited by a national organization (NLNAC or CCNE) responsible for nursing accreditation.
4. Have a minimum cumulative grade point average (GPA) of 3.0 on a 4.0 Scale. Only applicants with a cumulative GPA of at least 3.0 based on all collegiate work or a cumulative GPA of at least 3.2 earned during the applicant's most recently completed degree program will be considered for admission. The GPA calculation for the most recently completed degree will be based only on those grades earned at the degree-granting institution. Applicants *may* submit additional documents to demonstrate professional scholarship and leadership abilities that could make them more competitive.
5. Provide current and relevant documentation of physical, learning, psychological, or other disabilities, if applicable. Documentation guidelines are available in the Student Academic Support Services (SASS) Office, GEB, room BB9. Students should call (901) 448-7746 and schedule an appointment to discuss accommodation needs as soon as possible following entry into the Program.
6. Submit a Graduate Record Exam Score (GRE Score). Official scores must have been earned within 5 years prior to the application deadline date [September 1]. Official GRE scores must be submitted as part of "Paper-packet component".
7. Submit three (3) Recommendation Forms. The Recommendation Forms should be from graduate prepared nurses or faculty members who can address the applicant's potential or ability for functioning in the advanced practice role (clinical skills, critical thinking, independent decision making, collaborative skills with other health professionals, and nursing leadership). Two recommendation forms should be completed by faculty members who can address academic ability and one recommendation form should be completed by an employer or professional who can address professional performance.
8. Submit a three (3) to five (5) page essay. Complete a brief essay during the interview process to demonstrate the candidate's written communication skills.
9. Submit a copy of a current certification in BCLS, ACLS, and PALS cardio-pulmonary resuscitation advanced life support and maintain current certification throughout their enrollment in the program.
10. Have ready access to a Web-connected, laptop personal computer. Computer literacy and adequate computer skills are required.
11. Provide evidence of having met the critical care experience requirements.
12. Present evidence of proficiency in English, if native tongue is not English, by submitting evidence of a minimum score on the Test of English as a Foreign Language (TOEFL). Minimum scores are 550 on TOEFL paper version, 213 on TOEFL computer version, and 80 on TOEFL Web-based version. TOEFL scores must have been earned within two years prior to application.

*Applicants may request exemption from the TOEFL examination requirement, for example, an earned high school degree from a U.S. secondary education institution. Requests must be submitted before the application deadline to the Assistant Dean for Student Affairs, (901) 448-6125.13.*

## CORE PERFORMANCE STANDARDS

### Minimum Performance Standards for Students in the MSN-CNL Programs

All students admitted to the MSN-CNL program must meet the following core performance standards for admission and progression through the MSN-CNL program:

1. Critical thinking sufficient for clinical judgment;
2. Interpersonal abilities sufficient to interact with individuals, families, groups, and populations from a variety of social, emotional, cultural, and intellectual backgrounds;
3. Communication abilities sufficient for verbal written interaction with others
4. Speak, write and comprehend the English language proficiently;
5. Use computer to word process, email, and access the World Wide Web;
6. Physical abilities sufficient to move from room to room, walk in hallways, maneuver in small spaces, and the strength necessary to lift and transfer patients, including the ability to exert up to 50 lbs. occasionally and 25 lbs. of force frequently. Physical activities include climbing, pushing, standing, reaching, grasping, kneeling, stooping, and repetitive motion.
7. Gross and fine motor abilities with good balance and coordination sufficient to provide safe and effective nursing care.
8. Auditory ability sufficient to monitor and assess health needs;
9. Visual ability, with close visual acuity including color, depth perception, and field of vision sufficient for observation and assessment necessary in nursing care;
10. Tactile ability and manual dexterity sufficient for physical assessment and to provide nursing intervention including manipulating equipment necessary for providing nursing care.

### Minimum Performance Standards for Students in the DNP Nurse Anesthesia Option

In addition to performance standards for professional-entry program all students applying or admitted to the Graduate Nurse Anesthesia options must meet the following core performance standards for admission and progression. Students will possess the mental, auditory, visual, sensory, strength, manual dexterity, and communication skills to:

1. Perform a systematic and complete history and physical examination on a client;
2. Communicate significant examination findings to other professionals and client/family;
3. Appropriately assess and record subjective and objective findings;
4. Maintain effective relationships and interact appropriately with other professionals and clients/families, demonstrating skills of leadership collaborations and decisiveness;
5. Accurately analyze alterations in functional patterns;
6. Maintain flexibility and emotional stability in response to novel, unique situations and stress;
7. Demonstrate advanced use of the nursing process: develop, implement, educate and counsel clients, prescribe appropriate therapy, demonstrate self-care skills and evaluate appropriate plans of action for diagnosed problems;
8. Safely provide airway management and be able to maintain advanced life support systems while operating and interpreting multiple monitoring modalities;
9. Rapidly respond and intervene in emergency situations requiring anesthesia care throughout the spectrum of practice settings;
10. Speak, write and comprehend the English language proficiently;
11. Use computer to word process, email, and access the World Wide Web.

## **Minimum Performance Standards for Students in the Graduate Program Adult Gerontology Acute Care Nurse Practitioner**

The applicant will possess the mental, auditory, visual, sensory, strength, manual dexterity, and communication skills to:

1. Perform a systematic and complete history and physical examination on a client with complex problems;
2. Communicate significant examination findings to other professionals and client/family;
3. Appropriately record subjective and objective findings;
4. Maintain effective relationships and interact appropriately with other professionals and clients/families, demonstrating skills of leadership collaboration and decisiveness;
5. Accurately analyze alterations in functional patterns;
6. Anticipate potential common, acute, and life-threatening problems encountered in critically ill patients;
7. Maintain flexibility and emotional stability in response to novel and high stress situations;
8. Demonstrate advanced use of the nursing process-assess and diagnose actual and potential health/illness problems; develop, implement, educate and counsel clients, prescribe appropriate therapy, demonstrate self-care skills and evaluate appropriate plans of action for diagnosed problems;
9. Identify ethical dilemmas in critical care practice and participate in ethical decision making using a systematic approach;
10. Develop/participate in the development of theory based educational programs for critically ill patients/families and nursing personnel;
11. Analyze/critique critical care research and demonstrate/role model the appropriate integration of research into practice;
12. Speak, write and comprehend the English language proficiently;
13. Use computer to word process, email, and access the World Wide Web.

## **Minimum Performance Standards for Students in the Graduate Programs, Family Nurse Practitioner/Neonatal Nurse Practitioner/Forensic Nursing/ Family Psychiatric Mental Health Nurse Practitioner / Public Health Nursing\***

The applicant will possess the mental, auditory, visual, sensory, strength, manual dexterity, and communication skills to:

1. Perform a systematic and complete history and physical examination on a client;
2. Communicate significant examination findings to other professionals and client/family;
3. Appropriately record subjective and objective findings;
4. Maintain effective relationships and interact appropriately with other professionals and clients/families, demonstrating skills of leadership, collaboration and decisiveness;
5. Accurately analyze alterations in functional patterns;
6. Anticipate potential common, acute self-limiting, and selected chronic problems;
7. Maintain flexibility and emotional stability in response to novel, unique situations and stress;
8. Demonstrate advanced use of the nursing process-assess and diagnose actual and potential health/illness problems; develop, implement, educate and counsel clients; prescribe appropriate therapy; demonstrate self-care skills; and evaluate appropriate plans of action for diagnosed problems;
9. Develop insight into own emotional functioning to evaluate ability to provide therapeutic intervention for a client;
10. Speak, write and comprehend the English language proficiently;
11. Use computer to word process, email, and access the World Wide Web.

*\*Students in the DNP Public Health Nursing may focus on Population Based care and competencies rather than care to individuals*

A student may request accommodation through the Office of Student Academic Support Services (SASS) located in the General Education Building (GEB), phone (901) 448-5056. This consultation is confidential and will in no way influence your acceptance into the program of nursing.

## TUITION, FEES, AND EXPENSES

Information regarding tuition and fees may be found at [http://www.uthsc.edu/finance/bursar/colleges\\_fee\\_information.php](http://www.uthsc.edu/finance/bursar/colleges_fee_information.php) with additional information regarding estimated cost of attendance at <http://www.uthsc.edu/finaid/Nursing.php>. In addition to regular fees, students may expect other expenditures including but not limited to fees for developing professional libraries; for continuation of licensure to practice nursing; for membership in professional organizations; for equipment such as a computer and software, tape recorders, name tags, laboratory coats, stethoscope and diagnostic kit; technology and testing fees; student health and screening fees; and fees for travel.

### Student Health and Professional Liability Insurance

All nursing students are required to have health care and medical insurance while enrolled in the College. All students in the College are also required to purchase professional liability insurance through the University at a nominal cost payable at registration time.

### Criminal Background Checks

All students are required to have a background check prior to enrolling in the nursing programs. Students should be aware that additional criminal background checks along with drug screens and fingerprinting may be required by clinical sites, certification committees and state licensure boards. Students are responsible for these costs. Information discovered in criminal background searches may delay or prevent enrollment, clinical education opportunities, graduation and entry into the profession. Failure to comply may prohibit students from entering programs, completing clinical assignments or graduating from the program. If a student needs further information about criminal background checks, the student should contact their program director.

### Required Textbooks

Students may access the required books for all the courses in their program through the UTHSC Bookstore website:

<http://uthsc.bncollege.com/webapp/wcs/stores/servlet/BNCBHomePage?storeId=57051&catalogId=10001&langId=-1A>. A customized textbook list can be generated for each student by entering the following information on the website page: program/department, semester and course numbers.

## SCHOLARSHIPS AND FUNDING

### Financial Aid

For financial aid information, including the availability of federal loans, contact the UTHSC Financial Aid Office, (901) 448-5568. <http://www.uthsc.edu/finaid/>.

Applicants in need of supplementary financial assistance should seek information and applications for such assistance from their current employers, service clubs, and professional organizations. In all cases, to apply for loans, scholarships, or traineeships, students must complete a Free Application for Federal Student Aid (FAFSA) which is available online <http://www.uthsc.edu/finaid/>

### Loans and Scholarships

Students in the College of Nursing are eligible for loans and scholarship awards from various sources. Traineeships are available to students through the Professional Nurses Traineeship Program. A limited number of scholarships are sponsored by philanthropic organizations and awarded by the College of Nursing. Application for College of Nursing administered Scholarships and Traineeships is made by completing a Free Application for Federal Student Aid (FAFSA). A FAFSA may be accessed online via [www.uthsc.edu/finaid/](http://www.uthsc.edu/finaid/). Scholarships and Traineeships are awarded only to students who have accepted offers of enrollment from the UTHSC College of Nursing. For information regarding Loans, contact the UTHSC Office of Financial Aid, (901) 448-5568.

**Sigma Theta Tau International Scholarship.** The Beta Theta Chapter-At-Large awards scholarships to qualified nurses or nursing students. These awards recognize outstanding scholarship that will advance knowledge in the area of nursing science and practice. Applications should be made to Beta Theta Chapter-At-Large.



## Traineeships

**Professional Nurse Traineeships.** Professional Nurse Traineeships provide some financial assistance in the payment of tuition and fees to eligible full-time nursing students in a practice option. Preference is given to individuals who are residents of health professional shortage areas as designated under section 332 of the Public Health Service Act.

**Primary Care Education Traineeships.** The Memphis Veterans Affairs Medical Center provides Primary Care Education Traineeships for medical residents and associated health trainees. Known as the PRIME program, funds are provided to foster the development of primary and managed care training and to foster education in team care in the primary and managed care setting. A call for applications is made during the summer/fall term of each year.

## HONORS AND AWARDS

### Honor Society

The Beta Theta Chapter of Sigma Theta Tau International, the Honor Society of Nursing, was established at UTHSC College of Nursing in 1972. Beta Theta was rechartered in 1988 as Beta Theta Chapter-at-Large to include the University of Memphis Loewenberg School of Nursing and in 2006 to include the Baptist College of Health Sciences School of Nursing. Purposes of the Society are to recognize superior achievement and the development of leadership qualities, to foster high professional standards, encourage creative work, and to strengthen commitments to the ideals and purposes of the profession. Students are eligible for membership consideration.

### Faculty Award

The Faculty Award is given annually to graduating students in each degree program with the highest scholastic average in the class.

### The Alumni Award

The Alumni Award is presented by the Alumni Association of the UTHSC College of Nursing to a graduate student who has displayed genuine enthusiasm for learning and nursing in addition to superior skill in providing patient care and an outstanding ability to interact with peers, patients, and staff.

### Elinor F. Reed Award

The Elinor F. Reed Award is presented to a student chosen by a College of Nursing faculty committee for excellence in patient care.

## POLICIES

### Drug and/or Alcohol Testing and Monitoring

The following are College of Nursing policies related to alcohol and drug testing and monitoring:

1. Applicants must inform UTHSC College of Nursing of active participation in an impaired provider program. Failure to inform UTHSC CON of active participation in an impaired provider program occurring either prior to or after admission may result in immediate dismissal.
2. Clinical agencies may require drug testing as a condition clinical placement, or agencies may require random drug and/or alcohol testing of a student while in the clinical agency. Additionally, students may be required to submit to random drug and/or alcohol testing as a condition of continued enrollment. Continued enrollment will be denied to individuals who refuse or fail to provide a sample for a drug and/or alcohol screen.
3. Until proven otherwise, an individual with a positive drug screen is presumed to be under the influence of drugs or alcohol.
4. Individuals who are taking over-the-counter or prescribed medication are responsible for being aware of the effect the medication may have on their performance or personal behavior and should report to their Program Director and/or University Health Service the use of any medication that may impair their performance or has the potential for an adverse effect on a drug screen.
5. An individual may be required to undergo an immediate blood, urine or breath analysis under any of the following circumstances and conditions:
  - a. When there is reasonable suspicion that the individual is under the influence of alcohol, narcotics,

- hallucinogens, marijuana or other chemical substances;
  - b. Following a work-related injury;
  - c. Observation of poor judgment or careless acts, which caused or had the potential for patient injury, jeopardized the safety of others or resulted in damage to equipment;
  - d. Suspected diversion of controlled substances.
6. Individuals who refuse to undergo an immediate drug and alcohol screen may be subject to immediate disciplinary actions, up to and including dismissal.

### **Intervention Process: Stress, Substance Use/Abuse/Dependence or Emotional Illness**

If determined that the student is unduly affected by stress, substance use/abuse/dependence or emotional illness, the intervention process, after notification and consultation with the Associate Dean of Academic Affairs may include but is not limited to the following:

1. Referral to Student Assistance Program and/or other health care programs for voluntary evaluation and care. Cost of treatment is totally the responsibility of the student.
2. Immediate corrective action, by the clinical faculty, regarding the student's conduct and performance in the clinical setting.
3. Following agreement for evaluation and care, which includes confirmation of compliance with recommended care by the treating clinician, a leave of absence may be granted for a period of time not to exceed 12 months.
4. If an individual fails to complete recommended care and treatment, the student will be subject to immediate dismissal from the College of Nursing.
5. A student will be allowed to resume active enrollment dependent upon recommendation from the treating health care provider(s).
6. In the case of substance use/abuse/dependence, the following will apply:
  - a. The student must provide evidence of successful completion of treatment program and sustained active recovery/sobriety.
  - b. The student must present documentation that they are substance free, presently involved in an after-care program and fit to resume their education without restrictions, other than those required by the College, TNPA and/or state of practice.

### **Attendance**

The educational programs at UTHSC have been developed by the faculty and staff of these colleges to provide students with the information and experiences necessary to become practicing professionals. All students are expected to attend the various educational opportunities provided for them by the college or school in which they are enrolled. Attendance is required at educational experiences as laboratories and related instruction, clinical activities, and small group conferences. In the College of Nursing, attendance is mandatory for all laboratory and clinical experiences. Attendance is required of all students at scheduled "on-campus" sessions. Additional details of course attendance requirements will be provided to students by course faculty. Class attendance is documented for all students.

### **Honor System**

All coursework is conducted under the Honor System that is in operation for all students at UTHSC. The Honor System is administered by the students in the College of Nursing through an elected Honor Council. Details of the Honor Code and related processes are found in the official UTHSC student handbook, *CenterScope*.

### **Grading System**

The faculty evaluates the academic achievement, acquisition of skills, and attitudes of nursing students and uses the marks of A, B, C, D, F, WP, WF, and I, in all official reports. In certain instances, some courses may be graded on a PASS/FAIL basis.

The following grade ranges are utilized in the College of Nursing:

- 92 - 100 = A
- 83 - 91 = B
- 75 - 82 = C
- 70 - 74 = D
- 0 - 69 = F

The letters “**WP**” or “**WF**” are recorded to indicate pass or failure in those instances in which a student withdraws from a course before completing the -course.

The designation of “**I**” (incomplete) will be used when a student is unable to complete the course at the regular time because of a reason acceptable to the course coordinator. In such cases, arrangements will be made by the coordinator for the student to complete the course requirements, and the grade of “**I**” will then be replaced by whatever grade the course coordinator considers the student to have earned. It is the responsibility of the student to work with the course coordinator in determining under what circumstances the “**I**” grade can be changed, however, the student must remove the “**I**” by the end of the following semester. Failure to remove the “**I**” within the allowed time will result in a grade of “**F**” being recorded as the permanent grade.

## Appeal Process

The following process for appeal applies to all students:

1. The Dean makes and issues the final college decisions regarding students’ progression and retention in College of Nursing programs.
2. Should a student be dissatisfied with the Dean’s recommended action, he/she may appeal the Dean’s action to the Chancellor. Such an appeal must be filed in writing with the Chancellor within five (5) calendar days of receipt of the Dean’s recommended action.

*No further appeals within the University are available beyond the Chancellor*

## Formal Complaint

A formal complaint concerning the College of Nursing is a written student complaint regarding matters not otherwise covered under UTHSC published Student Policies and Guidelines in university documents such as the UTHSC *CenterScope*, the UTHSC Academic Catalog, and statements from the Office of Equity and Diversity. Thus, the purpose of a formal complaint is to provide a defined mechanism for resolution of a student problem that is not otherwise addressed in stated college or university policies and procedures.

The process for filing a formal complaint is as follows. Student concerns or questions are first directed to the appropriate faculty member. If the issue remains unresolved, the Option Coordinator, the Program Director, the Associate Dean for Academic Affairs, and the college Dean are consulted in progressive fashion. The student may file an appeal for unresolved formal complaints regarding academic matters by following the Appeal Process published in the *CenterScope*. A formal complaint must be written and must include the following: 1) complainant’s name, title, and phone number; 2) detailed description of the complaint, including date and circumstances, if applicable; and 3) names of all persons involved in the complaint.

Formal complaints concerning the CON are sent to the Dean of the CON. After a complaint is filed, the Dean of the CON reviews the complaint and charts a course of action. The complainant may or may not be asked to appear in person to discuss the matter further but will be informed in writing of subsequent actions taken by the Dean in regards to the matter. The Dean will provide a copy of the complaint submitted by the student to any individuals named in a formal complaint.

## Dismissal

In addition to dismissal for academic failure or unprofessional conduct, the faculty and administration of the College reserve the right to dismiss any student for unethical or illegal conduct. All students are expected to adhere to the principles of the American Nurses Association Code for Nurses with Interpretative Statements and to the Honor Code for the campus of UTHSC.

## Withdrawal

Students who wish to withdraw or find that they cannot continue in the regular curriculum should contact the Office of Academic Affairs. Students are required to register for course work each semester once they have been admitted. Any student who is unable to register for a semester must contact the Office of Academic Affairs to initiate the change of status process. Students who must withdraw from the university for personal reasons may request that the withdrawal to be processed with the option of returning to the college without re-application for admission. The student should be aware that requests for leave of absence may be denied, requiring the student to seek re-admission. A request for withdrawal/leave of absence is subject to approval of the Dean. Any student who does not maintain continuous enrollment or have an approved leave of absence will be dismissed and must seek readmission.

## Re-admission

Students who withdraw without permission to return or who are dismissed from the College may request re-admission. Request for re-admission must be in writing and should be addressed to the Dean of the College of Nursing. Request for re-admission is acted upon by the Dean in consultation with appropriate administrators and faculty committees. If re-admission is granted, the placement in the program and remaining requirements will be specified by the Associate Dean for Academic Affairs and the Program Director.

## Transfer of Credits - Graduate Program

Transfer hours will be considered on an individual basis. After admission, students may request transfer of credits to UTHSC by contacting the College of Nursing Office of Academic Affairs. Only courses completed with a grade of B or better and accepted by the student's major department in the College of Nursing will be considered for transfer credit. As a rule, 9 credit hours may be accepted for transfer.

## Insurance and CPR Certification

All clinical agencies that provide clinical laboratories for the College of Nursing students require professional liability insurance and current certification in cardiopulmonary resuscitation. Therefore, College of Nursing students enrolled in any courses will be automatically assessed a fee to cover liability insurance. Proof of current CPR certification according to standards of the American Heart Association or the American Red Cross is also required.

## COMMUNICATION

The official method of communication between students and their respective programs or the dean's office is through the UTHSC email system. Students must check their email at least once each day to avoid missing vital information.

## PROGRESS, PROMOTION, AND GRADUATION

### Professional Entry: Master's Clinical Nurse Leader (MSN-CNL) Program

The MSN–CNL program provides preparation for professional entry into nursing practice as a generalist Registered Nurse and the foundation for advanced nursing practice graduate preparation. Learning in the professional entry master's CNL nursing program is directed toward the study of scientific rationale underlying nursing care, the development of critical thinking skills, knowledge of clinical microsystems, a focus on quality, safety, and error reduction. The Master of Science in Nursing CNL program at UTHSC prepares students for initial licensure as Registered Nurse and for CNL certification. Graduates of the University of Tennessee BSN program may apply to the Master's CNL program post RN licensure to complete the requirements for the MSN degree.

### Upon completion of the MSN-CNL Program, the graduate will be able to:

1. Apply leadership principles of complexity and healthcare organization to care delivery at the microsystem level.
2. Provide lateral integration of care services.
3. Use epidemiological and scientific principles to evaluate healthcare outcomes.
4. Use evidence-based practice to guide the healthcare of individuals, families, groups, and populations.
5. Manage the care environment by incorporating principles of team coordination, delegation, and supervision.
6. Analyze the effect of healthcare policy on organizational culture and patient care at the microsystem level.
7. Apply principles of quality improvement and risk management to improve healthcare outcomes.
8. Use information technology effectively and efficiently to provide evidence-based care.

## **MSN-CNL Promotion, Retention and Progression Requirements**

These policies govern the progression of students in the MSN-CNL Program.

1. Promotion and graduation require endorsement by the Dean.
2. Consistent with other professional degrees on campus, promotion requirements are as follows: All students must demonstrate satisfactory behavior in personal and professional areas deemed necessary by faculty for academic success and competency in clinical practice. Such areas may include ability to establish rapport with clients; ability to work effectively with other members of the health care team; dependability; judgment; integrity; initiative; and interest.
3. To be considered in good academic standing, a student must maintain a cumulative GPA of 2.0 or better. A student whose GPA falls below 2.0 may be dismissed. A student whose cumulative GPA falls below 2.0 in any term, will be placed on academic probation during the following academic term. The cumulative GPA must be higher than 2.0 at the end of the probationary term or the student may be dismissed from the program.
4. A student must maintain a minimum semester and cumulative GPA of 2.0 in order to progress to the subsequent term or to graduate.
5. A student must earn a minimum grade of "C" in every course. A student who earns a "D" in any course must repeat that course and earn the grade of "C" or better; students who continue in the MSN-CNL program after earning a D in any course may be required to repeat additional courses in an individualized plan of study. Dismissal from the program will result from a student's earning more than one "D" or a grade of "F" or from serious deficiencies in personal or professional behavior.

## **Graduation Requirements**

To be recommended for the degree of Master of Science in Nursing (MSN), a candidate completing the Clinical Nurse Leader (CNL) program must: 1) have completed satisfactorily the prescribed curriculum with a grade point average of 2.0 or above; 2) must have discharged all financial obligations to the University; and 3) have demonstrated a level of professionalism acceptable to the College of Nursing faculty.

Participation in graduation exercises is mandatory for all graduating students. Any student who is unable to attend graduation exercises must request permission from the Dean to graduate in absentia. Such a request must be submitted in writing and must clearly state the student's reason(s) for making the request. A student may graduate in absentia only if the Dean of the college has approved the request. The Dean will notify the Chancellor and the Registrar when the request is approved.

## **Doctor of Nursing Practice (DNP) Program**

The DNP degree represents the culmination of study that prepares graduates for advanced levels of nursing practice. Emphasis is placed on nursing care that is based upon philosophical, ethical, and scientific principles. In addition to the advanced clinical practice series, all students enroll in core courses focusing on concepts essential for analysis and evaluation of practice outcomes such as epidemiology, biostatistics, health and policy issues, health economics, philosophy of science, clinical research utilization, and health care quality improvement, health information management, and leadership. Each student selects an area for scholarly examination of internal and external factors that influence nursing care in his/her clinical area. This process guides the student in identification and evaluation of practice issues. Students collaborate with expert clinicians in their specialty areas. Course work is conducted primarily on-line with required, week-long, on-campus sessions three times yearly. Clinical experiences are scheduled to be in proximity to the student's residence.

## **Upon completion of the DNP Program, the graduate will be able to:**

1. Demonstrate advanced levels of clinical judgment/scholarship in nursing practice.
2. Critically analyze complex clinical situations and practice systems.
3. Evaluate and apply conceptual models, theories, and research in order to improve health care of diverse populations.
4. Systematically investigate a clinically focused area of nursing in order to advance health care.
5. Analyze the social, economic, political, and policy components of health care systems which affect care planning and delivery.
6. Assume leadership roles in the development of clinical practice models, health policy, and standards of care.
7. Integrate professional values and ethical decision-making in advanced nursing practice.

## **DNP Promotion, Retention and Progression Requirements**

These policies govern the progression of students in the DNP Program.

1. Promotion and graduation require endorsement by the Dean.
2. All students must demonstrate satisfactory behavior in personal and professional areas deemed necessary by faculty for academic success and competency in clinical practice. Such areas may include ability to establish rapport with clients; ability to work effectively with other members of the health care team; dependability; judgment; integrity; initiative; and interest.
3. Any student who earns a "D" or an "F" in any course will be dismissed from the program.
4. A student must maintain a cumulative GPA of 2.5 or higher to be considered in good academic standing. A student whose cumulative GPA falls below 2.5 in any term will be placed on academic probation; a student must have a 2.5 or higher GPA in order to graduate from the DNP program.
5. Students must maintain an unencumbered Tennessee RN license or have unencumbered authority to practice as an RN via the multi-state privilege for the duration of their program.
6. Dismissal may result from serious deficiencies in personal or professional behavior or from failure to meet stipulated conditions within the designated time period.
7. Students who wish to withdraw from a course must notify the Associate Dean of Academic Affairs of the College of Nursing in writing and meet with their advisor. Students who withdraw from a theory or clinical nursing course must also withdraw from all co-requisite nursing courses. A change of status form must be completed as required by the University.
8. The College of Nursing may not be able to make clinical arrangements for DNP students who change their state of residence after admission; such students may not be able to complete their College of Nursing program degree requirements.

## **Graduation Requirements**

To be recommended for the Doctor of Nursing Practice (DNP) degree, a candidate must: 1) have completed satisfactorily the prescribed curriculum with a grade point average of 2.5 or above; 2) have discharged all financial obligations to the University; and 3) have demonstrated a level of professionalism acceptable to the College of Nursing faculty.

Participation in graduation exercises is mandatory for all graduating students. Any student who is unable to attend graduation exercises must request permission from the Dean to graduate in absentia. Such a request must be submitted in writing and must clearly state the student's reason(s) for making the request. A student may graduate in absentia only if the Dean of the college has approved the request. The Dean will notify the Chancellor and the Registrar when the request is approved.

## **Doctor of Nursing Practice (DNP) – Doctor of Philosophy in Nursing (PhD)**

The Doctor of Nursing Practice – Doctor of Philosophy (DNP/PhD) Program provides highly motivated and qualified students with an integrated advanced clinical and research program of study leading to a combined DNP/PhD degree. This program combines the existing DNP and PhD nursing programs, which are based in the College of Nursing and the College of Graduate Health Sciences, respectively. Unlike the traditional DNP program, the DNP/PhD program focuses on developing the student's ability to conduct clinical research. Typically, students do not enroll in clinical specialty courses until the fourth term of the program. The total time to graduation varies and depends on the student's background. Students first must be accepted to the College of Nursing DNP program to be considered for admission to the DNP/PhD Program.

## Non-Degree Special Students

### Policies and Procedures for Non-Degree Student Classification

The College of Nursing has a non-degree graduate student classification for those individuals who are not candidates for a degree but who wish to take courses for credit. The non-degree classification is tailored to meet the needs of a variety of individuals including:

1. Individuals whose regular applications are pending or accepted but whose admission is not until next term.
2. Individuals enrolled at other institutions who take courses at UTHSC College of Nursing for credit acceptable to the home institution.
3. Individuals who are registered nurses seeking to continue their development.
4. Individuals who wish to pursue a post-doctoral non-degree course of study that leads to eligibility to sit for a certification examination.
5. All non-degree students are accepted on a space available basis

### Non-Degree Individuals NOT Seeking Certification Preparation

Individuals who wish to enroll under the non-degree student classification will complete an abbreviated application form that is available from the College of Nursing, Office of Academic Affairs. Individuals desiring to take graduate courses must hold a Baccalaureate or higher degree, meet course prerequisites, and declare this on the application. No test scores, letters of evaluation, or Admission Committee approval are required. Applications should be sent to the College of Nursing, Office of Academic Affairs. Upon approval, forms will be forwarded for processing from the College of Nursing to the Office of Enrollment Services. The student must register and pay fees to the Cashier on the official date of registration for that term.

Only selected courses are available to non-degree individuals, and enrollment is limited to available space within a course. Non-degree students are required to fulfill the same course requirements as regular students and are subject to all academic rules and regulations as outlined in the current catalog along with the official UTHSC student handbook, *CenterScope*. Non-degree students enrolled in graduate courses must earn a grade of B or better in any course taken to receive credit for that course toward a degree at the UTHSC. Any coursework taken as a non-degree student will be recorded on the student's UT transcript, is considered during the admission process, and is included in the applicant's GPA computation. All coursework taken at the UTHSC is included in the student's GPA calculation.

At the time of admission to non-degree student status, no commitment is stated or implied concerning subsequent admission to the graduate nursing programs. If admission to a degree program is desired at a later time, a non-degree student must make separate application and satisfy the admission requirements of the degree program to which admission is sought.

A maximum of 9 semester hours taken as a special student in the College of Nursing may be applied to the MSN or DNP degree, subject to approval by the Associate Dean of Academic Affairs.

### Procedure for Processing Non-Degree Student Enrollment

1. The Associate Dean for Academic Affairs will determine courses that are appropriate for non-degree students.
2. The Associate Dean for Academic Affairs will compile and distribute a list of the course offerings that have been approved to interested applicants along with an abbreviated application form with a deadline for application submission.
3. The applicant will submit the application form to the College of Nursing Office of Academic Affairs.
4. Applicants will complete the regular registration process and pay fees at the established times.

## Individuals Seeking Certification

### Post-Doctoral Preparation in Advanced Practice Option

This option offers an opportunity for nurses holding a doctoral degree in nursing to gain additional education that can lead to national certification in an advanced practice specialty. Nurses may apply to the following specialty areas of post-doctoral study leading to preparation for national certification:

#### Primary Care Specialty Areas:

- Family Nurse Practitioner
- Family Psych/Family Nurse Practitioner

#### Critical Care Specialty Areas:

- Adult Gerontology Acute Care Nurse Practitioner
- Neonatal Nurse Practitioner
- Nurse Anesthesia
- Family/Adult Gerontology Acute Care Nurse Practitioner

Requirements for national certification are determined by the specific certifying agency. Generally, there are classroom and clinical instruction requirements and some certifying agencies have additional practice requirements. Faculty members strive to assure that all the educational requirements are met, but since these are subject to change, the applicant should consult the certifying agency. Each applicant's materials are individually evaluated and a specific plan of study developed.

### Post-Doctoral Certification Admission Process

Post-doctoral students seeking certification in one of the areas of advanced practice nursing are expected to follow same application procedures as degree seeking students. Applications must be submitted online, although part of the application process requires the submission of paper documents. Full application instructions and access to the online component of the application can be found online at <http://www.uthsc.edu/nursing/future%20students/index.php>. Official transcripts must be submitted to the UTHSC Office of Enrollment Services, 910 Madison Avenue, Suite 525, Memphis, TN 38163. Preference is given to residents of Tennessee, but out-of-state applicants are also welcomed and given full consideration. Applicants who meet minimum requirements are not guaranteed an interview or admission.

Applicants meeting admission criteria and selected for further admission consideration must participate in an interview for the purpose of evaluating communication and decision-making skills, educational goals and current leadership, scholarship, practice roles and activities. The interview will be in-person, face-to-face unless extraordinary circumstances warrant other arrangements. The Program Director is charged with the responsibility for making decisions related to "extraordinary circumstances."

Questions regarding residency status should be addressed to the UTHSC Assistant Director of Enrollment Services, 910 Madison Avenue, Suite 525, Memphis, TN 38163, (901) 448-5560.

Questions regarding academic programs in the College of Nursing should be addressed to:

The University of Tennessee Health Science Center  
College of Nursing, Office of Student Affairs  
920 Madison Avenue, Suite 1053  
Memphis, TN 38163 (901) 448-6125  
[www.uthsc.edu/nursing](http://www.uthsc.edu/nursing)

### Academic Standards

The admission requirements are consistent with the criteria for admission to the professional colleges of UTHSC. Academic standards include admission process, admission requirements, and all policies governing the progression and graduation of students.



## CURRICULUM SUMMARY - MSN-CNL

### Master's Entry CNL Curriculum for Non-Nurses

Students who are not yet licensed as registered nurses take the following courses in the MSN-CNL program.

#### SUMMER 1

NSG 505 Informatics for Healthcare	2 (2-0)
NSG 507 Genetics	1 (1-0)
NSG 613 Clinical Anatomy	3 (2-1)
<b>Total Credits</b>	<b>6 (5-1)</b>

#### SUMMER 2

NSG 510 Professional Issues	2 (2-0)
NSG 514 Intro to Evidence-based Practice	3 (3-0)
<b>Total Credits</b>	<b>5 (5-0)</b>

#### FALL 1

NSG 621 Pathophysiology	3 (3-0)
NSG 603 Health Assessment	3 (2-1)
PHAR 699 Pharmacology	3 (3-0)
NSG 523 Medication Safety in Healthcare	1 (1-0)
NSG 506 Mental Health	3 (2-1)
NSG 504 Intro to Professional Practice	3 (2-1)
NSG 624 Nursing Skills Lab I	1 (0-1)
<b>Total Credits</b>	<b>17 (13-4)</b>

#### FALL 2

NSG 515 Health of Populations	4 (3-1)
NSG 516 Acute Care	3 (2-1)
NSG 517 Acute Care Skills III	1 (0-1)
NSG 518 Leadership	3 (3-0)
NSG 519 Internships	3 (0-3)
NSG 652 Professional Role	3 (3-0)
NSG 642 CNL-Clinical Nurse Leader Seminar	1 (1-0)
<b>Total Credits</b>	<b>18 (12-6)</b>

#### SPRING 1

NSG 512 Adult Health Skills II	1 (0-1)
NSG 601 Adult Health Nursing	7 (4-3)
NSG 602 Gerontological Nursing	2 (2-0)
NSG 509 Reproductive Health	3 (2-1)
NSG 508 Pediatric and Adolescent Health	3 (2-1)
<b>Total Credits</b>	<b>16 (10-4)</b>
<b>Total Program Credits</b>	<b>81 (54-27)</b>

#### SPRING 2

NSG 618 CNL- Quality Management	2 (2-0)
NSG 616 CNL-Healthcare Systems Complexity	3 (3-0)
NSG 617 CNL-Target Pop Diagnosis	4 (3-1)
NSG 619 CNL-Clin Leadership Practicum	7 (0-7)
NSG 642 CNL-Clinical Nurse Leader Seminar	1 (1-0)
<b>Total Credits</b>	<b>17 (9-8)</b>

## RN Entry Clinical Nurse Leader Curriculum

Individuals who are already licensed as RNs receive credit for previous course work. The following curriculum schema is for RNs entering the program who have either a diploma in nursing or an associate degree in nursing.

### SUMMER 1

NSG 620 Transition to Professional Practice	3 (3-0)*
NSG 507 Genetics	1 (1-0)
NSG 505 Informatics for Healthcare	2 (2-0)
<b>Total Credits</b>	<b>6 (6-0)</b>

### SUMMER 2

NSG 514 Intro to Evidence-based Practice	3 (3-0)*
NSG 510 Professional Issues	2 (2-0)*
<b>Total Credits</b>	<b>5 (5-0)</b>

### FALL 1

NSG 621 Pathophysiology	3 (3-0)*
NSG 603 Health Assessment	3 (2-1)
PHAR 699 Pharmacology	3 (3-0)
NSG 652 Professional Role	3 (3-0)
<b>Total Credits</b>	<b>12 (11-1)</b>

### FALL 2

NSG 515 Health of Populations	4 (3-1)
NSG 518 Leadership	3 (3-0)
NSG 519 Internship	3 (0-3)
NSG 650 Introduction of Biostatistics	3 (3-0)
<b>Total Credits</b>	<b>13 (9-4)</b>

### SPRING 1

NSG 616 CNL-Healthcare Systems Complexity	3 (3-0)
NSG 617 CNL-Target Population Diagnosis	4 (3-1)
NSG 601 Gerontological Nursing	2 (2-0)
<b>Total Credits</b>	<b>9 (8-1)</b>

### SPRING 2

NSG 618 CNL- Quality Management	2 (2-0)
NSG 619 CNL-Clinical Leadership Practicum	7 (0-7)
NSG 642 CNL-Clinical Nurse Leader Seminar	1 (1-0)
<b>Total Credits</b>	<b>10 (3-7)</b>

**Total Program Credits**                    **55 (42 -13)**

## BSN Entry Clinical Nurse Leader Curriculum

Individuals who are already licensed as RNs receive credit for previous course work. The following full-time, one year curriculum schema is for RNs entering the program who have completed their bachelor's degree in nursing (BSN)

### SUMMER 1

NSG 507 Genetics	1 (1-0)
NSG 505 Informatics for Healthcare	2 (2-0)
<b>Total Credits</b>	<b>3 (3-0)</b>

### FALL 1

NSG 621 Pathophysiology	3 (3-0)
NSG 603 Health Assessment	3 (2-1)
PHAR 699 Pharmacology	3 (3-0)
NSG 652 Professional Role	3 (3-0)
NSG 650 Introduction of Biostatistics	3 (3-0)
<b>Total Credits</b>	<b>15 (14-1)</b>

### SPRING 1

NSG 618 CNL- Quality Management	2 (2-0)
NSG 616 CNL-Healthcare Systems Complexity	3 (3-0)
NSG 619 CNL-Clinical Leadership Practicum	7 (0-7)
NSG 617 CNL-Target Population Diagnosis	4 (3-1)
NSG 642 CNL-Clinical Nurse Leader Seminar	1 (1-0)
<b>Total Credits</b>	<b>17 (9-8)</b>
<b>Total Program Credits</b>	<b>35 (26-9)</b>

## COURSE DESCRIPTIONS – MSN-CNL

*Note: All MSN-CNL courses are offered annually unless otherwise specified.*

**504 NSG. Introduction to Professional Practice.** This course focuses on concepts, skills and techniques foundational for professional nursing practice. Students are provided opportunities to apply critical thinking skills to explore professional values, nursing process and the professional nursing role. Credit: 3 (2-1). (Didactic and clinical). Offering: Fall. Faculty: A. Farrell, B. Hill. H. Bensinger, A. Ermis.

**505 NSG. Informatics for Health Care.** This course provides an overview of healthcare information technology and computer science systems to prepare students to effectively and efficiently use technology for the identification, collection, processing, and management of data/information. Legal, ethical, sociocultural, spiritual, economic, and global environmental factors that affect healthcare information technology are explored. Credit: 2 (2-0). (Didactic) (Hybrid) Offering: Summer. Faculty: K. Porter.

**506 NSG. Mental Health.** This course provides the theoretical and clinical foundation for providing safe, effective, patient-centered, evidence-based, culturally competent nursing care to individuals, groups and families experiencing mental health challenges. The course focuses on therapeutic communication as an integral component of the nursing process. Legal, ethical, sociocultural, spiritual, political, economic, historical and global environmental factors that affect the mental health of individuals, families, groups, and populations are explored. Credit: 3 (2-1). (Didactic and clinical) Offering: Fall. Faculty: J. Sharp, S. Maceri, A. Caple, C. Clayborne, A. Plunkett.

**507 NSG. Genetics.** This course provides a foundation for understanding and applying genetic knowledge within the clinical setting. Legal, ethical, sociocultural, spiritual, political, economic, historical and global environmental factors that affect the field of human genetics are explored. Credit: 1 (1-0). (Didactic) (Hybrid) Offering: Summer. Faculty: A. Cashion

**508 NSG. Pediatric and Adolescent Health.** This course provides the theoretical and clinical foundation for providing safe, effective, patient-centered, evidence-based, and culturally competent nursing care to children and adolescents. Developmental aspects associated with preventive care and health promotion of children and adolescents along the wellness-illness continuum are examined. Legal, ethical, sociocultural, spiritual, political, economic, historical, and global environmental factors that affect the health of children and adolescents are examined. Credit: 3 (2-1). (Didactic and clinical) Offering: Spring. Faculty: A. Farrell, B. Hill, C. Graff.

**509 NSG. Reproductive Health.** This course provides the theoretical and clinical foundation for providing safe, effective, patient-centered, evidence-based, and culturally competent reproductive health care to women and their families. Nursing care of pregnant women, infants, and their families during a normal pregnancy will be the primary focus of the course. Legal, ethical, sociocultural, political, economic, historical, and global environmental factors that affect the health of pregnant women and their families are examined. Credit: 3 (2-1). (Didactic and clinical) Offering: Spring. Faculty: L. Kirkland, H. Bensinger, B. Hill, M. Waller, A. Ermis.

**510 NSG. Professional Issues.** This course examines historical and contemporary issues affecting the nursing profession. Students also explore the role of nursing theory in the continued development of professional nursing. Credit: 2 (2-0). (Didactic) (Hybrid) Offering: Summer. Faculty: V. Betts, T. Norris.

**512 NSG. Adult Health Skills II.** This course focuses on the development of competency in essential technical skills used to deliver safe, evidence-based, quality, patient-centered nursing care to adults. Credit: 1 (0-1). (Lab) Offering: Spring. Faculty: C. Scott, M. Waller.

**514 NSG. Introduction to Evidence Based Practice.** This course focuses on the research method and the role of the professional nurse in critiquing and utilizing nursing research literature. Research as it relates to health care and clinical nursing practice is examined. Credit: 3 (3-0). (Didactic) (Hybrid) Offering: Summer. Faculty: D. Hathaway, W. Likes.

**515 NSG. Health of Populations.** This course provides the theoretical and clinical foundation for providing safe, patient-centered, evidence-based, culturally competent and community-focused nursing care to populations. The course focuses on community health assessment, planning, and education. Legal, ethical, sociocultural, spiritual, political economic, historical and global environmental factors that affect the process of health promotion and disease prevention are examined. Credit: 5 (3-2). (Didactic and clinical). (Hybrid) Offering: Fall. Faculty: J. Burchum, K. Porter, M. Waller, T. Cherry, S. Brown.

**516 NSG. Acute Care.** This course provides the theoretical and clinical foundation for providing safe, effective patient-centered, evidence-based nursing care to adult patients and families in a complex healthcare setting. This course focuses on promotion of health and function, management of acute illness and injury and provision of comfort through the use of information and technology for decision-making and error reduction. Legal, ethical, sociocultural, spiritual, political, economic, historical, and global environmental factors that affect the health of adults in the acute care setting are examined. Credit: 5 (3-2). (Didactic and clinical). Offering: Fall. J. Sharp, J. Smith, A. Ermis.

**517 NSG. Acute Care Skills III.** This course focuses on the development of advanced skills used to provide nursing care in complex care settings. Credit: 1 (0-1) (Lab) Offering: Fall. Faculty: C. Scott, A. Farrell.

**518 NSG. Leadership.** This course focuses on the basic concepts and theories of open systems and outcomes at the patient, organization, and health care levels, as they apply to nursing leadership and beginning management roles. Leadership, organization and management practices, and their impact on nurses, healthcare delivery systems, and patient outcomes are emphasized. Legal, ethical, sociocultural, spiritual, political, economic, historical and global environmental factors, which affect and are affected by the quality of leadership, are examined. Credit: 3 (3-0). (Didactic) (Hybrid) Offering: Fall. Faculty: S. Webb.

**519 NSG. Internship.** The clinical internship provides the opportunity, within a select area of interest, to facilitate role transition and lifelong learning. Emphasis will be on integration and application of knowledge and skills in order to demonstrate the ability to design, provide, manage, and coordinate evidence-based, culturally competent, and cost-effective nursing care. Credit: 3 (0-3). (Didactic and clinical) Offering: Fall. Faculty: S. Webb, S. Cowan, S. Duncan, B. Cardell.

**522 NSG. Directed Study.** An elective course designed to provide the student with the opportunity to undertake guided study and/or clinical experience in a focused area. Elective course. Credit: Variable. Directed Study may be repeated and offered any semester under faculty direction in accordance with an approved plan of study. (Didactic and/or clinical). (Hybrid) Offering: Fall, Spring. Faculty: T. Norris.

**523 NSG. Medication Safety in Healthcare.** This course emphasizes patient-centered safe medication administration based on best-practices using technology and interprofessional team collaboration to improve healthcare outcomes. Credit: 1 (1-0). (Didactic) (Hybrid) Offering: Fall. Faculty: M. Waller.

**524 NSG. Nursing Skills Lab I.** Within a simulated environment, this course focuses on the development of competency in foundational skills used to deliver safe, evidence-based, quality, patient-centered nursing care. Credit: 1 (0-1). (Lab) Offering: Fall. Faculty: C. Scott, M. Waller.

**525 NSG. Cultural Competence and Language Acquisition for Hispanic Populations. (ELECTIVE)** This honors elective course provides the theoretical and clinical foundation for providing safe, effective, patient-centered, evidence-based, and culturally competent nursing care to Hispanic populations. This course focuses on acquisition of the Spanish language geared toward health care providers, as well as, cultural diversity as it relates to the Hispanic population. Legal, ethical, cultural, and social factors which affect the health of Hispanic patients are examined. Elective course. Credit: 3 (2-1) (Didactic and clinical). (Hybrid) Offering: Fall. Faculty: T. Norris.

**601 NSG. Adult Health Nursing.** This course provides the theoretical and clinical foundation for providing safe, patient-centered, evidence-based nursing care through teamwork to improve the quality of care to adult patients and families. This course focuses on promotion of health and function, management of illness, and provision of comfort through the use of information and technology for decision making and error reduction. Legal, ethical, sociocultural, spiritual, political, economic, historical, and global environmental factors that affect the health of adults are examined. Credit: 7 (4-3). (Didactic and clinical) Offering: Spring. Faculty: J. Sharp, J. Smith, H. Bensinger, A. Ermis, T. Barrett, S. Duncan.

**602 NSG. Gerontological Nursing.** This course provides the theoretical foundation for providing safe, patient-centered, evidence-based nursing care through teamwork to improve the quality of care to older adults. The course focuses on assessment and promotion of health and wellness, management of disease, provision of comfort, and end of life care. Legal, ethical, sociocultural, spiritual, political, economic, historical, and global environmental factors that affect the health of older adults are examined. Credit: 2 (2-0). (Didactic). (Hybrid) Offering: Spring. Faculty: M. Waller.

**603 NSG. Health Assessment.** This course prepares the student to perform a holistic, patient-centered assessment across the lifespan. Skills addressed that are needed for the systematic assessment of health status include critical thinking, interviewing, obtaining a health history, performance of a physical examination, and documentation. Credit: 3 (2-1). (Didactic and lab) Offering: Fall. Faculty: H. Bensinger, B. Hill, E. Mewborn.

**609 NSG. Special Topics: Pharmacology.** This course builds a foundation of pharmacology, focusing on major drug classifications, their actions and side effects. Emphasis is on using pharmacologic principles and pharmacotherapeutics to provide evidence-based, patient-centered care across the lifespan. Elective course. Credit: 3 (3-0). (Didactic) (Online) Offering: Fall. Faculty: P. Cowan, J. Burchum.

**610 NSG. Special Topics: Health Assessment.** This course prepares the student to perform a holistic, patient-centered assessment across the lifespan. Skills addressed that are needed for the systematic assessment of health status include critical thinking, interviewing, obtaining a health history, performance of physical examination, and documentation. Elective course. Credit: 2 (2-0). (Didactic) (Online). *Course not currently offered.*

**613 ANAT. Clinical Anatomy.** This course provides knowledge of gross anatomical structures, their relationships and the general function of major organ systems as related to the clinical practice of nursing. Credit: 3 (2-1). (Didactic and lab) Offering: Summer. Faculty: P. Madubonwu, A. Cantrell

**615 NSG. CNL Leadership Role.** The purpose of this course is to facilitate understanding of the clinical nurse leader role. Students analyze essential nursing leadership, clinical outcomes management, and care environment management competencies as a basis for advancing competency as a front-line leader in clinical practice. Content includes analysis of factors that contribute and constrain nursing leadership in the clinical microsystem. Emphasis is placed on high reliability practice, error prevention, congruency of values and action, professional advocacy, and creating and sustaining a healthy environment. This course was replaced by 652 NSG: Professional Role. Credit: 3 (3-0). (Didactic). *Course no longer offered.*

**616 NSG. CNL-Healthcare Systems Complexity.** This course provides a conceptual framework for the delivery of care within complex healthcare environments using principles of complexity science in relation to healthcare systems and organizations. Topics include complexity, organizational and change theories and innovations, organizational culture, healthcare systems, integration of care, regulatory issues, health policy and politics, evaluation of complex healthcare issues and strategic planning. Credit: 3 (3-0). (Didactic) Offering: Spring. Faculty: S. Webb.

**617 NSG. CNL-Target Population Diagnosis.** This course provides the philosophy and framework for population health and the care of aggregates within the clinical microsystem. Analysis and application of theory and skills needed to assess and diagnosis microsystem structures, patterns, and processes affecting clinical and cost outcomes of target populations within complex health systems are presented. Concepts of health promotion, risk reduction, and disease prevention are emphasized, along with characteristics of successful microsystems to teach students microsystem thinking and approaches for sustainable improvements in the quality and value of front-line care delivery. Credit: 4 (3-1). (Didactic and clinical). Offering; Spring. Faculty: L. McKeon, A. Farrell, B. Hill, K. Porter, S. Webb, B. Cardell, A. Caple.

**618 NSG. CNL-Quality Management.** This course provides a foundation for the examination, analysis, improvement of processes and outcomes within the healthcare microsystem using the process improvement methodologies. Emphasis on improving processes for better clinical and cost outcomes is provided. Credit: 2 (2-0). (Didactic) (Hybrid) Offering: Spring: P. Dycus

**619 NSG. CNL-Clinical Leadership Practicum.** This course focuses on implementation of the CNL role in a selected healthcare microsystem. During the 315-hour immersion experience, the student acquires in-depth skills related to the practice and evaluation of interprofessional care. Focus is on accountability for design coordination, delegation, supervision, and evaluation of care provided by the unit based health care team. Credit: 7 (0-7). (Clinical). Offering: Spring. Faculty: S. Webb, J. Smith, J. Sharp, T. Barrett, K. Porter, A. Caple, B. Cardell

**621 NSG. Pathophysiology.** This course focuses on the study of the etiology, pathogenesis, and clinical manifestations associated with common disease processes across the life span. Using technology and evidence-based practice, the interrelationship of patient-centered factors that affect morbidity/ mortality and the scientific rationale related to diagnostic testing will be identified. Credit: 3 (3-0). (Didactic) Offering: Fall. Faculty: T. Norris.

**630 NSG. Transition to Professional Nursing.** This course examines the transition to professional nurse for registered nurse students. Socialization, philosophy of nursing, professional communication, scholarly practice, and information technology will be explored. Critical thinking is also emphasized. Credit: 3 (3-0). (Didactic) Offering: Summer. Faculty: K. Porter, T. Norris.

**642 NSG. CNL-Clinical Nurse Leader Seminar.** This course focuses on concept synthesis to prepare the graduate for entry into the profession as a Clinical Nurse Leader (CNL). Emphasis is placed on critical thinking skills needed for professional nursing practice. Credit: Variable (1-2 credits). (Didactic) Offering: Fall, Spring. Faculty: T. Norris, A. Farrell, H. Bensinger, J. Sharp, J. Smith, B. Hill, S. Webb.

**644 NSG. Special Topics in Clinical Anatomy,** This course provides knowledge of gross anatomical structures, their relationships and the general function of major organ systems as related to the clinical practice of nursing. Elective course. Credit: 3 (3-0). (Didactic) Offering: Fall. Faculty: P. Cowan, R. Oswaks.

**650 NSG. Introduction to Biostatistics** This course will introduce and apply fundamental biostatistical concepts. It also provides a survey of data and data types. Credit: 3 (3-0) (Didactic) (Online) Offering: Spring. Faculty: M. Miles.

**652 NSG 652: Professional Role.** This course focuses on role development of the professional nurse and clinical nurse leader. Students analyze essential patient advocacy and education competencies to ensure delivery of quality care as a professional nurse. Role transition is supported by examination of the front-line clinical leadership competencies: nursing leadership, clinical outcomes management, and care environment management. Content includes analysis of barriers to and facilitator for effective clinical leadership in the microsystem. Emphasis is placed on high reliability practice, error prevention, congruency of values and action, professional advocacy, and creating and sustaining a healthy environment. This course replaced NSG 615: CNL Leadership Role. Credit: 3 (3-0) (Didactic) Offering: Fall. Faculty: L. McKeon.

**699 PHAR. Pharmacology.** This course builds a basic foundation of pharmacology, focusing on major drug classifications, their actions and side effects. Emphasis is on using pharmacologic principles and pharmacotherapeutics to provide evidence-based, patient-centered care across the lifespan. Credit: 3 (3-0). (Didactic). (Hybrid) Offering: Fall. Faculty: J. Burchum.

## **COURSE DESCRIPTIONS – DNP**

*NOTE: All DNP courses are offered annually unless otherwise specified.*

**814 ANAT. APN Anatomy.** This course provides a foundation in histology, gross anatomy, and clinical anatomy for basic science, procedures, and the delivery of anesthesia care. This course focuses on anatomy at the micro- and macro-cellular level through the inclusion of laboratory experiences. Credit: 4 (3-1). (Didactic and lab). Offering: *Not currently offered.*

**817 ANAT. DNP APN Anatomy.** This course provides scientific underpinnings in histology, gross anatomy and clinical anatomy for basic science, procedures, and the delivery of anesthesia care. This course focuses on anatomy at the micro- and macro-cellular level through the inclusion of laboratory experiences. Credit: 4 (3-1) (Didactic and Lab) Offering: Fall. Faculty: R. Oswaks.

**712 BIOE. Epidemiology.** This course offers the basic principles of epidemiology. Credit: 3 (3-0). (Didactic). (Hybrid) Offering: Fall. Faculty: P. Speck, T. Bowdre.

**851 HOPR. Leadership & Health Policy.** This course is designed to expand the learner's knowledge of leadership and health policy. The first component is designed to critically examine leadership concepts and theories in relation to advanced nursing practice in current and emerging health care delivery systems. Mechanisms for communication, asserting power and influence and conflict resolution techniques will be discussed. The second component is designed to provide an understanding of the forces involved in the formulation and implementation of health care policy and the role Doctor of Nursing Practice can play in leading the development and implementation of such policy. The course examines the characteristics of health care policy and politics, the stages in policy making and the key role governmental, public groups and individuals play in policy making. Credit: 3 (3-0). (Didactic) (Hybrid) Offering: Spring. Faculty: C. Lockhart, V. Betts.

**877 HOPR. Health Care Economics.** This course advances the learner's knowledge of the economics of health and health care. Students critically examine the theories and concepts of economics as they apply to the health care market and the financing and delivery of personal health care in the United States. Selected international systems of financing and delivering health care are reviewed as a point of comparison. Particular attention is paid to the impact health economics has on patients, delivery systems, providers of care and advanced nursing practice. Students critically analyze the influence of economics on the practice, design and reform of health care in the United States and the role the Doctor of Nursing Practice has in structuring and revising the policies for each. Credit: 3 (3-0). (Didactic) (Hybrid) Offering: Fall. Faculty: C. Lockhart.

**605 PATH. Advanced Pathology.** Study of the etiologies and processes of human biological responses to actual and potential injury in contrast to normal. The focus is on the underlying physiological and pathophysiological mechanisms of disease states, and the scientific rationale for seeking, selecting, and interpreting physiological data. Age specific considerations are presented. Credit: 3 (3-0). (Didactic) (Online) Offering: Spring. Faculty: M. Carter.

**830 PHAR. Advanced Pharmacology.** This course provides an overview of the major drug classifications used by advanced practice nurses. Core content focuses on pharmacokinetics, pharmacodynamics, and pharmacotherapeutics, adverse effects, drug and food interactions, safety concerns, and special considerations across the lifespan. Credit: 3 (3-0). (Didactic) (Online) Offering: Spring. Faculty: J. Burchum.

**832. PHAR. Pharmacology II: Anesthesia.** This course provides an in-depth study of the pharmacology of anesthetic agents and drugs currently used in human medicine. This course focuses on the impact of drugs on anesthesia practice. Credit: 4 (4-0). (Didactic) Offering: Fall. Faculty: D. Accardo.

**613 NSG. Interviewing and Counseling.** This course focuses on increasing the knowledge and skills in communication that are essential to effective helping in the multiple roles of advanced nursing practice. Content includes major communication theories and research, the establishment and maintenance of effective interpersonal relationships, and counseling and interviewing strategies. Students participate in experiential exercises using the presented strategies. Credit: 2 (2-0). (Didactic) (Hybrid) Offering: Fall. Faculty: P. Cunningham.

**800 ACNP. Acute Cardiopulmonary Nursing.** This advanced nursing practice course focuses on the care of adult patients with cardiopulmonary illness frequently encountered in critical and acute care settings. Content includes diagnosis and management of episodic and chronic cardiopulmonary illness; diagnostic tests, technologic and therapeutic interventions; and crisis/disaster management strategies. Particular attention is given to providing evidence based, comprehensive, individualized, and collaborative care that takes into consideration health quality, costs, and outcomes. Credit: 3 (3-0). (Didactic) (Hybrid). *Not currently offered.*



**801 ACNP. Acute Care Nursing.** This advanced practice nursing course focuses on the care of acute, critical, and complex-chronically-ill adults. Content includes diagnosis and management of acute, episodic, and exacerbations of chronic medical-surgical health conditions; ordering and interpreting diagnostic tests; and utilizing technologic and therapeutic interventions. Emphasized aspects of the Acute Care Nurse Practitioner role include communication skills, teaching, coaching, disseminating information, and billing. Health quality, costs, and outcomes are addressed through collaborative, individualized, comprehensive, and evidence-based care. Credit: 4 (4-0). (Didactic) (Hybrid) *Not currently offered.*

**802 ACNP. Acute Cardiopulmonary Clinical.** This advanced practice nursing clinical course focuses on the care of adult patients with cardiopulmonary illness in critical and acute care settings. Students conduct an inclusive history and physical examination, document findings, then plan and implement a comprehensive evidence-based plan of care. This course prepares the student to diagnose and manage episodic and chronic cardiopulmonary illness, interpret diagnostic tests, utilize technologic and therapeutic interventions, and apply crisis/disaster management strategies. The student develops evidence-based, individualized, collaborative plans of care that incorporate health quality, cost, and outcomes. Credit: 3 (0-3). (Clinical). *Not currently offered.*

**803 ACNP. Acute Care Clinical.** This acute care nurse practitioner clinical course focuses on the care of adult patients with medical-surgical health problems in the critical and acute care settings. Emphasis is placed on prioritizing assessment and interventions according to the patient's most immediate need. Critical thinking skills are enhanced to appropriately diagnose common acute health problems. Pharmacologic prescription and comprehensive management from admission to discharge are stressed. Credit: 2 (0-2). (Clinical) *Not currently offered.*

**814 NSG. Biostatistics.** This course introduces and applies biostatistical concepts important to advanced nursing practice and research. Credit: 3 (3-0). (Didactic) (Online) Offering: Fall, Summer. Faculty: M. Miles.

**818 NSG. Roles of Advanced Nursing Practice.** This course focuses on examining role theory as it relates to advanced practice. The content includes a comparison of advanced practice nursing roles as well as requirements for and regulation of these roles. The course fosters understanding of the principles, personal, and cultural values, and beliefs that provide a framework for advanced nursing practice; it provides students the opportunity to explore personal values and analyze how these values shape professional practice. Credit: 1 (1-0). (Didactic) (Online) *Not currently offered.*

**819 NSG. Evaluation of Practice.** This course explores various methodologies to critically evaluate clinical practice. Students develop proficiency in a) translating research to clinical practice, b) applying improvement science for better patient, performance, and organizational outcomes, and c) designing evaluation plans specific to their practice interest for the ultimate purpose of creating and sustaining changes at the care delivery, organizational, and policy levels. Credit: 4 (4-0). (Didactic) (Hybrid) Offering: Fall: L. McKeon, M. Hartig.

**823 NSG. Physical Diagnosis.** This course builds on the assessment skills learned in an undergraduate level health assessment course. The course is designed to help the students develop and apply their knowledge through the acquisition of skills that may be used in both primary and acute care settings. This course will acquaint the student with common health problems including emotional illnesses that are most frequently encountered in health care settings. Emphasis is placed on recognition of signs and symptoms associated with common health problems, psychosocial and cultural variations, differentiation between normal and pathological findings, critical thinking necessary for clinical diagnostic reasoning and risk assessment. Course content and clinical experiences provide learning opportunities in the following conceptual areas: communication, history taking, system specific symptoms including emotional illness, physical assessment, age related anatomical-physiological changes, pathology, laboratory skills, EKG, X-ray interpretation and recording in the problem oriented format. Credit: 3 (1-2). (Didactic and clinical) (Hybrid) Offering: Spring. Faculty: I. Jordan, W. Likes, D. Pace, K. Olson, L. Kirkland, M. Hartig, S. Patton.

**826 NSG. Methods in Epidemiology.** This course introduces the student to the most common analytic methods in epidemiology. Students will learn how to design epidemiologic studies, to choose appropriate research designs, and to utilize common statistical tests. Emphasis will be placed on case control studies, cohort studies, and the use of multivariate and logistic regression. Credit: 3 (3-0). (Didactic) (Hybrid) Offering: Spring. Faculty: P. Speck.

**829 NSG. DNP Roles for Advanced Practice.** This course focuses on examining the various roles for the Doctor of Nursing Practice with particular emphasis on advanced practice nursing roles. The content includes an overview of doctoral education, comparison of doctoral level advanced practice nursing roles as well as education, legal, and certification requirements for and regulation of these roles. The course fosters understanding of the ethics and professional standards that provide a framework for advanced nursing practice at the doctoral level. Students explore personal values and analyze how these values shape their emerging advanced practice. Credit: 1 (1-0). (Didactic) (Hybrid) Offering: Fall. Faculty: M. Carter, D. Pace.

**834 NSG. Professional Role Development.** The purpose of this course is to facilitate transition into the advanced practice nursing role. Students will examine standards of advanced practice and professional leadership issues as a basis for advancing a personal philosophy of nursing. Content includes analysis of factors that contribute, constrain, and politically affect the advanced practice of nursing. Professional, cultural ethical, legislative, and regulatory associations are discussed. Emphasis is placed on the development and maintenance of practice, including certification, marketing, contract negotiations, and practice management. Credit: 3 (3-0). (Didactic) (Hybrid) *Not currently offered.*

**835 NSG. Foundations for Evidence-Based Clinical Practice.** This is the first course in a series of two courses that provides the foundation and methods for evidence-based clinical practice (EBCP). This course addresses basic theory and the research method and analyzes the relationship of theory to research. Credit: 3 (3-0). (Didactic) (Online) *Not currently offered.*

**836 NSG. Methods for Evidence-Based Clinical Practice.** This is the second course in a series of two courses that provides the foundation and methods for evidence-based clinical practice (EBCP). This course addresses scientific methods for EBCP and the application of scientific methods to a clinical problem. Credit: 3 (3-0). (Didactic) (Hybrid) *Not currently offered.*

**837 NSG. Assessment Strategies in Psychiatric/Mental Health Care.** This course fosters development of the knowledge and skills for assessment of individuals, families and groups to promote mental health and detect complex psychiatric-mental health problems across the lifespan. The course builds on the student's past nursing knowledge and experiences, expanding the scope of nursing practice to those at risk or in need of psychiatric-mental health care. Focus is on recognition and assessment of mental health and diagnosing of mental disorders based on DSM- IV-TR criteria, psychometrics, evidence-based guidelines, theoretical literature, and scope and standards of advanced psychiatric/mental health nursing. Theories underlying the practice of consultation as an indirect-care modality of the psychiatric nursing specialty are introduced. Students master documentation methods that meet the legal-ethical requirements for care of patients with mental health problems. Credit: 3 (3-0). (Didactic) (Hybrid) Offering: Spring. Faculty: S. Plummer.

**838 NSG. Management of Psychiatric Mental Health Problems.** This course builds upon a framework of knowledge, skills, and experience to care for individuals, families and groups with complex psychiatric-mental health problems and promote mental health within our society. The focus is the conceptualization of theory-based advanced psychiatric nursing practice with individuals, families, and groups. Theory underlying the practice of consultation as an indirect-care modality of the psychiatric nursing specialty is included. Factors influencing consultation considering primary, secondary and tertiary interventions and prevention are examined. Clinical experiences are in a variety of settings with clients across the lifecycle. Credit: 5 (3-2). (Didactic and clinical). (Hybrid) Offering: *Not currently offered.*

**850 NSG. Sexual Assault Forensic Examination.** This course presents core medical legal concepts, practice standards, and emerging issues in the holistic care of sexual assault victims across the lifespan. Credit: 3 (3-0). (Didactic) (Hybrid) Offering: Fall. Faculty: S. Patton

**851 NSG. Medical Legal Death Investigation.** This course prepares the student to collaborate with health care, law enforcement and criminal justice professionals in the investigation to determine mechanism and cause of death. Credit: 3(3-0). (Didactic) (Hybrid) Offering: Spring. Faculty: J. Williams.

**869 NSG. Integrated Model of Forensic Nursing.** This course presents core concepts, standards of practice, and emerging issues of forensic nursing in a holistic model that integrates concepts of forensic science, public health and psychiatric mental health in an historical, political, and social context. Content will include analysis of the roles, advanced nursing skills, ethical decision-making, and cultural competence required of forensic nurses caring for victims of injury and/or perpetrators of crime across the life span. Credit: 3 (3-0). (Didactic) (Hybrid) Offering: Spring. Faculty: S. Patton.

**911 NSG. Philosophy of Science.** A course focusing upon development of science in the Western world and epistemology. Ways of knowing and ways of thinking as they relate to the advancement of science will be covered. Didactic; Hybrid course delivery. Credit: 3. Offering: Fall semester. Instructor: Cheryl Stegbauer.

**916 NSG. Concept and Theory Analysis.** This course focuses on the process of concept analysis, and its application to clinical practice. Nursing theories, and concepts from nursing theories and clinical practice will be analyzed and critiqued. Credit: 3 (3-0). (Didactic) (Hybrid) Offering: Spring. Faculty: M. Wicks.

**917 NSG. Advanced Practice Selective.** This series of electives will be tailored to the goals and needs of the students. These courses provide depth in a particular aspect of advanced practice and the theoretical and clinical content specific to that area. Credit: 4 (2-2); can be repeated up to 3 times, for a total of 12 credits. (Didactic and clinical) (Hybrid) Offering: Fall, Spring, Summer. Faculty: TBD.

**921 NSG. Psych/Mental Health (PMH) Seminar.** This course focuses on current research and issues in mental health care for the advanced practice psychiatric nurse. Literature that addresses psychiatric care is used to keep providers abreast of cutting edge information and treatment for mental health disorders in a variety of settings. Integration of mental health care into selected primary care conditions and diagnoses is addressed. Credit: 1 (1-0). (Didactic) (Online) Offering: Spring. Faculty: P. Cunningham, K. Gaffney, V. Betts

**926 NSG. Resident Practicum.** This course is a synthesis practicum with a practitioner-mentor in the student's area of advanced practice. Credit: 6 (0-6). (Clinical) Offering: Fall, Spring. Faculty: S. Patton, P. Cunningham, I. Jordan, J. Burchum, K. Olson, C. Stegbauer, M. Hartig, P. Speck, S. Melander, D. Lynch-Smith, C. Thompson, D. Pace.

**930 NSG. Biological Treatments for Psychiatric Disorders.** Current molecular, developmental and environmental perspectives are examined considering inherited and acquired vulnerabilities to mental illness. Disruptions leading to mental illness are studied from a broad overview of balanced and functional brain anatomy and physiology. Psychopharmacological and other biological therapies for mental illnesses based on current science and practice standards are detailed with emphasis on optimal outcomes and primary, secondary and tertiary prevention. The responsibilities and contributions of the advanced practice nurse as expert clinician are emphasized. Credit: 3 (3 -0). (Didactic) (Hybrid) Offering: Fall. Faculty: S. Plummer.

**931 NSG. Individual, Group and Family Patterns.** This course addresses advanced psychiatric nursing practice, processes and strategies. Foci of the course are the study of human life processes and the varying patterns that are developed in the physical, behavioral, mental, emotional, cultural and spiritual aspects of persons across the lifespan, families and groups. Philosophical, historical and theoretical contributions to the understanding of individual growth and development of patterns, family and group phenomena are emphasized. Interventions and techniques based on the nursing assessment and specific selected theoretical perspectives are delineated. Health promotion and disease prevention are examined. Credit: 5 (3-2). (Didactic and clinical) (Hybrid) Offering: *Not currently offered.*

**946 NSG. Residency Project.** DNP students evaluate a practice issue identified in their residency site to improve practice for individuals, groups, or communities. Students disseminate project results. Credit: 3 (3-0). (Didactic) (Online) Offering: Fall, Spring. Faculty: S. Patton, P. Cunningham, I. Jordan, J. Burchum, K. Olson, C. Stegbauer, M. Hartig, P. Speck, S. Melander, D. Lynch-Smith, C. Thompson,

**960 NSG. Directed Study.** A course designed to provide the doctoral student with the opportunity to undertake additional guided study, research, and/or practice experience in an area of the student's choice under faculty supervision. The student will develop course outcomes in consultation with faculty. Credit: Variable. (Didactic and/or clinical) (Hybrid) Offering: Fall, Spring, or Summer as needed. Faculty: P. Cunningham.

**800 FNP. Advanced Family Nursing I.** This course is the first of two advanced practice nursing courses focusing on specialization, expansion, and advancement of research based knowledge and skills related to the advanced practice of nursing in primary care. Emphasis is on the development of a knowledge base necessary for clinical decision-making and the beginning definition of a model of practice with the family as the unit of service. Credit: 4(4-0). (Didactic) (Hybrid) Offering: Fall: J. Burchum

**801 FNP. Advanced Family Clinical Practice I.** This is the first in a series of advanced practice nursing courses designed to provide student experiences in the practice setting. Emphasis is on defining a nursing practice model with the family as the unit of service. The focus ranges from health promotion and disease/injury prevention to diagnosis and management of selected acute and chronic problems that commonly occur across the lifespan. Credit: 4(0-4). (Clinical) Offering: Fall: I. Jordan, K. Olson, D. Pace.

**802 FNP. Advanced Family Nursing II.** This course is the second of two advanced practice nursing courses focusing on specialization, expansion, and advancement of research-based knowledge and skills related functioning as an advanced practice nurse in a primary care setting. Emphasis is on the continuing development of a knowledge base necessary for clinical decision-making and the beginning refinements of a model of practice with the family as the unit of service. Credit: 4(4-0). (Didactic) (Hybrid) Offering: Spring. Faculty: J. Burchum, I. Jordan.

**803 FNP. Advanced Family Clinical Practice II.** This is the second in a series of advanced practice nursing courses focusing on development of the advanced practice knowledge and skills required to provide primary care services to families. This clinical rotation includes management of common problems of children, common gynecological problems of women and selected chronic and self-limiting diseases of adults. Emphasis is on the continuing development and use of a knowledge base necessary for clinical decision making (based on critical thinking and diagnostic reasoning). Credit: 4(0-4). (Clinical) Offering: Spring. Faculty: K. Olson, D. Pace

**804 FNP. Advanced Practice Practicum.** The practicum experience focuses on the refined development of role preparation as a Family Nurse Practitioner in a primary care setting. The practicum provides an immersion experience under the guidance and direction of an experienced practitioner. The Family Nurse Practitioner role is actualized through study and practice in the clinical discipline. Credit: 4(0-4). (Clinical) Offering: Summer. Faculty: I. Jordan, K. Olson.

**805 FNP. Advanced Practice Specialty.** This course focuses on the Family Nurse Practitioner as an independent clinician providing primary care across the lifespan diverse settings. Students will facilitate care across settings and care organizations with the focus on enhancing optimal patient outcomes through improving communication and care links within the healthcare system. Clinical experiences are based on faculty assessment of student needs to meet program outcomes. Credit: 4(2-2). (Didactic and clinical) (Hybrid) Offering: Fall. Faculty: K. Olson, D. Pace.

**866 ANES. Medical Physical Sciences for Anesthesia.** This course provides a foundation of basic science principles for the delivery of anesthesia care, physiology and pharmacology. This course focuses on chemical and physical principles applicable to the practice of anesthesia. Credit: 3 (3-0). (Didactic) *Not currently offered.*

**867 ANES. Physiology/Pathology.** This course provides a learning opportunity for the nurse anesthesia student to develop and incorporate knowledge of human normal and abnormal physiology in the management of differing pathological states. This course focuses on physiology and pathology at the micro- and macro-cellular levels. Credit:5 (5-0). (Didactic) *Not currently offered.*

**868 ANES. Principles of Anesthesia Practice I.** This course is the foundational course for nurse anesthesia practice. This course focuses on the application of theoretical basic sciences to anesthesia practice. Students will formulate anesthetic care plans based on the framework of basic sciences, pharmacology, and standards of practice. Credit: 5 (5-0). (Didactic) Offering: Summer. Faculty: J. Oswaks.

**869 ANES. Principles of Anesthesia Practice II.** This course is for the examination of clinical consequences of abnormal physiology on anesthetic management in relation to patient co-morbidities and surgical procedures. This course focuses on the implementation and evaluation of appropriate anesthesia procedures relative to patient status, including co-morbidities and the surgical procedures. Students will evaluate care delivery in a simulated clinical laboratory environment. Credit: 6 (5-1). (Didactic and clinical) *Not currently offered.*

**870 ANES. Principles of Anesthesia Practice III.** This course is for the examination of clinical consequences of abnormal physiology on anesthetic management states within the specialty areas of anesthesia and surgery. This course focuses on the specialty areas of anesthesia and surgery. Students will formulate anesthetic care plans based on the framework of basic sciences, pharmacology, and standards of practice. Credit: 2 (2-0) (Didactic) *Not currently offered.*

**871 ANES. Anesthesia Practicum A.** This introductory level course is to integrate didactic knowledge based on the framework of basic sciences, pharmacology and standards of practice with basic practical application in nurse anesthesia. This course focuses on the student's ability to achieve a level of proficiency with PS I and II patients. Credit: 6 (0-6). (Clinical) *Not currently offered.*

**872 ANES. Anesthesia Practicum B.** This course provides a clinical opportunity for the intermediate student nurse anesthetist to incorporate and integrate knowledge, skills, and objectives to a more comprehensive range of patients. The focus of this course is on the student's ability to achieve proficiency with PS I, IE, II, IIE, and III, IIIE patients. Credit: 7 (0-7). (Clinical) *Not currently offered.*

**873 ANES. Anesthesia Practicum C.** This course provides a clinical opportunity for the student nurse anesthetist to incorporate and integrate knowledge, skills, and objectives to a more comprehensive range of patients. This course focuses on the student's ability to achieve a level of proficiency with PS IV, IVE, V, and VE patients. Credit: 7 (0-7). (Clinical) *Not currently offered.*

**874 ANES. Specialty Practicum A.** This is the first in a series of two courses as a clinical experience for the student nurse anesthetist who has demonstrated successful completion of Anesthesia Practicum A for incorporation and integration of knowledge, skills, and objectives to the five specialty areas of anesthesia and surgery. The focus of this course is on the student's ability to achieve proficiency for obstetric, pediatric, neurosurgical, trauma, or cardiac surgical patients. Credit: 7 (0-7). (Clinical) *Not currently offered.*

**875 ANES. Specialty Practicum B.** This is the second in a series of two courses as a clinical experience for the student nurse anesthetist who has demonstrated successful completion of Specialty Practicum A for incorporation and integration of knowledge, skills, and objectives to the five specialty areas of anesthesia and surgery. This course focuses on the student's ability to achieve proficiency for obstetric, pediatric, neurosurgical, trauma, or cardiac surgical patients. Credit: 7 (0-7). (Clinical) *Not currently offered.*

**876 ANES. DNP Medical Physical Sciences for Anesthesia.** This course builds upon a foundation of basic science principles for the delivery of anesthesia care, physiology and pharmacology. This course focuses on chemical and physical scientific principles applicable to the practice of anesthesia. Credit: 3 (3-0) (Didactic) Offering: Summer. Faculty: T. Cunningham.

**877 ANES. DNP Physiology/Pathology.** This course provides the scientific underpinnings in human normal and abnormal physiology for anesthetic management of differing pathological states. This course focuses on physiology and pathology at the micro- and macro-cellular levels. Credit: 5 (5-0). (Didactic) Offering: Spring. Faculty: J. Oswaks, L. Thompson.

**879 ANES. Principles of DNP Anesthesia Practice I.** This course is the preliminary course for principles of nurse anesthesia practice. This course focuses on the application of theoretical basic sciences to anesthesia practice. Students will critique anesthetic care strategies based on the framework of basic sciences, pharmacology, standards of practice and systems. Credit: 5(5-0). (Didactic) Offering: Summer. Faculty: J. Oswaks.

**880 ANES. Principles of DNP Anesthesia Practice II.** This course focuses on clinical consequences of abnormal physiology on anesthetic management in relation to patient co-morbidities, surgical procedures and system effects. This course focuses on the implementation and evaluation of appropriate anesthesia procedures relative to patient status, including co-morbidities, the surgical procedures and systems. Students will evaluate care delivery in a simulated clinical laboratory environment. Pre-requisite: 879 ANES. Credit: 6(5-1). (Didactic and clinical) Offering: Fall. Faculty: J. Oswaks.

**882 ANES. Principles of DNP Anesthesia Practice III.** This course focuses on the examination of clinical consequences of abnormal physiology on anesthetic management states within the specialty areas of anesthesia and surgery and system effects. This course focuses on the specialty areas of anesthesia and surgery. Students will recommend anesthetic care strategies based on the framework of basic sciences, pharmacology, standards of practice and systems. Pre-requisite: 879 ANES and 880 ANES. Credit: 2(2-0). (Didactic) Offering: Spring. Faculty: J. Oswaks

**883 ANES. DNP Anesthesia Practicum A.** This preliminary course is to integrate didactic knowledge based on the framework of basic sciences, pharmacology, standards of practice and systems with practical application in nurse anesthesia. This course focuses on the student's ability to achieve a level of proficiency with the normal, healthy patient and the patient with mild systemic disease (no functional limitation), assigned a physical status classification of P1 and P2. Credit: 8(0-8). (Clinical) Offering: Spring. Faculty: L. Thompson.

**884 ANES. DNP Anesthesia Practicum B.** This course provides a clinical opportunity for the intermediate student nurse anesthetist to integrate previously mastered knowledge and skills in the care of a more comprehensive range of patients. This course focuses on the student's ability to achieve a level of proficiency with the normal, healthy patient and the patient with mild systemic disease (no functional limitation) for emergency surgery, assigned a physical status classification of P 1E and P2E and the patient with severe systemic disease (with some functional limitations) assigned a physical status classification of P3 status and the P3E who presents for emergency surgery. Credit: 6(0-6). (Clinical) Offering: Summer. Faculty: D. Accardo

**885 ANES. DNP Anesthesia Practicum C.** This course provides a clinical opportunity for the student nurse anesthetist to integrate previously mastered knowledge and skills in the care of a more comprehensive range of patients. This course focuses on the student's ability to achieve a level of proficiency with the patient with severe systemic disease that is a constant threat to life (functionally incapacitated) assigned an assigned a physical status classification of P4 status and the moribund patient who is not expected to survive without the procedure/surgery assigned a physical status classification of P5 and these same patients who present for emergency surgery assigned as P4E and P5E. Credit: 7(0-7). (Clinical) Offering: Fall. Faculty: L. Thompson, J. Oswaks.

**886 ANES. DNP Specialty Practicum A.** This is the first in a series of two clinical courses in which the DNP nurse anesthesia student integrates previously mastered knowledge and skills in the care of patients from the five specialty areas of anesthesia and surgery. The focus of this course is on the student's ability to achieve proficiency for obstetric, pediatric, neurosurgical, trauma or cardiac surgical patients. Credit: 7(0-7). (Clinical) Offering: Fall, Faculty: D. Accardo, L. Thompson

**887 ANES. DNP Specialty Practicum B.** This is the second in a series of two clinical courses in which the DNP nurse anesthesia student integrates previously mastered knowledge and skills in the care of patients from the five specialty areas of anesthesia and surgery. This course focuses on the student's ability to achieve proficiency for obstetric, pediatric, neurosurgical, trauma or cardiac surgical patients. Pre-requisite: 886 ANES. Credit: 7(0-7). (Clinical) Offering: Spring. Faculty: L. Thompson, J. Oswaks.

**888 ANES. Roles of DNP Adv Nurse Anesthesia Practice I.** This course is one of a series of four providing a comprehensive in-depth exploration of advanced nursing practice. This course focuses on historical and developmental aspects of advanced practice nursing and professional organization to guide role implementation as it relates to advanced practice nursing and nurse anesthesia. Credit: 1(1-0) (Didactic) Offering: Fall. Faculty: J. Oswaks, L. Thompson.

**889 ANES. Roles of DNP Adv Nurse Anesthesia Practice II.** This course is one of a series of four providing a comprehensive in-depth exploration of advanced nursing practice. This course focuses on legal and regulatory aspects of advanced practice nursing to guide role implementation as it relates to advanced practice nursing and nurse anesthesia. Credit: 1(1-0) (Didactic) Offering: Spring. Faculty: L. Thompson, J. Oswaks.

**890 ANES. Roles of DNP Adv Nurse Anesthesia Practice III.** This course is one of a series of four providing a comprehensive in-depth exploration of advanced nursing practice. This course is designed to give an overview of the evolution of ethics, cultural care and the effect ethical and cultural care has on nurse anesthesia practice. Credit: 1(1-0) (Didactic) Offering: Fall. Faculty: J. Oswaks.

**891 ANES. Roles of DNP Adv Nurse Anesthesia Practice IV.** This course one of a series of four providing a comprehensive in-depth exploration of advanced nursing practice. This course focuses on technological, economical, interdisciplinary and emerging issues of advanced practice nursing to guide role implementation as it relates to advanced practice nursing and nurse anesthesia. 1(1-0) (Didactic) Offering: Spring. Faculty: J. Oswaks.

**831 PHAR. DNP Pharmacology I: Anesthesia.** This course provides an in-depth study of general pharmacology for drugs currently used in human medicine. This course focuses on the impact of drugs on anesthesia practice. Credit: 4(4-0). (Didactic) Offering: Fall. Faculty: D. Accardo.

**832 PHAR. DNP Pharmacology Anesthesia.** This course provides an in-depth study of the pharmacology of anesthetic agents and drugs currently used in human medicine and DNP nurse anesthesia practice. This course focuses on the effect of drugs on the anesthetic patient outcomes. Credit: 4(4-0). (Didactic) Offering: Spring. Faculty: D. Accardo.

**804 ACNP. Advanced Acute Care.** This adult acute care nurse practitioner course focuses on the complex care of acutely ill adult patients frequently encountered in acute care settings. Content includes diagnosis and management of episodic and chronic illness; diagnostic tests; technologic and therapeutic interventions; and crisis/disaster management strategies. Particular attention is given to providing evidence based, comprehensive, individualized, ethical, and collaborative care that takes into consideration health quality, costs, and outcomes for the acutely ill patient. Credit: 4 (4-0). (Didactic) (Hybrid) Offering: Fall. Faculty: S. Melander, D. Lynch-Smith.

**805 ACNP. Acute Diagnostic Reasoning.** This is a foundational course for the specialization of the Adult Acute Care Nurse Practitioner. Diagnostic reasoning, common invasive procedures, emergency therapeutics, standards of care, team principles, and use of information systems in acute clinical practice are emphasized. Credit: 2 (2-0). (Didactic) (Hybrid) Offering: Fall. Faculty: C. Thompson, D. Lynch-Smith.

**806 ACNP. Acute Clinical Assessment.** This is the first Adult Acute Care Nurse Practitioner clinical course focusing on the care of the adult acutely ill patient. Settings include all units where highly acutely ill patients' individual needs can be met and their outcomes optimally achieved. Students conduct an inclusive history and physical examination, document findings, and then assist with planning and implementing a comprehensive evidence-based plan of care. This course prepares the student to assess and begin to diagnose episodic and chronic highly acute illnesses, interpret diagnostic tests, utilize technologic and therapeutic interventions, and apply crisis/disaster management strategies. Credit: 4 (0-4). (Clinical) (Hybrid) Offering: Fall. Faculty: D. Lynch-Smith.

**807 ACNP. Advanced Critical Care.** This adult acute care nurse practitioner course focuses on the complex care of critically ill adult patients. Content includes the diagnosis and management of critical illness. Particular attention is given to providing evidence based, comprehensive, individualized, and collaborative care that takes into consideration health quality, costs, and outcomes for the critically ill patient. Radiological interpretation, end-of-life care, critique of acute care nurse practitioner role issues and scholarly writing are also included. Credit: 2 (2-0). (Didactic) (Hybrid) Offering: Fall. Faculty: S. Melander, D. Lynch-Smith.

**808 ACNP. Acute Clinical Management.** This Adult Acute Care Nurse Practitioner clinical course focuses on the management of the care of the adult acutely ill patient. Settings include all units where complex acutely ill patients' individual needs can be met and their outcomes optimally achieved. Emphasis is placed on prioritizing assessment and interventions according to the patient's most immediate and potentially life threatening/altering need. Pharmacologic and complementary comprehensive management content from admission to discharge is stressed. Content is focused on providing evidence-based comprehensive management with special considerations highlighted for geriatric and other high risk patients. Integration of critical thinking skills, information technology, risk/benefit analysis and quality indicators are used to develop and evaluate care plans. Therapeutic relationships with patients and the healthcare team are enhanced. Credit: 4 (0-4). (Clinical) (Hybrid) Offering: Fall. Faculty: D. Lynch-Smith.

**809 ACNP Advanced Practice Practicum.** The focus of this course is clinical analysis of care systems within the diverse role of the independent adult-gerontology acute care nurse practitioner. Students will use root cause analysis and human factor principles in the acute care environment. Effective multi-professional team partnership and conflict resolution strategies will be utilized. Students will apply informatics strategies to improve the quality of care for the acute care patient population. Evidence based practice will be used as the standard for clinical competence. Credit: 4 (0-4) (Clinical) Offering: Fall. Faculty: D. Lynch-Smith.

**810 ACNP Advanced Practice Specialty.** The focus of this course is improving care systems within the diverse role of the independent adult-gerontology nurse practitioner. Principles of root cause analysis, error management, effective team communication, conflict resolution strategies, and informatics strategies in the acute care environment will be emphasized. Credit: 3 (3-0) (Didactic) Offering: Fall. Faculty: S. Melander, D. Lynch-Smith.

**800 PMH. Individual, Group and Family Therapy.** This course addresses advanced practice psychiatric mental health processes and strategies. Foci of the course are the study of human life processes and the varying patterns that develop in the physical, behavioral, mental, emotional, cultural and spiritual aspects of persons, families, groups and communities across the lifespan. Philosophical, historical and theoretical contributions to the understanding of individual growth and development within family and communities are emphasized. Examination of inherited and acquired vulnerability to mental health problems and illnesses is emphasized. There is a delineation of interventions and techniques based on the psychiatric assessment and specific selected theoretical perspectives. Health promotion, disease prevention and expansion of the consultation role in advanced practice psychiatric mental health nursing is examined. Reflective practice theories are introduced. Credit: 3 (3-0). (Didactic) (Hybrid) Offering: Spring. Faculty: P. Cunningham, K. Gaffney.



**801 PMH. Clinical Individual, Group and Family Therapy.** Therapeutic interventions based on bio-psycho-social assessment and specific selected theoretical perspectives are provided for individuals, families, and groups. Health promotion, disease prevention and expansion of the consultation role in advanced practice psychiatric mental health nursing are incorporated. Clinical experience includes medication prescribing and monitoring. Reflective practice strategies are introduced. Credit: 2 (0-2). (Clinical) Offering: Spring. Faculty: P. Cunningham.

**802 PMH. Psychiatric Mental Health Disorders.** The course focus is theory-based advanced psychiatric nursing practice with individuals, families, groups, and communities with complex psychiatric mental health needs. Theory underlying the practice of consultation as an indirect-care modality of the psychiatric nursing specialty is included. Factors influencing consultation consider primary, secondary and tertiary prevention are examined. Examination of practice, including clinical supervision, is emphasized as a function of the advanced practice psychiatric mental health role. : 3 (3-0). (Didactic) (Hybrid) Offering: Fall. Faculty: S. Plummer.

**803 PMH. Clinical Psychiatric Mental Health Disorders.** This course is the clinical component of theory-based advanced psychiatric nursing practice with individuals, families, groups, and communities with complex mental health needs. Consultation liaison, case-management, and clinical supervision are included. Clinical experiences are in a variety of settings with clients across the lifespan. Credit: 2 (0-2). (Clinical) Offering: Fall. Faculty: P. Cunningham.

**804 PMH. Child and Adolescent Mental Health Care APN.** The course explores APN knowledge, skills and experience to care for children and their families who present with both common and complex psychiatric –mental health problems. The focus of the course is the theoretical and foundational knowledge for diagnosis and treatment, including psychotherapy and psychopharmacology, for common and complex child & adolescent psychiatric problems. Mental health promotion and illness prevention is emphasized. Credit: 3(3-0). (Didactic) (Hybrid) Offering: Spring. Faculty: K. Gaffney.

**805 PMH. Clinical: Child and Adolescent Mental Health Care APN:** Therapeutic interventions based on bio-psycho-social assessment and selected theoretical perspectives are provided for children and adolescents within the context of the family/support group. Health promotion, disease prevention and expansion of the consultation role in advanced practice psychiatric mental health nursing for children and adolescents are incorporated. Clinical experience includes psychotherapy, as well as medication prescribing and monitoring. Credit: 2 (0-2). (Clinical) Offering: Spring. Faculty: K. Gaffney.

## **DNP Nursing Advance Practice Selectives**

*NOTE: All Advanced Practice Selectives (NAPS) courses are offered as directed study under advisor direction in the 2-year DNP program of study. NAPS courses may be repeated and offered any semester according to the student's approved plan of study.*

**811 NAPS. Women's Health.** The focus of this course is on gender-specific health care for women across the life span and from diverse populations. Theoretical and research literature will be used to examine factors that predispose women to specific health needs, health problems, and health care outcomes. Current and future health care will be examined in terms of legal, ethical, political and health policy issues. Health promotion, disease prevention, and health care interventions will be examined in order to formulate and test advanced practice standards in general health care of women. For persons with selected backgrounds, this is one of a series of three courses that, with a residency in woman's health, may be used to meet the requirements for certification as a Woman's Health Nurse Practitioner. Credit: 4 (2-2). (Didactic and clinical) (Hybrid). Faculty: C. Stegbauer.

**812 NAPS. Women's Reproductive Health.** Reproductive health care of women across the life span and from diverse populations will be addressed. Specific emphasis will be give prior to, during, and after pregnancy. Theoretical and research literature will be used to examine factors that predispose women to specific reproductive health needs, health problems, and health care outcomes. Current and future health care will be examined in terms of legal, ethical, political and health policy issues. Health promotion, disease prevention, and health care interventions will be examined in order to formulate and test advanced practice standards in reproductive health care. For persons with selected backgrounds, this is one of a series of three courses that, with a residency in woman's health, may be used to meet the requirements for certification as a Woman's Health Nurse Practitioner (WHNP). Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: C. Stegbauer.

**813 NAPS. PNP I: Primary Care of Children.** This is the first in a series of three courses that prepare students for certification as a pediatric nurse practitioner. This course may also be taken with permission of the instructor for students who desire advanced clinical preparation in a select area of primary care of children. The course is designed to provide a theoretical & clinical base for defining a model of pediatric nursing practice in primary care. Care of the child is viewed in terms of primary and secondary prevention and assisting the child and family to an optimal level of wellness. Major developmental theories will be reviewed with an age-related focus on assessment of normal stages, tasks, and needs of specific age groups. Emphasis will be placed on anticipatory guidance for parents accompanying each stage, and the role of the nurse in promoting a healthy life style and developmental outcomes. Students explore developmental theories and review selected health and developmental assessment tools for use in clinical practice. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: S. Patton

**821 NAPS. Gynecologic Health.** Gynecologic health care of women across the life span and from diverse populations will be addressed. Theoretical and research literature will be used to examine factors that predispose women to specific gynecologic health needs, health problems, and health care outcomes. Current and future health care will be examined in terms of legal, ethical, political and health policy issues. Health promotion, disease prevention, and health care interventions will be examined in order to formulate and test advanced practice standards in gynecologic health care. For persons with selected backgrounds, this is one of a series of three courses that, with a residency in woman's health, may be used to meet the requirements for certification as a Woman's Health Nurse Practitioner (WHNP). Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: D. Pace.

**822 NAPS. College Health.** The focus of this course is on the theoretical and clinical content specific to college health. Theoretical and research literature will be used to examine factors that predispose students to specific health needs, health problems and health outcomes. Current and future health care will be examined in terms of legal, ethical, political and health policy issues. Health promotion, disease prevention and health care interventions will be examined in order to formulate and test advanced practice standards in college health. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: D. Pace.

**823 NAPS. PNP II: Common Childhood Illness.** This course is the second in series of three courses that prepare the student for certification as a pediatric nurse practitioner. This course may also be taken with permission of the instructor for students who desire advanced clinical preparation in a select area of common childhood illness. This course focuses on the scientific knowledge and research base necessary for advanced practice with children and their families. Emphasis will be placed on the development of expert knowledge in primary care of children with common childhood illnesses and will use a variety of concepts, theories and research findings to develop a practice model for implementation and evaluation. Credit: 4 (2-2). (Didactic and clinical) (Hybrid). Faculty: S. Patton

**824 NAPS. Occupational Health.** The focus of this course is on the theoretical and clinical content specific to occupational health. Theoretical and research literature will be used to examine factors that predispose employees to specific health needs, health problems and health outcomes. Current and future health care will be examined in terms of legal, ethical, political and health policy issues. Health promotion, disease prevention and health care interventions will be examined in order to formulate and test advanced practice standards in occupational health. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: K. Olson.

**833 NAPS. PNP III: Chronic Illness.** This is the third in a series of three courses that prepare students for certification as a pediatric nurse practitioner. This course may also be taken with permission of the instructor for students who desire advanced clinical preparation in a select area of chronic illness. This course focuses on the scientific knowledge and research base necessary for advanced practice with children and their families. Emphasis will be placed on the development of expert knowledge in primary care of children with chronic conditions and will use a variety of concepts, theories and research findings to develop a practice model for implementation and evaluation. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: S. Patton

**843 NAPS. General Practice of Anesthesia.** This course is the first in a series of two practice selectives that focuses on the general practice of anesthesia. The course examines the effectiveness of the specialty within the practice and explores common clinical issues related to the general practice of anesthesia. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: J. Oswaks.

**844 NAPS. Advanced General Practice of Anesthesia.** This course is the second in a series of two practice selectives focusing on the general practice of anesthesia. This course will examine complex clinical practice issues of the general practice of anesthesia. In addition, the course will discuss the effectiveness of healthcare system policies on the current general practice of anesthesia. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: J. Oswaks

**848 NAPS. Gerontology: Common Health Problems.** Common health problems and functional implications in the aging process will be addressed in order to examine health care delivery and social implications of aging and to make recommendations for the delivery of advanced nursing practice. Theoretical and research literature will be used to address demographic, socioeconomic, cultural, family, and other conditions and their effect on older adults with selected common health problems. Secondary and tertiary disease prevention and interventions for selected common health problems will be examined in order to formulate and test advanced practice standards of care. Credit: 4 (2-2). (Didactic and clinical) (Hybrid). Faculty: M. Carter.

**849 NAPS. Gerontology: Frail Older Adults.** Health problems and functional implications for frail older adults will be addressed in order to examine health care delivery and social implications of aging and to make recommendations for the delivery of advanced nursing practice. Theoretical and research literature will be used to address demographic, socioeconomic, cultural, family and other conditions and their effect on frail older adults in the community and in the nursing home. Health promotion, primary, secondary, and tertiary disease prevention and interventions for selected health problems of frail older adults will be examined in order to formulate and test advanced practice standards of care. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: M. Carter

**851 NAPS. Gerontology: Well Older Adults.** Normal aging changes and functional implications of the aging process will be addressed in order to examine health care delivery and social implications of aging and to make recommendations for the delivery of advanced nursing practice. Theoretical and research literature will be used to address demographic, socioeconomic, cultural, family and other conditions that predispose older adults to selected health problems. Health promotion, disease prevention and interventions for selected health problems will be examined in order to formulate and test advanced practice standards of care. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: M. Carter.

**852 NAPS. Chronic Health Problems.** Chronic health problems and family, social, economic and functional implications will be addressed in order to examine health care delivery and to make recommendations for the delivery of advanced nursing practice. Theoretical and research literature will be used to address demographic, socioeconomic, cultural, family and other conditions and their effect on persons with selected chronic health problems. Secondary and tertiary disease prevention and interventions for selected chronic health problems will be examined in order to formulate and test advanced practice standards of care. This course may be repeated up to three times. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: K. Olson, M. Carter.

**853 NAPS. Evaluation: Psychiatric/Mental Health Care.** This course focuses on the theoretical and clinical content specific to a well-defined area in the delivery of psychiatric/mental health care. The problem area is analyzed using the research and theoretical literature, practice in the area, and other means of inquiry. Strategies for implementing and evaluating change appropriate for the area of study are reviewed for their applicability. The utility of these strategies is analyzed from multiple perspectives (economic, patient, health care provider, legal/ethical issues, significance, etc). Clinical practice may occur in a variety of settings related to the area in psychiatric/mental health nursing studied. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: P. Cunningham.

**854 NAPS. Management of Selected Psychiatric/Mental Health Problems.** This course is designed to build on the previous knowledge and experiences of the student integrating mental health/psychiatric nursing in a selected health care delivery system. Content focuses on the management of selected psychiatric/mental health problems and the issues and theories related to clinical practice that influence the delivery of psychiatric/mental health nursing care. Strategies for care are further analyzed using the available standards and guidelines for practice and the research and theoretical literature. Recommendations for change in clinical practice are developed based on the analysis. Clinical practice occurs in health care settings providing services to clients with the selected psychiatric/mental health problems of interest. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: P. Cunningham.

**855 NAPS. Cardiovascular Health in the Neonate.** Neonatal health care outcomes specifically related to cardiovascular health will be addressed. Theoretical and research literature will be used to examine factors that predispose neonates to specific cardiovascular health needs and problems. Current and future health care delivery will be examined in terms of legal, ethical, political, and health policy issues. Health promotion, disease prevention, and health care interventions will be examined in order to formulate and test advanced practice standards in neonatal health care. This selective builds on master's preparation as a Neonatal Nurse Practitioner (NNP). Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: D. Lynch-Smith, S. Melander.

**856 NAPS. Infectious Diseases in the Neonate.** Neonatal health care outcomes specifically related to infectious diseases will be addressed. Theoretical and research literature will be used to examine factors that predispose neonates to specific problems related to infectious diseases. Current and future health care will be examined in terms of legal, ethical, political, and health policy issues. Health promotion, disease prevention, and health care interventions will be examined in order to formulate and test advanced practice standards in neonatal health care. This selective builds on master's preparation as a Neonatal Nurse Practitioner (NNP). Credit: 4 (2-2). (Didactic and clinical) (Hybrid). *Not currently offered.*

**857 NAPS. Risk Factors for Neonatal Health.** Neonatal health care outcomes specifically related to the prenatal/perinatal period will be addressed. Theoretical and research literature will be used to examine factors that predispose neonates to specific health needs and problems. Current and future health care delivery will be examined in terms of legal, ethical, political, and health policy issues. Health promotion, disease prevention, and health care interventions will be examined in order to formulate and test advanced practice standards in neonatal health care. This selective builds on master's preparation as a Neonatal Nurse Practitioner (NNP). Credit: 4 (2-2). (Didactic and clinical) (Hybrid). *Not currently offered.*

**863 NAPS. Acute Care Nursing.** The focus of this course is acute care nursing. From within this broad framework, the student will choose a focus of study that will involve the advanced practice nurse role, common clinical issues, and implementation of care standards in the practice of acute care nursing. This selective builds on the student's preparation as an advanced practice nurse. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: S. Melander, D. Lynch-Smith.

**864 NAPS. Public Health.** The focus of this course is public health. From within this broad framework, the student will choose a focus of study that will involve population and/or aggregate focused nursing practice. Historical and current scientific literature will be used to determine the scope of practice, evaluation of community needs, development of appropriate interventions, and methods for evaluating the results. Legal, social, ethical, political, and health policy implications will be analyzed. Credit: 4 (2-2). (Didactic and clinical) (Hybrid). Faculty: P. Speck.

**865 NAPS. Assessment Management of Psychiatric/Mental Health Problems.** This course is the first in a series that are designed for students entering the Psychiatric/Mental Health Nursing Option and develops a framework of knowledge, skills, and experience to care for individual and groups with complex psychiatric-mental health problems and promote mental health within our society. The course builds on the student's knowledge and experiences as a nurse practitioner, expanding the scope of nursing practice to those at risk or in need of psychiatric/mental health services. Clinical experiences with individuals and groups occur in primary care and/or traditional mental health settings and focus on recognition and assessment of mental disorders and mental health problems based on DSM-IV (TM) criteria, evidence-based guidelines and literature, scope and standards of advanced level psychiatric mental health nursing practice, theories of counseling and psychotherapy, and developmental theory. Students master documentation methods that meet the legal-ethical requirements of the role of the Advanced Practice Nurse- Psychiatric Mental Health in the health care system. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: P. Cunningham.

**866 NAPS. Management of Psychiatric Mental Health Problems.** This course builds upon previous content in the Psychiatric/Mental Health Nursing Option to develop a framework of knowledge, skills, and experience to care for individuals and groups with complex psychiatric-mental health problems and promote mental health within our society. The focus is the conceptualization of theory based advanced psychiatric nursing practice with individuals and groups. Clinical experiences with individuals across the age continuum occur in primary care and/or traditional mental health settings, applying evidence-based guidelines using clinical judgment, scope and standards of advanced level psychiatric mental health nursing practice, theories of counseling and psychotherapy, developmental theory and pharmacological interventions. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: P. Cunningham.

**867 NAPS. Injury-Prevention and Treatment Applied to Individuals.** This course focuses on the biopsychosocial effects of injury and the culturally competent methods of prevention and treatment applied to individuals, both as victims and offenders, as well as their families, across the life span. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: S. Patton.

**868 NAPS. Injury-Prevention and Treatment Applied to Populations.** This course will continue to focus on models of prevention of injury populations within the context of environment and culture. Social, cultural, economic, political, and policy components which contribute to injury of vulnerable populations across the lifespan will be systematically examined in order to generate models of intervention. On completion of the course, the student will be prepared to select the focus of research for the resident practicum and dissertation. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: S. Patton

**870 NAPS. Acute Care Nurse Practitioner.** The focus of this course is the care of adult clients/families frequently encountered in the critical and acute care setting by the acute care nurse practitioner. Content includes the acute care nurse practitioner role, common clinical issues, and implementation of care standards in the practice of acute care nursing. This selective builds on the student's preparation as an advanced practice nurse. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: C. Thompson.

**871 NAPS. Primary Care Nursing.** The focus of this course is primary care nursing. From within this broad framework, the student will choose a focus of study that will involve the advanced practice nurse role, common clinical issues, and implementation of care standards in the practice of primary care nursing. This selective builds on the student's preparation as an advanced practice nurse. Credit: 4 (2-2). (Didactic and clinical) (Hybrid) Faculty: I. Jordan.

## FACULTY LIST

Accardo, Dwayne Lance, Assistant Professor, 2006; Doctor of Nursing Practice, University of Tennessee Health Science Center (2007); Master of Science in Nursing, Webster University (2001); Bachelor of Science in Nursing, University of Mississippi (1995)

Adams, Terrica Sade, Instructor, 2012; Bachelor of Science in Nursing, University of Memphis (2010)

Barrett, Trina L., Instructor, 2012; Master of Science in Nursing Education, Union University (2009); Bachelor of Science in Nursing, Union University (2005)

Bensinger, Hallie Murrey, Instructor, 2007; Master of Science in Nursing, University of Tennessee Health Science Center (2001); Bachelor of Science in Nursing, University of Tennessee, Knoxville (1986)

Betts, Virginia T., Professor, 2000; Juris Doctor, Nashville School of Law (1978); Master of Science in Nursing, Vanderbilt University (1971); Bachelor of Science in Nursing, University of Tennessee Health Science Center (1969)

Bowdre, Trimika L., Adjunct Instructor, 2005; Master in Public Health Administration, University of Southern Mississippi (1999)

Bredy, Marie C., Nurse Practitioner, 2009; Master of Science in Nursing, University of Tennessee Health Science Center (2006); Bachelor of Science in Nursing, University of Memphis (2004)

Britt, Teresa, Assistant Director, 2005; Master of Science in Nursing, University of Tennessee Health Science Center (1986); Bachelor of Science in Nursing, University of Memphis (1982)

Brown, Shirley Renee, Instructor, 2012; Master of Science in Nursing, Union University (2003); Bachelor of Science in Nursing, Union University (1998)

Burchum, Jacqueline, Associate Professor, 2005; Doctor of Nursing Science, University of Tennessee Health Science Center (2002); Master of Science in Nursing, University of Tennessee Health Science Center (1996); Bachelor of Science in Nursing, Union University (1985)

Cantrell, Angela R., Associate Professor, 1999; Doctor of Philosophy, University of Tennessee Health Science Center (1994)

Caple, Annette D., Instructor, 2012; Master of Science in Nursing, University of Memphis, (2011); Bachelor of Science in Nursing, Union University (2008)

Cardell, Brittany Ann, Instructor, 2009; Master of Science in Nursing, University of Tennessee Health Science Center (2007); Bachelor of Science in Nursing, University of Missouri – Columbia, (1998)

Carter, Michael A., University Distinguished Professor, 1982; Doctor of Nursing Practice, University of Tennessee Health Science Center (2009); Doctor of Nursing Science, Boston University (1979); Master of Science in Nursing, University of Arkansas (1973); Bachelor of Science in Nursing, University of Arkansas (1969)

Cashion, Ann King, Professor, 1998; Doctor of Philosophy, University of Tennessee Health Science Center (1998); Master of Nursing Science, University of Arkansas for Medical Sciences (1982); Bachelor of Science in Nursing, University of North Carolina Chapel Hill (1978)

Cherry, Tara Calico, Instructor, 2011; Master of Science in Nursing, Union University (2008); Bachelor of Science in Nursing, University of Tennessee Health Science Center (1995)

Clayborne, Cheryl Ann, Instructor, 2011; Master of Science in Nursing, Arkansas State University-Jonesboro (1997); Bachelor of Science in Nursing, Union University (1991)

Cowan, Stephanie Denise, Instructor, 2012; Master of Science in Nursing, Union University (2005); Bachelor of Science in Nursing, Union University (2000)

Crouthers, Carolyn Joy, Instructor, 2011; Bachelor of Science in Nursing, Tennessee State University (1986)

Cunningham, Patricia D., Associate Professor, 1992; Doctor of Nursing Science, University of Tennessee Health Science Center (2007); Master of Science in Nursing, Indiana University (1984); Bachelor of Science in Nursing, Temple University (1977)

Cunningham, Thomas S., Instructor and Associate Director, 1988; Doctor of Philosophy, Temple University (1981)

Duncan, Sandra, Instructor, 2008; Bachelor of Science in Nursing, Union University (2007)

Dycus, Paula K., Instructor, 2012; Doctor of Nursing Practice, University of Tennessee Health Science Center (2007); Master of Science in Nursing, Union University (2001); Bachelor of Science in Nursing, University of Memphis (1997)

Ermis, Amanda B., Instructor, 2010; Master of Science in Nursing, University of Tennessee Health Science Center (2004); Bachelor of Science in Nursing, University of Louisiana at Monroe (1990)

Farrell, Nancy Alise Grogan, Instructor, 2006; Master of Science in Nursing, Union University (2002); Bachelor of Science in Nursing, University of Tennessee Health Science Center (1986)

Gaffney, Kathleen, Instructor, 2007; Master of Science in Nursing, University of Pennsylvania (1992); Bachelor of Science, University of Pennsylvania (1972)

Graff, Joyce Carolyn, Associate Professor and Director, 2001; Doctor of Philosophy, University of Kansas (2001); Master of Science in Nursing, University of Kansas (1988); Bachelor of Science in Nursing, Medical College of Georgia (1969)

Harrell, Marshaye, D., Instructor, 2012; Bachelor of Science in Nursing, Tennessee State University (2003)

Hartig, Margaret T., Professor and Chair, 1987; Doctor of Philosophy, University of Tennessee Health Science Center (1993); Master of Science, University of Tennessee Health Science Center (1977); Bachelor of Science in Nursing, University of Kansas (1974)

Hathaway, Donna K., Professor, 1984; Doctor of Philosophy, University of Texas at Austin (1984); Master of Science, University of Missouri Columbia (1980); Bachelor of Science in Nursing, University of Missouri Columbia (1971)

Hill, Brenda S., Instructor, 2010; Master of Science in Nursing, University of Pennsylvania (2001); Bachelor of Science in Nursing, University of Tennessee Health Science Center (1989)

Jones, Beverly A., Instructor, 2010; Master of Science in Nursing, Saint Louis University (2007); Bachelor of Science in Nursing, Saint Joseph's College (2002)

Jordan, Irma L., Assistant Professor, 1997; Doctor of Nursing Practice, University of Tennessee Health Science Center (2010); Master of Science in Nursing, University of Tennessee Health Science Center (1998); Bachelor of Science in Nursing, University of Tennessee Health Science Center (1997)

Kirkland, Lynn C., Assistant Professor, 2000; Doctor of Nursing Science, University of Tennessee Health Science Center (2001); Master of Science in Nursing, University of Tennessee Health Science Center (1992); Bachelor of Science in Nursing, University of Tennessee Health Science Center (1989)

Likes, Wendy M., Associate Professor, 2005; Doctor of Philosophy, University of Tennessee Health Science Center (2009); Doctor of Nursing Science, University of Tennessee Health Science Center (2004); Master of Science in Nursing, University of Tennessee Health Science Center (1999); Bachelor of Science in Nursing, University of Memphis (1997)

Lockhart, Carol A., Professor, 2000; Doctor of Philosophy, Brandeis University (1988); Master of Science in Nursing, University of California (1974); Bachelor of Science in Nursing, Case Western Reserve University (1965)

Lynch-Smith, Donna, Assistant Professor, 2009; Doctor of Nursing Practice, University of Tennessee Health Science Center (2009); Master of Science in Nursing, University of Tennessee Health Science Center (1995); Bachelor of Science in Nursing, University of Memphis (1989)

Maceri, Samuel L., Instructor, 2008; Doctor of Nursing Science, University of Tennessee Health Science Center (2002); Bachelor of Science in Nursing, University of Memphis (1999); Master in Public Administration, University of Memphis (1980)

Madubuonwu, Paul, Assistant Professor, 2004; Bachelor of Medicine, Bachelor of Surgery, University of Jos Nigeria (1982)

McKeon, Leslie M., Associate Professor, 2001; Doctor of Philosophy, University of Tennessee Health Science Center (2004); Master of Science in Nursing, University of Arizona (1981); Bachelor of Science in Nursing, West Chester State College (1978)

Melander, Sheila D., Professor, 2003; Doctor of Nursing Science, University of Alabama at Birmingham (1990); Master of Science in Nursing, University of Evansville (1988); Bachelor of Science in Nursing, University of Evansville (1985)

Mewborn, Emily Kate, Instructor, 2012; Bachelor of Science in Nursing, University of Tennessee Health Science Center (2009)

Miles, Michael David, Instructor, 2009; Doctor of Education, Arkansas State University-Jonesboro (2010); Master of Science in Engineering, Mercy College (2004); Bachelor of Fine Arts, Arkansas State University-Jonesboro (2002)

Norris, Tommie L., Associate Professor, 2005; Doctor of Nursing Science, Louisiana State University Health Science Center (2001); Master of Science in Nursing, University of Tennessee Health Science Center (1987); Bachelor of Science in Nursing, University of Memphis (1985)

Olson, Karen Koozer, Professor, 2007; Doctor of Philosophy, Pennsylvania State University, (1987); Master of Science, Pace University (1979); Bachelor of Science, Indiana University of Pennsylvania (1968)

Oswaks, Jill S., Associate Professor, 2003; Doctor of Nursing Science, University of Tennessee Health Science Center (2002); Master of Science in Nursing, Old Dominion University (1998); Bachelor of Science in Nursing, Old Dominion University (1997)

Oswaks, Roy M., Instructor, 2004; Doctor of Medicine, State University of New York at Buffalo (1971)

Pace, Diane Todd, Assistant Professor, 1996; Doctor of Philosophy, University of Tennessee Health Science Center (1998); Master of Science in Nursing, University of Tennessee Health Science Center (1996); Bachelor of Science in Nursing, Union University (1995); Master of Science, University of Memphis (1984)

Parker, Angel Champayne, Instructor, 2007; Bachelor of Science in Nursing, Tennessee State University (2008)

Patton, Susan B., Associate Professor, 1997; Doctor of Nursing Science, University of Tennessee Health Science Center (2001); Master of Science in Nursing, University of Arkansas for Medical Sciences (1992); Bachelor of Science in Nursing, University of Memphis (1985)

Plummer, Stephanie Ann, Assistant Professor, 2010; Doctor of Nursing Practice, University of Tennessee Health Science Center (2010); Master of Science in Nursing, University of California, Los Angeles (2000); Bachelor of Science in Nursing, California State University Dominguez Hills (1997)



Plunkett, Alicia T., Instructor, 2011; Master of Science in Nursing, Walden University (2007); Bachelor of Science in Nursing, University of Memphis (1996)

Porter, Keevia, Assistant Professor, 2010; Doctor of Nursing Practice, University of Tennessee Health Science Center (2011); Master of Science in Nursing, University of Memphis (2007); Master of Science in Nursing, Union University (2003); Bachelor of Science in Nursing, University of Memphis (1998)

Scott, Cheryl A., Instructor, 2012; Master of Public Administration, University of Memphis (1989); Bachelor of Science in Nursing, University of Memphis (1989)

Sharp, Jacqueline, Instructor, 2009; Master of Science in Nursing, Arkansas State University-Jonesboro (1997); Bachelor of Science in Nursing, University of Memphis (1992)

Smith, Jami A., Assistant Professor, 2012; Doctor of Health Education, A.T. Still University (2009); Master of Science in Nursing, Regis University (2006); Bachelor of Science in Nursing, University of Mississippi Medical Center (2002)

Speck, Patricia M., Associate Professor, 1969; Doctor of Nursing Science, University of Tennessee Health Science Center, 2005, Master of Science in Nursing, University of Tennessee Health Science Center (1985); Bachelor of Science in Nursing, University of Tennessee Health Science Center (1982)

Stegbauer, Cheryl C., Professor, 1976; Doctor of Philosophy, University of Tennessee Health Science Center (1994); Master of Science in Nursing, Texas Woman's University (1974); Bachelor of Science in Nursing, University of Tennessee Health Science Center (1969)

Thompson, Carol L., Professor, 1988; Doctor of Nursing Practice, University of Tennessee Health Science Center (2009); Doctor of Philosophy, Case Western Reserve University (1989); Master of Nursing Science, University of Maryland Baltimore (1974); Bachelor of Science in Nursing, Florida State University (1971)

Thompson, Lorena, Instructor, 2008; Doctor of Nursing Practice, University of Tennessee Health Science Center (2009); Master of Science in Nursing, University of Tennessee Health Science Center (2007); Bachelor of Science in Nursing, Union University (2003)

Waller, Melody N., Instructor, 2004; Master of Science in Nursing, University of Memphis (2009); Bachelor of Science in Nursing, University of Tennessee – Chattanooga (2001)

Webb, Sherry, Assistant Professor, 2005; Doctor of Nursing Science, University of Tennessee Health Science Center (2006); Master of Science in Nursing, University of Tennessee Health Science Center (1992); Bachelor of Science in Nursing, University of Memphis (1986)

Wicks, Mona N., Professor, 1987; Doctor of Philosophy, Wayne State University (1992); Master of Science in Nursing, University of Tennessee Health Science Center (1987); Bachelor of Science in Nursing, University of Memphis (1981)

Williams, Joyce P., Assistant Professor, 2008; Doctor of Nursing Practice, University of Tennessee Health Science Center (2007); Master of Forensic Science Administration, Oklahoma State University (2003); Bachelor of Arts in Nursing, Antioch University (1976)

Woods, Terri D., Instructor, 2012; Master of Business Administration (2006); Bachelor of Science in Nursing, Tennessee State University (2001)

**THE UNIVERSITY OF TENNESSEE  
HEALTH SCIENCE CENTER**

**CATALOG 2012 - 2013**



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**COLLEGE OF PHARMACY**

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**Marie Chisholm-Burns, Pharm.D., M.P.H., F.C.C.P., F.A.S.H.P., Dean**

James C. Eoff III, Pharm.D., Executive Associate Dean

Peter A. Chyka, Pharm.D., D.A.B.A.T., Executive Associate Dean, Knoxville

Stephanie J. Phelps, Pharm.D, B.C.P.S., F.C.C.P., F.A.Ph.A, Associate Dean, Academic Affairs

Glen E. Farr, Pharm.D., Associate Dean, Continuing Education and Public Service

Bernd Meibohm, Ph.D., Associate Dean, Research and Graduate Programs

Debbie C. Byrd, Pharm.D., B.C.P.S., Associate Dean, Professional Affairs

Bobby Thomas, M.P.A., Assistant Dean, Administration

D. Todd Bess, Pharm.D., B.C.P.S., Assistant Dean, Nashville

Duane D. Miller, Ph.D., Chair, Department of Pharmaceutical Sciences

Richard A. Helms, Pharm.D., B.C.N.S.P., Chair, Department of Clinical Pharmacy

John Autian, Ph.D., Dean Emeritus

Dick R. Gourley, Pharm.D, F.A.Ph.A., Dean Emeritus

## GENERAL INFORMATION

### Mission Statement

The College of Pharmacy supports the achievement of the University's mission by:

- Offering a curricular program that produces skilled, caring, and culturally competent pharmacy professionals prepared to optimize medication therapy and/or pursue pharmaceutical research;
- Conducting an innovative program of discovery resulting in 1) the design, development, and production of pharmaceutical agents that prevent and/or treat disease and injury; and 2) policies, practices, and procedures that maximize the availability and effectiveness of medication therapy on human health;
- Serving as a resource to policy-makers and health care professionals on the development and implementation of policies, practices and procedures related to the safe, equitable, efficient, and cost-effective use of medications to the citizens of Tennessee and beyond.

### Vision

To be the premier pharmacy academic community by creating a rich culture of scholarship, discovery, and research training to improve human health.

### Core Values

In pursuing the mission of the College of Pharmacy the faculty and staff are guided by the shared values that are the foundation of its practices, spirit and culture. As such the College is dedicated to:

- the pursuit of excellence
- the profession of Pharmacy
- our students and alumni
- the community
- professionalism
- collaboration and teamwork
- mutual trust and respect
- mutual responsibility and accountability
- honesty and integrity
- diversity in our faculty, staff, and student body
- continuous quality improvement
- an orientation to the future

### History of the College

The School of Pharmacy was organized in 1898 as a part of The University of Tennessee, Knoxville and in 1906 was transferred to the Department of Medicine at the University of Nashville. In 1909, the School of Pharmacy became a part of the College of Physicians and Surgeons in Memphis and since 1911 has been an integral part of the UT Health Science Center in Memphis. The College of Pharmacy designation was made in 1959, consistent with the other colleges of The University of Tennessee Health Science Center. Historically, the College of Pharmacy has been greatly influenced by its location in the Health Science Center in close proximity to a wide spectrum of health facilities. In recent years, deliberate efforts have been made to integrate the teaching, research and service programs of the College with similar activities of sister colleges, hospitals and health facilities throughout the city and the state. These efforts have made possible the extension of the professional and postgraduate programs to embrace clinical and advanced professional training.

We are very proud that the University of Tennessee College of Pharmacy has been ranked 16th among the top pharmacy schools in the nation by the prestigious U.S. News & World Report. The College of Pharmacy is fully accredited by the Accreditation Council for Pharmacy Education. The College is a member of the American Association of Colleges of Pharmacy and is fully recognized by all states, thus qualifying its graduates to be eligible for all state Board of Pharmacy examinations. The College's continuing education program offers seminars and independent study courses throughout the state and is approved by the Accreditation Council for Pharmacy Education as a provider of continuing education.

## Biography of the Dean

Marie A. Chisholm-Burns, Pharm.D., M.P.H., F.C.C.P., F.A.S.H.P., is Dean and Professor of the University of Tennessee Health Science Center College of Pharmacy. She previously served as Professor and Head of the Department of Pharmacy Practice and Science at the University of Arizona College of Pharmacy, with joint appointments as Professor in the Department of Surgery and the Division of Health Promotion Sciences. Dr. Chisholm-Burns received her BS in Psychology and General Studies (Emphasis in Biology) from Georgia College, BS in Pharmacy and Doctor of Pharmacy degrees from The University of Georgia, and Masters in Public Health from Emory University. She completed her residency at Mercer University Southern School of Pharmacy and at Piedmont Hospital in Atlanta, Georgia.

Dr. Chisholm-Burns is Founder and Executive Director of the Medication Access Program, which increases medication access to transplant patients. She has also served in numerous elected leadership positions in several different professional organizations, has worked in multiple pharmacy settings, and is a member of the National Academies of Practice. She serves as a member of governmental organizations, such as the Food and Drug Administration. With more than 240 publications and approximately \$8 million in external funding as principal investigator from organizations such as the National Institutes of Health and several foundations, she is a prolific scholar. She has published several textbooks that have been adopted in many schools of pharmacy, medicine, and nursing. In 2008 and 2011, textbooks co-edited by Dr. Chisholm-Burns, *Pharmacotherapy Principles and Practice* and *Pharmacy Management, Leadership, Marketing, and Finance*, respectively, received the Medical Book Award from the American Medical Writers Association. She has received numerous awards and honors including the Robert K. Chalmers Distinguished Pharmacy Educator Award from the American Association of Colleges of Pharmacy, the Clinical Pharmacy Education Award from the American College of Clinical Pharmacy, the Daniel B. Smith Practice Excellence Award from the American Pharmacists Association, the Rufus A. Lyman Award for most outstanding publication in the *American Journal of Pharmaceutical Education* (both in 1996 and 2007), the Nicholas Andrew Cummings Award from the National Academies of Practice, the Ruby Award from Soroptimist, the Award of Excellence from the American Society of Health-System Pharmacists (ASHP), and the Pharmacy Practice Research Award from the ASHP Foundation Literature Awards Program. Dr. Chisholm-Burns is also a Fulbright Scholar. She lives in Memphis, Tennessee with her husband and eight year old son, and enjoys writing, cycling, and playing chess.

## Faculty

The faculty is organized to constitute functional units in the major disciplines of the pharmacy curriculum. In addition to the full-time and part-time members of the College of Pharmacy, teaching personnel includes faculty of the College of Medicine, the College of Dentistry and the College of Graduate Health Sciences of the Health Science Center.

## Administrative Structure

The administrative leadership team within the College of Pharmacy is comprised of the following:

- Marie Chisholm-Burns, PharmD, MPH, FCCP, FASHP, Dean
- James C. Eoff III, PharmD, Executive Associate Dean
- Peter A. Chyka, PharmD, DABAT, Executive Associate Dean, Knoxville
- Stephanie J. Phelps, PharmD, BCPS, FCCP, FAPhA, Associate Dean, Academic Affairs
- Glen E. Farr, PharmD, Associate Dean, Continuing Education and Public Service
- Bernd Meibohm, PhD, Associate Dean, Research and Graduate Programs
- Debbie C. Byrd, PharmD, BCPS, Associate Dean, Professional Affairs
- Bobby Thomas, MPA, Assistant Dean, Administration
- D. Todd Bess, PharmD, BCPS, Assistant Dean, Nashville
- Duane D. Miller, PhD, Chair, Department of Pharmaceutical Sciences
- Richard A. Helms, PharmD, BCNSP, Chair, Department of Clinical Pharmacy
- John Autian, PhD, Dean Emeritus
- Dick R. Gourley, PharmD, FAPhA, Dean Emeritus

## **Locations and Facilities**

The College's main facility is housed on the UT Health Science Center Memphis campus.  
881 Madison Avenue  
Memphis, TN 38163  
901.448.6036

The College also maintains a campus in Knoxville, Tennessee, located at the University of Tennessee Medical Center.  
1924 Alcoa Highway, Box 117  
Knoxville, TN 37920  
865.974.2283

Finally, the College has a Clinical Education Center in Nashville, Tennessee, as part of the statewide commitment to pharmacy education and public service.  
193 Polk Ave, Suite 2D  
Nashville, TN 37210  
615.532.3401

## **DEGREES OFFERED**

The College of Pharmacy offers the Doctor of Pharmacy degree (PharmD). This is an entry-level professional doctorate similar to that of other health sciences (e.g., Medicine, Dentistry, Optometry). Programs leading to the Master of Science and Doctor of Philosophy Degree are available through the College of Graduate Health Sciences. Graduate study is offered with an emphasis in the areas of medicinal chemistry, pharmaceutical technology, health sciences administration or clinical translational sciences. A dual PharmD/PhD program, based both within the College of Pharmacy (PharmD) and the College of Graduate Health Sciences (PhD), is available to select students. Additional information on graduate studies can be found in the College of Graduate Health Sciences portion of this catalog.

## ACADEMIC CALENDAR 2012 - 2013

*Updates are available on the College's website: (<http://pharmacy.uthsc.edu> )*

Date	Activity	Class
Sunday, July 1, 2012	Tuition and fees due fall 1	P3 and P4
Monday, July 2, 2012	Rotations Begin	P3 and P4
Tuesday, August 14, 2012	P1 Orientation Week begins	P1
Friday, August 17, 2012	P2 Orientation	P2
Monday, August 20, 2012	tuition and fees due fall 3	P1 and P2
Monday, August 20, 2012	Class begins	P1 and P2 and P3
Monday, September 3, 2012	Labor Day break (Offices closed)	
Thursday, October 18, 2012 y	Fall break begins	P1 and P2 and P3
Sunday, October 21, 2012	Fall break ends	P1 and P2 and P3
Thursday, November 22, 2012	Thanksgiving break (offices closed)	
Friday, November 23, 2012	Thanksgiving break (Offices closed)	
Friday, December 7, 2012	Last day of classes	P1 and P2 and P3
Friday, December 7, 2012	Graduation	
Friday, December 14, 2012	Last Day of Final Exams	P1, P2, and P3
Monday, December 24, 2012- Wednesday, January 2, 2013	University Holiday	
Wednesday, January 2, 2013	Rotations begin	P3 and P4
Thursday, January 3, 2013	Tuition and Fees Due Spring 1	All students
Thursday, January 3, 2013	Classes Resume	P1 and P2
Monday, January 21, 2013	University Holiday (offices closed)	
Monday, March 4, 2013	Spring Break Begins	P1 and P2
Friday, March 9, 2013	Spring Break Ends	P1 and P2
Friday, March 29, 2013	Spring Holiday (offices closed)	P1 and P2
Friday, May 3, 2013	Last day of classes	P1 and P2
Friday, May 10, 2013	Last day of final exams	P1 and P2
Monday, May 27, 2013	Memorial Day Break (offices closed)	
Friday, May 31, 2013	Graduation	P4
Friday, June 28, 2013	Rotations End Spring 1	P2 and P3

## ADMISSION REQUIREMENTS AND OPTIONS

### Application Process

The College of Pharmacy, as a part of the University of Tennessee (UT) system, is a state-supported institution and gives priority to resident students. Nonresidents are eligible to apply and may be admitted on a competitive basis. Non-residents compose approximately 15% of the student body. The UTHSC College of Pharmacy accepts applications only from U.S. citizens or permanent residents. Applications from foreign citizens for acceptance to the entry-level professional degree program are not accepted.

Interested applicants may apply online via PharmCAS ([www.pharmcas.org](http://www.pharmcas.org)), designating the University of Tennessee College of Pharmacy to receive the application. Only admitted students will be required to complete the UT College of Pharmacy Supplemental Application online and submit the \$75 fee.

Once the application is complete, the file is evaluated by the admissions committee, which consists of faculty members, practicing pharmacists and students from both the Memphis and Knoxville campuses. The highest-ranking applicants according to the stated admissions requirements will be notified of a scheduled interview date and time. The committee reviews the materials of all applicants who are selected to interview with the college and makes decisions according to the college's admissions requirements.

### Pre-Pharmacy Curriculum

The first three years of the pharmacy program consist of a pre-professional curriculum completed in a regionally-accredited university or college. Courses for the pre-pharmacy curriculum are not offered at the UTHSC. In order to be admitted to the College of Pharmacy, a student must have completed *90 semester hours* of required course work at an accredited institution as outlined below.

Prerequisite Courses	Credit Hours
<b>BIOLOGY SEQUENCE</b>	
General Biology/Zoology 1 & 2 <sup>11</sup>	8
Anatomy-Physiology 1 & 2 <sup>12</sup>	8
Microbiology <sup>13</sup>	3
Immunology	3
<b>CHEMISTRY SEQUENCE</b>	
General Chemistry 1 & 2	8
Organic Chemistry 1 & 2	8
Biochemistry 1 & 2 <sup>14</sup>	6
<b>MATH &amp; SCIENCE</b>	
Statistics	3
Calculus	3
Physics	4
<b>ENGLISH</b>	
English Composition	6
Communication/Speech	3
<b>ELECTIVES</b>	
<b>Social Science Electives</b> ( <i>Sociology, Psychology, Political Science, Economics</i> )	6
<b>Humanities Electives</b> ( <i>Literature, Language, History, Philosophy</i> )	6
<b>GENERAL ELECTIVES</b> ( <i>any courses</i> )	14

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<sup>11</sup> Botany cannot be substituted for the general biology/zoology requirement

<sup>12</sup> Human anatomy & human physiology may be taken as separate courses totaling 8 hours. If the college attended is on quarters, the two courses may only total 7 hours

<sup>13</sup> Microbiology (a 4-hour course is preferred, however, the 3-hour course will be acceptable IF a lab is included)

<sup>14</sup> Biochemistry lab is NOT required, but recommended. If the college attended only offers ONE general biochemistry course, you can replace the Biochemistry 2 requirement with an additional upper level biology course such as Cell Biology or Genetics.

The quality of work completed in the pre-pharmacy curriculum must have been such as to predict success in a professional school. A grade of “C” or above must be achieved for each required pre-pharmacy course and the overall academic average for all courses completed must not be less than a 2.5 on a 4.0 scale. Students must have presented evidence of having completed the preliminary training required at the time of entry of that class of students with which they seek to graduate.

It should not be assumed that completion of the minimal course requirements assures admission to the College. Admission is through a Committee on Admissions and is based on the overall qualifications of the applicant. Academic record, references and information included in the application are all considered. The Committee on Admissions strongly recommends that candidates research the profession of pharmacy through a part-time job or shadowing pharmacists in professional settings. Any candidate may be required to complete additional course work without regard to his academic average at the time of evaluation. The College has a rolling admission process beginning in August and ending in March. The deadline to submit an application for admission is February 1.

Twelve hours of electives must be scheduled in the social sciences and humanities (e.g., Sociology, Economics, Political Science, History, etc.) The remaining fourteen hours of electives may be scheduled in the natural sciences, business administration, humanities or other areas pertinent to the individual’s personal or professional interest. Questions relative to the completion of prerequisite courses should be directed to the College of Pharmacy admissions staff on the Memphis campus at (901) 448-6120 or on the Knoxville campus at (865) 974-2100. The email address for admissions staff is [pharmadmiss@uthsc.edu](mailto:pharmadmiss@uthsc.edu).

### **Advanced placement in pre-professional subjects**

Advanced placement will be accepted for:

1. Subject examinations with a minimum score of three (3) and in the sciences a minimum grade of B in the equivalent number of hours of advanced course work in the subject (Test scored: 1 to 5);
2. College Level Examination Program (CLEP) subject examinations will be accepted with minimum grade of B and in the sciences a minimum grade of B in an equivalent number of hours of advanced course work in the subject;
3. Advanced placement policies of institutions for ACT and SAT credit will be accepted with minimum 90 percentile (college bound norms) and in sciences, a minimum grade of B in an equivalent number of hours of advanced course work in the subject.

Advanced credit test scores must be forwarded to The University of Tennessee Health Science Center, Office of Enrollment Services, by the testing agency.

An undergraduate degree is valuable and the majority of students accepted to the College of Pharmacy have a degree prior to admission. However, applicants able to successfully complete all 90 hours of pre-requisite courses within 3 academic years should apply to the College during the 3rd year of pre-requisites.

### **Pharmacy College Admission Test**

Applicants must satisfactorily complete the national Pharmacy College Admission Test ([PCAT](#)). The average percentile score of all applicants is the 50<sup>th</sup> percentile and the average score of accepted students is approximately the 70<sup>th</sup> percentile. To apply for the PCAT testing, contact Pearson Assessment at [www.PCATweb.info](http://www.PCATweb.info). Once registered, scores are to be sent to PharmCAS (Code 104). The PCAT is administered multiple times per month during the months of July, September, and January. The College strongly recommends that applicants take the test early in the admissions cycle (on one of the July or September dates) in order to have the opportunity to retake the exam before the close of the admission cycle.



## Work Experience

Work experience or shadowing in a pharmacy setting is not a requirement for admission to the college. However, such experience is valuable in determining a person's motivation to pursue this field of study. It is recommended prospective applicants obtain employment in a pharmacy setting if possible, prior to completion of the pre-pharmacy requirement, or schedule appointments with practicing pharmacists to discuss the profession. The College's pre-pharmacy clubs, located in Memphis, Knoxville and Nashville, are available to assist prospective students in identifying pharmacists or sites where they can shadow.

## Personal References

Three letters of reference are required in completion of the PharmCAS application. Ideally, at least one letter should be written by a pharmacist. Other letters should be written by business or professional persons who are acquainted with the applicant and have knowledge of the applicant's personal circumstance and qualifications are qualified to provide a recommendation. Present or former employers are especially appropriate sources of reference. Evaluation by a faculty member, especially science faculty, is also very important. Parents and members of the immediate family generally should not give references.

## Technical Standards for Admission and Retention

The educational objective of the Doctor of Pharmacy (PharmD) degree program at the College of Pharmacy is to prepare students for the practice of pharmacy. Students admitted to, as well as those continuing in the PharmD program, must have the intellectual, emotional, and physical abilities, with reasonable accommodations provided to those with disabilities, to acquire the knowledge, behaviors, clinical and technical skills to successfully complete the curriculum in preparation for licensure as a practicing pharmacist. Further, the safety of the patient, on whom the professional education process is primarily focused, must be ensured as the final and ultimate consideration. Therefore, it is essential for competent patient care to require students to meet minimum technical standards in their pharmacy education.

The technical standards outlined below specify those attributes the faculty considers necessary for initiating, continuing, or completing a high quality pharmacy education program, thus enabling each graduate to enter practice. The awarding of the PharmD degree signifies that the holder is prepared to enter into the practice of pharmacy. The faculty has the responsibility to monitor the maintenance of these standards. Students must be able to independently perform all of the described functions. In addition, any conditions that pose a current or potential risk to the safety and well-being of patients or colleagues must be formally disclosed prior to enrollment in the College of Pharmacy. Such disclosure will not result in automatic exclusion from the program but must be considered in the interest of patient safety.

The five standards listed below describe the essential functions students must demonstrate in order to fulfill the requirements of a pharmacy education, and thus, are prerequisites for entrance to, continuation in, and graduation from the College of Pharmacy. The College of Pharmacy will consider for admission any applicant who demonstrates the ability to perform or to learn to perform the skills listed in this document. A candidate for the PharmD degree must meet or exceed the required aptitude, abilities, and skills, in the following areas:

- Observation
- Communication
- Sensory and Motor Coordination and Function
- Intellectual, Conceptual, Integrative, and Quantitative Abilities
- Behavioral and Social Attributes

**Observation** - Students must be able to observe demonstrations and experiments, including but not limited to, the basic and pharmaceutical sciences and medical illustrations and models. They must be able to directly and accurately observe a patient's physical condition, noting nonverbal as well as verbal signals. The student must be able to obtain a history and perform appropriate physical assessments and to correctly integrate the information obtained from these observations to develop an accurate therapeutic plan.

They must be able to prepare medications for dispensing to patients and observe the activities of technical staff operating under their supervision. This observation necessitates the functional use of the sense of vision, hearing, and other sensory modalities.

**Communication** - The student must be able to communicate in oral and written English with patients, the patient's family members or caretaker, and other health care practitioners. Students must be able to communicate quickly, effectively, and efficiently with the faculty and all members of the healthcare team when the time available is limited in order that decisions based upon these communications can be made rapidly.

**Sensory and Motor Coordination and Function** - A student must have sufficient motor function and skills to perform basic tasks in the practice of pharmacy. These tasks include, but are not limited to, motor function sufficient to monitor drug responses, accurately compound and prepare sterile and non-sterile dosage forms, elicit information from patients using basic patient assessment skills such as palpation, auscultation, percussion, and other diagnostic maneuvers, provide general care and emergency treatment to patients (e.g., first aid treatments, cardiopulmonary resuscitation), perform basic laboratory tests (e.g., blood glucose concentrations), and administer immunizations.

**Intellectual, Conceptual, Integrative, and Quantitative Abilities** - A student must possess sufficient intellectual, conceptual, integrative, and quantitative abilities to complete a rigorous and intense didactic and experiential curriculum. They must be able to learn through a variety of modalities including, but not limited to, classroom instruction, small group activities, individual study, preparation and presentation of reports, and use of computer technology. A student must be able to memorize, measure, calculate, reason, analyze, synthesize, and apply complex information. They must also be able to comprehend spatial relationships and three-dimensional models.

**Behavioral and Social Attributes** - Students must possess the emotional and mental health required for full use of their intellectual abilities, the exercise of good judgment, the prompt completion of all responsibilities attendant to didactic and experiential education, and the development of mature, sensitive, and effective relationships with patients and healthcare professionals of differing cultures and backgrounds. Compassion, integrity, kindness, patience, interpersonal skills, and motivation are required of all students.

Students must be of sufficient emotional health to be able to tolerate physically, intellectually, and emotionally taxing workloads and to function effectively under stress or with distractions thus enabling them to adapt to circumstances and situations that may change rapidly without warning and/or in unpredictable ways.

## Student Status

Applications from foreign citizens for acceptance to the entry-level professional degree program are not accepted. Student may not complete the professional degree program on a part-time basis. Although student pharmacists often accept outside employment in a pharmacy setting while enrolled in the professional program, outside employment during the early semesters of the curriculum is discouraged. The college takes the position that such employment must not interfere with the regular studies, academic success, and responsibilities of enrolled students. Thereafter, students should use their own judgment in accepting employment, keeping in mind their primary objective in attending a professional degree program.

## Enrollment with Advanced Standing

Admission on an advanced standing basis is dependent on the availability of a position in the class. Admission for advanced standing is competitive and students meeting minimum requirements are not guaranteed admission. Because of significant curricular modification made when the College moved basic science courses to prerequisites, UT's curriculum will require most transfer students a loss of one professional year.

An applicant who requests admissions as an advanced standing student must:

1. Provide credentials certified by the proper authorities from the college or school of pharmacy previously attended, plus undergraduate colleges or universities attended, including satisfactory discharge of all financial obligations toward the institutions. A letter of good standing from the dean of the pharmacy school attend will suffice. Applications from students dismissed from a college or school of pharmacy for academic or disciplinary reasons will not be accepted.
2. Provide certified transcripts of grades for all pre-pharmacy and professional courses.
3. Students must have successfully completed all prerequisites required for admission to the UT College of Pharmacy.
4. Provide Pharmacy College Admission Test (PCAT) scores.
5. Provide three letters of recommendation.
6. Provide descriptions of courses from the current pharmacy curriculum to determine if students may enter without losing previous credits. Students from schools holding membership in the American Association of Colleges of Pharmacy will be allowed full course or subject credit for all courses completed satisfactorily assuming an equivalent number of hours of credit and equivalent content.
7. Appear for a personal interview.

In order to fulfill the requirements of the College and qualify to receive the PharmD degree, a transfer student must complete, at minimum, the last two years of study in residence at The University of Tennessee College of Pharmacy.

## TUITION, FEES, AND EXPENSES

Information regarding tuition and fees may be found at [http://www.uthsc.edu/finance/bursar/colleges\\_fee\\_information.php](http://www.uthsc.edu/finance/bursar/colleges_fee_information.php) with additional information regarding estimated cost of attendance at <http://www.uthsc.edu/finaid/Pharmacy.php>.

## Required Textbooks

Students may access the required books for all courses through the UTHSC Bookstore website: <http://uthsc.bncollege.com/webapp/wcs/stores/servlet/TBWizardView?catalogId=10001&storeId=57051&langId=-1> or can be obtained from the Office of Academic Affairs. A customized textbook list can be generated for each student by entering the following information on the website page: program/department, semester and course numbers.

## SCHOLARSHIPS AND FUNDING

The college offers a limited number of scholarships based on academic excellence, leadership, and/or financial need. Opportunities for scholarships and other types of funding can be found on the College website ([http://www.uthsc.edu/pharmacy/current\\_students/scholarships.php](http://www.uthsc.edu/pharmacy/current_students/scholarships.php)). Information regarding Financial Aid can be found at the following website (<http://www.uthsc.edu/finaid/>).

## HONORS AND AWARDS

### P3 Awards *(awarded at the P3 Pinning Ceremony)*

**Therapeutics Award** - The Department of Clinical Pharmacy presents this award to the student pharmacist who has demonstrated excellence in therapeutics course series as well as the ability to apply therapeutics knowledge.

**The John H. Rodman Scholar Award** - This award is presented to the student who achieved outstanding academic performance in the pharmacogenomics, pharmaco-kinetics and applied pharmacokinetics courses.

**Medicinal Chemistry Award** - The recipient demonstrated outstanding academic performance in the area of Medicinal Chemistry.

**The Atul J. Shukla Pharmaceutics Award** - The recipient demonstrated outstanding performance in the pharmaceutics course series and is judged by the department of pharmaceutics science faculty to have exhibited outstanding professional characteristics.

**Pharmacy Administration Award** - Is presented to the student pharmacist who achieved a high scholastic average in all pharmacy administration courses and is recommended by the faculty in the Department of Pharmaceutical Sciences.

**Excellence in Non-prescription Medication** - Presented to the student who has exhibited outstanding academic performance in the study of non-prescription medications.

**Professionalism Award** - This award is chosen by student colleagues and is presented to the student deemed as the most professional student pharmacist in the Class.

**Leadership Award** - This award is selected by student colleagues and is presented to the students deemed to have exhibited admirable leadership during their tenure as a student in the College.

**Community Service Award** - This award is selected by students in the class and is awarded to students that have invested significant time and energy during their time as a student to improve the health of Tennesseans.

#### **P4 Awards** *(awarded at the Honors, Awards, & Hooding Ceremony)*

**Valedictorian** - The recipient will be the graduating senior student who has the highest academic average in the professional pharmacy curriculum.

**Salutatorian** - The recipient will be the graduating senior student who has the second highest academic average in the professional pharmacy curriculum.

**Health Systems Pharmacists Leadership Award** - Presented to the graduating student who has displayed an interest in institutional pharmacy practice and involvement in professional pharmacy organizations either student groups, state societies or national organizations. The recipient should have leadership experience with these groups and be in the upper one-half of his/her class.

**ASHP Clinical Skills Competition Award** - This award recognizes the student team who won the Clinical Skills Competition within the College and represented the College at the annual meeting of the American Society of Health-System Pharmacists.

**APhA-ASP Chapter Leadership Award** - This award is given to the student(s) who have demonstrated exemplary leadership within the University of Tennessee College of Pharmacy chapter.

**APhA-ASP National Leadership Award** - This award is presented to a student pharmacist who has made a significant contribution to the profession of pharmacy through regional or national elected or appointed service within the American Pharmacists Association.

**APhA-ASP Patient Counseling Award** - This award is presented to the graduating student who won the College's Patient Counseling Competition and subsequently competed at the annual meeting of the American Pharmacists Association.

**SNPhA Leadership Award** - The Student National Pharmacist Association recognizes a student from their membership who has demonstrated outstanding leadership.

**Tom Sharp Sr. Leadership Award** - The recipient is a student pharmacist who has not only demonstration leadership, but has advanced the profession of pharmacy through active participation in the Tennessee Pharmacists Association.

**The Martin L. Hamner Award** - This award is given to the student who served as Honor Council president.

**The John Butler Award** - This award is presented to the graduating student who has exhibited outstanding leadership and interest in institutional, administrative, and management areas.

**Excellence in Public Health Pharmacy Practice** - The U.S. Public Health Service presents this award to the graduating student who has demonstrated a commitment to public health and public health practice.

**Pfizer Pharmaceuticals Outstanding Leader** - The graduating student who has displayed accomplishment as a leader; nonacademic characteristics common in a leader; and is in the top 25% of the class.

**Teva Pharmaceuticals Outstanding Student Award** - Presented to the graduating student who excels in the study of pharmacy.

**GlaxoSmithKline Clinical Patient Care Award** - The graduating student who has demonstrated outstanding performance in community or hospital practice, communication skills, patient counseling, patient case presentation, therapeutic drug monitoring, drug information, Clinical Literature, health screening, etc.

**Roche Pharmacy Communications Award** - The recipient is selected on the basis of (1) demonstration of knowledge application in the practice of pharmacy to patients and to other health practitioners; (2) providing instructions and guidance to patients in the clinical practice of pharmacy; and (3) demonstration of commitment to the pharmacy profession, compassion towards patients and being career oriented.

**Mylan Pharmaceuticals Excellence in Pharmacy Award** - Recipient should be in upper 25% of class, demonstrate high professional motivation and the intent to enter practice upon graduation, demonstrate superior proficiency in provision of drug information services.

**Facts and Comparisons Award Of Excellence in Clinical Communication** - Recipient should be in top 25% of class academically and demonstrate superior verbal and written clinical communication skills.

**Merck Award** (2 awards) - Outstanding performance in the senior class. The specific criteria area: (1) academic excellence; (2) qualities that warrant other recognition.

**Outstanding Student Award** - The graduating student selected by classmates as the person possessing the professional characteristics of an outstanding future pharmacy practitioner.

**Feurt Scholars Award** - Recognizes the graduates in the Dual Pharm.D./Ph.D. Program.

**Nuclear Pharmacy Certificate Recipients** - The graduating students are recognized for their dedication and accomplishment in completing 224 hours of special training in basic radioisotope techniques.

**Community Pharmacy Services Award** - This award recognizes student commitment to provide healthcare for the citizens of Tennessee.

**Community Pharmacy Leadership Award** - This award recognizes a student's commitment to leadership within the community arena.

**Rachel Welton Community Service Award** - This award is presented to the graduating student for outstanding service to the community.

**Natural Medicine Database Recognition Award** - This is presented to the student who has exhibited special interest in natural medicines and evidence-based approach to natural medicines.

**MAPS Outstanding Leadership Award** - This award is presented by the Memphis Area Pharmacists Society to the outstanding leader in the graduating class.

**MSCCP Outstanding Achievements in Clinical Pharmacy Practice** - The recipient demonstrates outstanding commitment to the principles of clinical pharmacy and dedication to the promotion of pharmacy practice as a vital component of patient care.

**Who's Who Among Students in American Universities and Colleges** – Graduating students who have demonstrated academic performance, participation in extracurricular activities, and community service.

**Academia Award** - Presented to a student who has demonstrated a commitment to a career in academia.

## Honors

The College of Pharmacy is authorized to grant honors for academic excellence. Students may graduate with honors, with high honors, or with highest honors in accordance with appropriate cumulative grade point averages based on performance in the professional curriculum only. Determination of honors will be made at the end of the fall semester of the 4th academic year. Grade Point Designation is as follows:

3.50 - 3.69 with honors

3.70 - 3.84 with high honors

3.85 - 4.00 with highest honors

## POLICIES

### Attendance Policy

The educational programs at UTHSC have been developed by the faculty and staff to provide students with the information and experiences necessary to become practicing professionals. It is expected that students attend the various educational opportunities provided for them as a part of the curriculum of the college or of the school in which they are enrolled. Individual faculty may consider attendance mandatory for certain educational experiences. Students will be informed, in writing, where policy requires class attendance and will also be given information regarding excused absences and necessary documentation. If a leave of 2 or more school days is needed, directly contact the Associate Dean for Academic Affairs as soon as possible. Unless there are extenuating circumstances that have been approved by the Associate Dean for Academic Affairs, students who miss an examination for any reason must retake that exam within 2 working days.

### Leave of Absence

Students who are not actively enrolled are on leave of absence. Students who wish to take a leave of absence may return to the School within one year of the date of leave. All leaves must be approved by the Office of Student Services. Students desiring to take a leave of absence should schedule a meeting with the Executive Associate Dean to discuss the leave of absence and readmission process. Students who have been absent for more than one year from last enrollment must reapply for admission to the College and must compete for readmission with the other applicants for the entering class in that year. In situations involving medical leave, it is possible to extend the one year leave on a case by case basis. If the student is readmitted to the College, the Academic Standing and Progression and Retention Committee (ASPR) will review completed coursework and make recommendations for completing the program. Students may be required to re-take some or all of previously completed coursework in the School of Pharmacy or complete competency testing. The Doctor of Pharmacy is a four-year professional program. Students must complete the curriculum within six years of the date of initial enrollment into the College of Pharmacy (including leave of absence) or they will be dismissed from the program.

### Withdrawal from the Program

Students who wish to withdraw or find that they cannot continue in the regular curriculum should contact the Office of Academic Affairs. Information regarding the process is available at [http://www.uthsc.edu/registrar/documents/student\\_status\\_change.pdf](http://www.uthsc.edu/registrar/documents/student_status_change.pdf)

## Grading System

The College of Pharmacy will use a grading system that permits the faculty to award, in combination with certain letter grades, a “plus” or “minus” to appropriately recognize and reward the academic achievements of students in the College. The course director or faculty are responsible for the grading scale to be used in determining a student’s letter grade in their respective course. It is to be emphasized that a course grading scale remains the province of the individual faculty member. Once the letter grade has been assigned, the grading system will use the following letter and quality point scale for purposes of reporting and recording student grades on routine grade reports and transcripts:

A	4.0
A-	3.67
B+	3.33
B	3.0
B-	2.67
C+	2.33
C	2.0
C-	1.67
D	1.0
F	0.0

The letters “P” or “F” are recorded to indicate pass or failure in specific designated (P/F) courses. The letters “WP” or “WF” are recorded to indicate pass or failure in those instances in which a student withdraws from a course before completing the course. The designation of “I” (incomplete) will be used when a student is unable to complete the course at the regular time because of a reason acceptable to the course coordinator. In such cases, arrangements will be made by the coordinator for the student to complete the course requirements, and the grade of “I” will then be replaced by whatever grade the course coordinator considers the student to have earned. It is the responsibility of the student to work with the course coordinator in determining under what circumstances the “I” grade can be changed.

## Honor Council

Academic dishonesty at any point during the curriculum may result in a course letter grade of “F” and/or disciplinary actions as determined by the Dean upon recommendation from the Honor Council. The College’s Honor Code applies to all examinations and quizzes. Each student is expected to work alone on examinations and quizzes unless otherwise instructed. Please refer to the Honor Code of the Student Judicial System section of the official student handbook, CenterScope, at <http://www.uthsc.edu/centerscope/Centerscope.pdf> for the special provisions of the UTHSC Honor Code that pertain to the College of Pharmacy.

## Professional Conduct

Students are expected to act in a professional manner in all interactions with faculty, support staff, and other students as outlined in the College’s *Guidelines For Student Professional Conduct (revised May 2008)* at [http://www.uthsc.edu/pharmacy/current\\_students/code\\_of\\_conduct.php](http://www.uthsc.edu/pharmacy/current_students/code_of_conduct.php). Failure to do so may result in disciplinary action, as determined by the Dean upon recommendation from the Professional Conduct Committee.

## Dress Code

### Student Attire in the Classroom

- A. Students must wear a visible UTHSC ID.
- B. No hats or head covering of any kind, except for religious, cultural, medical or ethnic observations
- C. Pants
  - a. No excessively tattered or worn pants and no clothing with holes
  - b. No Shorts
- D. Shirts
  - a. No revealing clothing, including low cut blouses or shirts/pants that allow the abdomen to be exposed. Likewise, pants should not be cut too low or worn in a manner that causes the upper portion of the buttock or underwear to be to be exposed.
  - b. No strapless shirts, shirts with spaghetti straps, or halter tops
  - c. No T-shirts with discriminatory or derogative statements or graphics
  - d. T-shirts that are sold by student or pharmacy organizations or UT are allowed. Jeans and scrubs are also allowed.
- E. Shoes
  - a. No flip-flops
  - b. Dress sandals are appropriate for classes

### Student Attire in Professional Practice Experiences, Settings & Labs\*

Students are expected to dress professionally when engaged in experiential practice activities to project a professional image. The following dress code applies to all students in pharmacy labs and practice experiences:

- A. Students must wear a name badge and a clean white waist length coat (or white pharmacy coat) at all times in the pharmacy practice laboratory and practice sites. (Scrubs are acceptable in certain labs IF the instructor has given permission, e.g., Patient Assessment lab)
- B. In all patient care settings, male students must wear a dress shirt and tie and females should dress in similar professional/business attire.
- C. Students may NOT wear the following in pharmacy laboratories or professional practice settings:
  - a. Jeans
  - b. Shorts
  - c. T-shirts
  - d. Dirty or soiled sneakers/tennis shoes
  - e. A head covering, head garment, hat, or cap unless for religious, cultural, medical or ethnic observations
  - f. Excess jewelry or accessories that may interfere with safety and the effective performance of the processes and procedures being carried out including piercing of the eyebrow, lip, nose, and tongue
  - g. Revealing clothing including low cut blouses or shirts/pants that allow the abdomen to be exposed. Likewise, pants should not be cut too low or worn in a manner that causes the upper portion of the buttock or underwear to be to be exposed
- D. Tattoos on the arms, back and abdomen should not be visible to patients

*\*Individual sites and situations may have their own professional attire policies, which take precedence over the College of Pharmacy policy. The student must adhere to those requirements while in the respective facilities.*

## COMMUNICATION

The official method of communication between students and their respective programs or the dean's office is through the UTHSC email system. Students must check their email at least once each day to avoid missing vital information.



## PROGRESS, PROMOTION, AND GRADUATION

### CPR Certification

All University of Tennessee College of Pharmacy students are required to obtain American Heart Association Healthcare Provider CPR certification by the end of their first academic semester. Following initial certification, all University of Tennessee College of Pharmacy students must maintain active CPR certification during the P2, P3, and P4 years. Students will not be allowed to enter the subsequent year without approved CPR certification. For the convenience of UT College of Pharmacy students, the UT Chapter of the APhA/Academy of Student Pharmacists (ASP) offers American Heart Association CPR to first (during orientation) and third year students. Credit (none). Pedagogy: didactic, skills-based. Term: Fall. Course Director: Kelley Rogers, PharmD

### Academic Probation

Academic probation will be imposed upon a student when the student's academic performance meets any or all of the following conditions:

1. The grade point average earned at the conclusion of the first semester of the first professional year, or the cumulative grade point average at the conclusion of any semester thereafter, is less than 2.33.
2. The grade point average earned for any one semester is less than 2.00.
3. The student makes < a C- in any course.

A period of academic probation will be in effect during the semester immediately following the conclusion of the semester in which the student's academic performance meets the conditions for imposition of probation. If at the conclusion of the semester during which a period of probation is in effect the student's academic performance continues to meet any or all of the conditions for imposition of probation, another period of probation will be imposed. If at the conclusion of the semester during which a period of probation is in effect the student's academic performance no longer meets the conditions for imposition of probation, another period of probation will not be imposed.

During any term of probation, a student may not be elected to any office in any College or Campus recognized organization. Although not required, it is strongly suggested that any student who is placed on academic probation resign any and all office(s) currently held. A student on probation is not permitted to represent the College or Campus in any official capacity and is not eligible to travel on college funds.

### Academic Deficiency

A student may not progress in the curriculum with an "F" on their transcript. Within an academic year the student must receive permission of the Academic Standing Progression Review Committee in order to proceed to the spring semester. Students are not eligible to begin the next academic year until the "F" has been replaced. When any course is remediated, both the original grade made in the course and the newly earned grade will be used for the determination of the student's overall cumulative grade point average.

### Academic Dismissal Recommendation

A student will be subject to dismissal when any one or more of the following conditions are met:

1. Academic performance at the conclusion of any semester is so poor as to predict strongly an inability to meet the overall requirements of the curriculum. It is recognized that this situation is most likely to occur during the first professional year, and may occur without a probationary period being imposed;
2. A cumulative GPA < 2.33;
3. A period of probation is imposed for a second time;
4. Regardless of GPA, a student who receives < C- in two courses throughout the curriculum;
5. A student who fails to meet graduation requirements within 6 consecutive years of enrollment, including time spent on leave of absence or due to remediation;
6. Students with outstanding deficiencies (e.g., grade of "F") in the professional curriculum may not register for courses in the next professional semester without affirmative action by the Academic Standing and Promotion Review Committee of the College.

## Appeals

Students may appeal any academic action to the Academic Standing and Promotion Review Committee. The appeal must be submitted, in writing, within five calendar days of receipt of notification of action. The Academic Standing and Promotion Review Committee will make a recommendation to the Dean who will make a decision on the appeal. Further appeal from the decisions of the College of Pharmacy can be made to the Chancellor's office. Appeals from denials of promotions occurring at the end of the spring and fall terms will be heard during the first week of the summer and winter terms respectively. Specific guidelines regarding these policies are accessible in the Office of the Associate Dean for Academic Affairs.

## Requirements for Graduation

In order to be awarded the Doctor of Pharmacy degree, a student must have completed all degree requirements and complied with the following conditions:

1. Student must have been in residence as a registered student pharmacist in an acceptable college of pharmacy for at least four academic years; at least the last two academic years must have been in the UT College of Pharmacy;
2. Student must have attained a final cumulative grade point average of 2.33 or above (on a 4.0 scale) *and* achieve a passing grade in all required courses in the professional curriculum;
3. Didactic and experiential courses in which an "F" was received must have been successfully remediated.
4. Student must complete the Doctor of Pharmacy curriculum within six years of beginning the program, including time taken as leave of absence;
5. Student must have discharged all their financial obligations to the College and University.

Participation in graduation exercises is mandatory for all graduating students. Any student who is unable to attend graduation exercises must request permission from the Dean to graduate in absentia. Such a request must be submitted in writing and must clearly state the student's reason(s) for making the request. A student may graduate in absentia only if the Dean of the college has approved the request.

## Licensures

In order to become a licensed practitioner, graduates are required to successfully pass the NAPLEX and MPJE (national licensure exams).

### ***Tennessee Licensure***

Internship requirements of the Tennessee Board of Pharmacy include a specified minimum of 1500 clock hours. Pharmacy experience obtained after enrollment is allowed toward fulfillment of the Board requirements. The Board accepts 1100 clock hours of credit for certain clinically-oriented courses (rotations and externships) in the pharmacy curriculum.

### ***Licensure in other states***

Pharmacists may become licensed in other states through two mechanisms: by Board examination in the individual state and by reciprocity of license from one state to another. In either method, application must be made to the Board of Pharmacy in the State for which licensure is desired.

## CURRICULUM SUMMARY - PROFESSIONAL DEGREE PROGRAM

The Doctor of Pharmacy degree is granted upon successful completion of the professional curriculum and compliance with the requirements of the University for graduation. The course of instruction covers eight semesters over four academic years (see Curriculum).

The curriculum includes lecture and laboratory courses that are delivered using a variety of pedagogy. Although students are introduced to the clinical environment as early as the fall semester of the first professional year, clinical instruction is emphasized in the third and fourth years of the curriculum. During this time students receive experiential learning in traditional practice settings such as community and hospital pharmacy arenas as well as advanced clinical rotations in internal medicine, ambulatory care, pediatrics, mental health, parenteral nutrition, cardiology, critical care and other specialty areas.

Students may be required to complete a portion of the introductory and advanced practice experiences in various parts of the state. US rotations located outside Tennessee (Alaska, Arizona, North Carolina) are available to a limited number of students. International professional experiences are available to a limited number of students in locations such as England, New Zealand, Australia, Japan, Spain, Ireland, Sweden, Hungary, The Netherlands, Thailand, Turkey and France.

### Content Areas

- A. Pharmacology
- B. Medicinal Chemistry
- C. Pharmacy Technology (including sterile product preparation and compounding)
- D. Therapeutics and Pathophysiology of Disease
- E. Communications and Patient Assessment
- F. Biopharmaceutics and Pharmacokinetics
- G. Pharmacy Management and Pharmacoeconomics
- H. Medication Use Process
- I. Experiential learning (12 months)

### First Professional Year

Fall Semester	Credit
PHAR 111 Pharmacology 1	4 (4-0)
PHSC 112 Medicinal Chemistry 1	4 (3-2)
PHSC 113 Pharmacy Math	1 (1-0)
PHSC 125 Pharmaceutical Principles	2 (2-0)
PHSC 126 Sterile Dosage Forms	2 (2-0)
PHCY 115 Introduction to Pharmacy	3 (2-2)
PHCY 112 Basic Clinical & Communication Skills	2 (1-2)
PHCY 122 Introduction to Patient Care*	1 (0-2)
<b>Total</b>	<b>19 (15-8)</b>
<i>* ½ of the class takes in the fall and ½ take it in the spring</i>	

Spring Semester	Credit
PHAR 121 Pharmacology 2	4 (4-0)
PHSC 122 Medicinal Chemistry 2	4 (3-2)
PHSC 123 Pharmaceutics	4 (4-0)
PHSC 127 Pharmacy Compounding	2 (1-4)
PHCY 121 Self Care and Non-Prescription Drugs	3 (3-0)
PHCY 126 Introductory Pharmacy Practice Experience I (IPPE I)	1 (0-2)
PHCY 214 Immunization	1 (1-0)
PHCY 122 Introduction to Patient Care	1 (0-2)
<b>Total</b>	<b>20 (16-10)</b>
<i>* ½ of the class takes in the fall and ½ take it in the spring</i>	

## Second Professional Year

<b>Fall Semester</b>	<b>Credit</b>
PHCY 211 Therapeutics 1	3 (3-0)
PHCY 212 Therapeutics 2	3 (3-0)
PHCY 213 Patient Assessment	2 (1-2)
PHSC 212 Pharmacokinetics and Dose Optimization	4 (3-2)
PHSC 214 Pharmacy Practice Management & Pharmacoeconomics	3 (3-0)
Didactic Elective	2 (2-0)
<b>Total</b>	<b>17 (15-4)</b>

<b>Spring Semester</b>	<b>Credit</b>
PHCY 221 Therapeutics 3	3 (3-0)
PHCY 222 Therapeutics 4	3 (3-0)
PHCY 223 Applied Therapeutics 1	2 (0-4)
PHCY 224 Applied Kinetics	2 (1-2)
PHSC 222 Pharmacogenomics	2 (2-0)
PHSC 223 Medication Therapy Management	3 (2-2)
PHCY 226 Introductory Pharmacy Practice Experience II (IPPE II)	1 (0-2)
Didactic Elective	2 (2-0)
<b>Total</b>	<b>18 (13-10)</b>

## Third Professional Year

<b>Fall Semester</b>	<b>Credit</b>
PHCY 311 Therapeutics 5	4 (4-0)
PHCY 312 Therapeutics 6	3 (3-0)
PHCY 313 Applied Therapeutics 2	2 (0-4)
PHCY 314 Clinical Literature Retrieval and Evaluation	3 (2-2)
PHCY 315 Pharmacy Law	3 (3-0)
Didactic Elective	2 (2-0)
<b>Total</b>	<b>17 (14-6)</b>

## Final Three Semesters

Students must take the following during the last three semesters (P3 spring, P4 fall, P4 spring). Students will be provided a list of rotations that are included in each of the following categories during the P3 fall semester.

1 month	APPE Community Rotation
1 month	APPE Institutional Rotation
1 month	APPE Ambulatory Care Rotation
1 month	APPE Acute Care Inpatient Rotation
4 months	APPE Patient Care Rotations
3 months	APPE Elective Rotations (Patient Care or Other)
1 months	Elective Courses (2 x 2 hours courses)
1 month	IPPE rotation experience
2 months	OFF
1 month	IPPE Rotations (PHCY 370 IPPE Community & PHCY 371 IPPE Institution) (2 weeks each which may also be taken during summer between the P1 and P2 years, P2 and P3 years, or January or February of the P3 spring semester.)

## Elective/Selective Policy

1. All students will take a minimum of 10 credit hours of didactic electives.
2. All students will take a minimum of 2 credit hours of electives in the P-2 Fall, P-2 Spring, and P-3 Fall semester (for a total of 6 credit hours of electives before the end of the P-3 Fall semester).
3. All students will take a minimum of 1 month of electives in the last 3 semesters of the program (the P-3 Spring, P-4 Fall, or P-4 Spring semesters) with a minimum total of 4 credit hours. While most students will take 4 hours in one month, the student will also be allowed to spread these minimum 4 hours over 2 months if they choose.

## **COURSE DESCRIPTIONS** *(presented by department)*

### **Department of Clinical Pharmacy**

**112 PHCY, Basic Clinical and Communication Skills.** This course emphasizes interpersonal relationships, patient counseling, and communications as they relate to pharmacy practice. Students also develop skills necessary for assessment of a patient with hypertension, asthma, and diabetes. Credit 2(2-1). Pedagogy: didactic and skills based. Term: Fall. Course Director: Christa George, PharmD, BCPS, CDE

**115 PHCY, Introduction to Pharmacy.** This course provides an introduction to the profession of pharmacy. Material centers on health delivery models, the environment in which health care is rendered, and interprofessional care with a focus on the roles of the pharmacist. Students learn about a variety of career opportunities and will self-assess their potential interest using the APhA Career Pathways Program. This course will also enhance the student's understanding of professionalism and the responsibility of a pharmacist in society and the health care system. The course examines the role of human professional behaviors and values as mediators of health and illness, with a focus on health care disparities and health literacy. Credit 3(2-2). Pedagogy: didactic and team-based learning. Term: Fall. Course Director: Stephanie J. Phelps, PharmD, BCPS

**121 PHCY, Self Care and Nonprescription Drugs.** Through didactic instruction, online quizzes and multiple choice exams this required course is designed to provide the first year student pharmacist with the information needed to: 1) recognize conditions that are self-treatable with nonprescription drugs and complementary alternative medicine; 2) assess patient's needs, risk factors, and potential for adverse events; 3) assist with product selection; 4) advise and counsel patients on therapeutic options and outcomes of therapy; and 5) recognize appropriate physical assessment techniques needed to evaluate a patient's medical condition and response to pharmacotherapy. The student should also be able to identify laws that govern nonprescription therapy. Credit 3(3-0). Pedagogy: didactic. Term: Spring. Course Director: Amanda Howard-Thompson, PharmD, BCPS

**122 PHCY, Introduction to Patient Care.** This is the first course in the Introductory Pharmacy Practice Experience (IPPE) Program. It is designed to expose the first year student pharmacists to the patient care environment and to the proper use of a patient's medical record. Students are assigned 2 patients that they present and discuss during small group active learning sessions over a 5-week period. Students are able to shadow and learn from upper-class students, who are also part of the small group. The importance of HIPAA is stressed in this course. Half the students will take this in the P1 fall semester and the other half will take this in the P1 spring semester. Credit 1(0-2). Pedagogy: team-based learning. Term: Fall or Spring. Course Director: Tim Self, PharmD

**126 PHCY, Introductory Pharmacy Practice Experience (IPPE) I.** The course consists of a variety of early learning experiences that begin in the fall semester of the first professional year (P1). The program provides a foundation for professional development by focusing on seven core areas: Professionalism, Shadow Learning, Service Learning, Professional Development, Patient Care, Practice Skills, and Experiential Learning. The program is designed to prepare student pharmacists for the Advanced Pharmacy Practice Experiences (APPE), which comprise the final three semesters of the curriculum. Credit 1(0-2). Pedagogy: didactic, team-based learning, skills-based learning. Term: Spring. Course Director: Stephan Foster, PharmD

**211 PHCY, Therapeutics I.** This required course consists of lectures designed to develop the student's ability to apply principles and concepts in the area of cardiovascular disease and therapeutics. Credit 3(3-0). Pedagogy: didactic. Term: Fall. Course Director: Anita Airee, PharmD, BCPS

**212 PHCY, Therapeutics II.** This course is a continuation of 211 PHCY, Therapeutics I, and is designed to develop the student's ability to apply principles and concepts of therapeutics. The primary focus will be management of major diseases including diabetes, acute and chronic kidney diseases, fluids and electrolytes, and respiratory disorders. The etiology and pathophysiology of these diseases will be presented to the extent needed to thoroughly understand the therapeutic management. Emphasis will be placed on selection and evaluation of rational drug therapy, design of effective therapeutic regimens, and clinical monitoring of drug response using appropriate laboratory and physical measures. Credit 3(3-0). Pedagogy: didactic. Term: Fall. Course Director: Joanna Hudson, PharmD, BCPS

**213 PHCY, Patient Assessment.** This required course focuses on the development of physical assessment skills necessary to monitor drug therapy and assess common complaints that may be encountered in the delivery of pharmaceutical care. The course also prepares student pharmacists to monitor patients for optimal drug effects as well as adverse effects. The students will learn to take a complete history and perform a physical examination using case studies of common acute and chronic diseases. Role-playing will be a part of the program. Credit 2(1-2). Pedagogy: didactic, laboratory and skills-based learning. Term: Fall. Co-Course Directors: Heather Eppert, PharmD, BCPS; Stephan Foster, PharmD

**214 PHCY, Immunization.** This required course prepares student pharmacists to assume the role of a vaccine advocate. The course consists of an 8-hour self-study learning program, which provides in-depth knowledge on implementing a pharmacy immunization program, clinical as well as practical considerations of vaccine administration, and a guide to reference books published by the Centers for Disease Control and Prevention. The second part consists of a half day highly interactive didactic and laboratory classes designed to reinforce the self-study material. This combined program addresses areas of immunization needs, compensation, marketing, legal and regulatory issues, and injection-technique training. At conclusion of the course students receive APhA Certification in Immunizations. Credit 1(1-0). Pedagogy: didactic and skills-based learning. Term: Spring. Course Director: Stephan Foster, PharmD

**221 PHCY, Therapeutics III.** This course is a continuation of the Therapeutics sequence and consists of lectures and reading assignments designed to prepare the student to apply principles and concepts of clinical therapeutics to the prevention and treatment of specific diseases. Primary topics covered in this course include the clinical presentation, microbiology, and treatment of common bacterial, viral, and fungal infectious diseases except for HIV. Credit 3(3-0). Pedagogy: didactic. Term: Spring. Course Director: Chris Wood, PharmD, BCPS

**222 PHCY, Therapeutics IV.** This course is a continuation of the Therapeutics sequence and consists of lectures and recitations related to liquid and solid transplantation and HIV. The course is designed to develop the student's ability to apply principles and concepts of clinical therapeutics to the care of patients with specific illnesses. Credit 3(3-0). Pedagogy: didactic. Term: Spring. Course Director: Ben Duhart, PharmD

**223 PHCY, Applied Therapeutics I.** Introduces concepts of pharmaceutical care into the curriculum by placing students in the clinical environment during the spring semester of the 2<sup>nd</sup> professional year. Students will have responsibilities for direct patient contact and will be required to present patient cases and their care plan during weekly small group recitations. Credit 2(0-4). Pedagogy: team-based experiential learning. Term: Spring. Co-Course Directors: Cathy Herrington, PharmD, BCPS, BCNSP; Debbie Byrd, PharmD, BCPS

**224 PHCY, Applied Pharmacokinetics.** This course consists of lectures and recitations on the practical application of pharmacokinetic theory as it relates to the individualization of patient drug therapy, through the proper interpretation of drug serum concentrations. Credit 2(1-2). Pedagogy: didactic and problem solving. Term: Spring. Co-Course Directors: S. Casey Laizure, PharmD, BCPS; Andrea Franks, PharmD, BCPS

**226 PHCY, Introductory Pharmacy Practice Experience (IPPE) II.** The second course in the IPPE program is designed to prepare student pharmacists for the Advanced Pharmacy Practice Experiences (APPE). The second year of the program builds on the foundation of laid in 126 PHCY, Introductory Pharmacy Practice Experience I, (e.g., Professionalism, Shadow Learning, Service Learning, Professional Development). Credit 1(0-2). Pedagogy: didactic, team-based learning, skills-based learning. Term: Spring. Course Director: Stephan Foster, PharmD

**240 PHCY, Special Problems in Pharmacy I.** The purpose of this elective course is to allow students to design and implement a specific project in pharmacy. After completion of the project a written report is required. Credit: 2-3. Pedagogy: critical thinking and skills-based learning. Term: Fall, Spring, Summer. Co-Course Directors: Andrea Franks, PharmD, BCPS; Richard Helms, PharmD, BCNSP

**241 PHCY, Special Problems in Pharmacy II.** An elective continuation of 240 PHCY, Special Problems in Pharmacy I. Credit: 2-3. Pedagogy: critical thinking and skills-based learning. Term: Fall, Spring, Summer. Co-Course Directors: Andrea Franks, PharmD, BCPS; Richard Helms, PharmD, BCNSP

**242 PHCY, Special Problems in Pharmacy III.** An elective continuation of 241 PHCY, Special Problems in Pharmacy II. Credit: 2-3. Pedagogy: critical thinking and skills-based learning. Term: Fall, Spring, Summer. Co-Course Directors: Andrea Franks, PharmD, BCPS; Richard Helms, PharmD, BCNSP

**244 PHCY, Drugs of Abuse.** This elective course explores the present state of the art research regarding current trends and scientific knowledge about drugs and substances of abuse or misuse. Emphasis is directed toward the dilemmas or problems of drugs and society, and the role pharmacists can play as dispensers of clinical pharmacology and toxicology information and consultation in this area. The pedagogy for this course is predominately didactic lecture. Credit 2(2-0). Pedagogy: didactic. Term: Fall. Course Director: Peter Chyka, PharmD

**245 PHCY, Clinical Toxicology.** This elective course discusses the clinical presentation, laboratory diagnosis and treatment of commonly occurring poisonings. Emphasis will be given to the basic concepts of toxicology. The pedagogy for this course is predominately didactic lecture. Credit 2(2-0). Pedagogy: didactic. Term: Fall. Course Director: Peter Chyka, PharmD

**249 PHCY, Community Pharmacy.** This elective course is designed to provide the student with the basic principles of community pharmacy management. The course will help students learn to solve problems in pharmacy location analysis, obtaining capital, purchasing, inventory control, pricing of products and services, financial analysis, computer applications, and pharmacy security. The pedagogy for this course is predominately didactic lecture and group discussion. Credit 2(2-0). Pedagogy: didactic. Term: Spring. Co-Course Directors: Cindy Smith, PharmD; Tara Moore, PharmD; Stephen Foster, PharmD

**256 PHCY, Personal Finance and Financial Planning.** This elective will help students gain a solid understanding of the principles that impact personal financial decisions, including those concepts of financial planning and investing necessary to meet personal goals. The pedagogy for this course is predominately didactic lecture. Credit 2(2-0). Pedagogy: didactic. Term: Spring. Co-Course Directors: Debbie Byrd, PharmD, BCPS; Nancy Knous, BS, CFP

**257 PHCY, Top 200 Drugs.** An elective course that will familiarize the student with the generic and common brand names, appropriate dosages, indications, contraindications, and common side and adverse effects of the 200 most commonly prescribed medications. Some basic pharmacology of the major drug classes will also be included in the lecture material. Credit 2(2-0). Pedagogy: didactic. Term: Spring. Course Director: Marilyn Lee, PharmD

**258 PHCY, Design and Conduct of Clinical Research Studies.** The objective of this elective course is to outline for students and trainees the process of conducting clinical research from a scientific, ethical, regulatory and managerial perspective. Educational activities that will complement various didactic presentations include review of original research articles, observation of an ongoing clinical research project, and preparation and presentation of a clinical research protocol by the participants. Credit 2(2-0). Pedagogy: didactic. Term: Fall. Co-Course Directors: Bradley Boucher, PharmD, BCPS; Anita Airee, PharmD, BCPS

**259 PHCY, Complementary and Alternative Medicine.** This elective course will familiarize the student with the most current complementary and alternative medicines used in the community setting. Common products, appropriate dosages, indications, contraindications, and common side and adverse effects will be addressed. The course will also discuss evidence based medicine in this practice arena. Credit 2(2-0). Pedagogy: didactic. Term: Spring. Course Director: Sahar Rashed, PharmD, PhD

**260 PHCY, CPR Instruction.** Students enrolled in this elective course will become certified as American Heart Association Instructors in Healthcare Provider CPR. They will be responsible for teaching CPR to student pharmacists and to the community. Credit 2(2-0). Pedagogy: didactic and skills based. Term: Fall. Co-Course Directors: Kelly Rogers, PharmD; Heather Eppert, PharmD, BCPS

**261 PHCY, Basic Skills Teaching Assistant.** This elective course allows a student pharmacist to serve as a teaching assistant in the second year required Physical Assessment course (PHCY 213). The student assist in teaching the basics of a complete history and physical examination using case studies of common acute and chronic diseases. Role-playing will be a part of the program. The student spends 1 hour per week discussing teaching techniques and 3 hours per week in laboratory teaching. Credit 2(1-2). Pedagogy: skills based. Term: Fall. Course Director: Christa George, PharmD, BCPS

**311 PHCY, Therapeutics V.** This course is a continuation of the Therapeutics sequence and consists of lectures and reading assignments designed to prepare the student to apply principles and concepts of clinical therapeutics to the prevention and treatment of specific diseases. Primary topics covered in this course include oncology, endocrinology, rheumatology, special populations (women's and men's health, geriatrics, pediatrics, pregnancy and lactation). Credit 4(4-0). Pedagogy: didactic. Term: Fall. Course Director: Aubrey Waddell, PharmD

**312 PHCY, Therapeutics VI.** This course is a continuation of 311 PHCY, Therapeutics V, and consists of lectures designed to develop the student's ability to apply principles and concepts of clinical therapeutics to the care of patients with psychiatric and neurologic illnesses. Credit 3(3-0). Pedagogy: didactic. Term: Fall. Course Director: Anthony Rowe, PharmD

**313 PHCY, Applied Therapeutics II.** A continuation of 223 PHCY, Applied Therapeutics I. Credit 2(0-4). Pedagogy: team and skills based. Term: Fall. Co-Course Directors: Cathy Herrington, PharmD, BCPS, BCNSP; Debbie Byrd, PharmD, BCPS

**314 PHCY, Clinical Literature Retrieval and Evaluation.** This course consists of lectures, recitations, and laboratory sessions designed to introduce pharmacy students to the resources available and services provided by the Drug Information Center and Library. In addition, it deals with the basics of experimental design, research methodology, and evaluation of the current drug literature. Emphasis is placed on search strategies and provision of drug and toxicology information to health care professionals. Credit 3(2-2). Pedagogy: didactic, skills based, problem solving. Term: Fall. Course Director: Katie Suda, PharmD

**315 PHCY, Pharmacy Law.** A study of the numerous laws, both statutory and regulatory, which govern and control the practice of pharmacy and the manufacturing, distribution, and dispensing of drug products; and the delivery of clinical pharmacy services. An exploration of the professional conduct for pharmacy practice is included. Credit 3(3-0). Pedagogy: didactic. Term: Fall. Course Director: Carol Schwab, JD

**316 PHCY, Introductory Pharmacy Practice Experience (IPPE) III.** This is the third course in the IPPE program, which is designed to prepare student pharmacists for the Advanced Pharmacy Practice Experiences (APPE). The course builds on the foundation laid in 126 PHCY, Introductory Pharmacy Practice Experience I, and 226 PHCY, Introductory Pharmacy Practice Experience II (e.g., Professionalism, Shadow Learning, Service Learning, Professional Development). Credit 1(0-2). Pedagogy: skills based. Term: Fall. *Course currently not offered.*



**320 PHCY, Home Infusion.** This elective course will provide students with extensive learning opportunities in the field of home infusion. This course is designed to give students advanced exposure to home infusion beyond what is covered in other required courses. Topic areas include key issues in the development of the home infusion industry, most common business structures, reimbursement issues, and safety issues. Students will participate in class discussions, writing assignments, as well as take a final exam. Credit 2(0-2). Pedagogy: didactic. Term: Spring. Course Director: D. Tony Powers, PharmD, BCNSP

**321 PHCY, Landmark Clinical Trials.** This elective course prepares the student to define landmark clinical trials and their impact on evidence-based medicine, locate landmark clinical trials using information technology, identify and describe landmark clinical trials for different disease states and their impact on disease states, analyze and present clinical trials. Students will participate in class discussions, prepare an individual presentation, as well as taking quizzes and a final exam. Credit 2(0-2). Pedagogy: didactic. Term: Spring. Course Director: Mary Yates, PharmD

**326 PHCY, Medication Safety.** This elective course increases student pharmacists' awareness of the causes of individual and system related medication errors. It reviews methods used to prevent the likelihood of errors in both the individual as well as the healthcare system. It also reviews professional ways to communicate and address errors of all types. This will be achieved through extensive didactic and practical learning experiences in the field of medication safety. Students will participate in reading and writing assignments, a project as well as take quizzes and a final exam. Credit 2(0-2). Pedagogy: didactic. Term: Spring. Course Director: Alicia Perry, PharmD, BCPS

**329 PHCY, Public Health/Cardiology.** This elective course will increase a student's understanding of public health by emphasizing cardiovascular health as an opportunity for pharmacy involvement and as a part of pharmaceutical care for every patient in their practice. Students will participate in class discussions and a number of group projects. Credit 2(0-2). Pedagogy: didactic. Term: Spring. Course Director: Anita Airee, PharmD

**330 PHCY, Public Health Policy.** This elective course will explore the historical and current impact of U.S. health policy. This will aid the student in becoming better oriented to pharmacy-related aspects of health policy and enhance their knowledge about tools that allow a practitioner to interface with the changing healthcare environment. Students will participate in class discussions, class projects and take a final exam. Credit 2(0-2). Pedagogy: didactic. Term: Spring. Course Director: David (Todd) Bess, PharmD

**331 PHCY, Public Health Pharmacy.** This elective course will provide students with an understanding of public health as a career path and as opportunity for professional engagement and increase students' understanding of how this area can impact pharmaceutical care for every patient in their practice. Students will prepare a project and a presentation as well as take a final exam. Credit 2(0-2). Pedagogy: didactic. Term: Spring. Course Director: John Duncan, PharmD

**332 PHCY, Patient Assessment Teaching Assistant.** An advanced elective course focusing on the application of physical assessment skills learned in 213 PHCY, Patient Assessment. Participants will serve as teaching assistants in this course and will assist in the laboratory portion guiding current students in patient assessment skills under the supervision of the instructor. Credit 2(0-2). Pedagogy: skills-based laboratory. Term: Fall. Co-Course Directors: Stephan Foster, PharmD; Heather Eppert, PharmD, BCPS

**341 PHCY, Drug Interactions.** To provide students an elective experience that uses active learning to gain a greater depth of knowledge of selected clinically significant drug interactions. This builds on material covered in pharmacology and the Therapeutics series of courses. Students will participate in class discussion, complete a writing assignment and give an individual presentation. Credit 2(0-2). Pedagogy: didactic, problem solving, project. Term: Spring. Course Director: Tim Self, PharmD

**342 PHCY, Advanced Nutrition Therapeutics.** This elective course will provide the student with an advanced understanding of specialized nutrition therapeutics in both hospitalized and home patients. Credit 2(2-0). Pedagogy: didactic, team-based learning. Term: Spring. Course Director: Emma Tillman, PharmD

**343 PHCY Psychotherapeutics Elective.** This elective course is designed to expand the students' knowledge of the basic principles of psychopharmacotherapy. The course will develop a familiarity with the "second-line" and "atypical" agents used in psychiatry, as well as expose the students to some of the controversies surrounding a number of therapeutic modalities. The course will require patient contact as a means of addressing the need for an awareness and understanding of the realities regarding psychiatric illness. Credit 2(2-0). Pedagogy: didactic and experiential. Term: Spring. Course Director: Jason Carter, PharmD

**345 PHCY, Neonatal/Infant Elective.** This elective course will focus on inpatient and ambulatory therapeutics in pediatric patients less than 1 year of life. The course will consist of lectures, case presentations, and a field trip. Each student will also be required to make a short presentation on a therapeutic controversy that affects this patient population. Credit 2(2-0). Pedagogy: didactic. Term: Spring. *Course currently not offered.*

**346 PHCY, Critical Care Elective.** This elective course will help students gain familiarity with the care and management of the critically ill patient. The course will assist in understanding the research associated with therapeutic interventions and provide a rationale for various treatment modalities utilized in a variety of diseases. Credit 2(2-0). Pedagogy: didactic. Term: Spring. Course Director: Joseph Swanson, PharmD

**347 PHCY, Pediatrics Elective.** This elective course is designed to strengthen the student's knowledge of common pediatric problems and to increase their confidence in optimizing pharmacotherapy in the patient population. Credit: 2(2-0). Pedagogy: didactic. Term: Spring. Course Director: Joe Presley, PharmD

**348 PHCY, Ambulatory Care Elective.** This elective course will further prepare the doctor of pharmacy student for the required ambulatory care clerkship in the 4th professional year. Topics pertinent to the ambulatory patient will be discussed, with special attention given to drug selection and patient education. An emphasis will also be given to basic physical assessment. Credit 2(2-0). Pedagogy: didactic, skills based and team based learning. Term: Spring. Course Director: Andrea Franks, PharmD

**350 PHCY, Women's Health Elective.** This elective will focus on a woman's life phases, including the young adult, midlife, mature and advanced years. Course content includes discussion on role and life cycle issues that affect health, patient/pharmacist interactions, physiology, sexuality and reproduction, etc. Particular emphasis will be placed on medication monitoring due to gender differences in disease presentation and incidence, pharmacokinetics, adverse effects, and on patient education. Credit 2(2-0). Pedagogy: didactic. Term: Spring. Course Director: Candace Brown, PharmD

**351 PHCY, Infectious Diseases Elective.** This elective course is designed to strengthen the students' antibiotic knowledge so that he/she will be more confident in optimizing antimicrobial pharmacotherapeutics. Particular emphasis will be placed on knowing antibiotics; specifically, the therapeutic use, adverse effects, pharmacokinetics, and patient education issues associated with these agents. Credit 2(2-0). Pedagogy: didactic. Term: Spring. Course Director: P. David Rogers, PharmD, PhD

**352 PHCY, Applied Infectious Disease Elective.** This elective course will expose the student to the basic concepts of infectious disease pharmacotherapy, including microbiology, pharmacokinetics of anti-infective agents, and patient monitoring in the context of the hospitalized patient. Students will learn how to adequately evaluate, monitor, and manage anti-infective therapy in hospitalized patients. Students will also gain experience in presenting patient cases in a pharmacy rounds setting. Students will be responsible for participating in discussions, presenting patient cases, developing a pharmaceutical care portfolio as well as taking a final exam. Credit 2(2-0). Pedagogy: didactic and experiential. Term: Spring. Course Director: Joyce Broyles, PharmD

**353 PHCY, Drug Induced Disease Elective.** This elective course will enhance each student's knowledge with respect to the epidemiology, pathogenesis, and clinical presentation of selected major categories of adverse drug reactions and drug interactions. Students will also learn to recognize, evaluate, manage, and prevent adverse drug reactions and drug interactions. Students will be responsible for participating in class discussions, writing a paper as well as taking a final exam. Credit 2(2-0). Pedagogy: didactic. Term: Spring. Co-Course Directors: Christopher Finch, PharmD; Shaunta' Ray, PharmD

**354 PHCY, Oncology Elective.** This elective course will provide students with advanced learning opportunities in the field of oncology. Students will learn how to recognize the signs and symptoms of most common cancers, develop appropriate chemotherapeutic regimens for individual patient cases, and manage the common complications of drug therapy. Students will be responsible for a journal club presentation as well as taking a final exam. Credit 2(2-0). Pedagogy: didactic. Term: Spring. Course Director: Sundae Stelts, PharmD

**355 PHCY, Cardiology Elective.** This elective course will provide students with advanced learning opportunities in therapeutics related to cardiology, which build upon knowledge gained in Therapeutics I. Students will be responsible for participating in class discussions, completing assignments, as well as taking a final exam. Credit 2(2-0). Pedagogy: didactic. Term: Spring. Course Director: Shannon Finks, PharmD, BCPS

**356 PHCY, Palliative Care/Hospice Elective.** The goal of this elective course is to provide the student with and introductory exposure to end of life care and the role of the pharmacists in palliative care. The student will learn to create medication care plans to manage pain and symptoms of terminally and chronically ill patients. Students will participate in class discussions, homework assignments, complete a journal club presentation as well as take a mid-term and final exam. Credit 2(0-2). Pedagogy: didactic. Term: Spring. *Course currently not offered.*

**358 PHCY, Contemporary Issues in Pharmacotherapy.** This elective course will provide students with the knowledge and skills to discover, assimilate and compile a proper response to contemporary issues that affect pharmacy practice. Students will be responsible for completing a written assignment as well as an individual presentation. In-class quizzes and a final exam will also be taken. Credit 2(0-2). Pedagogy: didactic. Term: Spring. Course Director: Glen Farr, PharmD

**360 PHCY, Comprehensive Pharmacy Update.** An elective course taught in the final semester of the curriculum. This serves as an update to guidelines or to new therapies introduced since the completion of the Therapeutics series. It also serves as a review of core materials across the curriculum. Credit 2(0-2). Pedagogy: didactic lecture. Term: Spring. *Course currently not offered.*

**361 PHCY, Basic Skills Teaching Assistant.** This elective course allows second and third professional year pharmacy students to provide close supervision and instruction to first year pharmacy students in the patient skills lab component of 112 PHCY, Basic Clinical and Communications Skills. Utilization of second and third professional year pharmacy students in the patient skills lab focuses on the role of the pharmacist as a leader, a teacher, a mentor to those in training, and instills the concept of the practicing pharmacist as an educator of future healthcare professionals. Credit 2(0-2). Pedagogy: laboratory, skills-based. Term: Spring. Course Director: Christa George, PharmD, BCPS

**362 PHCY, Pharmacy and Professional Leadership.** This elective course is designed to provide a foundation for the development of leadership skills by students in the professional degree program within the College of Pharmacy. Common traits of effective leaders will be discussed as well as an overview of several major leadership philosophies and styles. Other topic areas include small group dynamics, motivating others, and effective problem-solving. Self-awareness exercises will be conducted during the course as well providing other personal growth opportunities e.g., career planning, etc. Guest speakers will enrich the course by sharing leadership perspectives beyond the College of Pharmacy and the UTHSC campus. Students will be evaluated based on class participation, written assignments, and two exams during the semester Credit 2(0-2). Pedagogy: didactic. *Course currently not offered.*

**366 PHCY, Advanced Cardiac Life Support.** Building upon the knowledge obtained from basic life support training, this elective course will provide the student with an extensive review of advanced cardiac life support (ACLS). The overall goal of this course is to introduce the pharmacy student to the role of a pharmacist on the resuscitation team and prepare the student for the American Heart Association (AHA) ACLS healthcare provider course. Students will be responsible for reading and writing assignments as well as taking quizzes and a final exam. Credit 2(0-2). Pedagogy: didactic and skills-based. Term: Spring. Co-Course Directors: Kelly Rogers, PharmD; Heather Eppert, PharmD, BCPS

**367 PHCY, Diabetes Elective.** This elective course will provide students with extensive didactic and learning opportunities in the field of diabetes. This course is designed to give students advanced exposure to diabetes therapeutics beyond what is covered in the Therapeutics series. Students will be responsible for completing daily writing assignments, as well as taking a mid-term and final exam. Credit 2(0-2). Pedagogy: team-based, skills-based. *Course not currently offered.*

**370 PHCY, IPPE Community Pharmacy Rotation.** A two-week introductory pharmacy practice experience (IPPE) required rotation in a community pharmacy setting. Students will work under the direction of a volunteer faculty members practicing in that environment. Credit 2(0-40). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Stephan Foster, PharmD

**371 PHCY, IPPE Institutional Pharmacy Rotation.** A two-week introductory pharmacy practice experience (IPPE) required rotation in an institutional pharmacy setting. The student will learn from a volunteer faculty members practicing in the arena. Credit 2(0-40). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Stephan Foster, PharmD

**400 PHCY, Medicine I.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of rational pharmacotherapeutics in the area of internal medicine. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**401 PHCY, Medicine II.** An advanced pharmacy practice experience (APPE) elective rotation continuation of 400 PHCY, Medicine I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**402 PHCY, Medicine III.** An advanced pharmacy practice experience (APPE) elective rotation continuation of 401 PHCY, Medicine II. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**407 PHCY, Cardiology II.** A one-month advanced pharmacy practice experience (APPE) elective rotation continuation of 410 PHCY, Adult Cardiology I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**408 PHCY, Nephrology.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of rational pharmacotherapeutics of nephrology. Student will focus on dose medications in patients with renal failure and on the medical management of patients with chronic renal failure who may be on dialysis. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**409 PHCY, Integrated Pharmacy Practice.** This one-month advanced pharmacy practice experience (APPE) rotation is an elective patient care component of the experiential portion of the curriculum. The Integrated Pharmacy Practice rotation is an introduction of comprehensive clinical practice in a teaching hospital. This rotation is designed to enhance the student pharmacist's knowledge base and to apply didactic course material. The candidate will be responsible for applying appropriate pharmacologic therapy specific to patient diseases encountered in a variety of settings. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**410 PHCY, Adult Cardiology I.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of pharmacy in the area of cardiology. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**411 PHCY, Adult Oncology.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of rational pharmacotherapeutics in the area of oncology. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**412 PHCY, Adult Oncology II.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 411 PHCY, Adult Oncology. Credit 4(0-40). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**413 PHCY, Pulmonary.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of rational pharmacotherapeutics in the area of pulmonary medicine. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Course Director: Rex Brown, PharmD, BCNSP

**414 PHCY, Infectious Diseases I.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of rational pharmacotherapeutics in the area of infectious diseases. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**415 PHCY, Infectious Disease II.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 414 PHCY, Infectious Diseases I. Credit 4(0-40). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**416 PHCY, Gerontology I.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of pharmacy in the area of gerontology. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**417 PHCY, Gerontology II.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 416 PHCY, Gerontology I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**418 PHCY, Long Term Care I.** A one-month advanced pharmacy practice experience (APPE) rotation conducted in long term care facilities, or pharmacies which service such facilities, and which promotes the development of pharmacy practice skills appropriate for long term care facilities. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**419 PHCY, Long Term Care II.** An advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 418 PHCY, Long Term Care I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**420 PHCY, Emergency Medicine.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of skills and concepts in the application and promotion of rational pharmacotherapeutics in the area of intensive care medicine. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**421 PHCY, Palliative Care.** This one-month advanced pharmacy practice experience (APPE) rotation is a learning experience directed at providing care for palliative care patients. Students participate in all aspects of transdisciplinary care as part of the Palliative Care Consult Team (PCCT). Students will interview inpatients and/or family members and participate in the palliative care consult process. Students are considered important members of the Palliative Care team and will work closely with other team members on palliative care issues. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**422 PHCY, Critical Care Medicine I.** A one-month advanced pharmacy practice experience (APPE) rotation emphasizing the understanding and management of problems specifically related to critically ill patients, particularly trauma and surgical patients. Identification of patient problems according to major body systems and application of clinical therapeutics to the critically ill patient will be stressed. Specific topics discussed include hemodynamic and physiologic monitoring, pharmacokinetic considerations and infectious problems in the critically ill ICU patient. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**423 PHCY, Critical Care Medicine II.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of the 422 PHCY, Critical Care Medicine I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**424 PHCY, Critical Care Medicine III.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of the 423 PHCY, Critical Care Medicine II. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**425 PHCY, Surgery/Transplant.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of rational pharmacotherapeutics in the area of surgery or transplant. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**426 PHCY, Specialty Pharmacy and Therapeutic Management.** A one month advanced pharmacy practice experience (APPE) rotation in a pharmacy practice site which dispenses new and innovative therapies with an emphasis the patient medication management of those unique therapies. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**427 PHCY, Government Rotation.** This one-month advanced pharmacy practice experience (APPE) is an elective rotation. It is the classification for rotations involving the Indian Health Services, the United States Army, and the United States Air Force. This rotation involves, but is not limited to, direct patient care ensuring optimal healthcare delivery, application of clinical knowledge in management of acute conditions and chronic disease states, and the delivery of pharmaceutical care to the respective patient population. The Government Rotation provides the opportunity for student pharmacists to practice pharmacy outside the scope of traditional community and institutional settings. Student pharmacists are able to apply knowledge of pharmacotherapy in a unique setting that integrates both community and institutional pharmacy practice. Student pharmacists utilize communication skills by offering patient counseling on medications and by communicating with other healthcare providers as part of an interprofessional team. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**428 PHCY, Health Policy.** A one-month advanced pharmacy practice experience (APPE) elective rotation based at the University of Tennessee Clinical Education Center in Nashville. Student will participate in activities and projects related to health policy in State of Tennessee Government Agencies that interact with the healthcare system (especially Health Related Boards, TennCare, Departments of Health and Mental Health and Tennessee Bureau of Investigations). Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**430 PHCY, Pediatric I.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of rational pharmacotherapeutics in the area of pediatrics. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**431 PHCY, Pediatric II.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 430 PHCY, Pediatric I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**433 PHCY, Pediatric Oncology.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of rational pharmacotherapeutics in the area of pediatric oncology. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**434 PHCY, Neonatology.** A one-month advanced pharmacy practice experience (APPE) rotation that emphasizes the understanding and management of drug therapy issues related to the care of special problem newborns. Credit 4(0-40). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**435 PHCY, Obstetrics-Gynecology.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of rational pharmacotherapeutics in the area of obstetrics-gynecology. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex, Brown, PharmD, BCNSP

**436 PHCY, Clinical Toxicology.** A one-month advanced pharmacy practice experience (APPE) rotation providing experience with poisoning victims and the promotion of rational therapeutics for toxicologic problems. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**440 PHCY, Nutrition I.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of rational pharmacotherapeutics in the area of nutritional support. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**441 PHCY, Nutrition II.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 440 PHCY, Nutrition I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**442 PHCY, Nutrition III.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 441 PHCY, Nutrition II. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**443 PHCY, Pediatric Nutrition.** A one-month advanced pharmacy practice experience (APPE) rotation on a consult service that provides prospective and continuous care, which requires daily involvement with patients and their caregivers. The student gains hands on experience in taking care of preterm neonates and children with unique nutritional needs and other medical needs such as appropriateness of antibiotics, diuretic therapy, gastrointestinal motility agents, pain management, etc. With supervision by pharmacy residents and faculty, students are expected to monitor their assigned patients; formulate a plan and discuss their plan with the appropriate medical, nursing, and pharmacy staff; write parenteral nutrition solution orders; and write progress notes in the patient's medical record. Credit 4(4-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**444 PHCY, Home Infusion Therapy.** A one-month advanced pharmacy practice experience (APPE) rotation that emphasizes the development of clinical skills in the area of intravenous drug therapy conducted in the home. Such therapies include antibiotics, chemotherapy, pain control, nutrition and hydration. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**449 PHCY, Medication Therapy Management.** This one-month advanced pharmacy practice experience (APPE) rotation offers real practical experience for students providing detailed consultations and therapy management. Students will collaborate with Physicians and other Health Care providers to maximize favorable outcomes for their patients. Students will conduct live Comprehensive Medication reviews with patients as well as Therapeutic interchanges to better manage their therapy. Students will work with pharmacists, and other pharmacy team members to learn the basic MTM billing procedures for Outcomes and Mirixa. MTM is the future of pharmacy and Students play an important role in using their clinical knowledge to better take care of their patients. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**450 PHCY, Ambulatory Care I.** A one-month advanced pharmacy practice experience (APPE) required rotation providing supervised development of clinical skills and concepts in the application and promotion of rational pharmacotherapeutics in the area of ambulatory care. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**451 PHCY, Ambulatory Care II.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 450 PHCY, Ambulatory Care I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**452 PHCY, Ambulatory Care III.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 451 PHCY, Ambulatory Care II. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**453 PHCY, Ambulatory Care, Community Pharmacy.** A one-month advanced pharmacy practice experience (APPE) rotation conducted in a community pharmacy where there is a commitment to providing extensive clinical pharmacy services. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**458 PHCY, Chemical Dependency.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical knowledge and skills in the promotion of rational pharmacotherapeutics in the area of chemical dependency and alcohol and substance abuse. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**460 PHCY, Drug Information I.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of rational pharmacotherapeutics in the area of drug information. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**461 PHCY, Drug Information II.** A continuation of 460 PHCY, Drug Information I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**462 PHCY, Therapeutic Quality Assurance.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised clinical experience to foster the development of concepts, knowledge and skills to enable implementation and participation in quality assurance activities in the institutional setting. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP



**463 PHCY, Applied Pharmacokinetics.** A one-month advanced pharmacy practice experience (APPE) rotation designed to focus on (a) clinical pharmacodynamics, (b) the basis for drug-specific target concentrations, including strengths and limitations of studies establishing the therapeutic ranges, and (c) recommended strategies for applying pharmacokinetic principles to individual patients. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**464 PHCY, Managed Care.** A one-month advanced pharmacy practice experience (APPE) rotation in the area of managed care. This experience is completed at a managed care organization. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**465 PHCY, Clinical Research I.** This one-month advanced pharmacy practice experience (APPE) rotation will involve the PharmD student in the procedures and techniques used in the laboratory analysis of patient samples from a variety of clinical studies. The student will learn proper procedures for sample preparation and analysis. Additionally, the student will learn several approaches to proper data handling, manipulation and preliminary statistical analysis. Credit 4(4-0). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Rex, Brown, PharmD, BCNSP

**466 PHCY, Clinical Research II.** This one-month advanced pharmacy practice experience (APPE) rotation is a continuation of 465 PHCY, Clinical Research I. Credit 4(4-0). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**470 PHCY, Mental Health I.** A one-month advanced pharmacy practice experience (APPE) rotation providing supervised development of clinical skills and concepts in the application and promotion of rational pharmacotherapeutics in the area of mental health. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**471 PHCY, Mental Health II.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 470 PHCY, Mental Health I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**472 PHCY, Pharmacy Informatics.** A one-month advanced pharmacy practice experience (APPE) rotation that addresses the issues of pharmacy computer systems for both inpatients and outpatients, automated dispensing devices, computerized prescriber order entry, and bedside barcode systems. Credit 4(0-40). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**477 PHCY, Therapeutics Drug Monitoring.** A one-month advanced pharmacy practice experience (APPE) rotation designed to focus on clinical pharmacodynamics, basis for drug-specific target concentrations, including strengths and limitations of studies establishing the "therapeutic ranges" and recommended strategies for applying pharmacokinetic principles to individual patients. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**478 PHCY, Compounding Pharmacy I.** A one-month advanced pharmacy practice experience (APPE) rotation in a community pharmacy setting which emphasizes compounding unique formulations that satisfy unique patient needs. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**479 PHCY, Compounding Pharmacy II.** A continuation of 478 PHCY, Compounding Pharmacy I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**480 PHCY, Advanced Community Practice I.** A one-month advanced pharmacy practice experience (APPE) required rotation conducted in community pharmacies and which promotes the development of practice skills in comprehensive pharmaceutical care. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**481 PHCY, Advanced Community Practice II.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 480 PHCY, Advanced Community Practice I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**482 PHCY, Advanced Community Practice III.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 481 PHCY, Advanced Community Practice II. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**483 PHCY, Advanced Institutional Pharmacy I.** A one-month advanced pharmacy practice experience (APPE) required rotation conducted in institutional pharmacies, most often hospitals, and which promote the development of practice skills in comprehensive pharmaceutical care. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**484 PHCY, Advanced Institutional Pharmacy II.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of PHCY 483, Advanced Institutional Pharmacy I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**485 PHCY, Indian Health Service.** A one-month advanced pharmacy practice experience (APPE) rotation conducted in a U.S. Public Health Service facility, most often Native American Service programs in Alaska, North Carolina, Arizona, and New Mexico. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**486 PHCY, Public Health.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is conducted in a U.S. Public Health Service facility. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**487 PHCY, Community Pharmacy Management I.** A one-month advanced pharmacy practice experience (APPE) rotation with a pharmacy corporation engaged in the provision of community pharmacy care. Students will gain an understanding of the skills required to manage a community pharmacy. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**488 PHCY, Community Pharmacy Management II.** A one-month advanced pharmacy practice experience (APPE) rotation that is a continuation of 487 PHCY, Community Pharmacy Management I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**489 PHCY, Advanced Institutional Management I.** A one-month advanced pharmacy practice experience (APPE) rotation conducted in institutional pharmacies, most often hospitals, and which focuses upon the development of management skills appropriate for institutional pharmacy practice. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**490 PHCY, Advanced Institutional Management II.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 489 PHCY, Advanced Institutional Management I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**491 PHCY, Pharmaceutical Marketing.** A one-month advanced pharmacy practice experience (APPE) rotation directed by pharmacists employed by major pharmaceutical companies. A major objective of this experience is to provide the student with an appreciation of the influence of sales and marketing upon overall pharmaceutical care. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**492 PHCY, Pharmacy Association Management I.** A one-month advanced pharmacy practice experience (APPE) elective rotation based at the headquarters of the Tennessee Pharmacists Association (TPA) in Nashville. Student will participate in the day-to-day responsibilities of TPA staff and officers, including meeting planning, monthly journal publication, interfacing with Tennessee State Legislature and Tennessee Medicaid Office. Some interaction with the Tennessee Board of Pharmacy is also possible. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**493 PHCY, Pharmacy Association Management II.** A one-month advanced pharmacy practice experience (APPE) elective rotation that is a continuation of 492 PHCY, Pharmacy Association Management I. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**494 PHCY, Academic Administration.** This one-month advanced pharmacy practice experience (APPE) elective rotation is a unique professional experience that will allow a student the opportunity to learn about a variety of roles and responsibilities of a pharmacist in academia. This rotation is set within the University of Tennessee College of Pharmacy. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**495 PHCY, Medication Safety.** A one-month advanced pharmacy practice experience (APPE) elective rotation focusing on medication safety in which students will be involved in designing and developing safe medication use systems, as well as gain an understanding of national patient safety initiatives. Activities will include documenting and evaluating medication errors and developing safeguards for prevention of future errors. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**498 PHCY, Veterinary Pharmacy.** This one-month advanced pharmacy practice experience (APPE) elective rotation allows a student the opportunity to learn about pharmacology and therapeutics in a diverse animal population. The student will engage in the care of both small and large animals and will experience a variety of roles and responsibilities of a pharmacist in academia. This specific month's rotation is set within a Veterinary Hospital in Cleveland, Tennessee. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**499 PHCY, International Studies.** A one-month advanced pharmacy practice experience (APPE) elective rotation conducted in pharmacy practice settings in Australia, New Zealand, Japan, England, Sweden, Denmark, or Spain. A major objective of this experience is to provide the student with an appreciation of cultural and political influences upon the practice of pharmacy. Credit 4(0-40). Pedagogy: experiential learning, interprofessional education. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

## Department of Pharmaceutical Sciences

**112 PHSC, Medicinal Chemistry I.** A course devoted to the chemical basis for the interdisciplinary field of therapeutics. Synthetic entities and natural products, which are chemotherapeutic agents, are studied. The course familiarizes the student with the chemistry of organic medicinal agents necessary for effective professional practice. Credit 4(3-2). Pedagogy: didactic, laboratory. Term: Fall. Course Director: Isaac Donker, PhD

**113 PHSC, Pharmacy Math.** This course is designed to teach the fundamentals of pharmaceutical calculations that are required in the compounding and dispensing of a prescription. Students will apply appropriate mathematical concepts using typical situations that are encountered during the practice of pharmacy. The course will emphasize aspects of basic mathematics and logical skills needed to perform pharmaceutical and clinical calculations essential to ensure that the right dose and strength of a medication or nutritional are given. The pedagogy for this course is predominately didactic lecture. Credit

1(1-0). Pedagogy: didactic, skills-based. Term: Fall. Course Director: Michael Christensen, PharmD.

**122 PHSC, Medicinal Chemistry II.** Continuation of 112 PHSC, Medicinal Chemistry I. Pedagogy: didactic, laboratory. Term: Spring. Credit 4(3-2). Course Director: Isaac Donker, PhD.

**123 PHSC, Pharmaceuticals.** A continuation of 125 PHSC, Pharmaceutical Principles, Credit 4(4-0). Pedagogy: didactic. Term: Fall. Course Director: Tao Lowe, PhD

**125 PHSC, Pharmaceutical Principles.** This required course focusing on understanding the physicochemical principles of medications and their applications to the design and development of different pharmaceutical dosage forms. The basic principles that will be covered in this course include drug development and regulatory process, physicochemical and biopharmaceutical considerations, solutions and buffers, chemical kinetics and stability, rheology, interfacial phenomena, disperse system basics, biomaterials, drug delivery. Credit 2(2-0). Pedagogy: didactic. Term: Fall. Course Director: Ram Mahato, PhD

**126 PHSC, Sterile Dosage Forms.** A course designed to familiarize the student with the fundamental principles pertaining to and the techniques employed in the formulation of pharmaceutical agents. Credit 2 (2-0). Pedagogy: didactic, laboratory. Term: Fall. Course Director: Laura Thoma, PharmD

**127 PHSC, Pharmacy Compounding.** This required course, taught in the P1 spring semester of the first professional year, introduces student pharmacists to concepts, techniques, and equipment used in compounding and dispensing of non-sterile preparations. Students receive 14 one hour pre-laboratory lectures followed by 13 weeks of four hours of compounding in the Pharmacy Technology Laboratory. Extemporaneous compounds discussed and prepared in the course include liquid, semi-solid and solid dosage forms. Credit 2(1-4). Pedagogy: didactic, laboratory, skills based. Term: Spring. Course Director: Robert Nolly, PharmD

**212 PHSC, Pharmacokinetics and Dose Optimization.** An introduction to concepts and techniques involved in quantitative processes associated with the absorption, distribution, metabolism and elimination of drugs. Kinetics of these processes will be rigorously developed, based on appropriate model systems. The didactic material and assigned problems will emphasize current pharmacokinetic literature and will familiarize the students with the latest advances in this rapidly expanding area. Credit 4(3-2). Pedagogy: didactic. Term: Fall. Course Director: Bernd Meibohm, PhD

**214 PHSC, Pharmacy Practice Management & Pharmacoeconomics.** This course acquaints students with the basic principles of management including planning, organizing, directing, coordinating, and controlling a practice, business, or organization. Attention is focused on management of capital, time, inventory, and human resources. Credit 3(3-0). Pedagogy: didactic. Term: Fall. Co-Course Directors: David Solomon, PharmD; Glen Farr, PharmD

**215 PHSC, Focus on Pharmacy Compounding.** This one week elective course will teach students to prepare dosage forms they have not previously made such as lollipops, animal treats, sticks, ophthalmics, injections, etc. Emphasis is placed on creating unique formulations that satisfy unique patient needs. Equipment used by compounding pharmacists to formulate preparations that satisfy these needs are discussed. Credit 1(0-4). Pedagogy: didactic, laboratory. Term: Spring. Course Director: Robert Nolly, PharmD

**222 PHSC, Pharmacogenomics.** The course is designed to educate students on the importance and application of patient-specific genetic information to individualization of pharmacotherapy. The course begins with a review of essential principles of genetics with an emphasis on genetic variation. The course goes on to develop the concept that individual variability in pharmacokinetic and pharmacodynamic response is related in many instances to genetic variation. The impact of genetic variation in key drug metabolizing enzymes, drug transporters, and receptor drug targets is explored in general as well as in a disease-specific context. Finally, students learn about the ethical and legal implications stemming from the availability of genetic information. Credit 2(2-0). Pedagogy: didactic. Term: Fall. Course Director: Sarka Beranova, PhD

**223 PHSC, Medication Therapy Management.** The course explores the area of medication therapy management services and medication use by patients and health professionals from a social systems perspective with emphasizes information and behavior. This course is not designed to make students experts in Medication Therapy Management, nor totally prepare them to start up their own MTM practice after graduation. It is designed, however, to give students a good foundation on the practice and theory of Medication Therapy Management, a better understanding of various MTM practice settings, and provide students with practical MTM activities (during Recitation) to make them more comfortable with the MTM process. Credit 3(2-2). Pedagogy: didactic, laboratory, team-based learning, skills-based. Term: Spring. Co-Course Directors: Laurence Brown, PharmD, PhD; Michelle Farland, PharmD, BCPS, CDE

**240 PHSC, Introductory Research in Pharmaceutics I.** An elective course designed to introduce the student to research techniques in the pharmaceutical sciences. Credit 2-3 (credit by arrangement with the chairman of the department). Pedagogy: project based. Term: Fall, Spring, Summer. Course Director: Duane Miller, PhD

**241 PHSC, Introductory Research in Pharmaceutics II.** A continuation of 240 PHSC, Introductory Research in Pharmaceutics I. Credit 2-4 (by arrangement with the chairman of the department). Pedagogy: project based. Term: Fall, Spring, Summer. Course Director: Duane Miller, PhD

**242 PHSC, Introductory Research in Pharmaceutics III.** A continuation of 241 PHSC, Introductory Research in Pharmaceutics II. Credit 2-4 (by arrangement with the chairman of the department). Pedagogy: project based. Term: Fall, Spring, Summer. Course Director: Duane Miller, PhD

**257 PHSC, Introduction to Nuclear Pharmacy.** The first of a three-course sequence (257 PHSC, 258 PHSC, and 259 PHSC) to provide the 200 hour of didactic/laboratory material required by the NRC to become a nuclear pharmacist. Gives an overview of the use of radiopharmaceuticals in nuclear medicine, review of basic concepts of physics, atomic and nuclear structure, nuclear interactions, etc. Credit 4(3-2). Pedagogy: didactic, skills-based, project based. Term: Spring. Course Director: Vivian Loveless, PharmD, BCNP

**258 PHSC, Basic Nuclear Pharmacy.** The second course in a three-course sequence (257 PHSC, 258 PHSC, and 259 PHSC). This course involves radiation safety, characteristics and use of the geiger-mueller counter, gamma ray scintillation spectrometry-single channel analyzer, background reduction, etc. Credit 3(2-3). Pedagogy: didactic, skills-based, project based. Term: Summer. Course Director: Vivian Loveless, PharmD, BCNP

**259 PHSC, Advanced Nuclear Pharmacy.** The third course in a three-course sequence (257 PHSC, 258 PHSC, and 259 PHSC) qualifying the student to become licensed as a certified nuclear pharmacist. This course includes cardiac studies, pharmacologic stress agents, renal studies, hepatobiliary imaging, thyroid studies, etc. Credit 2(1-3). Pedagogy: didactic, skills-based, project based. Term: Fall. Course Director: Vivian Loveless, PharmD, BCNP

**260 PHSC, Special Problems in Pharmaceutical Sciences I.** The purpose of this elective course is to allow the individual student to design and implement a specific project in pharmaceutical sciences. After completion of the project, a written report is required. Credit 2-4. Pedagogy: project based. Term: Fall, Spring, Summer. Course Director: Duane Miller, PhD

**261 PHSC, Special Problems in Pharmaceutical Sciences II.** A continuation of 260 PHSC, Special Problems in Pharmaceutical Sciences I. Credit 2-4. Pedagogy: project based. Term: Fall, Spring, Summer. Course Director: Duane Miller, PhD

**262 PHSC, Special Problems in Pharmaceutical Sciences III.** A continuation of 261 PHSC, Special Problems in Pharmaceutical Sciences II. Credit 2-4. Pedagogy: project based. Term: Fall, Spring, Summer. Course Director: Duane Miller, PhD

**265 PHSC, Pharmacy Compounding Special Project I.** The purpose of this elective course is to allow the individual student to further develop their knowledge and skills in the area of pharmacy compounding. Credit 1-3. Pedagogy: project based. Term: Fall, Spring, Summer. Course Director: Robert Nolly, PharmD

**311 PHSC, Compounding Pharmacy Elective.** The course will teach students to prepare dosage forms they have not previously made such as lollipops, animal treats, sticks, ophthalmics, injections, etc. Emphasis is placed on creating unique formulations that satisfy unique patient needs. Equipment used by compounding pharmacists to formulate preparations that satisfy these needs are discussed. Credit 2(1-2). Pedagogy: didactic, skills-based, project based. Term: Fall. Course Director: Robert Nolly, PharmD

**336 PHSC, Pharmacy Compounding Special Project II.** This course is a continuation of 265 PHSC, Pharmacy Compounding Special Project I, and allows the student to further develop knowledge and skills in the area of pharmacy compounding. Credit 1-3. Pedagogy: project based. Term: Fall, Spring, Summer. Course Director: Robert Nolly, PharmD

**421 PHSC, Pharmaceutical Sciences Research.** A one-month advanced pharmacy practice experience (APPE) elective rotation. Credit 4(0-40). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**440 PHSC, Nuclear Pharmacy.** An advanced pharmacy practice experience (APPE) elective rotation designed to introduce the student to clinical application concepts associated with the field of radiomedications. Credit 4(0-40). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**441 PHSC, Pharmacokinetics.** A one-month advanced pharmacy practice experience (APPE) elective rotation providing supervised professional experience in research applications of pharmacokinetic principles. Credit 4(0-40). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**442 PHSC, Industrial Pharmaceutics.** A one-month advanced pharmacy practice experience (APPE) elective rotation designed to give the student experience in the operation of a pilot plant scale production facility for nonsterile dosage forms of drugs. Credit 4(0-40). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**445 PHSC, Biopharmaceutical Analysis.** An elective course designed to introduce the concepts and principles of instrumental analysis especially as they apply to biopharmaceutics. It will involve didactic and laboratory instruction. Credit 2(1-4). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

**451 PHSC, Pharmacoeconomics.** A one-month advanced pharmacy practice experience (APPE) elective rotation designed to give the student experience in the description and analysis of the costs of drug therapy to health care systems and society. Credit 4(4-0). Pedagogy: experiential learning. Term: Fall, Spring, Summer. Course Director: Rex Brown, PharmD, BCNSP

## Department of Pharmacology

**111 PHAR, Pharmacy Pharmacology I.** This course is designed to give students a fundamental knowledge of the interactions between drugs and living systems. Drug mechanisms of action and drug interactions are emphasized. Principles of drug metabolism, synergism, antagonism, accumulation and toxicity are also discussed. Credit 4(4-0). Pedagogy: didactic. Term: Fall. Course Director: Suleiman Bahouth, PhD

**121 PHAR, Pharmacy Pharmacology II.** Continuation of 111 PHAR, Pharmacology I. Credit 4(4-0). Pedagogy didactic. Term: Spring. Course Director: Parker Suttle, PhD

## STUDENT ORGANIZATIONS

### Student Government Association

The Pharmacy Student Government Association (PSGA) is the primary student organization that represents the student body of the College of Pharmacy. This group also serves as liaison between students, administration and faculty. The PSGA is composed of a president (elected annually by the entire student body), president-elect, the president of each class, and one representative from each of the other student organizations and the pharmacy fraternities. The Dean and Executive Associate Dean meet monthly with the PSGA to hear first-hand of developments within the College of Pharmacy. The PSGA also assists in implementing changes or initiating new programs, recommending names of student representatives to serve on the standing committees of the College, and encouraging and promoting student leadership and involvement in professional and extracurricular activities.

### Student Organizations

Incoming students quickly learn that the pharmacy classes are structurally organized and are influential in policy matters affecting student life. Although there are no social fraternities on the campus there are several active organizations that have both social benefits and professional roles. These are:

- A. **Academy of Student Pharmacists** - Student counterpart of the American Pharmacists Association (APhA)
- B. **Student National Pharmaceutical Association** - Student counterpart of the national organization for minority pharmacists
- C. **Kappa Psi** - Professional pharmacy fraternity
- D. **Phi Delta Chi** - Professional pharmacy fraternity
- E. **Rho Chi** - National honor society in pharmacy
- F. **Phi Lambda Sigma** - National pharmacy leadership society

## FACULTY LIST

Airee, Anita, Associate Professor, 2003; Doctor of Pharmacy, University of Tennessee Health Science Center (1998)

Almoazen, Hassan, Assistant Professor, 2007; Doctor of Philosophy in Pharmaceutical Sciences, Long Island University (2002)

Apple, Alison Moore, Associate Professor, 2002; Master of Science in Pharmacy, University of North Carolina at Chapel Hill (1984)

Bahouth, Suleiman W., Professor, 1988; Doctor of Philosophy in Pharmacology, New York University (1985)

Benge, Cassandra E., Assistant Professor, 2004; Doctor of Pharmacy, Auburn University (1998)

Beranova, Sarka, Associate Professor, 1996; Doctor of Philosophy in Chemistry, University of Akron (1995)  
Bess, David Todd, Associate Professor, 1998; Doctor of Pharmacy, University of Tennessee Health Science Center (1986)

Boucher, Bradley A., Professor, 1984; Doctor of Pharmacy, University of Minnesota (1983)

Broyles, Joyce E., Associate Professor, 1985; Doctor of Pharmacy, University of Tennessee Health Science Center (1988); Master of Science in Microbiology, University of Tennessee Knoxville (1981)

Brown, Candace S., Professor, 1987; Doctor of Pharmacy, University of Washington (1985)

Brown, James Richard, Professor, 1984; Doctor of Pharmacy, University of Tennessee Health Science Center (1975)

Brown, Lawrence M., Associate Professor, 2003; Doctor of Pharmacy, University of the Pacific (1999); Doctor of Philosophy in Social, Administrative and Clinical Pharmacy, University of Minnesota (2003)

Brown, Rex O., Professor and Vice Chair, 1983; Doctor of Pharmacy, University of Tennessee Health Science Center (1980)

Byrd, Debbie Curtis, Professor and Associate Dean, 2006; Doctor of Pharmacy, University of Tennessee Health Science Center (1994)

Buolamwini, John K., Professor, 2000; Doctor of Pharmacy, University of Alberta (1990)

Carter, Jason A., Associate Professor, 2004; Doctor of Pharmacy, University of Tennessee Health Science Center (1995)

Chhim, Rebecca F., Assistant Professor, 2011; Doctor of Pharmacy, University of Tennessee Health Science Center (2009)

Christensen, Michael Lloyd, Professor, 1990; Doctor of Pharmacy, University of Tennessee Health Science Center (1982)

Chyka, Peter Anton, Professor and Associate Dean, 1977; Doctor of Pharmacy, University of Minnesota (1977)

Cook, George A., Professor, 1983; Doctor of Philosophy in Biochemistry, Auburn University (1974)

Dickerson, Roland N., Professor, 1992; Doctor of Pharmacy, University of Tennessee Health Science Center (1982)

Donkor, Isaac O., Professor and Vice Chair, 1993; Doctor of Philosophy in Medicinal Chemistry, Duquesne University (1988)



Dopico, Alejandro (Alex), Professor, 2000; Doctor of Philosophy in Pharmacology, University of Buenos Aires (1989)

Dortch, Marcus J., Assistant Professor, 2005; Doctor of Pharmacy, University of Tennessee Health Science Center (2001)

Duhart, Benjamin T., Associate Professor, 1997; Doctor of Pharmacy, University of Tennessee Health Science Center (2001)

Duncan, John David, Assistant Professor, 2006; Doctor of Pharmacy, University of Tennessee Health Science Center (1997)

Eoff, James C., Professor and Associate Dean, 1967; Doctor of Pharmacy, University of Tennessee Health Science Center (1970)

Draper, Heather M. Eppert, Associate Professor, 2006; Doctor of Pharmacy, Ferris State University (2005)

Farland, Michelle Zingone, Associate Professor, 2007; Doctor of Pharmacy, University of Pittsburgh (2004)

Farr, Glen E., Professor and Assistant Dean, 1973; Doctor of Pharmacy, University of Tennessee Health Science Center (1973)

Finch, Christopher K., Assistant Professor, 2000; Doctor of Pharmacy, University of Tennessee Health Science Center (2000)

Finks, Shannon L., Associate Professor, 2000; Doctor of Pharmacy, University of Tennessee Health Science Center (1998)

Foster, Stephan L., Professor, 1998; Doctor of Pharmacy, University of Tennessee Health Science Center (1977)

Franks, Andrea R., Associate Professor, 1995; Doctor of Pharmacy, University of Tennessee Health Science Center (1992)

George, Christa M., Associate Professor, 1996; Doctor of Pharmacy, University of Tennessee Health Science Center (1995)

Greene, William Alexander, Professor, 1987; Doctor of Pharmacy, University of Tennessee Health Science Center (1981)

Gross, Benjamin Neil, Assistant Professor, 2003; Doctor of Pharmacy, University of Tennessee Health Science Center (2006)

Guarascio, Anthony Joseph, Assistant Professor, 2011; Doctor of Pharmacy, West Virginia University (2009)

Hamann, Gale L., Professor, 1993; Doctor of Pharmacy, University of Nebraska – Lincoln (1982)

Helms, Richard A., Professor and Chair, 1979; Doctor of Pharmacy, Duquesne University (1979)

Herrington, Catherine Crill, Associate Professor, 1996; Doctor of Pharmacy, University of Tennessee Health Science Center (1996)

Hoffman, James Matthew, Associate Professor, 2005; Doctor of Pharmacy, University of the Sciences in Philadelphia (2001)

Howard-Thompson, Amanda Marie, Associate Professor, 2000; Doctor of Pharmacy, University of Tennessee Health Science Center (2005)

Jones, Terreia S., Assistant Professor, 2004; Doctor of Pharmacy, University of Tennessee Health Science Center (2003)

Knous, Nancy, Contractor, 2006; Bachelor of Science in Communications, University of Tennessee Knoxville (1983)

Kurosu, Michio, Associate Professor, 2011; Doctor of Philosophy in Pharmacy/Organic Chemistry, Osaka University (1995)

Laizure, Joanna Hudson, Associate Professor, 1998; Doctor of Pharmacy, Virginia Commonwealth University - Medical College of Virginia (1996); Certificate in Clinical Research, University of Tennessee Health Science Center (2008)

Laizure, Steven Casey, Professor, 1987; Doctor of Pharmacy, University of North Carolina at Chapel Hill (1983)

Lee, Kelley R., Professor, 1991; Doctor of Pharmacy, University of Tennessee Health Science Center (1991)

Lee, Marilyn D., Professor, 1984; Doctor of Pharmacy, University of Tennessee Health Science Center (1980)

Li, Wei, Associate Professor, 1999; Doctor of Philosophy in Chemistry, Columbia University in the City of New York (1999)

Lothstein, Leonard, Associate Professor, 1988; Doctor of Philosophy in Molecular Biology, Vanderbilt University (1983)

Loveless, Vivian S., Associate Professor, 1974; Doctor of Pharmacy, University of Tennessee Health Science Center (1976)

Lowe, Tao Lu, Associate Professor, 2011; Doctor of Philosophy in Polymer Chemistry, University of Helsinki, Finland (1998)

Mahato, Ram, Professor, 2001; Doctor of Philosophy in Pharmaceutics & Drug Delivery, University of Strathclyde, Glasgow (1992)

May, Charles N., Assistant Professor, 1993; Bachelor of Science in Pharmacy, University of Tennessee Health Science Center (1955)

McFarland, Michael Shawn, Associate Professor, 2000; Doctor of Pharmacy, University of Tennessee Health Science Center (2000)

Meibohm, Bernd, Professor, 1999; Doctor of Natural Sciences, Technical University Carolo-Wilhelmina (1994)

Miller, Duane D., Professor and Chair, 1992; Doctor of Philosophy in Pharmacy, University of Washington (1969)

Moore, Bob M., Professor, 1998; Doctor of Philosophy in Medicinal Chemistry, University of Kansas (1995)

Moore, Tara B., Assistant Professor, 1999; Doctor of Pharmacy, University of Tennessee Health Science Center (1992)

Nolly, Robert J., Professor, 1979; Master of Science in Hospital Pharmacy Administration, Ohio State University (1979)

Ostrom, Rennolds S., Associate Professor, 2003; Doctor of Philosophy in Pharmacology and Toxicology, University of California, Irvine (1998)

Park, Edwards A., Professor, 1991; Doctor of Philosophy in Physiology, Pennsylvania State University (1984)

Park, Vicki M., Associate Professor, 1993; Doctor of Philosophy in Biology, Yale University (1983)

Parker, Robert B., Professor, 1992; Doctor of Pharmacy, University of North Carolina at Chapel Hill (1987)

Perry, Alicia B., Assistant Professor, 2006; Doctor of Pharmacy, University of North Carolina at Chapel Hill (1999)

Phelps, Stephanie J., Professor, 1982; Doctor of Pharmacy, University of Tennessee Health Science Center (1982)

Powers, Douglas Tony, Assistant Professor, 1984; Doctor of Pharmacy, University of Tennessee Health Science Center (1982)

Presley, Joseph Don, Assistant Professor, 2002; Doctor of Pharmacy, University of Tennessee Health Science Center (2002)

Rashed, Sahar, Associate Professor, 1996; Doctor of Pharmacy, University of Tennessee Health Science Center (2000); Doctor of Philosophy in Biochemistry, University of Tennessee Health Science Center (1990)

Rawls, William Nathan, Professor, 1977; Doctor of Pharmacy, University of Tennessee Health Science Center (1976)

Ray, Shaunta' Martina, Associate Professor, 2006; Doctor of Pharmacy, University of Oklahoma Health Sciences Center (2004)

Reaves, Anne B., Assistant Professor, 1993; Doctor of Pharmacy, University of Tennessee Health Science Center (1992)

Rogers, Kelly C., Professor, 2001; Doctor of Pharmacy, University of Tennessee Health Science Center (1994)

Rogers, Phillip David, Professor, 2001; Doctor of Philosophy in Microbiology, University of Mississippi Medical Center (2001); Doctor of Pharmacy, University of Tennessee Health Science Center (1995)

Rowe, Anthony Shaun, Assistant Professor, 2003; Doctor of Pharmacy, Campbell University (2003)

Schwab, Carol A., Director, 2007; Juris Doctor, University of Missouri – Columbia (1978); Master of Laws in Taxation, Washington University in St. Louis (1985)

Self, Timothy H., Professor, 1972; Doctor of Pharmacy, University of Tennessee Health Science Center (1972)

Shelton, Chasity Michelle, Assistant Professor, 2005; Doctor of Pharmacy, University of Tennessee Health Science Center (2005)

Smith, Cindy T., Assistant Professor, 1999; Doctor of Pharmacy, University of Tennessee Health Science Center (1991)

Solomon, David K., Professor, 1990; Doctor of Pharmacy, University of Tennessee Health Science Center (1970)

Steketee, Jeffery D., Professor, 2001; Doctor of Philosophy in Biomedical Sciences, University of Texas Health Science Center at Houston (1989)

Stelts, Sundae Dawne, Assistant Professor, 2009; Doctor of Pharmacy, Medical University of South Carolina (2006)

Suda, Katie Joy, Associate Professor, 2003; Doctor of Pharmacy, Drake University (1999); Master of Science in Epidemiology, University of Tennessee Health Science Center (2010)

Suttle, Dale Parker, Associate Professor, 1993; Doctor of Philosophy in Chemistry, University of Texas at Austin (1975)

Swanson, Joseph Michael, Assistant Professor, 1997; Doctor of Pharmacy, University of Tennessee Health Science Center (2002)

Sweatman, Trevor W., Professor, 1983; Doctor of Philosophy in Clinical Pharmacology, Southampton University Medical School (1981)

Swims, Melanie P., Associate Professor, 1992; Doctor of Pharmacy, University of Tennessee Health Science Center (1989)

Thoma, Laura A., Professor, 1985; Doctor of Pharmacy, University of Tennessee Health Science Center (1991)

Tillman, Emma M., Research Assistant Professor, 2007; Doctor of Pharmacy, Butler University (2007)

Waddell, James Aubrey, Professor, 2005; Doctor of Pharmacy, University of Arkansas for Medical Sciences (1996); Master of Arts in Business Administration, Webster University (1987)

Wood, G. Christopher, Associate Professor, 1996; Doctor of Pharmacy, University of Tennessee Health Science Center (1996)

Yates, Charles Ryan, Professor, 1994; Doctor of Pharmacy, University of Tennessee Health Science Center (1997)

Yates, Mary, Assistant Professor, 2003; Doctor of Pharmacy, University of Tennessee Health Science Center (1997)