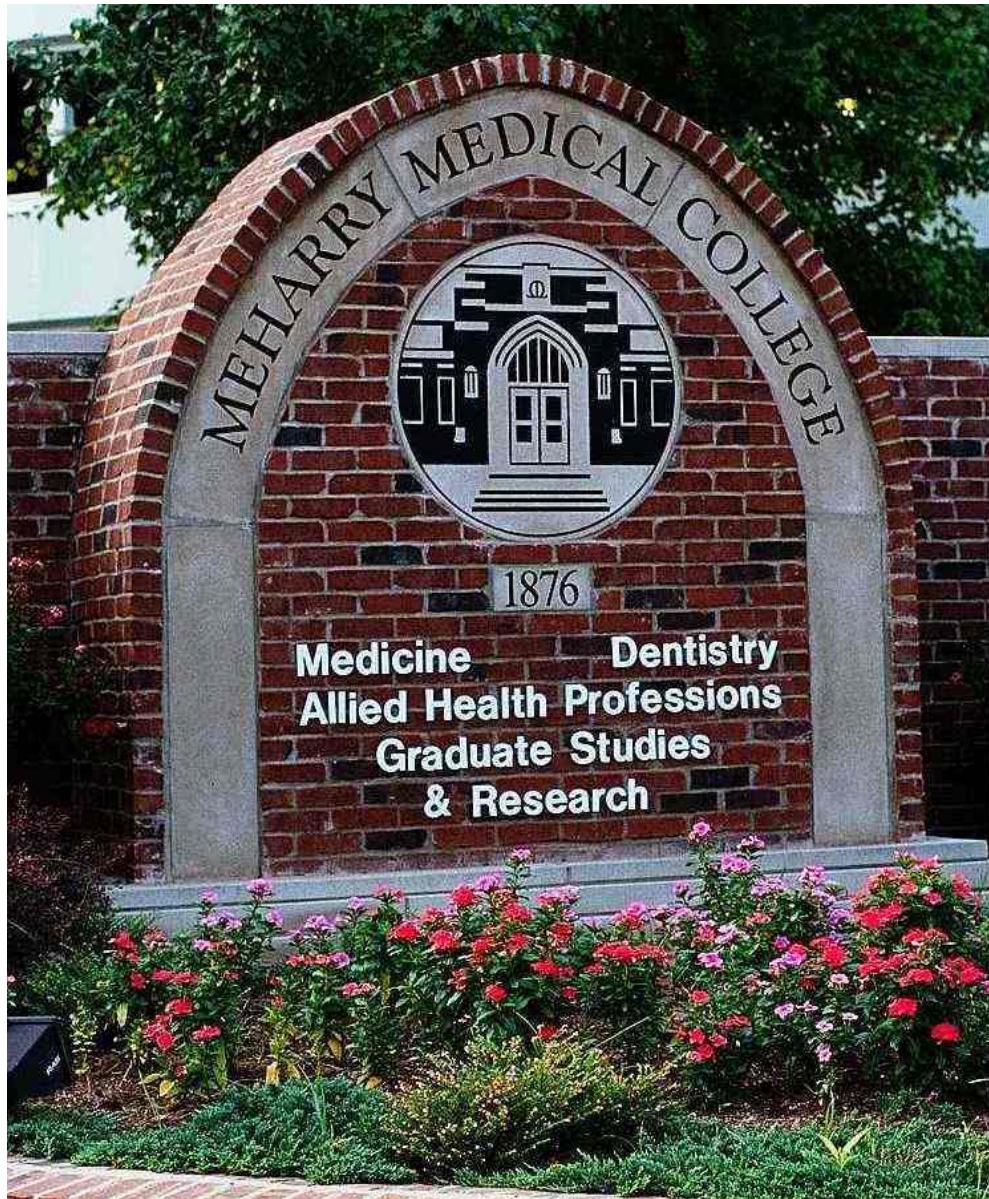


# **Meharry Medical College**



**Academic Catalog  
2005-2006**

## College Address

**Meharry Medical College**  
1005 Dr. D.B. Todd Jr. Blvd.  
Nashville, TN 37208-3599  
[www.mmc.edu](http://www.mmc.edu)

## Contact Numbers

**General Inquiries: Campus Operator**  
(615) 327-6000

**Office of Admissions and Recruitment**  
(615) 327-6223

**Office of Records**  
(615) 327-6805

**Office of Financial Aid**  
(615) 327-6826

**Office of College Relations**  
(615) 327-6084

**Office of Student Services**  
(615) 327-6792

**Office of Information Technology**  
(615) 327-6231

**Department of Public Safety and Security**  
General: (615) 327-6254  
Non-Emergency: (615) 327-6290  
EMERGENCY: (615) 327-6666

**School of Dentistry**  
(615) 327-6207

**School of Graduate Studies and Research**  
(615) 327-6533

**School of Medicine**  
(615) 327-6204

**Allied Health Professions Program**  
College of Health Sciences  
Tennessee State University  
(615) 963-5924

**Library**  
(615) 327-6318

**Bookstore**  
(615) 327-6269

**Mailroom**  
(615) 327-6278

# Meharry Medical College



## Academic Catalog

**2005-2006**

Meharry Medical College is accredited by the Southern Association of Colleges and Schools to offer academic programs leading to the following degrees: Doctor of Philosophy, Doctor of Medicine, Doctor of Dental Surgery, Master of Science, Master of Science in Public Health and Master of Science in Clinical Investigation. Certificates in health professions training are also offered, and these programs are also fully accredited.

The School of Medicine is a member of the Association of American Medical Colleges. It is accredited by the Liaison Committee of Medical Education of the American Medical Association and the American Association of Medical Colleges.

The School of Dentistry is a member of the American Dental Education Association and is fully accredited by the American Dental Association's Commission on Dental Accreditation.

Meharry Medical College is an EOE/AE employer and does not discriminate on the basis of gender, age, race, religion, color, national origin, handicap, veteran, or immigrant status in its admissions, employment and education programs or activities. Inquiries concerning the College's non-discrimination policies may be referred to the Office of the General Counsel, S.S. Kresge Learning Resources Center, (615) 327-6435, or to the Affirmative Action Officer, Office of the President, (615) 327-6904.

### **Disclaimer**

The information in this catalog is current and accurate as of July 2005. The College reserves the right to change prerequisites for admission, programs of study, courses, requirements for graduation, tuition and fees, policies, academic programs, lecturers, faculty, teaching staffs and other matters described in the catalog without prior notice. Changes will be posted on the College Web site and made available in hard copy in the Office of College Relations.

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## Calendar

Key: M-Monday; T-Tuesday; W-Wednesday; Th-Thursday; Sa-Saturday; S-Sunday

### **SUMMER SESSION 2005**

Dental Clinics Open, T-May 24  
MATCH Orientation (Medical Students), Sa-May 28  
Memorial Day Holiday, M-May 30  
Registration for Graduate Students, Tu-W, May 31-June 1  
Southern Regional Licensure Examination, F-S, June 3-5  
Summer Session Begins for Graduate Students, June 6  
Dental Clinics Close for Summer, F-July 1  
Holiday – Independence Day, M-July 4  
Grades Due (Summer Session) in Dental Academic Affairs Office, Tu-July 12  
Dental Grades Due in Admissions & Recruitment, W-July 13  
Post Bac Initial Summer Registration (Dental/Medicine) M-June 13  
Post Bac Summer Program Begins (Dental/Medicine) T-June 14  
Dental Student Evaluation & Promotion Committee Meeting, Th-July 14  
Summer Session Ends (Graduate Students), July 15  
Grades Due (Summer Session) Graduate Student Academic Affairs Office, W-July 20  
Grades Due for Graduate and Medical Students in Admissions & Recruitment, F-July 22  
Post Bac Initial Summer/MAPS Program Ends, F-July 22  
Student Evaluation & Promotion Committee Meeting (Summer Session Students), Th-July 28  
Graduate Student Evaluation & Promotion Committee Meeting, Th-July 28

### **FALL SESSION 2005**

Orientation, Medical Students (Freshman), M-June 20  
Early Entry, Students in MAPS (Dental) Registration, M-June 20  
Early Entry, Students in MAPS (Dental) Classes Begin, T-June 21  
Registration, Dental Students (Sophomore, Junior, Senior), M-F-June 20-24  
Orientation, Medical Students (Junior) M-F, June 27-July 1  
Registration, Post Bac (Medical/Dental Students) M-June 13  
Registration, Medical Students (Freshman and Freshman 2) M-June 20  
Classes Begin, Post Bac (Medical/Dental Students) M-June 14  
Classes Begin, Medical Students (Freshman 1 and Freshman 2) T- June 21  
Registration, Medical Students (Juniors) M-June 27  
Dental Clinics Close, F-July 1  
Registration, Medical Students (Senior) T-July 5  
Classes Begin, Medical Students (Juniors and Seniors) T-July 5  
National Board Dental Examination Part I, M-July 11  
Registration, Medical Students (Sophomore) M-July 25  
Classes Begin, Medical Students (Sophomores) M-July 25  
Early Entry MAPS Program Ends (Dental), F-July 29  
Registration (New Graduate Students, Freshman Dental) Th-August 4  
Orientation (New Graduate Students) Th-F, August 4 -5  
Orientation (New Dental Student), Th-F-August 4-5  
Returning Graduate (Doctoral Students) Th-F, Registration, Aug. 4-5  
Rites of Passage Ceremony for all students, M-August 8  
Classes Begin (Freshman Dental, Doctoral Students), M-Aug 8  
Classes Begin (Graduate Students-MSPH) M-Aug 15  
Classes Begin (Sophomore, Junior, and Senior Dental) M-Aug 22  
Holiday – Labor Day, M-Sept 5  
General Assembly (Graduate Students), W-August 31  
Last Day to Drop and Add Courses (Graduate School), M-Sept 13  
General Assembly (Dental Students) W-Sept 28  
Graduate School Career Week, M-F, Sept. 26-30  
Southern Regional Licensure Examination, Sa, Oct 8-9

## **FALL SESSION 2005 *continued***

Fall Convocation, M-Oct 10  
MSPH Thesis and Graduate Management Proposals Due, F-Oct 28  
School of Dentistry Healthy Halloween, F-Oct 28  
Holiday – Thanksgiving, Th-Nov 24  
Holiday – Day after Thanksgiving, F-Nov 25  
National Board, Dental Examination (Part 1), M-Dec 5  
National Board, Dental Examination (Part 2), M-Tu, Dec 5-6  
National Board, Dental Hygiene Examination, M-Dec 5  
Registration for Graduate Students for Spr 2006, M-Tu Nov 28-29  
Fall Session Ends, Graduate School, F-Dec 9  
Grades Due in Graduate School Academic Affairs, F- Dec 16  
Fall Session Ends, Dental School and Medical School, F-Dec 16  
Graduate School Evaluation & Promotions Committee Meeting, W-Dec 21  
Holiday Break – Christmas/ New Year, M-F-Dec 19- Jan 6, 2005  
Dental and Graduate Students Grades Due in Student/Academic Affairs, F-Dec 20  
Grades due in Admissions & Recruitment Graduate School, M-Dec 19  
Dental, Medical Grades Due in Office of Admissions and Recruitment, W-Dec 21  
School of Dentistry Student Evaluation & Promotion Committee Meeting, Tu-Dec 27

## **SPRING SESSION 2006**

Classes Resume for Dental, Medical/Post Bac Students, W-Jan 4  
Classes Resume for Graduate Students, M-Jan 9  
Graduate School Evaluation and Promotions Committee Meeting, (Make-up) Th, Jan 12  
Martin Luther King Commemorative Program, F-Jan 13  
Holiday – Martin Luther King, Jr., Day, M-Jan 16  
Dental School Occupational Safety & Health Seminar, W-Jan18  
General Assembly for School of Dentistry, W-Jan 25  
Dental School Match Day, M-Jan 30  
Children's Dental Health Day, M-Feb 6  
Match Orientation, Medical School (Rising Juniors), Th-Feb 16  
Spring Break, Dental School, M-F Mar 6-10  
Scramble, Medical School, T-Th, Mar 14-16  
Exit Interviews (Seniors), W-F, Mar 15-17  
Match Day, Medical School, Th-Mar 16  
Graduate School MSPH Career Week, Tu-F, Mar 14-17  
Student Research Week (Graduate School) M-W, Mar 20-22  
Student Research Day (All graduate school classes cancelled), W-Mar 22  
Semester Break (1st & 2nd Year Ph.D. & 1st Year MSPH), Th -S, Mar 23-26  
National Board, Dental Examination (Part 2), M-Tu Mar -27-28  
National Board, Dental Hygiene Examination, M-Mar 27  
Holiday – Meharry Day, F-Apr 14  
School of Dentistry White Coat Ceremony, TBA  
MRCE Regional Research Day, Tu-Apr 4  
Adopt-A-Grandparent Day, Dental School, W- Apr 5  
Student Election Week, M-F, Apr 10-14  
Medical Students (Freshman & Sophomore) Spring Break, Tu-S, Apr 13-17  
Last Day to Publicly Defend Thesis/Dissertation (Doctoral and Masters) for May Graduation, M-Apr 17  
Final Day to Submit Thesis/Dissertation to Dean's Office (Doctoral and Masters) F-Apr 28  
Spring Session Ends for Graduate Candidates for Graduation, F-Apr 28  
USMLE Step 1 Examination Review Course (Sophomore), M-F, May 1-26  
Grades for Candidates for Graduation due in Student/Academic Affairs (Graduate), W-May 3  
Spring Session Ends for Dental Candidates for Graduation, F-May 5  
Grades for Candidates for Graduation due in Admissions and Records (Graduate School), F-May 5  
Grades for Candidates for Graduation due in Student/Academic Affairs Office (Dentistry), Tu-May 9  
Student Evaluation & Promotions Committee Meeting (Graduating Graduate Students) W-May 10  
Grades Due in Admissions and Records Office (Candidates for Dentistry Graduation), W-May 10  
Student Evaluation & Promotion Committee Meeting (Graduating Dental Candidates) F-May 12  
Spring Session Ends for all other graduate and dental students, F-May 12

**SPRING SESSION 2006 *continued***

Dental Clinics Closed for Commencement, M-F-May 15-19  
Grades Due for all other graduate students in Academic Affairs Office (Graduate School), Th-May 18  
Spring Session Ends for Graduating Seniors (Medical School) F-May 19  
Commencement, Sa-May 20  
Grades Due for Spring Session (Graduate School) in Admissions and Recruitment, M-May 22  
Holiday – Memorial Day, M-May 29  
Summer Session Begins for Dental Students, Tu-May 23  
Grades Due for Spring Session Student/Academic Affairs Office (Dental School), W-May 24  
Student Evaluation and Promotion Committee Meeting for all other graduate students, Th-May 25  
Grades Due for Spring Session (Dental School) in Admission and Recruitment, F-May 26  
Spring Session Ends- Medical Students, (Post Bac, Freshman 1 and Freshman 2) May F- 26  
Student Evaluation & Promotion Committee Meeting Dental (Freshman and Sophomore), W-June 6  
Spring Session Ends- Medical Students (Junior and other Senior) F- June 16  
Spring Session Ends- Medical Students (Sophomore), June 23  
Orientation to Clinical Year (Rising Junior Medical), July 13

**SUMMER SESSION 2006**

Pre/Post Baccalaureate Initial Summer/MAPS Program Registration, F-May 26  
Pre/Post Baccalaureate Initial Summer/MAPS Program Begins, Tu-May 30  
Registration for Graduate Students, W-Th, May 24-25  
Summer Session Begins for Graduate Students, M-June 5  
Dental Clinics Close, F-June 30  
Holiday – Independence Day, July 4  
Grades Due (Summer Session) Dental Academic Affairs Office, W-July 5  
Grades Due for Dental Students in Admissions and Recruitment, Th-July 6  
USMLE Step 2 Examination Review Course, Th-F, July 6-July 8  
Dental Student Evaluation & Promotion Committee Meeting, F-July 7  
MATCH Orientation (Senior Medical Students), W-July 12  
Summer Session Ends (Graduate Students), F-July 14  
Grades Due (Summer Session) Graduate Student Academic Affairs Office, W-July 19  
Grades Due for Graduate Students in Admissions & Recruitment, F-July 21  
Pre/Post Baccalaureate Initial Summer/MAPS Program Ends, F-July 21  
Graduate Student Evaluation & Promotion Committee Meeting, Th-July 27

# **Administration**

## **Board of Trustees**

Dr. Frank S. Royal, Sr., Chairman  
Dr. T.B. Boyd III, Vice Chairman  
Dr. John E. Maupin, Jr., President  
Leilani Boulware, Esq., Corporate Secretary

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Dr. Randall Falk	Dr. Beny J. Primm	Mr. Lorenzo Williams
Mr. John C. Graves		Dr. Claud R. Young

## **Senior Administrative Staff**

John E. Maupin, Jr., D.D.S.  
President

PonJola Coney, M.D. Senior Vice President for Health Affairs and Dean of the School of Medicine	Maria de Fatima Lima, Ph.D. Dean of the School of Graduate Studies and Research
William B. Butler, D.D.S. Dean of the School of Dentistry	Kathleen McEnerney, D.A. Dean of the College of Health Sciences Tennessee State University
Lee Limbird, Ph.D. Vice President for Research	Leilani Boulware, Esq. Vice President for Administration and General Counsel
Lamel Bandy-Neal, M.B.A. Vice President for Finance and Treasurer	Robert S. Poole Vice President for Advancement and College Relations
James Powlus, M.S. Vice President for Information Technology	Bernard S. Ray, Ph.D. Deputy to the President
A. Cherrie Epps, Ph.D. Senior Advisor to the President, Academic Affairs and Dean Emerita, School of Medicine	

## **COLLEGE COMMITTEES**

### **Bio-Safety Committee**

The Bio-Safety Committee ensures that research projects involving recombinant DNA comply with regulations of the National Institutes of Health and reviews projects that involve pathogens to ensure safe handling of potentially harmful organisms.

### **Continuing Education Advisory Committee**

This committee monitors Meharry's Continuing Education programs and advises the Office of Continuing Education to ensure that both continuing education accrediting agency standards are met and College goals and objectives are achieved.

### **Commencement/Alumni Reunion/Convocation Committee**

The planning, coordination and implementation of the College's two major annual events – Commencement/Alumni Reunion in the spring and Convocation in the fall – are overseen by this committee.

### **Council of Deans**

The Council of Deans monitors academic quality and ensures that the standards of Meharry's educational programs are maintained and are in compliance with accreditation standards.

### **Environmental Safety and Security Subcommittee**

Following regulatory requirements and industry standards, this committee is charged with advising the College on making the campus safe, secure and accessible for students, faculty, staff, patients and visitors.

### **Honorary Degree Committee**

The Honorary Degree Committee sets and monitors the standards and guidelines for the awarding of honorary degrees.

### **Institutional Animal Care and Use Committee**

Meharry is committed to the safe and ethical treatment of animals that are necessary for research and teaching. Mandated by federal law, the Institutional Animal Care and Use Committee ensures compliance with regulations of the Public Health Service, the U.S. Department of Agriculture and other federal, state and local regulatory agencies. The committee reviews and approves each project that involves animals for compliance with policies governing humane care and use of laboratory animals.

### **Institutional Budget Committee**

The Institutional Budget Committee is charged with recommending an annual College budget to the President for approval and presentation to the Board of Trustees for final approval.

### **Institutional Effectiveness Committee**

This committee helps ensure that the quality and services of the College are continually monitored by analyzing Meharry's planning and evaluation functions as well as the educational, research and service programs.

### **Institutional Review Board**

Meharry is committed to the protection of people who help advance health care by choosing to participate in research studies. The Institutional Review Board oversees each research and demonstration project in advance to ensure that the rights and welfare of human subjects are guaranteed. Approval of the board is required before the initiation of any research project.

**Library Committee**

The quality of an institution is tied directly to the quality of its library, and Meharry's Library Committee provides guidance to the Library Director in formulating strategic direction that supports the College's mission and goals.

**Patent Committee**

The Patent Committee resolves disputes involving intellectual property, inventions and patents and periodically reviews the College's patent policy.

**Radiation Safety Subcommittee**

This subcommittee oversees the College's Radiation Safety Program as administered by the Radiation Safety Office. The Radiation Safety Subcommittee reviews and approves all uses of radioactive material or other radiation sources on the Meharry campus.

**Scientific Misconduct Committee**

This committee helps the College maintain the highest standards of scientific inquiry and ensures compliance with the regulations of the National Institutes of Health, the National Science Foundation, and other agencies. Meharry defines "scientific misconduct" as fabrication, falsification, plagiarism or other practices that seriously deviate from those that are commonly accepted within the scientific community for proposing, conducting or reporting research.

**Student Disciplinary Committee**

This committee reviews charges of breaches of rules, regulations, policies and procedures by a student relating to non-academic matters and makes recommendations to the President on rulings.

**Student Financial Aid Committee**

The Student Financial Aid Committee is responsible for the stewardship of institutional, federal and state financial aid programs for Meharry students. The Student Financial Committee acts as the College's advisory board to the Office of Student Financial Aid, Student Accounts, Student Campus Loans and Cash Management for Student Financial Services.

**Student Life Committee**

Meharry recognizes that life outside the classroom, laboratory and clinical setting has an enormous impact on a student's ability to succeed. The Student Life Committee provides advice and guidance in developing student activity programs, counseling services and other non-academic support services available to students. In particular, this committee helps students with housing; establishes health, disability and life insurance requirements of the College; promotes a positive spiritual, mental and emotional experience for students; and facilitates the implementation of extracurricular activities for students. It also provides a forum for students to express themselves directly to College administrators, facilitating a speedy resolution of issues.

# **College Overview**

## **2005**

### **Profile**

Student Enrollment.....	723
Faculty, full-time.....	202
Faculty, part-time .....	33
Employees .....	701

### **Student Enrollment by Race**

African American.....	598
Asian .....	51
Caucasian .....	35
Hispanic .....	32
Native American.....	7

### **Student Enrollment by Gender**

Female .....	414
Male.....	309

### **Living Alumni on Record**

Physicians .....	3,636
Dentists .....	1,705
Ph.D.s.....	170
Masters.....	280
Allied Health .....	1,324

## **About Meharry**

Meharry Medical College is the nation's largest private, independent historically black institution dedicated solely to educating health science professionals. The College has a rich and distinguished legacy of providing health professions education opportunities to minority students and individuals from disadvantaged backgrounds, regardless of race or ethnicity. Throughout its history to present-day, Meharry has been highly regarded as a respected advocate for quality, community-based health care and research in the biosciences that benefits poor and medically underserved people. The College has earned national distinction for its innovative community outreach programs and community-based partnerships targeted to the under- and uninsured. What's more, Meharry graduates are known for their dedication to practicing in medically underserved areas and providing care to people who otherwise would not have access to patient services.

## **Mission Statement**

Meharry Medical College exists to improve the health and health care of minority and underserved communities by offering excellent education and training programs in the health sciences; placing special emphasis on providing opportunities to people of color and individuals from disadvantaged backgrounds, regardless of race or ethnicity; delivering high quality health services; and conducting research that fosters the elimination of health disparities.

## **Vision Statement**

To achieve national recognition as a community-focused, quality-driven academic health center noted for its:

- Uniquely nurturing, highly effective educational programs
- Preeminence in health disparities research
- Culturally sensitive, evidence-based health services
- Significant contribution to the diversity of the nation's health professions workforce

## **Values Statement**

We, the Board of Trustees, Faculty, and Staff of Meharry Medical College, are committed to and governed by the following core values:

1. Service: Maintaining a nurturing and service oriented environment that exceeds expectations and treats all people with compassion, dignity, and respect.
2. Excellence: Consistently achieving outstanding levels of performance, while upholding the highest standards of ethical behavior, intellectual honesty, and professional conduct.
3. Diversity: Fostering ethnic, intellectual, social, and cultural diversity.
4. Accountability: Accepting individual and collective responsibility to safeguard and effectively manage the resources of the College.
5. Innovation: Promoting creativity and the development of ideas that stimulate improvements in our intellectual and operational endeavors.
6. Teamwork: Encouraging, supporting, and valuing the collaborative efforts of faculty, staff, and students to enhance the quality of education, research, and service.

## **College Motto**

Worship of God Through Service to Mankind

## History

**M**eharry Medical College was founded in 1876 as the Meharry Medical Department of Central Tennessee College to educate freed slaves as health care professionals. Fifty years prior to its formal founding, a 16-year-old Ohio farmer, Samuel Meharry, was befriended by a family of former slaves while traveling through rural Kentucky. Meharry was touched by the kindness and generosity of the poor black family and promised to repay his debt of gratitude. In 1876, Meharry and his brothers donated cash and property valued at \$30,000 toward the establishment of the medical department. The Freedmen's Aid Society of the Methodist Episcopal Church and the John F. Slater Fund were also contributors.

A dental department within the Meharry Medical Department of Central Tennessee College was founded in 1884. This expanded the medical department's mission as the first institution in the Deep South to train black dentists. It was also one of a few in that era to promote the recruitment of women into the profession.

In 1915, Meharry separated from Walden University, the successor institution to Central Tennessee College, having received a new charter from the State of Tennessee. It did, however, retain its affiliation with the Methodist Church. In 1916, bylaws were adopted providing for the governance of the College by an 18-member Board of Trustees. At the same time, the board appointed Dr. George W. Hubbard as the institution's first president.

Over the years, Meharry has maintained its reputation as a leading educator of highly competent physicians, dentists, biomedical scientists, public health practitioners, and allied health professionals. Meharry Medical College today is the largest private, historically black institution in the United States dedicated exclusively to educating health care professionals and biomedical scientists. The College serves approximately 800 students each year in its Schools of Dentistry, Graduate Studies and Research, and Medicine, and in its program in Allied Health Sciences co-conducted with Tennessee State University. It has remained independent and is accredited by the Southern Association of Colleges and Schools. The College continues its relationship with what is now the United Methodist Church, receiving approval by the Church's University Senate and funding from its Black College Fund.

## **Facilities**

### **The S.S. Kresge Learning Resources Center**

The S.S. Kresge Learning Resources Center is named in honor of the founder of the Kresge Stores and the S.S. Kresge Foundation, which has supported educational initiatives since 1924. The "LRC," as it is known, houses the Meharry Medical College Library in addition to College administration offices, including the offices of the President, Vice President for Administration, Vice President for Finance, Compliance, Vice President for Advancement and College Relations, Admissions and Records, Student Financial Aid and the Meharry National Alumni Association.

## **Library Services**

### ***The Digital Library***

The Meharry Medical College Library (MMCL) is increasingly focusing its collection on electronic resources to maximize the utility and accessibility of information across the campus and from home. Meharry Medical College Library makes over 1,100 electronic journals, 450 books, 240 databases, and 650 web resources available via an integrated Digital Library. The Digital Library provides fast access and multiple routes to electronic resources including tools to support evidence-based practice including synthesized topic reviews via UpToDate, a suite of evidence-based medicine Cochrane databases, the differential diagnosis tool DXPlain, eMedicine, a peer-reviewed clinical content repository, InfoRetriever/InfoPOEMs and the wealth of clinical textbooks and journals available in MDConsult. The MMCL also provides access to over 70 full-text journals through the Ovid system as well as over 300 clinical and research-focused full-text journals through the ScienceDirect database. StatRef provides users with clinical textbooks including Harrison's Principles of Internal Medicine, Griffith's 5 Minute Clinical Consult, and Current Medical Diagnosis & Treatment. Derm101, a clinical diagnostic tool, provides an online atlas for management of dermatopathology issues plus board review preparation materials. Users can also access health-focused databases such as Health Reference Center and Health and Wellness Resource Center via the Tennessee Electronic Library. Most resources are accessible through the Digital Library at <http://diglib.mmc.edu/> and are available when at home or traveling abroad by selecting "Log In with MMC Computer Account" link when opening the Digital Library page.

### ***The Meharry Library***

The Meharry Library is located on the second, third and fourth floors of the S.S. Kresge Learning Resource Center with a book collection of over 13,000 titles and over 1,500 print and electronic journal subscriptions. Users can locate library print holdings via the MMCL online catalog at <http://catalog.mmc.edu>. A variety of audiovisual materials are also available. In addition, the College archives holds materials on the history and role of African Americans in the health sciences. Materials unavailable in the collection are obtained from other medical libraries through cooperative arrangements.

During the academic year, the Library is open from 8 a.m.-2 a.m., Monday-Thursday; 8 a.m.-11 p.m., Friday; 10 a.m.-7 p.m., Saturday; and 2 p.m.-12 a.m., Sunday. Incoming students are required to make a one-time deposit to cover losses, mutilation and non-receipt of borrowed materials during their course of study at Meharry. Additionally, all students are assessed a yearly library fee that helps to maintain the library.

Meharry students have access to the Eskin Biomedical Library at Vanderbilt University Medical Center through the auspices of the Meharry-Vanderbilt Alliance, a collaboration between the two schools to enhance education, patient care, and research.

Services and facilities include circulation, reference, computerized literature searching, microcomputer laboratory, photocopying, document delivery services, information management instruction, and college archives. For a full listing of library services, see <http://library.mmc.edu>.

**Circulation:** Books circulate for 28 days. Journals do not circulate. Audiovisuals circulate for five days. Laptop computers are available for checkout within the building for a two-hour loan period. The building is equipped with wireless network connections. To check out materials, users must register at the library with their Meharry Banner identification card. Fines are assessed for any materials not returned by the due date.

**Reference:** The reference department provides a full range of services including answering reference questions, assistance with online searches, and providing training sessions on the use of print and electronic resources (<http://library.mmc.edu/classes.html>). Librarian expert assistance is also available asynchronously through the "Ask A Librarian" (<http://library.mmc.edu/ask/>) and the "Library Information Desk" (<http://library.mmc.edu/libdesk/>) online forms.

**Document Delivery:** Library users may obtain desired materials not held by the library through this service. Electronic Document Delivery request forms are available through the Digital Library. Occasionally, charges may be incurred when using this service.

**Microcomputer Learning Laboratory (MLL):** The microcomputer lab is located on the first floor of the library. Its workstations operate in a Microsoft platform and provide access to the Meharry intranet and to the internet. Applications include word processing and spreadsheets, among others.

**Photocopy Service:** The library has a self-service photocopy machine. The cost is 10 cents per page.

**Archives:** The archive collects and preserves information about the history of the College and minority health care. This collection is on the third floor of the library and it is open 8 a.m. to 5 p.m., Monday through Friday.

### **The Harold D. West Basic Sciences Building**

Named in honor of Meharry's first African American president, the West Basic Sciences Building houses the primary basic science classrooms and teaching laboratories for first- and second-year students. The building also houses the School of Medicine's Academic Computing Center, bench research laboratories, core facilities and the animal care facility. In addition the administrative offices of the School of Medicine and the School of Graduate Studies and Research are within this facility. The building features a four-story Atrium – the site of many campus events as well as informal gatherings of students during breaks between classes. It also houses a two-story auditorium, known as M001, that seats approximately 500. The Matthews Meharry Bookstore is located on the first floor. Several study rooms also are available for individual and small-group study sessions.

### **The School of Dentistry Building**

Originally constructed in 1979, the School of Dentistry (SOD) Building has seen several facility upgrades in recent years. It houses classrooms, small meeting rooms, student lounges, labs, and clinics and the administrative offices of the Dean and faculty of the School of Dentistry. In 2003, two dental technique instructional labs were outfitted with state-of-the-art multimedia technology so that students have their own computerized work station while in the lab. Dispensing and sterilizing facilities are positioned for easy access by students. The highlight of the SOD Building is the Iris B. and Wendell E. Cox, D.D.S. Auditorium, named in honor of the Meharry alumnus and his wife who provided funding for its renovation and multimedia technology upgrades in 2000. Their gift of \$1.5 million represents the largest single amount contributed by an alumnus in the College's history.

### **The Daniel T. Rolfe Student Center**

The Daniel T. Rolfe Student Center accommodates offices for Meharry's student governing body, the Pre-Alumni Association, and the *Meharrian* yearbook. It also houses the Office of Student Services, the Counseling Center and a number of student organizations. The Rolfe Center also features a large recreation/gathering area, a reading and seminar room, and smaller meeting and study rooms for student use.

### **Nashville General Hospital at Meharry**

The principal site for clinical training is Nashville General Hospital at Meharry, representing a unique public-private alliance among Meharry, Vanderbilt University Medical Center and the Metropolitan Nashville Hospital Authority. This 150-bed facility was formerly Hubbard Hospital and was renamed in 1994 when the government of Metropolitan Nashville and Davidson County moved its public hospital to Meharry's campus. Here, under the direction of Meharry faculty, our students and residents encounter a broad range of medical-surgical experiences, including obstetrics/gynecology, neonatal intensive care, pediatrics, orthopedics, oncology, surgery, physical and occupational therapy, cardiac catheterization, ophthalmology and emergency room care, oral-maxillofacial surgery and emergency dental care.

### **Meharry Practice Sites**

**The Meharry Clinics** are located on campus and attached to Nashville General Hospital and provide patient care in primary and specialty care. **The Meharry Medical Arts Center** is located at 1919 Charlotte Avenue in Nashville. It offers sub-specialty care through the **Meharry Center for Women's Health** and the **Meharry Medical/Surgical Sub-Specialty Group**. Meharry also provides patient care at the **Meharry Family Medicine Clinic** in Madison, Tenn.

### **Affiliated Clinical Facilities**

The College also has established formal ties with other off-campus health care providers to expand the hands-on experiences available to students and residents. The professional contacts with patients at those sites enrich the quality of training while providing exemplary comprehensive health care. Among these are Vanderbilt University Medical Center; Middle Tennessee Mental Health Institute; Middle Tennessee Medical Center; Alvin C. York Veterans Administration Medical Center, Murfreesboro, Tenn.; and Blanchfield Army Community Hospital, Fort Campbell, Ky.

## Life at Meharry

**L**ocated off Nashville's historic Jefferson Street, nestled between two neighboring historically black universities, and near Nashville's thriving Downtown, Meharry provides students with a full-range of auxiliary services to make their experience on campus both intellectually stimulating and socially comfortable and enjoyable.

### Metropolitan Nashville and Davidson County

Nashville was settled in 1779 and became the state capital in 1843. Nashville and Davidson County are governed by a combined metropolitan government that provides municipal services for the county's population of 569,891. Nashville typically enjoys a mild and pleasant climate with very hot or very cold conditions occurring only a few days of the year. The city has two nicknames – "Music City USA," for the city's musical heritage, and the "Athens of the South," for the city's dedication to fine arts and numerous institutions of higher education.

Nashville ranks high: It is among the top four best U.S. cities for African Americans by *Black Enterprise* magazine; one of the 15 best U.S. cities for work and family by *Fortune* magazine; one of the 25 cities likely to have the country's highest job growth over the coming five years by *Forbes* magazine; and the nation's friendliest city by *Travel and Leisure* magazine. Nashville consistently ranks among the lowest for cost-of-living rates in comparable cities across the nation, according to the Nashville Convention and Visitors Bureau. Costs for groceries, housing and utilities are typically below the national average.

The city's leisure and night life are remarkable, filled with great dining, sports, shopping, music and theater. Known for its country music scene worldwide, Nashville also offers, on any given night, fantastic jazz and R&B, rock, Americana, hip-hop and virtually any music fusions imaginable. The Nashville Symphony is nationally renowned, and no major entertainer misses Nashville on tour. Nashville has four professional sports teams – the NHL Nashville Predators, the NFL Tennessee Titans, the AAA baseball Nashville Sounds and the NWF Nashville Dream. It also offers Busch and Indy series car racing, collegiate team sports, and an annual marathon and half marathon. The arts scene is alive and thriving with permanent and traveling exhibitions at the Frist Center for the Visual Arts; the Aaron Douglas and Carl Van Vechten Galleries at Fisk University; Cheekwood Botanical Garden and Museum of Art; the Parthenon Museum at the world's only full-scale replica of the famed Greek temple; and more. History buffs will enjoy The Hermitage, home of the seventh U.S. president, Andrew Jackson; and scores of preserved homes open year-round for tours.

## **The Meharry Campus**

### **Housing**

Housing at Meharry Medical College is managed by Meharry Properties. Students interested in campus housing should write to: Manager of Meharry Properties, 944 21st Ave. N., Nashville, TN 37208-3599, or call (615) 320-5791. Applications for housing will be mailed to students upon written request. Returning residents of College housing will be permitted to renew their lease. Incoming students will receive priority for the remaining available housing.

**Dorothy Brown Hall** on Albion Street houses 70 female students in either single rooms or double suites. Each air-conditioned room is furnished with a bed, a desk and chair, an armchair, and a bookcase. The monthly rental rate in the dormitory varies for a single room and for a two-bedroom suite. Students should bring linen, blankets, and other items they wish to add to the furnishings. A security deposit is required.

**The Meharry Towers**, located on 21st Avenue North, is a 10-story residential complex that opened in September 1971 and was fully renovated in 2001. It contains 156 one- and two-bedroom apartments for Meharry's students, staff and faculty members and their families. Each unit is fully air-conditioned, carpeted, and furnished with a stove, refrigerator, and garbage disposal. Laundry facilities are located on select floors. Rental rates vary and a security deposit is required.

**The Herman Street Apartments**, located between 16th and 17th Avenues North, contains 76 one- and two-bedroom apartments approximately three blocks from the main campus. This complex provides air-conditioned, carpeted quarters. Occupants are responsible for all utility costs, except water. Rental rates vary and a security deposit is required.

**Off-Campus Housing:** The Office of Student Services maintains a list of available off-campus accommodations in the Nashville area that Meharry students have found acceptable. Many of the rental properties are close to the campus. Cost, furnishings and conditions vary to give students several options. For best choice, students seeking off-campus housing should visit the property or contact the Office of Student Services, Daniel T. Rolfe Student Center, Meharry Medical College, 1005 Dr. D.B.Todd Jr. Blvd., Nashville, TN 37208 or call (615) 327-6792.

### **Dining**

The cafeteria on the Meharry Medical College campus is located on the lower level of Nashville General Hospital at Meharry. The cafeteria serves breakfast, lunch and dinner each day of the week. The menu is a la carte, with a variety of choices individually priced. A healthy, nutritious and well-balanced cuisine is presented at each meal. Meals are reasonably priced on a pay-as-you-go system; there is no meal card or credit plan. Breakfast is served from 6 to 9:30 a.m.; lunch is served from 10:30 a.m. to 2 p.m.; and dinner is served from 5:30 to 7 p.m. There also are snack and beverage vending machines in most buildings on campus.

## **Information Technology Services**

The Office of Information Technology, known as OIT, supports Meharry's information infrastructure and offers services for voice, data and video technologies. Data services include MMC wireless network connectivity, MMC e-mail setup and support, MMC network connectivity, and Help Desk support for students, faculty and staff. Information Technology services are provided out of the Computer Center, located between Hulda Lytle Hall and the Meharry Clinics, facing Dr. D.B. Todd Jr. Blvd.

### **Help Desk Services**

The Help Desk provides software and hardware support for students, faculty and staff. Students may receive assistance troubleshooting hardware and software problems, loading software, network configurations, e-mail setup and support, wireless connectivity and warranty services. Help Desk hours are Monday - Friday, 8:30 a.m.-5 p.m. From any campus phone, the Help Desk may be reached by dialing HELP (4357). The off-campus contact number for the Help Desk is (615) 327-6231.

### **Discount Purchase Program**

Students may receive discounts for hardware and software purchases with the assistance of Information Technology. Discounts are limited to vendors that have a purchasing arrangement with Meharry Medical College. For additional information, contact OIT at (615) 327-6231.

## **Services to Students**

### ***Privacy and Access to Academic Records***

Meharry Medical College is subject to the provisions of federal law known as the Family Educational Rights and Privacy Act (also referred to as the Buckley Amendment or FERPA). This act affords matriculated students certain rights with respect to their educational records. These rights include:

- The right to inspect and review their education records within 30 days of the day the College receives a request for access: Students should submit written requests to the College Registrar that identify the record(s) they wish to inspect. The College Registrar will make arrangements for access and notify the student of the time and place where the records may be inspected. If the College Registrar does not maintain the records, the student will be directed to the College official to whom the request should be addressed.
- The right to request amendment of any part of an education record that they believe is inaccurate or misleading: Students who wish to request an amendment to their educational record should write the College official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading. If the College decides not to amend the record as requested by the student, the student will be notified of the decision and advised of his or her right to a hearing.
- The right to consent to disclosures of personally identifiable information contained in the student's education records to third parties, except in situations in which FERPA allows disclosure without the student's consent: One such situation is disclosure to school officials with legitimate educational interests. A "school official" is a person employed by the College in an administrative, supervisory, academic or research, or support staff position (including College law enforcement personnel and health staff); a person or company with whom the College has contracted; a member of the Board of Trustees; or a student serving on an official College committee or assisting another College official in performing his or her tasks. A College official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.

The Buckley Amendment provides the College the ability to designate certain student information as "directory information." Directory information may be made available to any person without the student's consent unless the student gives notice as provided for below. Meharry Medical College has designated the following as directory information:

- Student's Name
- Address (Local & Permanent)
- Telephone Number (Local & Permanent)
- E-mail Address
- Date & Place of Birth
- Major Field of Study
- Enrollment Status (Part or Full-Time)
- Classification

- School
- Dates of Attendance
- Prior Postsecondary Institution(s) Attended
- Degrees and Awards Received

Any new entering or currently enrolled student who does not wish disclosure of directory information should notify the College Registrar in writing. No element of directory information as defined above is released for students who request nondisclosure except in situations allowed by law. The request to withhold directory information will remain in effect as long as the student continues to be enrolled or until the student files a written request with the College Registrar to discontinue the withholding. To continue nondisclosure of directory information after a student ceases to be enrolled, a written request for continuance must be filed with the College Registrar during the student's last term of attendance.

If a student believes the College has failed to comply with the Buckley Amendment, he or she may file a written complaint with the Associate Vice President of Advancement and College Relations. Questions about the application of the provision of the Family Educational Rights and Privacy Act should be directed to the College Registrar or to the Office of the General Counsel.

### ***Meharry Student Directory Listings***

A photo summary of all students is printed yearly. This directory includes the student's name, school, classification, and e-mail address.

Students are also listed in the online directory that is published in the Blackboard Learning System. Students who want their listing included in the online directory have the authority to update their personal information (including name, address, e-mail, phone, cell phone, etc.) and select how much of this information can be made available to the College. As an example, students can elect to have ONLY their name and e-mail displayed in the directory.

### ***Change of Address***

A student with a change of mailing address after registration should report the change in writing to the Office of Records, Suite 501, Kresge Learning Resources Center, as soon as possible. Any communication from the College bearing the address on file is considered to be properly delivered.

### ***Student Identification Badge***

All students are required to wear a photo ID badge while on-campus. ID badges are issued during Student Orientation. Badges are color-coded to represent the school the student is attending. ID badges are issued yearly to returning students through the Office of Admissions. If lost during the school year, badges can be replaced; however, a fee is charged. Students must first receive a signed ID replacement form from the Office of Admissions, pay the fee in the Treasurer's Office, and pick up a reprinted badge. If a new photo needs to be taken, returning students must schedule an appointment with the office of Admissions by phoning (615)327-6223.

### ***Library Fees***

Incoming students are required to make a one-time deposit to cover losses, mutilation and non-receipt of borrowed materials during their course of study at Meharry. Additionally, all students are assessed a yearly library fee which helps to maintain the library. Books may be checked out for 28 days; audiovisuals for five days; and reserve materials for 24 hours. Journals are available for in-library use only. Overdue charges will be assessed.

### ***Counseling Services***

Meharry Medical College provides counseling services from professional providers at a conveniently located campus Counseling Center. The center is committed to a highly effective counseling support system that complements the educational and human enrichment endeavors of the institution. Counseling services include individual, family and group therapies as well as academic counseling and career development advisement.

Workshops related to stress reduction, time management and a variety of clinical presentations are regular features of the center. Moreover, psychologists and counselors at the center assist in making provisions for special academic and test accommodations for students with disability needs. This includes psychological testing, neuropsychological evaluation and psychoeducational assessment.

The services of the Counseling Center are broad-based and encompass services to students' partners and dependents, as well as to faculty and staff. Appointments may be made by visiting the Counseling Center at the Daniel T. Rolfe Student Center or by calling (615) 327-6915 or 327-6156. All counseling services are confidential as mandated by professional ethics codes and by law.

### ***Student Health Center***

The Student Health Services Center is located adjacent to the Pediatric Clinic on the second floor of the Meharry Clinics. All students enrolled at Meharry Medical College are eligible to use the Student Health Center for their health care needs. Students are seen on a walk-in or appointment basis. The Student Health Center is open Monday-Friday from 8 a.m.-5 p.m.

The Student Health Services Center is staffed full time by a certified nurse practitioner who is supported by board-certified primary care physicians. Clinicians certified in various specialties such as general surgery, orthopedics, ophthalmology, internal medicine, pediatrics and obstetrics/gynecology also are available to assist students with their health care needs. In addition, the Student Health Services Center can provide access to mental health services staffed by board-certified psychiatrists.

A certified nurse practitioner is available for telephone consultation on illnesses, injuries, lab results or other health concerns and questions. The phone information nurse is available Monday-Friday from 8 a.m.-5 p.m. at (615)327-5757.

Students needing care when the Student Health Center is closed should go to the Emergency Room at Nashville General Hospital at Meharry.

### ***Student Health Insurance***

Meharry Medical College sponsors a group student health insurance plan. All students must have health insurance. Waiver of participation may be granted if the student presents proof of coverage which is equal to or better than the Meharry Insurance Plan. The group health insurance plan is designed to defray a major portion of the cost of hospitalization and covers the student when on or off campus.

The plan covers students for one academic year at Meharry Medical College. Insurance coverage must be renewed each year. The fee for the group insurance is collected during registration each year, and the student may contract for additional coverage for a spouse and children. For information, contact the Office of Admissions and Records at (615) 327-6223.

### ***Foreign Student Services***

The Office of Admissions and Recruitment coordinates and supports the processing of foreign or international student Visa (F-1) for admission to Meharry Medical College. The office serves as a central resource and point of first contact for all new international students seeking approval for employment -- Curricular Practical Training (CPT) and Optional Practical Training (OPT). For additional information, contact the Office of Admissions and Recruitment at (615) 327-6223.

### ***Veteran Students***

Students receiving veteran's educational benefits must maintain satisfactory academic progress (SAP) as defined by their specific school. Students who fail to maintain SAP are ineligible for veteran's educational benefits.

### ***Students with Disabilities***

Meharry Medical College is committed to the provisions of the Rehabilitation Act of 1973 and Americans with Disabilities Act in creating an inclusive community for students with disabilities. Students seeking accommodations for any type of disability are encouraged to contact the Office of Student Affairs in their respective school. Services include, but are not limited to, extended time for testing, assistance with locating sign language interpreters, audio-taped textbooks, physical adaptations, notetakers, and reading services. Accommodations are tailored to meet the needs of each student with a documented disability. Specific concerns pertaining to services for people with disabilities or any disability issue should be directed to the Office of General Counsel.

### **Public Safety and Security**

The Department of Public Safety and Security (DPSS) is located in the rear of the Dental building, adjacent to Shipping and Receiving. The Office is committed to providing an efficient, aesthetically pleasing, safe and user-friendly environment that promotes teaching, learning, and service delivery.

The DPSS is open 24 hours a day, seven days a week, to respond to emergencies and/or reports of criminal activities and to provide security to the campus. The telephone number, 327-6666 is used to report any emergency. The staff addresses the patrolling, crime prevention, escort services, traffic/parking, investigative and administrative needs of the college community.

The DPSS reports directly to the Vice President for Administration. The Department operates three shifts. Members of the staff have prior police/security experience and/or military backgrounds. In addition, the officers annually attend in-service training to gain additional skills. Prior to employment, officers are required to complete testing for state certification as security officers.

Security officers have the authority to detain individuals until Metro Nashville Police officers arrive on the premises. The campus community is encouraged to report all campus crimes to the DPSS immediately. Security officers conduct preliminary investigations of all reported situations and refer them to the appropriate law enforcement agency when necessary or mandated. An excellent working relationship exists between DPSS and the local, state, and federal law enforcement agencies. The DPSS meets monthly with the security offices of other universities in the Middle Tennessee area. All violations of state and federal criminal law that come to the attention of the DPSS are reported immediately to the appropriate law enforcement agency for investigation and disposition.

### **Emergencies**

The Meharry Medical College Department of Public Safety and Security is a professional organization dedicated to the protection and security of Meharry Medical College and its diverse community, committed to providing a safe, secure and accessible campus for students, faculty, staff, patients and visitors. Public Safety and Security Officers are on duty 24 hours a day, seven days a week and should be contacted immediately if suspicious or potentially dangerous situations occur.

To contact a security officer, please call:

**EMERGENCY:** On campus, dial 6666

Non-emergency: (615) 327-6290

General Inquiries: (615) 327-6254

### **Parking Services**

- Any motor vehicle operated on campus by faculty, staff or students must be registered and bear a registration decal obtained from the Security Office. Visitors must also obtain a visitors permit from the Security Office or office visited.
- Student vehicle registration must be completed no later than the last day of the official academic registration period.

- Expiration date on decals for all students and tenants living in campus housing is August 31 of each year. There is no expiration date on the faculty and staff decals; however, the Security Office reserves the right to cancel if deemed necessary.
- Display decal on driver's side, lower left front windshield.
- Remove expired decal each year.
- Present the following at registration time:
  - Proof of liability insurance
  - Proof of ownership (on all cars to be registered)
  - Driver's license
  - College I.D. Card or stamped academic registration card
- No student will be allowed to register another person's vehicle.
- Report ownership changes; mutilated or defaced decals are to be turned into the Department of Public Safety and Security.
- Registration fees will be announced at the beginning of each academic year.
- There will be a charge of \$2.00 for any replacement/second decal.
- All local and state rules and regulations, directional signs and signals governing the use of motor vehicles shall be observed at all times.
- The speed limit on campus is 15 mph.
- Motorists must give pedestrians the right of way at designated crosswalks.
- Unnecessary noise from horns and mufflers is prohibited.
- Loading zones and service zones are reserved exclusively for service vehicles.
- Motor vehicles must be parked within the marked spaces where provided, not on the lines or curbs.
- Possession and display of a decal to which one is not entitled is a violation.
- Transferring a decal from one car to another is prohibited.
- Immobilized vehicles will not be left on the campus beyond seven days. Vehicles left on campus beyond the established time will be towed away at owner's expense.
- Backing into parking spaces is prohibited.

- Any vehicle in violation of the college parking regulations is subject to towing. Three or more violations in a 12-month period may result in a vehicle being towed from campus.
- Parking restrictions are in effect 24 hours per day, seven days a week.

#### ***Parking and Vehicle Registration***

Parking decals are distributed through the Public Safety and Security office. Any student with an automobile on campus must obtain a valid parking sticker each academic year.

#### ***Religious Life***

The Office of the College Chaplain provides effective and comprehensive pastoral care and pastoral counseling to students, faculty, staff and administration of the College, with a special emphasis on service to students. The College Chaplain serves as the spiritual leader of the institution.

#### ***Student Activities & Recreation***

The academic year at Meharry usually begins with a get acquainted picnic on campus and often ends with a cookout and block party in the outdoor amphitheater. During the orientation process, students are invited to participate in an ice cream social that is often the forum for acquiring information about the campus Greek organizations. Orientation culminates with the Rite of Passage Ceremony. This ceremony formally inducts students into the Meharry family.

The Family and Friends Weekend is a time for students and their loved ones to gather on campus for three days of fun and fellowship, each year. This week includes the Pre-Alumni Ball, which is the annual formal social event for students and the Miss Meharry Coronation.

Student organizations sponsor many other social activities each year that are anticipated and appreciated by the students, and both informal and formal class celebrations are common after examinations or other academic benchmarks.

Recreation is that change of pace that helps keep the stress of professional school manageable, and so intramural sports are an important part of the social agenda at Meharry. Co-ed softball, co-ed volleyball, basketball and other recreational activities such as handball, racquetball, pool, ping-pong and more help keep life interesting and fun.

Recreation facilities are located in the D.T. Rolfe Student Center on campus. The Rolfe Center contains a pool table, ping-pong table, board games and a relaxing environment for TV watching or socializing. We also use other community facilities to support our recreational programs, such as basketball, volleyball and aerobics. There are student lounges in the SOD Building and the West Basic Sciences Building equipped with TV, telephone, microwave oven and tables with chairs for student use.

### ***Student Organizations***

Organizations are plentiful at Meharry. Students can choose from more than 30 approved student organizations, and more are being started each year. There are many professional groups such as the Student National Dental Association, American Student Dental Association, Graduate Student Association, Student National Medical Association, and American Medical Student Association.

Students interested in forming a new campus organization should contact the Student Services Office. Recognized student organizations at Meharry include:

- Afro Caribbean Student Association
- Alpha Kappa Alpha Sorority
- Alpha Phi Alpha Fraternity
- American Association of Women Dentists
- American Latino Medical Association
- American Medical Association
- American Medical Student Association
- American Student Dental Association
- Delta Sigma Theta Sorority
- Emergency Medicine Club
- Endodontic Study Club
- Ewell Neil Dental Society
- Family Medicine Club
- Geriatrics Student Forum
- Graduate Student Association
- Health Professionals for Christ
- Henry W. Foster Obstetrics and Gynecology Club
- Kappa Alpha Psi Fraternity
- Medical Genetics Club
- Meharry Muslim Student Union
- Meharry Roadrunners
- Meharry-Vanderbilt Student Alliance
- Medical Military Student Association
- Miss Meharry and Court
- Omega Psi Phi Fraternity
- Orthopedics/Sports Medicine Club
- Pediatric Dental Club
- Physicians for Human Rights
- Pre-Alumni Association
- Psychiatry Club
- Radiology Club
- Saburo Hara Pediatric Society
- South Asia Meharry Students Association
- Student National Dental Association
- Student National Medical Association
- Surgery Club
- Thomas Hardy Internal Medicine Society
- Zeta Phi Beta Sorority

### ***Student Governance***

The Pre-Alumni Association is the student government body at Meharry. All Meharry students are members of the Pre-Alumni Association. The student body elects the president, two vice presidents, secretary, treasurer and a member-at-large from each school. This organization provides student leadership and offers an official communication mechanism for students' ideas and opinions concerning the college. The Pre-Alumni Association sponsors many student activities and community service projects on campus.

### ***Meharry National Alumni Association***

Upon graduation, every Meharry student is invited to join the Meharry National Alumni Association, known as the MNA. Alumni retain their ties to Meharry, their respective schools and most importantly, their treasured classmates through the MNA. The MNA serves as a major fund-raiser for the College, fosters collegiality among alumni, recognizes alumni for outstanding achievement, and provides support to alumni in a variety of ways as the need arises. The Association operates administratively through a central office located on the Meharry Medical College campus, with chartered chapters throughout the United States. Currently, there are 38 chartered chapters.

# General Information

## General Admissions Policy

### **Overview**

For prospective students, the first point of contact is the Office of Admissions and Recruitment. This office provides information about the college and the admission process. This office also coordinates the recruitment activities for the Schools of Dentistry, Medicine, and Graduate Studies and Research. The Office of Admissions and Recruitment serves as an *ex officio* member of the admissions committee to each of the respective schools.

### **Selection Factors**

Students are selected for admission to Meharry Medical College by the Committee for Admissions of the respective schools. Each applicant must meet the specific requirements of the school to which admission is sought. The committees of each school use both academic and non-academic variables in the selection process.

The academic variables that are considered include the candidate's score on the standardized Admissions Test (as defined in the admissions test section below), the candidate's GPA, extent of academic improvement, strength of academic program, difficulty of courses taken and other indications of growth in the candidate's learning ability. The committees are also interested in the non-academic activities of the applicant – including the nature of extracurricular activities, hobbies, the need to be employed, research projects, and evidence of activities and characteristics that indicate desire to support the individual school's and the College's mission statements. Included in the evaluation of the ideal candidate, the committees look for evidence of personal character and responsibility, compassion, honesty, motivation and perseverance.

The committees' consideration of these factors is based on all components of the applicant's file, including letters of recommendation, the academic record, application, and the interview (once selected or required).

### **ADMISSIONS TESTS**

All applicants are required to take the Admissions Test.

#### **DENTAL SCHOOL**

**Dental Admissions Test (DAT):** Dental applicants must take the Dental Admission Test (DAT). The test is offered monthly. For more information about the DAT, visit the web site: [www.ada.org/prof/ed/testing/dat.asp](http://www.ada.org/prof/ed/testing/dat.asp)

#### **GRADUATE SCHOOL: Ph.D. & M.S.P.H.**

**Graduate Records Examination (GRE):** Graduate applicants must contact the GRE Educational Testing Service, P.O. Box 6000, Princeton, NJ 08541-6000, (609) 683-2002, to take the GRE test and have the test scores submitted to Meharry Medical College. For more information about the GRE, visit the web site: [www.gre.org](http://www.gre.org).

#### **MEDICAL SCHOOL**

**Medical College Admissions Test (MCAT):** Medical applicants must take the MCAT. This test is administered semi-annually in April and August throughout the United States. For more information, visit the following Web site: [www.aamc.org/students/amcas/start.htm](http://www.aamc.org/students/amcas/start.htm).

### ***Applicant Procedure for Admission***

All application materials may be obtained online at Meharry Medical College's web site under the Admissions section at [www.mmc.edu](http://www.mmc.edu). Applicants can also obtain additional information from these web sites:

Medical: AMCAS application process at [www.aamc.org/students/amcas/start.htm](http://www.aamc.org/students/amcas/start.htm)

Dental: AADSAS application process at [www.aadsas.adea.org/](http://www.aadsas.adea.org/)

Essentially, there are three major steps that each applicant must complete:

- Complete and submit an Admissions Application
  - Dental and medical applicants send transcripts to the application service
  - Graduate applicants send transcripts to Meharry
- Complete and submit a Supplemental Application
  - After receipt of the initial application, Meharry will forward instructions for completion of a Supplemental Application online through the CollegeNet Service
  - Only dental and medical school applicants are required to complete a Supplemental Application
- Submit letters of recommendation
  - Dental and medical schools each require three letters
  - Graduate school requires two

After all application materials have been received, a Screening Committee on Admissions reviews the completed files for each school. For the dental and medical schools, selected candidates are invited to an interview.

After the interview, final recommendations are submitted to the deans of each school. The Deans make the final decision on who to admit and the Office of Admissions sends out Letters of Acceptance. Applicants are required to reply to the Letters of Acceptance. Dental and medical applicants must also submit a deposit at the time of acceptance.

## **Financial Information**

### ***Student Financial Assistance***

Meharry Medical College offers grants, scholarships, loans, and employment awards to its students. Meharry participates in the U.S. Department of Education's Title IV and the U.S. Department of Health and Human Services Title VII student financial aid programs. The College selects aid recipients based on established criteria and demonstrated financial need. Most institutional scholarships are awarded on outstanding academic performance.

Degree-seeking students that are U.S. citizens or eligible non-citizens enrolled in an eligible academic program may apply for student financial aid as a means of assisting with financing their education. Some certificate programs are also eligible for student financial aid. Contact the Financial Aid Office for additional information regarding the programs that are available at Meharry. Detailed information regarding available assistance, terms and requirements of the programs, eligibility criteria and rights and responsibilities, may be reviewed in the "Financial Aid" section of the 2004 College Consumer Information Notice at [www.mmc.edu](http://www.mmc.edu).

Meharry offers a number of merit- and need-based scholarship awards. Information is available in each of the respective schools' sections in this catalog.

### ***Payment of Tuition and Fees***

Financial arrangements may be made to defer amounts due for current registration only if all tuition and fees for the previous semesters have been paid, pending receipt of previously arranged financial aid assistance that is not in place at the time of registration. However, this deferment is allowable only for entering freshmen and/or previously enrolled students who have no outstanding indebtedness to the institution, including all charges to the student's account during the previous period for bookstore, dental supplies, housing, and other such charges, and if there are no amounts due for apartment rent or matured loans. Students who fail to complete the financial arrangements required as part of the registration process will be excluded from class attendance and all other facilities of the institution.

### ***Registration***

A student cannot register until he/she has received official notification of admission to the College. Each student is required to complete a trial schedule with the Student Academic Affairs Office in his/her respective school. The trial schedule is forwarded to the Office of Records and entered into the Banner system as the student's official registration record. Once the trial schedule is entered, fees are assessed and the academic registration process is complete. Payment of tuition and fees is handled by the Office of the Treasurer.

### ***Cross Registration***

Meharry Medical College participates with Fisk University, Tennessee State University and Vanderbilt University-Peabody College in cooperative programs among the four participating institutions. Students who desire to cross-register (take courses at a participating school) must determine if the courses are available and obtain the permission of the respective dean and advisor to enroll in such course(s). He/she must then bring a signed statement of permission (schedule) to the Office of Records to complete the registration process.

## **General Regulations**

The faculty and administration of Meharry Medical College expect full cooperation from the student body in the maintenance of high moral and ethical standards. Meharry Medical College reserves the right to dismiss a student at any time if his/her conduct is considered unsatisfactory. On the other hand, students should expect and receive courteous and helpful assistance from staff and innovative instruction and research methods from the faculty.

Personal integrity and honesty are very important attributes of a professional; therefore, any student involved in irregularity in an examination will be referred to the College Disciplinary Committee for action.

Any student who withdraws from the College without obtaining written permission from their respective dean forfeits all claim to credit or refund.

The use of the name "Meharry Medical College" is forbidden on all student orders except as it may appear in the mailing/shipping address.

Programs for public exercises of entertainment sponsored by the students or student organizations, in which the name of the College is used, must be submitted to the Office of College Relations for approval.

Meharry Medical College is not responsible for personal property that may be lost or damaged on its premises.

No student of Meharry Medical College shall treat or prescribe drugs for patients except during regular clinics or dispensaries of the hospitals connected with the College and then only under the supervision of the practitioner of medicine or dentistry who must sign the prescriptions and is licensed in the state in which the hospital or clinic is located. All students must abide by the Meharry Medical College Substance Abuse Policy. The Substance Abuse Policy is available in the Student Handbook and at [www.mmc.edu](http://www.mmc.edu).

### ***Name Change***

Name change requests must be in writing and include your student ID or social security number, your name PRIOR to the change as well as your new name, date of birth, marital status (unmarried, married, widowed, separated), your signature, and a copy of one of the following court-generated documents:

- birth certificate
- marriage certificate
- court order / divorce decree
- passport or visa (Required by international students. Must be original)

The College reserves the right to request multiple forms of documentation for verification.

### ***Transcripts, Medical Board Blanks, Dental Board Blanks, Examination Forms and Licensure***

A student may have the first transcript issued without charge. First official transcript for each academic year is \$5, after which there is a \$2 fee for each additional transcript. Upon graduation, one transcript is issued without charge, after which a fee of \$2 each applies.

Fees for the issuance of transcripts are payable in advance. Official transcripts bearing the seal of Meharry Medical College are released only to educational institutions and other recognized authorities. A student may receive an unofficial copy.

Students are charged a fee of \$1 for the completion of blanks and/or forms with the College seal embossed on them.

Charge for Licensures Forms: There is a \$2 charge for each licensure issued.

Processing Time: It takes approximately 3-5 business days to prepare and mail the requested licensure documents.

A request can be submitted in writing to:

Meharry Medical College  
Attn: Office of the Records – Licensure Request  
1005 Dr. D.B. Todd, Jr. Blvd  
Nashville, TN 37208-3599

The following information should be included:

- Name of student at time of attendance
- Indicate if person was a student, faculty, fellow or graduate and program or department to which person is/was affiliated
- If a person had more than one affiliation with Meharry Medical College, indicate which one(s) require certification
- Years of attendance
- Social security number of person
- Address to which the licensure letter should be mailed
- Phone number (in case any questions arise)

Please take care to ensure the accuracy of all information before submitting your application.

Please note: If money is owed to Meharry, the certification letter will not be released until the account is brought up-to-date.

If you have any questions, contact the Office of Records at (615) 327-6806 or by e-mail at [cmurry@mmc.edu](mailto:cmurry@mmc.edu).

### ***Duplicate Diplomas***

A certificate of graduation may be issued upon proof indicating that the diploma was stolen, lost or destroyed, accompanied by a notarized statement. A duplicate diploma may be given if the officials who signed the original diploma are still associated with the College; if not, a certificate verifying the date of graduation and type of diploma awarded imprinted with the official seal of the College will be issued. A fee of \$75 is charged for this service.

## **Academic Regulations**

### ***Examinations***

Examinations will be held at the discretion of the instructor.

### **School of Dentistry and School of Graduate Studies and Research**

#### ***Grading System***

Grade point averages are based on the 4-point system. The symbols A (Excellent), B (Above Average), C (Average), or F (Fail) which appear on the official transcript and on the grade report given to each student at the end of each semester express the evaluation of the student's work. (Note: The "C" is unacceptable in the Graduate School; it is awarded, but the grade must be balanced by exceptional academic performance in other courses.)

"I" – Incomplete work indicates (1) that the student has satisfactorily completed at least three-fourths of the course but, that for legitimate reasons, a small fraction of the work remains to be completed; or (2) that the student's record indicated that he/she can obtain a passing grade, but that he/she lacks a specific requirement such as the final examination because of illness or some other unique or extraordinary circumstance beyond the student's control. The duration of time allowed shall not extend beyond the following semester in which the incomplete (I) grade was received. If the work is not completed within the specified time, no credit will be given and an "F" will be officially recorded as the final grade.

All final grades shall remain on a student's permanent academic transcript.

The symbols "WV" and "WA" indicate that the student "Withdrew Voluntarily" or was "Withdrawn Administratively."

The symbols "WP" and "WF" indicate that the student "Withdrew Passing" or "Withdrew Failing" respectively. These symbols are to be used only when the student has withdrawn after at least six weeks in attendance.

The grade "B+" (outstanding), "C+" (above average) and "P" (pass) are used specifically in the School of Dentistry.

In addition to the letter grades of A, B, C, and F, the following grading symbols are also used in the School of Graduate Studies and Research: "S" (Satisfactory) and "U" (Unsatisfactory).

## **School of Medicine Examinations and Grading System**

Examinations will be scheduled by each Department and coordinated centrally by the appropriate sub-committees of the Curriculum Committee.

The definitive evaluation of the student's work is expressed by A, B+, B, C+, C or F which appears on his/her official transcript and on the report form given to each student at the end of each semester. All clinical departments are required to provide a departmental narrative evaluation (on diskette and in writing) along with a letter grade for all clinical students. All grades are to be submitted to the OSAA within five (5) working days following receipt of subject board scores by the department.

The grade of incomplete ("I") indicates: (1) that the student has satisfactorily completed at least three-fourths of the course, but, for legitimate reasons, a small fraction of the work remains to be completed; or (2) that the student's records indicate that he/she can obtain a passing grade, but that he/she lacks a specific requirement, such as the final or subject board examination, because of illness or some other unique or extraordinary circumstance beyond the student's control.

A student receiving an "I" grade must complete all requirements prior to the end of the next semester so that a Change of Grade Form can be submitted to the Registrar by the due date for grades. If the requirements are not completed within the specified time, no credit will be given and the "I" grade will revert to an F.

For pre-clinical courses, the student is required to remove the "Incomplete" grade within a length of time equal to the length of the course or the beginning of the next academic year. All incomplete grades received in clinical courses must be removed before the beginning of the next semester. Students will not be allowed to progress to the next scheduled clerkship without remediation of the "I" grade.

Any department submitting a Failing or Incomplete grade must submit a written description describing the nature of the deficiency. The faculty member/department awarding the "I" grade must complete the Agreement for Awarding/Removing "I" Grades Form. The form will specify what the student is to do to remove the "I" grade, as well as the dates for removal. The department chairman may elect, however, to submit a letter to the student in lieu of completing the form.

The faculty member and the student must sign the form. Both parties should retain a copy of the form with other copies transmitted to the department chairman, Vice Dean and Registrar. A copy of this form should also accompany the submission of grades.

Failure to remove the "I" grade within the prescribed time frame, or failure to comply with the conditions for removal, will result in an automatic conversion to an "F" grade.

### ***Continuous Courses***

Certain courses are continuous over more than a semester and, as such, are not finally evaluated until the conclusion of the sequence. Final grades are not given in such courses until the end of the final semester of the sequence. A record of academic progression, however, shall be reported in the Office of Records at the end of the interim semester by using the symbol, "IP"

(In Progress). This indicates that the course is continuous over a two-semester period. Upon completion of the course a final grade will be given. Quality points will be calculated using the total hours of the course.

#### ***Leave Of Absence***

A leave of absence is an interruption of the normal course of study requested by the student and requiring prior approval by their respective dean. A student's leave of absence shall not extend beyond one calendar year. An official leave of absence form must be processed and may be picked up in the Office of Records. A leave of absence from the College is given only to students who are in good academic standing. Any other interruption in the normal course of study constitutes a withdrawal. At the discretion of the dean, a student may be required to take an administrative leave of absence.

#### ***Withdrawal from a Course***

When a student withdraws from a course, he or she must get the appropriate forms from the Office of Records. The student shall be required to get the approval of the respective department head, the Assistant/Associate Dean for Student Academic Affairs and final approval from their respective dean and return the form to the Office of Records. The criteria for withdrawal are outlined in each of the school's policies and procedures manuals.

#### ***Withdrawal from the College***

A student may withdraw from Meharry Medical College after filing the official withdrawal form properly executed with the appropriate signatures in the Office of Records. Grades for completed courses shall be recorded on the official record, including a "WF" or "WP" for courses in which the student is enrolled at the time of withdrawal.

If the student desires to return to Meharry Medical College, the formal application process must be completed again in the Office of Records.

A student withdrawing without presenting written permission from the dean to the Office of Records forfeits all claims for credit or refunds.

#### ***Advancement***

Promotion to the next class or graduation requires satisfactory completion of all courses. A student cannot be advanced with a failing grade in any course. Recommendations for promotion are made by the Faculty Evaluation Committee appointed for the respective years of instruction, except in the case of the senior class, where the general faculty of the respective schools approve students for graduation.

Representatives from each department involved in a given year's instruction compose the various evaluation committees. The dean of the school, the vice dean for Student and Academic Affairs or his/her equivalent, and the College Registrar are *ex officio* members.

These committees serve as forums wherein instructors discuss the final estimates of the student's academic standing in all subjects. The dean makes recommendations concerning promotions and the disposition to be made of students who encounter academic difficulty. Recognition is also given to superior work.

At the end of the senior year, the dean and the general faculty of the respective schools recommend to the Board of Trustees those students who have satisfactory scholastic records for the entire course of study and who, in the judgment of the faculty, give evidence of personal fitness for the practice of their profession.

#### ***Unsatisfactory Academic Performance***

If a student receives one or more failing grades, the Evaluation Committee shall recommend appropriate action in keeping with the academic regulations adopted by the general faculty.

#### ***Student Dismissal and Appeals***

The Student Discipline Committee reviews charges of breaches of the rules, regulations, policies and procedures of Meharry Medical College by a student relating to all non-academic matters. Members of the Committee shall be appointed for a two-year term except for the student member, who shall be appointed on an annual basis. The Student Discipline Committee and its chairperson shall be appointed by the president. Any person may inform any member of the Student Discipline Committee of an allegation of a breach of rules, regulations, policies and/or procedures of Meharry Medical College within the jurisdiction of the Student Discipline Committee. The Student Discipline Committee shall determine whether the allegations or charge, if proved true, is governed by the procedures for review and appeal of disciplinary action governing non-academic matters.

If the Student Discipline Committee determines that the allegation or charge is governed by the procedures for review and appeal of disciplinary actions, the chairperson shall send a written notice to the student stating the charge(s) and notice of a hearing before the Student Discipline Committee. The student shall receive notice of the scheduled hearing no later than 72 hours before the hearing. The Student Discipline Committee may grant additional time, at its discretion, if the student's request is reasonable.

In the event of a challenge of whether a matter should be governed by the procedure for review and appeal of academic actions or procedure for review and appeal of disciplinary actions, the Senior Vice President for Health Affairs/Dean of the School of Medicine shall have sole responsibility for determining which procedures shall govern. Any such challenge must be submitted in writing to the Senior Vice President for Health Affairs/Dean of the School of Medicine no less than 24 hours before the scheduled hearing.

The student shall have the right to be present at the hearing to present witnesses, to rebut the evidence against him/her and to have a Meharry Medical College student or faculty member accompany him/her. Legal counsel may be present but may not participate in the hearing.

The hearing will be an informal one, not governed by technical rules of evidence as employed in a court of law, but the Student Discipline Committee may accept any information it deems pertinent to the charges made.

The Student Discipline Committee shall render its decision based upon the evidence presented at the hearing. The standard for determining whether the student has breached a rule, regulation, policy or procedure, and is subject to disciplinary action, shall be whether a preponderance of the evidence supports the Committee's decision. The burden of proof shall be upon the College.

The Student Discipline Committee shall maintain a record of the hearing pending final determination of the charges against the student.

The Student Discipline Committee shall notify the student of its decision in writing by certified or registered mail at the address maintained in the Office of Admissions and Records within 15 days.

A student may appeal the decision on the grounds as set forth in the following paragraph by writing a letter of appeal to the president no later than 72 hours from the receipt of the decision of the Student Discipline Committee.

The President or his designee will determine whether there has been substantial compliance with the published administrative procedures and whether there is sufficient evidence to support the decision of the Student Discipline Committee. The President notifies the student by certified or registered mail at the student's address as recorded in the Office of Admissions and Records. The president shall also inform the dean of the student's school and the Associate Vice President for Advancement and College Relations.

The President may request the student and/or the Student Discipline Committee to provide additional information prior to issuing a decision.

The President's decision is final. The student shall be notified of the President's decision in writing no later than 15 days from the receipt of the student's appeal.

The student shall be allowed to continue in the academic program during proceedings unless extraordinary circumstances exist such as exemplifying conduct which may endanger the welfare of others.

Breach of rules, regulations, policies and procedures governed by the disciplinary procedures shall include, but are not limited to:

- Furnishing false information to the college with the intent to deceive;
- Knowingly giving false information or testimony during the investigation or hearing of a disciplinary matter;
- Forgery, alterations, destruction, damage, or misuse of college documents; records, or identification;
- Physical abuse of any person on college-owned or controlled property; or conduct which threatens or endangers the health or safety of any person;
- Theft;
- Unauthorized use of or entry to college facilities and/or unauthorized possession of keys to college facilities;
- Failure to comply with directives of college officials acting in the performance of their duties;
- Violation of written college policies and regulations as stipulated herein or as announced by authorized personnel;
- Violation of the terms of probation;
- Attempt to commit or to be an accessory to the commission of any act in violation of other standards of conduct;
- Breach of any municipal, state, or federal laws, rules, or ordinances on college property;

- Breach of any rules of sister institutions while on rotations;
- Breach of recognized ethical and professional standards applied to student's area health professional schools.

The Student Discipline Committee's sanctions may include expulsion, suspension from one or more classes for a specified or an indefinite period of time, probation, reprimand and restriction of privileges. The Student Discipline Committee may use its discretion in requiring alternative disciplinary actions.

# School of Dentistry

## Administration

**William B. Butler, D.D.S., M.S.,** Dean  
**Maria de Fatima Lima, Ph.D.,** Associate Dean, Research  
**William D. Scales, D.D.S.,** Associate Dean for Clinical Affairs and  
Interim Associate Dean for Academic Affairs  
**Charles W. Williams, D.D.S.,** Associate Dean, Graduate Training  
**Cherae Farmer-Dixon, D.D.S., M.S.P.H.,** Associate Dean, Student Affairs

## Department Chairpersons

**Angel Rivera Torres, D.D.S., M.P.H., M.S.P.H., Ph.D.,** Dental Public Health  
**Augustyne V. Hill, D.D.S., M.S.,** Endodontics and Oral Diagnosis Sciences  
**Charles W. Williams, D.D.S.,** Oral and Maxillofacial Surgery  
**Melvin S. Polk Jr., D.D.S., M.S.,** Orthodontics  
**Adolfina M. Polk, D.D.S.,** Pediatric Dentistry  
**Paulette J. Tempio, D.D.S.,** Periodontics  
**Charles T. Smith, D.D.S.,** Restorative Dentistry

## **Dental Education at Meharry Medical College**

**T**he School of Dentistry (SOD) offers a high quality and exceptionally nurturing educational environment to its students and has an impressive track record of graduating students from a variety of socio-economic backgrounds. The School's practice of blending academically gifted students with those who demonstrate great promise but who require academic enrichment is a proven formula for success.

Students undergo a rigorous academic program that links oral health to overall health. The core curriculum of the regular dental program includes two years of basic science and pre-clinical exposure. The basic science courses are taught in conjunction with Meharry's medical school faculty. The clinical curriculum includes on-campus clinics, hospital experiences and rotations at nearby community health centers and private offices. There are also opportunities to engage in clinical practice and research in locations outside of Nashville.

The dental school curriculum is dynamic and is regularly monitored and modified in response to contemporary trends in dental education, research, and oral health and dental practice. The strategy ensures that the educational experience more closely mirrors the actual practice of general dentistry and fully prepares the student with the competencies required for delivery of high quality care.

In addition to its regular dental program, the SOD has developed a Special Dental Acceptance Program, supported with federal funds, which serves as an alternative for admissions. Admitted to this program are students who show great promise and who have graduated from an accredited college or university, but who lack competitive science grade point averages or Dental Admissions Test scores. The program consists of a structured academic enhancement curriculum for one year to increase the students' level of knowledge in the areas required for admission and successful matriculation and two summer sessions of science and test taking reinforcement.

The School also sponsors two post-doctoral programs: One is in oral and maxillofacial surgery and the other is a 12-month general practice residency. Both programs are affiliated with Nashville General Hospital at Meharry and the local Veterans Affairs Medical Centers.

The School of Dentistry is a member of the American Dental Education Association and is fully accredited by the American Dental Association's Commission on Dental Accreditation.

## **Admission to the School of Dentistry**

### ***Procedures***

The School of Dentistry participates in the Associated American Dental Education Association Application Service (AADSAS) sponsored by the American Dental Education Association (ADEA). Persons desiring to make application for regular admissions, advanced standing or readmission must make application through the AADSAS, 1400 K Street, N.W, Suite 1100, Washington, D.C. 20005; 1-800-353-2237. Persons applying must instruct ADEA to forward their credentials to the Office of Admissions and Records, Meharry Medical College, 1005 Dr. D.B. Todd Jr. Blvd., Nashville, TN 37208.

The deadline for all applications is February 1 of the year of anticipated matriculation. Upon receipt of the application from AADSAS, the Office of Admissions will send the applicant a letter acknowledging receipt of the AADSAS electronic data and advising them of materials needed to conduct a preliminary evaluation. An application fee of \$60 must be paid to continue the process. This fee is non-refundable and cannot be credited toward tuition if the applicant is accepted.

It is the applicant's responsibility to have a report of his/her performance on the Dental Admission Test transmitted to Meharry's Office of Admissions and Records. The test must have been taken within three years of the proposed matriculation date.

Applicants who have been accepted by the Committee on Admissions or placed on the alternate list, but who were not enrolled and who wish to enter in a subsequent year, must apply for readmission and must meet all the requirements in force at the time of the new application.

All credentials received in fulfillment of admission requirements become the property of Meharry Medical College. Falsification of any portion of the data submitted for admission disqualifies the applicant for further consideration by the Committee on Admissions.

The Committee on Admissions reviews all applications. Candidates presenting credentials that do not meet the minimum requirements are so advised by the Director of Admissions and Records. Each candidate who presents the minimum requirements is evaluated competitively and is either accepted, placed on the waiting list, or rejected on the basis of relative qualifications. The appropriate officer will inform the applicant of the action of the committee as soon as possible.

### ***Admission Requirements***

The Committee on Admissions of the School of Dentistry selects students for admission to the School of Dentistry. The committee is charged with the responsibility of selecting students who will make suitable candidates for the study and eventual practice of dentistry. Only one freshman class is admitted at the beginning of each academic year. The number of applicants greatly exceeds the capacity, and all applicants are considered on a competitive basis from the standpoints of scholarship, intelligence, aptitude, character, and general fitness to meet the historic mission of the college.

The Committee on Admissions will consider the applications of candidates who meet the following minimum qualifications:

1. Graduation from an approved secondary school or the equivalent in entrance examinations.
2. At least two full academic years of acceptable credit earned in a college or institute of technology currently approved by an agency recognized by the Commission on Dental Accreditation of the American Dental Association.

These recognized agencies are as follows: Middle States Association of Colleges and Secondary Schools; New England Association of Colleges and Secondary Schools; North Central Association of Colleges and Secondary Schools; Northwest Association of Secondary and Higher Schools; Southern Association of Colleges and Schools; and Western Association of Schools and Colleges.

3. The satisfactory completion of two years of pre-professional education by August of the year the applicant desires to be admitted, with the following courses and credits indicated:

Courses	Sem. Hours	Qtr. Hrs.
General Biology or Zoology, with laboratory	8	12
Inorganic/General Chemistry-Qualitative Analysis	8	12
Organic Chemistry	4-8	6-12
General Physics, with laboratory	4-8	6-12
English Composition	8	9

*Desirable: If the course in inorganic chemistry offered for admission does not include adequate instruction in the physical chemistry of solutions and in quantitative technique, courses in these subjects are recommended.*

4. Students with conditions in college courses are not accepted. "Satisfactory Completion" of required courses is interpreted by the Committee on Admission as an average grade of at least C (2.00) in each subject field. "Satisfactory Completion" of two years pre-professional education is interpreted as an average grade of at least C for the entire work of the two years. No student who has attained a general college average below C will be eligible for consideration. It is the aim of the Committee on Admissions to select only those applicants who rank in the upper two-thirds of their class.
5. An official record of performance on the Dental Admission Test (DAT). An academic average of 15 or above on the DAT is desirable.

It is highly recommended that the applicant supplement these basic requirements with courses in the humanities and natural and social sciences that are designed to promote broad cultural development. Highly specialized courses that occur in the dental curriculum, such as neurology, histology, human anatomy, bacteriology, and physiology, may not be substituted for one of the general courses required for admission. It is recommended that elective courses be selected from such subjects as the following: embryology, anatomy, quantitative analysis, mechanical drawing, mathematics, economics, history, psychology, sociology, microbiology, philosophy, fine arts and histology.

Candidates for admission are evaluated on a competitive basis relative to acceptable scholastic records, satisfactory performance on the DAT, favorable recommendations from their pre-dental committees or from two of their instructors in the natural sciences, and relative to whether in all other respects they give evidence of becoming successful dental students and health care providers.

### ***Veteran Students***

Meharry Medical College is authorized to certify the enrollment of veterans, dependents, and other eligible persons to the Veterans Affairs Department. These students are governed by the same policies and regulations as any student seeking admission and as any registered student. For additional information, see the section on Veteran Students in the College Overview of this catalog.

### ***Admission to Combined Curriculum***

Several colleges and universities approve the combined pre-dental and dental curriculum leading to the baccalaureate degree. A student seeking admission to the combined curriculum should ascertain from the registrar of the institution in which three years of pre-dental work were completed whether the first year of dentistry taken at Meharry Medical College will be acceptable to that institution as the fourth year toward a baccalaureate degree. An official statement to this effect must be presented with the application.

### ***Joint Fisk/Meharry Program***

Fisk University and Meharry Medical College have developed a joint program in the biomedical and health sciences. Outstanding students admitted to this program will complete a three-year curriculum in general education courses and most of the science courses for a major in either biology or chemistry at Fisk University. Such a curriculum will include all prerequisites necessary for entry into the School of Dentistry.

These students, upon admission to Fisk University, are provided places in the dental program at Meharry Medical College following the successful completion of the prescribed three-year program at Fisk University. Students are eligible for a bachelor's degree from Fisk University following successful completion of the first academic year at Meharry Medical College. It is anticipated that an additional three years will be required to complete training for the D.D.S. degree.

### ***Admission to Advanced Standing***

Application for admission to advanced standing should be made to the Director of Admissions and Records to be presented to the Committee on Admissions. Students who have satisfactorily completed one or more years at other dental schools are eligible for admission. However, no students are admitted to senior advanced standing. A student must matriculate at least two years at Meharry Medical College.

The following requirements are necessary:

- matriculation at an approved dental school;
- official transcripts from each school attended, showing the fulfillment of entrance requirements for admission to this school;

- satisfactory scholastic and disciplinary records from the dental school from which the applicant is withdrawing. No students are accepted with failures or conditions incurred at other dental schools;
- a statement of honorable dismissal from the dean of the dental school from which the applicant is withdrawing; and,
- if the interval since attendance at dental school has exceeded two years, the applicant shall be required to take such examinations as the Committee on Admissions recommends for entrance to the class desired.

If any deficiency exists, disposition may require:

- validation of credits by certain department chairpersons;
- examination in any of the subjects presented for transfer; and,
- completion of certain courses not common to all dental curricula.

#### ***Admission as a Special Student***

A person who is admitted as a special enrichment or summer student is not a candidate for a degree, but is governed by the same scholastic regulations as regular students. An interview with the department chair in which the work will be undertaken is required. A special student who decides to enroll as a regular student must apply to the SOD in the same manner as all other applicants. Fees are prorated in accordance with the number of hours the course offers.

#### ***Readmission***

An application for readmission must be made to the Director of Admissions and Records and must be approved by the Committee on Admissions. The applicant must meet all requirements in force at the time of submission. If the interruption has exceeded two years, applicants will be required to take examinations in courses for which they desire credit, unless otherwise advised by the Committee on Admissions. Students who have been dropped from the rolls of the College are eligible for reconsideration only under extenuating circumstances.

#### ***Admission of Graduates in Dentistry***

The School of Dentistry annually offers short refresher courses in the different disciplines of dentistry. The refresher courses are of two types: Continuing Education and Enrichment.

Continuing Education courses are designed for general practitioners who are graduates of dental school and who wish to pursue post-graduate studies without becoming candidates for a degree. The courses, hours and fees will be announced in special brochures that are prepared annually and will reflect the desires and needs of the general practitioners.

The Enrichment program is designed to improve the skills of dentists in the discipline(s) requested by a state board, regional testing agency or special request of a dentist. At the conclusion of the enrichment program, each participating dentist will receive either a satisfactory performance evaluation or a statement indicating that he/she has spent the required time in the area(s) specified.

Inquiries regarding either of these training programs should be made to the Office of the Dean. Students in both programs have to register through the Office of Admissions and Records to receive proper credit and/or grades if required.

### ***Post-Baccalaureate Program***

This program is a component of the Health Care Opportunities Program (HCOP) conducted by Meharry's School of Dentistry. The program is designed to increase the number of disadvantaged minority students entering and graduating from dental schools. The **Special Dental Acceptance Program** identifies and selects post-baccalaureate individuals who need a structured academic enhancement curriculum for one year and an acceptable score on the Dental Admissions Test to meet the specific requirements necessary for admission to the School of Dentistry.

The program assists participants in curriculum planning, counseling, academic enrichment and improvements in test-taking skills in preparation for the retaking of the Dental Admission Test. The students in this program participate in an initial eight-week summer program of diagnostic reinforcement. This is followed by one year of undergraduate strengthening at Fisk University taking those courses that are necessary for admission. An additional eight-week summer session of dental introductory seminars will follow at Meharry.

Exposure to the dental school environment during the one-year program will give these students a better understanding of the realities of the study and practice of dentistry. Additionally, these trainees will have an opportunity to learn from the experiences of dentists through their day-to-day campus contacts. This collaboration will play an important role in helping these trainees clarify their personal goals and will provide the stimulation and motivation for successful entry into and graduation from dental school.

Each qualified participant receives a stipend upon completion of the eight-week summer session and an additional stipend upon completion of required courses at Fisk University with at least a B average. A travel stipend for out-of-state participants is also given.

### ***Pre-Baccalaureate Program***

The Pre-Baccalaureate Program is an eight-week summer initiative that identifies and selects disadvantaged undergraduate students during their sophomore and junior years who are strong academically.

The objective of this program is to provide preliminary education through enrichment courses, counseling and assistance in curriculum planning. Preparation for the Dental Admission Test is also a part of this program to help facilitate entry into the freshman dental class. These students are closely monitored throughout their undergraduate education.

Exposure to the dental school environment during the eight-week Pre-Baccalaureate Program gives students a better understanding of the realities of the study and practice of dentistry. Additionally, these participants will have an opportunity to learn from the experiences of dentists through their day-to-day campus contacts. This exposure to practitioners will play an important part in helping these trainees clarify their own goals and will provide the stimulation and motivation for their successful entry into and graduation from dental school.

Applications for the Pre-Baccalaureate Program should be submitted no later than March 1 of the year for which the applicant is applying. This program starts on the first Monday in June.

## Academic Program

The School of Dentistry offers a four-year pre-doctoral program in general dentistry that is designed to prepare the student to provide competent oral health services to the population at large. This is accomplished through an interdisciplinary curriculum of didactic and clinical experiences that provide a diverse knowledge base and the clinical skills and competencies necessary in the practice of modern general dentistry. The program is also geared to provide a solid base for scientific inquiry and the lifelong pursuit of education.

The first and second years of the four-year curriculum are devoted primarily to classroom and laboratory instruction in the basic and pre-clinical dental sciences. The third and fourth years focus on further development of clinical science skills under supervision of the faculty in all areas of dental practice. The emphasis in all years is placed on the concept of comprehensive patient care. Students gain clinical experiences in other settings as well as hospitals, public health facilities, and other extramural environments as a part of the overall pre-doctoral program. The successful completion of the prescribed academic program and National Board Dental Examinations (Parts I and II), along with evidence of high ethical and moral standards, leads to the degree of Doctor of Dental Surgery (D.D.S.).

The School of Dentistry offers graduate programs in General Dentistry Practice and Oral and Maxillofacial Surgery. These programs accept Meharry graduates as well as those from other dental schools.

The curriculum in the School of Dentistry is dynamic. It undergoes constant improvement in response to contemporary trends in dental education, research and dental practice. The School of Dentistry modifies the curriculum as needed to maintain an overall academic program that meets the highest standards. The study of dentistry is rigorous and demands considerable time, energy and effort. It requires a partnership between faculty and students toward the common goal of the student's attainment of the cognitive, psychomotor, professional and ethical acumen necessary to practice dentistry.

## Course Descriptions

### Department of Biochemistry

BICH 701. *Physical Biochemistry*. This course discusses chemical and physical properties of biological macromolecules. Measurements of thermodynamic and molecular parameters of carbohydrates, lipids, proteins and nucleic acids are covered. Pre-requisites: core curriculum and Physical Chemistry. 3 credits

BICH 702. *Enzymology*. A course on chemical mechanisms and kinetic analysis of enzymes, using selected examples from the literature. Mechanisms of control of enzyme activity are also discussed. Prerequisite: core curriculum and background in physical chemistry and/or calculus, or consent of instructor. 3 credits

BICH 703. *Molecular Genetics*. An advanced course on the biochemistry and molecular genetics of gene expression, gene regulation and mutation. Current advances in prokaryotic and eukaryotic systems are covered. Prerequisite: core curriculum. 3 credits

BICH 704. *Topics in Cellular and Metabolic Regulation*. An advanced course on the regulatory mechanisms controlling major metabolic and cellular physiological processes in eukaryotes. Prerequisite: core curriculum or background in metabolism or cellular physiology. 3 credits

BICH 706. *Membrane Biochemistry*. This course discusses basic and contemporary literature on the structure and functions of biological membranes and includes topics on membrane dynamics, biogenesis and transport by or through membrane components. The cytoskeleton and the extracellular matrix are also discussed. Prerequisite: background in cellular physiology and/or molecular biology. 3 credits

BICH 710. *Seminar in Biochemistry*. 1 credit.

BICH 712. *Directed Studies*. Individual instruction designed to meet the specific academic needs of the student. Prerequisite: consent of instructor. 1-2 credits

BICH 713. *Advanced Topics in Biochemistry and Molecular Biology*. A lecture course covering specialized areas of inquiry in biochemistry or molecular biology, consisting of one to three such areas per semester. This course may be taken more than once. Prerequisite: consent of instructor. This course is offered about once in every three years. 1-3 credits

BICH 799. *Thesis Research*. Students are required to conduct original research, culminating in the preparation and defense of a dissertation that is acceptable, at least in part, for publication in a professional journal.

### Departmental Electives

Except for BICH 710, BICH 712, BICH 713 and BICH 799, all the other departmental electives listed are offered once every two years. Students should consult the department to ascertain in which alternating years these courses will be offered.

## **Department of Microbiology**

BSCI 704 *Biomedical Sciences IIB*. An examination of the control processes that occur in eukaryotic cells, and appropriate study of similar aspects of eukaryotic cells and bacteria. The origin of the cell and the anatomy and function of cellular or organelles are examined together with the role of the cell membrane in cellular homeostasis and the transfer of information from one cell to another; the action of hormones at both the cellular and molecular level; the organization of the eukaryotic genome and the control of gene expression; and the control of cell division and differentiation. The course also offers an introduction to formal genetics, and examines the function of one or more of the systems which are responsible for integration, movement, gas exchange, defense, and ion and water balance in higher organisms. 4 credits

BSCI 716. *Molecular and Biochemical Parasitology*. Detailed review of current literature involving investigations of the biochemistry and molecular biology of the causative agents of several tropical diseases including leprosy, African and African trypanosomiasis, schistosomiasis and malaria. 3 credits.

BSCI 719. *Gene Transcription and Regulation*. Structure and function of different RNA polymerases (RNAPs). Role of CTD (C-terminal domain) of RNAP II. Basic transcription activation. Regulation of basic transcription initiation, elongation and termination in bacterial system. Regulation of transcription initiation, elongation and termination in eukaryotic system. Chromatin and regulation of transcription. DNA topology and gene expression. Structural studies (X-ray crystallography and NMR) of transcription factors. Nucleic acid-protein interactions. Regulation of expression of tumor suppressor genes and human tumor virus genes. Methods involved in transcription research. 3 credits

BSCI 724. *Advanced Genetics*. Consideration of the concept of a gene from a transmissional, mutational, and functional standpoint. Applications of the genetic approach, to the solution of significant biological questions will be discussed in the context of current literature with emphasis on eukaryotic systems, techniques of mammalian somatic cell genetics and applications of tissue culture methodology to biomedical problems will be examined. 3 credits

BSCI 736. *Readings in Biomedical Science*. Intensive reading under the guidance of a faculty member in an area selected by the student. The student and faculty member meet weekly to discuss the readings; the student may be required to write a paper on the semester's reading. 1-3 credits.

BSCI 783. *Medical Genetics*. This course is designed to present to the student: 1) basic concepts of Mendelian inheritance and their application to the transmission of genetic traits in humans, 2) principles of cytogenetics, including genetic diseases due to sex and autosomal, numerical and structural chromosomal abnormalities, 3) principles of human biochemical genetics as exemplified by such disorders as inborn errors of metabolism and the hemoglobinopathies, and 4) aspects of clinical diagnosis, management and genetic counseling. Required course for sophomore medical students enrolled in the regular and special medical programs. Lecture and discussions. 3 credits.

MICR 700. *Medical Microbiology*. Lectures and laboratory experiments are designed to acquaint students with the biological characteristics of viruses, bacteria, fungi, and the helminths and their role in the development of disease. Fundamental principles relating to epidemiology, the immune response, pathogenesis, hypersensitivity and laboratory identification are stressed where applicable. Students are familiarized with general principles of specimen collection and microbiological diagnosis including established seroimmunologic techniques. 8 credits

MICR 701. *Microbial Physiology*. This course will present information on the structure and function of micro-organisms, including aspects of growth, genetics and metabolism. A discussion of the physical and chemical compositions of cellular structures will be given, as well as the major classes of macromolecules (nucleic acids, proteins, polysaccharides and lipids). Synthetic and degradative reactions peculiar to microorganisms will receive special attention. 3 credits.

MICR 702. *Perspectives in Immunology*. This course consists of a series of seminars on recent research advances in immunology. Topics covered include immunochemistry, immunogenetics, cellular immunity, tumor and transplantation immunology, immunopathology and the complement system. Prerequisite: Medical Microbiology. 3 credits.

MICR 704. *Microbial Genetics*. Bacteria and bacteriophages are studied as molecular models of fundamental biochemical and genetic processes. DNA replication, mutation, gene transfer, recombination and fine structure mapping are topic areas explored in depth to form perspectives of functional molecular interactions in cells. Prerequisite, MICR 700, or MICR 701, or consent of the instructor. 3 credits.

MICR 705. *Virology*. The course is an advanced graduate course which investigates the physical and metabolic characteristics of animal viruses and their hosts. 1-2 credits.

MICR 708. *Foundations in Research*. The specific goal of the course is for the student to provide a critical review of literature relevant to his/her proposed thesis research. Each student will be guided by a three-member faculty committee that will include the student's preceptor. The other two committee members will be selected by the Department of Microbiology faculty. Preferably from the Departmental faculty. The choice of the research problem should be determined by the student in consultation with the preceptor. The student will review the literature that is pertinent to his/her individual research project. It is essential that the major effort to identify and critically analyze pertinent publications comes from the student and he/she performs a comprehensive and critical review of the literature in the field. The outcome of the course will be a student prepared paper that provides a thoroughly documented background that supports the rationale for the proposed research project. 3 credits.

MICR 709. *Host-Parasite Relationships*. The course is designed primarily for advanced graduate students. Instruction consists of lectures, informal discussions, and guest speakers. Emphasis is directed to examining the theoretical, molecular, ultrastructural and physiological elements which characterize hosts and parasites from a basic (versus applied) science perspective. Prerequisites: MICR 700, 702, and core courses or consent of instructor. 5 credits.

MICR 710. *Fundamentals in Immunology*. will be offered this fall semester to graduate students. This is an introductory course which provides the basic concepts of immunology to non-Microbiology track graduate students. The course is subdivided into two components: medical component consisting of 23 hour lectures and four hours of small group discussion of basic concepts, followed by a graduate component consisting of 6 two hour lecture/discussion sessions. This course serves as a pre-requisite for the advanced immunology course offered by the department. 3 credits.

MICR 711. *Fundamentals of Genetic Analysis*. The course is designed for advanced graduate students and examines transmission genetics, including Mendelian inheritance, human genetic disorders, chromosomal basis of heredity, sex determination and sex linkage. 6 credits.

MICR 712. *Foundations in Cell and Molecular Biology*. The objective of the Foundations in Cell and Molecular Biology course is to introduce second year graduate students to important advances made in some areas of the field and to review pertinent literature in these areas. It is expected that upon successful completion of this course the student will be better prepared to continue with specialized coursework, and to write a research proposal prior to admission to candidacy. 4 credits.

MICR 750. *Microbiology Research*. An elective course available for students in other departments wishing to conduct limited research in the department. 1-4 credits.

MICR 850. *Microbiology Research Ph.D. Dissertation Research*. Required of students who are candidates for the doctoral degree. 1-12 credits

MICR 900. *Microbiology Seminar*. Weekly discussion of current topics in microbiological research and of work within the department. 1 credit.

MICR 901. *Advanced Seminar of Special Topics*. This course is a discussion by advanced graduate students and a faculty discussion leader who will make assignments from the current literature on a specific subspecialty. The course will examine experimental design, laboratory techniques used, validity of conclusions and contributions to the knowledge of the field under consideration. 1 credit.

### **Department of Pharmacology**

PHAR 700. *Introduction to the use of Scientific Literature*. Methods and techniques of use in making scientific literature surveys will be considered. Survey of the scientific literature associated with an assigned topic is a course requirement. 2 credits

PHAR 701. *Introduction to Pharmacological Research*. Opportunity will be afforded to properly qualify medical and dental students to undertake pharmacological investigation under direction of the staff. Permission to enroll must be granted by individual members. 1-5 credits.

PHAR 702. *Pharmacology Seminar*. The seminar is devoted to review and analysis of problems of special interest in pharmacology and related fields. Sections of the seminar will be concerned with the history of pharmacology. Presentation of topics is made by invited guest lecturers, the staff, and graduate students. Graduate students are required to attend the seminar whether enrolled for credit or not. Students enrolled for credit are required to write evaluations of each seminar and submit these to their advisors for critical assessment. 2 credits.

PHAR 703. *The Teaching of Pharmacology*. Practical experience in the teaching of pharmacology is afforded for graduate students. Students will assist in the planning and presentation of laboratories and discussion sessions for and to undergraduate and professional school students. Advanced graduate students may be allowed to present lecture material under careful supervision of a staff member. 2 credits.

PHAR 705. *Cardiovascular Pharmacology*. The pharmacology of drug agents exerting major effects on the cardiovascular system will be presented in lectures, discussions, and demonstrations. Mechanism of action, basis for therapeutic application and limiting side effects of the drug agents will be discussed. Research methodology utilized in studying these agents will also be taken up. 3 credits

PHAR 706. *General Pharmacology*. The pharmacological basis of therapeutics is presented by means of lectures, conferences, demonstrations and laboratory experiments on animals and man. Emphasis is placed on the factors governing drug action, dose- effect relationships, the relationship between chemical structure and pharmacological action, the problems associated with absorption, distribution metabolism and destruction and the mechanism of action of the most important official and non-official preparations. Attention is paid to therapeutic prescription writing and toxicology. 5 credits.

PHAR 721. *Biochemical and Molecular Pharmacology*. Consideration of the following areas is taken up in this course: drug metabolism and detoxification mechanisms, mechanisms of chemotherapeutic agent action, drug effects on enzyme systems and drug effects on genetic mechanisms. Lectures, discussions and laboratory demonstrations and/or experiments are included. 3 credits.

PHAR 722. *Neuropharmacology*. Drug effects on the principal divisions of the mammalian nervous system will be considered. Mechanisms and problems concerned with ganglionic, axonal, neuromyal and central nervous system transmission will be discussed. Discussion of the mechanism of action exerted by neurotropic and psychotropic drugs is stressed. Lectures, discussions and laboratory demonstrations and/or experiment are included. 3 credits

PHAR 723. *Toxicology*. Principles involved in surveying drug and chemical agents for toxicity will be prcsntcd. Examples of techniques utilized in analytical toxicology will be discussed critically. Toxicological mechanisms of action, rationale for therapeutic measures against effects of toxic chemical agents, and the basis for toxicological pathology will also be taken up. Lectures, demonstrations and/or laboratory experiments are included. 3 credits

PHAR 731. *Immunopharmacology*. Mechanisms of actions exerted by drugs that affect the immune system will be stressed. Lectures and discussions are included. A written literature survey of some specific aspect of drug interaction is required. 3 credits

PHAR 732. *Endocrine Pharmacology*. The pharmacology of mammalian hormones and related drugs will be presented in lectures and demonstrations. Critical assessment of research criteria required for identification of a hormone, and demonstration of its action will be a feature of the course. The basis for therapeutic applications of these agents will also be discussed. 3 credits

PHAR 735. *Research Problems in Pharmacology*. This is essentially a tutorship course, the purpose of which is to introduce the student to problems and techniques in several rapidly advancing research areas of pharmacology. The student confers with and performs research work with an individual member of the department for one semester. During this period, the student performs the work required for a limited investigation of some aspect of the department member's research program. 2 credits

PHAR 736. *Current Topics in Pharmacological Research*. By means of lectures and / or discussion sessions, this course will offer opportunity to evaluate significant current literature in the field of pharmacology and related disciplines. Each student enrolled will be required to write and submit a critical evaluation of an assigned, current, published research article. 3 credits

PHAR 737. *Pharmacokinetics*. This course is designed to understand the pharmacokinetics principles that govern the absorption, distribution, metabolism, and elimination of drugs. Basic pharmacokinetics parameters are examined using one-and two compartment modeling. In addition, applications of pharmacokinetics are examined with respect to clinical situations, and students will be introduced to the use of computer programs in pharmacokinetics. 3 credits

PHARM 738. *Carcinogenesis*. This interactive graduate course will survey how chemical carcinogens elicit as their specific, defining, adverse effect, the production of cancer in animals and humans. The course is an intense discussion of the observation that carcinogens, in a given experimental setting and in humans, show dose response relationships. The concepts and mechanisms of bioactivation and conjugative metabolism is a focal point in this course. 3 credits

PHARM 739. *Neurotoxicology*. This course will cover the basic principles of neurotoxicology and examine the various groups and classes of chemicals that are considered neurotoxic. This course will distinguish itself by focusing on the neurotoxicity of environmental agents that surround living systems. Students will learn the criteria that define neurotoxicants and the various methods available to characterize neurotoxicity (neurochemical, behavioral, biological, molecular, etc). Attention will also be given to various biological markers of neurotoxicity and the impact of mechanistic studies on the process of risk assessments. 3 credits

PHAR 799. *Research in Pharmacology*. 1-12 credits. Students are required to conduct original research, culminating in the preparation and defense of a dissertation

## Department of Physiology

### OBJECTIVES

The objective of the Department of Physiology is to introduce to graduate students to the normal function and pathophysiology of the human body, information that will serve as the foundation for all subsequent medical education. With integrated scheduling, the presentations in the anatomies, physiology, and neuroscience are organized to complement one another and to provide students with a better understanding of clinical correlations and case reports. Since effective teaching and learning are best achieved in a scholarly environment, the faculty and staff regularly engage in various forms of biomedical research and provide opportunities for medical student involvement in such research.

### COURSE DESCRIPTIONS

**PHYS 701 Medical Physiology.** This course focuses on the mechanisms underlying the normal functions of the human body. The subject is presented in eight block, seven of which describe specific systems, and a final block which describe specific systems, and a final block which addresses integrative functions of the body. The block topics include cellular, muscular, cardiovascular, gastrointestinal, respiratory, renal, and integrative physiology. The course format includes lectures, tutorials, and clinical correlations. 5 credits

**PHYS 702. Human Physiology.** This course gives graduate students basic understanding of the organ systems of the human body, basic anatomy and physiology of the cell and muscle, cardiovascular, respiratory, renal, gastrointestinal, endocrine and reproductive systems, and to stimulate interest in different areas of research. The course will include lectures, discussion sessions, as well as, student presentations. 4 credits. Prerequisite: core curriculum.

**PHYS 704. Animal Experimentation.** This lecture and laboratory course is designed to provide students information and experience necessary to conduct experiments with live animals. With constant emphasis on humane, ethical treatment, the student will be guided through essential phases of live animal research. These phases cover economic and intelligent planning and maintenance through anesthetic and surgical procedures, post-operative care, sample and data collection and humane sacrifice techniques. Students, through participation, should develop an awareness of the experimental animal as a living, behaving entity and why proper treatment as acquired in this course should have career-long utility. 4 credits, Prerequisite: Permission of the Instructor.

**PHYS 706. Biology and Neuroendocrinology of Aging.** This lecture course explores age-related changes in the molecules, cells, tissues and organ systems of the body and examines the possible involvement of the hypothalamic-pituitary axis in aging processes. Topics covered will include changes during aging in normal nuclei in the hypothalamus (and elsewhere in the brain) that help to regulate pituitary hormone secretion; changes in neurotransmitters and hypothalamic pituitary-gonadal hormones; alterations in the secretion of growth hormone, corticotropin-adrenocortical hormones, thyrotropin-thyroid hormones, and their significance in terms of bodily functions. The liver will be considered particularly as it relates to time-dependent changes in drug metabolism. Various systems used to model the aging process such as cells, nematodes, paramecium, insects and rodents will be discussed. Prerequisites: core curriculum. 3 credits

PHYS 707. *Advanced Endocrinology*. This course explores the biochemistry of hormones and their mechanisms of action and examines the hypothalamus and pituitary, thyroid and parathyroids, islet cells of the pancreas and the thymus, endocrine function of the liver and kidneys, adrenal medulla and cortex, ovary and testis and gastrointestinal hormones. The effects of growth factors, prostaglandins, prostacyclins and leukotrienes will also be discussed. 3 credits. Prerequisite: Human Physiology.

PHYS 708. *Advanced Gastrointestinal Physiology*. Advanced study of current concepts in gastrointestinal physiology, mobility, secretion, digestion, absorption and hormonal regulation are presented in a lecture and laboratory format. Student presentations based on literature searches are included. 3 credits. Prerequisite: Human Physiology.

PHYS 709. *Advanced Neurophysiology*. A functional approach to nervous system mechanisms. Topics include sensory and motor mechanisms, sensory motor integration and higher functions. The course will include lectures, selected literature discussions and essay examinations. 3 credits. Prerequisite: Human Physiology.

PHYS 710. *Excitable Cells*. Topics for this course include the theory of electric current flow in excitable tissues, methods for studying ionic currents in cardiac muscle, sodium current and the spread of excitation, calcium current and the initiation of contraction, the repolarization process, potassium currents and pacemaker activity, the sodium/potassium pump, sodium/calcium exchange, interaction between sodium/potassium and sodium/calcium exchange systems, transport measurement and changes in transport during the action potential. Prerequisite: Human Physiology. 3 credits

PHYS 712. *Seminar in Physiology*. Topics relevant to physiology will be presented by faculty, visiting scholars and graduate students. Participating graduate students who have achieved candidacy status will present one seminar per year. This course is required for all graduate students studying for the Ph.D. degree in physiology. This course may be repeated for credit Pass/Fail. 1 credit. Prerequisite: core curriculum.

PHYS 713. *Synaptic Physiology*. Advanced study of synaptic function will consider physiological and biochemical aspects of transmitter metabolism and pre/post synaptic mechanisms. Format will be primarily literature readings with some lecturing. 3 credits. Prerequisite: Human Physiology.

PHYS 714. *Research in Physiology*. Participation and credit in this course are arranged by the COI of students working on their dissertations in physiology. Students will receive pass or failure grades until degree requirements have been fulfilled. At that time a letter grade will be assigned. This course may be repeated for credit. TBA credits. Prerequisite: core curriculum.

PHYS 716. *Advanced Respiratory Physiology*. This course addresses advanced concepts and current topics in the function of the respiratory system with emphasis on respiratory system with emphasis on respiratory mechanics. Students participate in lectures and discussions and prepare literature-based presentations. 3 credits. Prerequisite: Human Physiology.

PHYS 717. *Developmental Physiology*. This course examines control mechanisms of molecular, cellular and tissue interactions leading to development and differentiation. Data from model systems are explored to provide insight into fundamental problems in embryology, cancer, regeneration and aging. 3 credits. Prerequisite: core curriculum.

PHYS 719. *Methods of Neurotransmitter Physiology*. The course will provide lectures in and practical exposure to the techniques used to study: 1) neuronal pathways and morphology, e.g., chemical tracing, neuronal lesions, electrical and chemical stimulation, and staining methods, 2) neurotransmitter isolation, quantification and characterization, e.g., solvent extraction, solvent separation, chromatography, ion exchange separation, radioimmunoassay, spectrophotometric biological assays and immunohistochemistry, 3) receptor identification and classification, e.g., membrane preparation and autoradiographic techniques, and 4) transmitter release e.g., perfusion methods and *in vitro* methods. Prerequisite: core curriculum. 3 credits

PHYS 720. *Readings in Physiology and Biology*. In this course, the student should complete comprehensive reading list of subjects specifically associated with his/her area of research before the dissertation defense. There will be no formal meetings or exams; however, relevant material from the readings may be included in the dissertation defense. Pass or fail grades will be registered until degree requirements are fulfilled, at which time the COI will assign a letter grade. TBA credits. Prerequisite: COI approval.

PHYS 721. *Dissertation Research*. Students are expected to register for this course in their last semester of residence. Course is completed with the approval of the written dissertation by the COI. TBA credits. Prerequisite: COI approval.

PHYS 722. *Development of the Nervous System*. This course explores: development and plasticity of the nervous system. Topics considered will include: early embryonic development; differentiation of nerve cells; growth cones and mechanisms of neurite growth; trophic regulation and growth factors/ neuronal death during development; synapse formation; development of neurotransmitter function; regeneration; neuronal plasticity and rearrangement of synaptic connections. Prerequisite: core curriculum. 3 credits

PHYS 723. *Behavioral Physiology/Neurobiology*. This lecture and laboratory course will explore those aspects of physiology/neurobiology having the most bearing on overt behavior. It will offer perspectives on both current and persistent problems regarding the understanding of perceptual systems and behavior, and examine the neurotransmitter, hormonal, neuropeptide modulation of behavior with respect to specific anatomical loci. Prerequisite: core curriculum. 3 credits

PHYS 724. *Neuronal Physiology*. Advanced study of cellular processes related to nervous system functions will include aspects of neurophysiology, neurochemistry and neuroanatomy. Format will be primarily lectures and selected literature readings. Prerequisite: core curriculum. 3 credits

## Clinical Sciences

### Department of Endodontics and Oral Diagnostic Sciences

#### OBJECTIVES (ENDODONTICS)

Endodontics is the branch of dentistry concerned with the morphology, physiology, and pathology of the human dental pulp and periradicular tissues. Its study and practice encompass the basic and clinical sciences, including biology of the normal pulp, the etiology, diagnosis, prevention, and treatment of diseases, and injuries of the pulp and associated periradicular tissues.

The teaching of endodontics interrelates with the biomedical sciences. Delivery of endodontic treatment in a clinical environment is closely integrated with all other health disciplines.

#### OBJECTIVES (ORAL DIAGNOSTIC SCIENCES)

The Division of Oral Diagnostic Sciences provides instruction in oral medicine, oral and maxillofacial pathology, and radiology. Third and fourth-year dental students rotate through an Oral Diagnosis and Radiology Clinic where they learn to apply skills in diagnosis, treatment planning, and radiographic techniques.

#### COURSE DESCRIPTIONS

EDPR 431-01. *Endodontics*. This second year endodontic core course is designed to introduce the student to endodontic techniques under simulated conditions on a number of extracted teeth and plastic blocks. The goal of the pre-clinical course is to train the student to perform the mechanical aspects of endodontic therapy. This course will provide the student doctor with a functional exposure of basic information relative to the practice of clinical endodontics. During all phases of the course, emphasis will be placed on correlating the basic and clinical sciences. While the majority of the course covers clinical skills, biology of the normal and irreversibly injured pulp will be taught. Included in this course will be preclinical knowledge and skill in the differential diagnosis of pain of pulpal and/or periapical origin, as well as referred pain; the control of pain emanating from the pulp or periapical region; and treatment by pulp capping, or pulpotomy as well as by pulpectomy. The student will also be introduced and trained to use electronic apex locators and rotary instrumentation.

EDPR 591-01. *Advanced Concepts in Endodontics*. This third year course has been designed to expand on concepts introduced in the prerequisite EDPR-431-01 and to transfer those concepts to patient care. The course prepares the junior student dentist to diagnose, assess and treat endodontic cases in the clinic. This is accomplished by expanding diagnostic concepts introduced in the core endodontic course and basic endodontic knowledge in the following areas: (1) diagnostic instruments and their use; (2) endodontic surgery; (3) endodontic pharmacology; (4) microbiology and immunology; (5) endodontic emergencies, including traumatic dental injuries; (6) periodontal/endodontic lesions; (7) prognosis and evaluation of success.

EDPR 601-01. *Endodontic Seminar*. This fourth year course is designed to further assist and reemphasize preparation for senior students for Part II of the National Board Dental Examination. Several endodontic topics will be assigned to groups of students to present to their classmates. Each topic contains four to five reading assignments that coincide with the topic subject. Class participation and successful completion of problem-based exercises coinciding with each topic is expected. Also included will be a group of case presentations of student cases, where the presenting student will discuss and defend his treatment, diagnosis, and prognosis etc. Additionally, the senior seminar will serve to reinforce and examine in more detail biological principles and concepts to aid the student to diagnose and treat more complicated cases in the endodontic clinic.

EDPR 591-01 and EDPR 641-01. *Endodontic Clinic*. Successful completion of the sophomore endodontic core course and the junior clinical entrance examination is needed to establish the student's clinical eligibility to treat patients in the endodontic clinic. The clinical entrance examination is comprised of two parts: (a) clinical activity and (b) diagnostic competency. The clinical activity is measured by completion of the "manikin exercise," which is intended to closely simulate the treatment of an actual patient without the need for anesthesia. The diagnostic competency section consists of performing a series of diagnostic tests and procedures on a classmate.

The student will be exposed to some of the new technology of endodontics, such as rotary instrumentation, digital radiography, electronic apex locators to name a few.. Each student dentist will participate in case presentations, which entails a formal presentation of an endodontic case completed in the clinic. The student will self-evaluate his or her treatment and defend all modalities of treatment in the endodontic case presentation. In addition, student doctors will recall previously treated cases in order to determine prognosis and success of treatment rendered.

ORDG 421-01. *Oral and Maxillofacial Radiology*. This second year course presents radiobiologic theory and physical properties of ionizing radiation and describes the application of radiographic methods in dental practice, radiation safety, and normal radiographic anatomy. Advanced oral and maxillofacial imaging techniques and interpretation, emphasizing deviation from normal, are also introduced.

ORDG 422-01. *Oral and Maxillofacial Pathology*. This second year course correlates clinical, oral, and maxillofacial pathology with histologic changes, with emphasis on microscopic and laboratory interpretation of cellular, tissue, and chemical alterations. Students perform library research or conduct laboratory research projects under supervision of a faculty, with the approval of the chair.

ORDG 430-01 *Introduction to Clinical Dentistry*. This course is designed to allow a smooth transition from didactic courses to clinical experience. The student will be exposed to proper history taking, extraoral, intraoral, radiographic and periodontal examinations. He/She will further be able to select the proper instruments for survey and evaluation of the patient. The student will be familiar with clinical protocol as indicated for through the Student Clinical Handbook. He/She will be introduced to all materials necessary for evaluation and interpretation of a patient's condition and situations as well as develop skills to be comfortable with patient interaction.

ORDG 501-01. *Comprehensive Oral Diagnostic Sciences*. This second year course provides an introduction to recognition, diagnosis, and treatment of oral manifestations of systemic diseases and principles of clinical medicine through presentation of mechanism, diagnosis, and treatment of common organ system diseases. Modifications necessary for dental treatment of patients with these diseases are discussed. This course also offers an overview of the signs, symptoms, diagnosis, and treatment of oral mucosal diseases, with emphasis on oncology. Topics discussed include history taking, clinical examination, differential diagnosis, therapeutics, and management problems (including psychological) and solutions. Systemic manifestations of oral disease are also discussed.

ORDG 571-01 & 671-01. *Oral Diagnosis and Radiology Clinic*. Through participation in this third and fourth year clinic, students learn to apply skills in history taking clinical examination and radiographic evaluation and to independently compose an appropriate treatment plan, which is presented in both written and verbal form. Students are questioned concerning material presented and are required to write a prescription for a removable appliance.

ORDG 691-01. *Treatment Planning Council*. This third and fourth year course provides a forum whereby students, after applying skills of history taking, clinical examination, and radiographic evaluation, independently compose an appropriate treatment plan, which is presented in both written and verbal form. Students are questioned concerning material presented and required to write a prescription for a removable prosthesis.

ORDG 650-01. *Oral Cancer Seminar*. This fourth year course provides a discussion of the epidemiology, etiology, diagnosis, invasion, treatment, radiation effects, prognosis and rehabilitation as they relate to oral cancer.

## **Department of Oral and Maxillofacial Surgery**

### **OBJECTIVES**

The Department of Oral and Maxillofacial Surgery, School of Dentistry, Meharry Medical College, is committed to the mission of the SOD. In addition, the department is committed to continuously providing quality controlled didactic and clinical instruction in oral and maxillofacial surgery to all enrolled undergraduate students. This instruction will produce a graduate capable of providing competent, routine independent oral and maxillofacial surgical care; recognition of challenges beyond their skill levels; performing competently on national, state and regional board examinations; and, ultimately, excelling in the private practice of general dentistry.

### **COURSE DESCRIPTIONS**

ORSG 403-01. *Principles of Oral and Maxillofacial Surgery 1*. This second year, two semester hour course is designed to give the student an in-depth study of the biochemistry, pharmacology, and physiological aspects of local anesthetic agents. A review of regional anatomy will be taught to enhance techniques of injection. Local anesthetic complications and emergencies will also be taught. Students are required to demonstrate competence in the administration of a local anesthetic prior to completion of this course. Lectures, slides, videotapes and demonstrations on patients will be used. The students will be introduced to principles of exodontias and physical evaluations.

ORSG 502-01. *Principles of Oral and Maxillofacial Surgery II.* This third year, four semester hour course is designed to teach the student the basic principles of oral and maxillofacial surgery, including surgical technique, pre-operative physical evaluation of the patient, surgical complications, and emergencies management. Students will be reacquainted with the anatomy of the head and neck, microbiology, and other basic science subjects that will enhance their clinical capabilities. Slides, videotapes, and demonstrations will supplement lectures. The students will also be introduced to the didactic training in inhalation sedation, nitrous oxide-oxygen sedation techniques.

ORSG 503-01. *Principles of Oral and Maxillofacial Surgery III.* This third year, two semester hour course is designed to introduce the student to the fundamental principles of general anesthesia, methods of evaluation of patients, selections of agents, and the indication for techniques. The related principles of conscious-sedation techniques will be stressed, with specific emphasis on the use of nitrous oxide and oxygen. Lectures, slides, videotapes and clinical demonstrations will be used.

ORSG 531-01. *Oral Surgery Clinic (Junior).* This fourth year clinical course is designed to permit students to demonstrate proficiency in performing uncomplicated extractions of erupted teeth and minor oral surgery procedures, competence in performing uncomplicated biopsy of hard and soft tissue lesions and surgical extraction of impacted and unerupted teeth. The student is expected to apply the principles taught in the didactic courses: Principles of Surgery, Pain Control I and 11, Cardiopulmonary Resuscitation, to meet the patient's needs at the chair-side. This is a two semester hour course.

ORSG 621-01. *Oral Surgery Clinic (Senior).* This fourth year, two semester hour clinical course is designed to permit students to demonstrate proficiency in performing uncomplicated extractions of erupted teeth and minor oral surgery procedures. The student will gain competence in performing uncomplicated biopsy of hard and soft tissue lesions and surgical extraction of impacted and unerupted teeth. The student is expected to apply to the patient's needs at the chair-side the principles taught in the didactic courses: Principles of Surgery, Pain Control I and 11, and Cardiopulmonary Resuscitation. The students will also become competent in administration of nitrous-oxide inhalation sedation.

ORSG 492-01 AND ORSG 692. *Cardiopulmonary Resuscitation (CPR).* This second and fourth year, one semester hour course is designed for certification and re-certification of students in cardiopulmonary resuscitation. The course consists of lectures and demonstrations in the techniques of cardiopulmonary resuscitation. Experience in monitoring vital signs will be gained as part of the exercises by the students. Each student must demonstrate proficiency in the performance tests for airway obstruction in infants and adult victims and resuscitation of infant and adult victims of cardiac arrest. This course is in compliance with standards of the American Heart Association and the American Red Cross.

ORSG 504-01. *Introduction to Clinical Implantology.* This third year, one semester hour course is designed to acquaint dental students with the basic concepts of dental implantology. Topics will consider the cellular aspects (biologic, physiologic and histologic) phenomena of osseointegrated dental implants. Concepts will include the surgical and restorative aspects of implantology.

ORSG 620-01. *Oral Surgery/ Pain Control Seminar.* This fourth year, one semester hour course will combine brief lectures, formal oral case reports, literature review, and directed discussion on clinical techniques and problems in prosthodontics in order to gain additional experience in some of the most advanced areas of prosthodontics; organize and present a case for a patient in need of comprehensive oral and maxillofacial surgery care; and become familiarize students with the scientific literature in the field of oral and maxillofacial surgery.

## **Department of Orthodontics**

### **OBJECTIVES**

This division is actively involved in introducing and teaching basic orthodontic theory and principles. The students are introduced to basic philosophy and current concepts in the field of orthodontics. A great emphasis is placed on differential diagnosis, case selection, treatment planning, and patient management. Each student is required to participate in patient treatment and gain clinical experiences in limited orthodontic tooth movement by developing treatment strategies for preventive, interceptive and limited orthodontic problems.

### **COURSE DESCRIPTIONS**

ORTH 422-01. *Introductory Orthodontics Lecture/ Laboratory.* This second year course is designed to introduce the student to the history, concept, and rationale of orthodontic therapy. The student is familiarized with human growth and development, with emphasis placed on the craniofacial complex. The etiologic factors of malocclusion are characterized and elucidated. The student is introduced to orthodontic diagnostic aids and their interpretation in preparation for clinical orthodontic diagnosis and treatment planning. The laboratory phase of this course includes impression making, fabrication of orthodontic models, and exercises in the design and construction of appliances commonly used in interceptive and limited corrective orthodontics.

ORTH 521-01. *Orthodontics.* This third year course is designed to advance the students' knowledge of orthodontics and further prepare them for clinical activity. The physical and psychological effects of malocclusion are described and delineated. This course covers biomechanical principles of tooth movement, as well as preventive, interceptive, limited corrective, and surgical orthodontics. The students gain clinical experience in patient management and preventive, interceptive, and limited corrective orthodontics.

ORTH 620-01. *Orthodontics.* The purpose of this course is to review the topics covered in the two previous orthodontic courses in preparation for Part II of the National Board Dental Examination. This review covers diagnosis and treatment planning, cephalometrics, biomechanics, preventive and interceptive orthodontics, etc. The students are also introduced to the latest concepts, especially those commonly employed by general practitioners.

ORTH 531-01. *Orthodontic Clinic.* This third year course provides instruction and clinical experience in treating limited orthodontic problems. Emphasis is placed on diagnosis, treatment planning, and treatment strategies for preventive, interceptive and limited orthodontic cases.

ORTH 561-01. *Orthodontic Clinic.* This fourth year course is an extension of the third year clinical course. This course permits the student to demonstrate proficiency in rendering preventive, interceptive, and limited orthodontic treatments to patients. The student doctors are required to apply principles taught in all previous didactic and clinical orthodontic courses.

## **Department of Pediatric Dentistry**

### **OBJECTIVES**

The educational goals of the Division of Pediatric Dentistry are to enable the dental student, at the undergraduate level, to develop a strong competency in pediatric dentistry and to increase the theoretical and clinical judgment, technical skills, and case organizational abilities. The course of study in pediatric dentistry is designed to establish a high standard of oral care based on an appreciation of the intricacies and demands of comprehensive health. The division stresses a strong scientific and behavioral science foundation, strong patient assessment skills, disease control and rehabilitation effectiveness, and a strong appreciation for health promotion. Minimal expectations of students to assure demonstrated competencies are emphasized in:

- Preventive services and treatment of conditions to include plaque control, patient education, and emergency treatment of pain and infection.
- Restoration of the primary and permanent teeth to proper form and function, with careful consideration for the health of the pulp and the supporting structures.
- Maintenance and/or restoration of space in the dental arch to achieve or retain adequate esthetics and function.
- Recognition of malocclusion, with priority provided for interceptive services as well as recognition of disfiguring and/or handicapping malocclusions.

### **COURSE DESCRIPTIONS**

PEDN 412-01. *Introductory Pediatric Dentistry*. Lecture/Laboratory. This second-year introductory course is designed to introduce the basic principles of clinical pediatric dentistry, including growth and development, operative and restorative dentistry, space maintenance, and some general considerations necessary when treating the pediatric dentistry patient. Laboratory exercises will be used to familiarize the student with actual pediatric dentistry techniques.

PEDN 511-01. *Pediatric Dentistry*. This third year major didactic course offered in pediatric dentistry offers extended didactic exposure to patient management, caries management, preventive measures, oral surgery, pulp therapy, trauma management, space maintenance, radiographic techniques, medicine, care of the handicapped, nutrition and orthodontics.

PEDN 620-01. *Pediatric Dentistry Seminar*. This is a fourth year course, presented in seminar format, emphasizes topics taught during the second and third year courses and presents newer issues in clinical pediatric dentistry. Participation is required of each student to ensure a more complete understanding of relevant subject matter, including issues of clinical practice, research, and preparation for the National Board Dental Examination.

PEDN 541-01. *Pediatric Dentistry Clinic*. This third year course is designed to provide instruction and experience in clinical pediatric dentistry. Emphasis is placed on diagnosis, treatment planning, and the comprehensive management of common pediatric dentistry situations. Community dentistry and health promotion exercises also are included in this course.

PEDN 641-01. *Pediatric Dentistry Clinic*. This fourth year course is an extension of the third year clinical course. Additional emphasis is placed on emergency management, medical complications, care for the handicapped, and treatment in the hospital.

## **Department of Dental Public Health**

### **OBJECTIVES**

For dental health professionals to effectively anticipate, assess, initiate, or respond to change they require skills in population-based analysis and knowledge about health service delivery systems, the financing of health services, basic health, and research design.

The predoctoral curriculum includes:

- The sociology and psychology of dentistry
- The epidemiology of oral conditions
- Health policy and the planning of oral health services
- The organization and delivery of care to patient populations with special needs
- Knowledge and Skills in Interpersonal Communication
- Needs Assessment and Treatment Planning
- Consultative and Interprofessional Relations
- Quality Assurance
- Coordination of Dental Team Responsibilities
- Principles of Proactive Management
- Cultural Competency

### **Course Descriptions**

#### **PDNT 303-01 Introduction to Clinical Research**

This first year class introduces students to the principles of Biostatistics and Epidemiology. This course is concerned with how to find scientific information necessary to sustain and enhance the clinical practice of dentistry and how to interpret that information. In this context, scientific information refers to the published results of clinical research among humans, which provides the rationale for understanding, preventing and treating oral diseases in dental practice and the community.

#### **PDNT 310-01 Introduction to Practice Management**

This course has been designed to acquaint the first year dental student with basic concepts that will provide insight into the business and management side of dentistry. We will raise issues relating to basic problems of dental practice as well as provide the students with a formula for success. The course also provides for a community-based mentoring program. The purpose of the program is to expose students to the extramural practice of dentistry in order for them to experience the dental profession from the perspective of the private practitioner. Students are exposed to real-life practice situations and learn to deal with the emotional, financial and social aspects of dentistry and patient care.

#### **PDNT 322-01 Applied Nutrition**

The primary focus of this first year course is on the concepts of human nutrition, their relevance and application to clinical dentistry. The nutritional complications of major chronic diseases are presented. Students participate in classroom exercises designed to provide familiarity with dietary and nutritional assessment methodologies.

**PDNT 401-01 Introduction to Community Based Education**

Introduces the student to dental public health. This course will also provide the sophomore dental student with the basic principles in promotion, improvement and maintenance of oral health. In addition, students will participate in community outreach programs.

**PDNT 411-01 Cultural Competency in Healthcare**

This course is designed to help students understand theories and skills that prepare them to become culturally competent members in their communities. Emphasis will be placed on the acquisition and promotion of skills, attitudes, behaviors, and knowledge necessary for students to work respectfully and effectively with patients and each other in a culturally diverse environment.

**PDNT 501-01 Practice Management**

This third year course presents information that is essential to establishing or purchasing a dental practice or joining an existing practice as an associate or partner. Models of solo practice, group practice, partnership practice and associateship practice are discussed. Topics are presented that assist in the development of the management skills necessary to successfully operate a dental practice. Personnel management, office design, financing, jurisprudence, managed care organizations, estate planning, business and cost accounting are discussed.

**PDNT 521-01 Behavioral Management in Dental Practice**

This course is designed to provide students an opportunity to develop communication skills for interacting appropriately with patients, peers, and other health care professionals. Students will develop oral, written, and non-verbal communication skills and an understanding of psychological needs of patients.

**PDNT 522-01 Community Dental Health**

This course focuses on the basic concepts of dental public health as related to the community. The history of dentistry, principles of fluoride and sealant usage, epidemiology of oral diseases and cancer, HIV/AIDS, OSHA guidelines, current issues in health care, social policy and health care economics are discussed. Models of health care delivery systems and quality assurance are presented. The course teaches basic skills in the data collection and interpretation of population-based and community-based surveys and programs.

**PDNT 561-01 Geriatric Dentistry**

This multidisciplinary and interdisciplinary course focuses on the oral diagnosis and treatment planning for the older adult. It prepares the student with the essentials of how to evaluate the geriatric patient including the physical, mental, pharmacological, and socioeconomic aspects of assessment. Oral assessment, enhanced by actual case studies, is presented so that the student will have an understanding of various therapies that are necessary to appropriately accomplish the delivery of dental care to the older adult. Ethical issues in geriatric health care and elder abuse will also be discussed.

**PDNT 562-01 & PDNT 632-01 Practice Management Symposium**

This joint third and fourth year seminar promotes the attainment of a successful dental practice. Information on third party payment, dental services corporations, the dental supplier, record-keeping, informatics and marketing strategies is presented.

#### **PDNT 620-01 Public Health/Biostatistics Seminar**

This course is designed to review and expand the principles of biostatistics and epidemiology. Methods for the analysis of experimental and observational data are presented. Various research concepts pertinent in the critical reading of scientific literature are discussed. The knowledge gained enables the student to effectively evaluate health research literature.

#### **PDNT 621-01 Behavioral Science Seminar**

This seminar examines the principles and dynamics of human behavior in the context of dentistry. Effective dental practice requires not only technical competence but also behavioral knowledge and skills to achieve full professional potential. In order to become successful practitioners, dentists must recognize the social and psychological factors that affect patients and influence dental care.

#### **PDNT 631-01 Dental Jurisprudence and Ethics**

This course consists of lectures covering the fundamental principles of law as applied to the practice of dentistry, including malpractice, compensation, expert testimony, and others. The American Dental Association's principles of dental ethics are reviewed.

### **Department of Restorative Dentistry**

#### **OBJECTIVES**

The Department of Restorative Dentistry (Operative and Prosthodontic Dentistry) presents the concepts and principles that prepare the graduate to competently deliver dental health care for the restorative dental patient. The department presents the biomechanical and clinical principles necessary to restore the oral cavity to optimum health. Students receive instruction in dental biomaterials, pre-clinical restorative procedures involving caries detection and removal, cavity design, choosing restorative materials, operative dentistry and fixed and removable prosthodontics concepts. The department also correlates the diagnoses and treatment of caries, trauma or pathosis of the dentition as it relates to the various basic sciences and other disciplines of dentistry. Students are also instructed on the restoration of the occlusion. A vital part of the discipline of Prosthodontics, occlusion encompasses the anatomical, physiological, and bio-mechanical relationships of the total masticatory system, the restoration of reproduction of occlusal relationships to their proper function in the system, and the examination procedures that allow proper diagnosis and treatment of the pathologic or dysfunctional states.

#### **COURSE DESCRIPTIONS**

PROS 412-01. *Removable Partial Dentures*. This second year course teaches students the principles necessary for utilization of removable partial dentures. Students are exposed to diagnosis and treatment planning for the partially edentulous patient, with emphasis being placed on prognosis with various treatment modalities. Students gain experience in diagnosis and treatment planning, mouth preparation, impression techniques, survey, design, tooth arrangement, and delivery of removable partial dentures. Laboratory procedures and dental materials related to removable partial dentures are reviewed. Students are exposed to concepts that relate other specialty areas to removable partial dentures, such as elective endodontics, fixed prosthodontic abutment preparation, pre-prosthetic surgery, and periodontal considerations.

PROS 422-01. *Removable Prosthodontics (Complete Dentures)*. This second year course is designed to explore and discuss the biological principles related to the fabrication and function of a complete denture prosthesis used to rehabilitate completely edentulous patients. Emphasis is placed on thorough examinations, recognition of the problems, and how to make a prognosis for each patient in a clinical setting. Textbooks, lectures, demonstrations, audio-visual aids, and discussions of the clinical aspects are used to broaden the scope of relative biological and technical knowledge. By the end of the course students gain the thorough, step-by-step, technical know how of the fabrication of complete dentures.

PROS 492-01. *Fixed Prosthodontics I and 11*. This second year course presents the basic principles to prepare dental students for pre-clinical crown and bridge procedures, as well as provides a foundation for students to grasp principles of clinical crown and bridge procedures. It gives students general knowledge in fixed prosthodontic treatment planning, crown preparations and prosthesis fabrication. At the completion of this course, students should be able to fabricate a fixed partial denture that satisfactorily meets the requirements of biomechanics and promotes the health of the remaining oral structures. Textbooks, lectures, demonstrations, audio-visual aids, along with discussions of the clinical aspects are used to broaden the scope of relative biological and technical knowledge. By the end of the course, students gain the thorough, step-by-step, technical know-how of the fabrication of fixed partial dentures.

PROS 493-01. *Fixed Prosthodontics 11*. This third year course presents biological and clinical principles to prepare students to restore existing teeth and replace missing teeth, when possible, by means of fixed prosthodontic restorations. The lecture series presents basic principles of crown preparations (specific for porcelain to metal restorations, fabrication of provisional restorations, cast dowel posts, pin retained cores, and the chemical nature of porcelain, color and esthetics in fixed prosthodontics). All clinical procedures presented in lecture will be supplemented by laboratory exercises to prepare the student to perform the procedures in a clinical situation.

PROS 512-01. *Junior Prosthodontics*. This third year course is designed to review and reemphasize some of the important principles, concepts and techniques of fabrication of removable and fixed prostheses. Since the students have some clinical experience by now, this course adds to their basic knowledge and competency in comprehensive care of their patients.

PROS 521-01. *Junior Dental Clinics*. This third year course is designed to introduce the student to clinical treatment of the dental patient. Basic prosthodontic treatment modalities are completed by students to integrate the knowledge base gained in the pre-clinical courses with clinical treatment of patients. Students are guided in the diagnosis, treatment planning, and comprehensive care for the edentulous, partially edentulous, and dentate patient.

PROS 621-01. *Senior Dental Clinics*. This fourth year course is designed to provide additional clinical experiences for students. Student are guided in the diagnosis, treatment planning, and comprehensive care of more advanced cases to both complete their clinical experiences and develop a basic level of competency to deliver prosthodontic dental health care. Several competency-based clinical exercises and examinations are conducted in fixed and removable prosthodontics.

PROS 620-01. *Prosthodontic Seminar*. This fourth year course combines brief lectures, formal oral case reports, literature review, and directed discussions on clinical techniques and problems in prosthodontics in order to: gain additional experience in some of the most advanced areas of prosthodontics; organize and present a case for a patient in need of comprehensive prosthodontic care; and become familiar with the latest scientific literature in the field of prosthodontics.

PROS 632-01. *Introduction to Clinical Implantology*. This third year course is designed to acquaint dental students with the basic concepts of dental implantology. Topics will consider the cellular aspects (biologic, physiologic and histologic) phenomena of osseointegrated dental implants. Concepts will include the surgical and restorative aspects of implantology. The Department of Oral and Maxillofacial Surgery presents the surgical concepts. The Department of Prosthodontics and Occlusion presents the prosthodontic concepts.

PROS 311-01. *Dental Anatomy (Tooth Morphology and Surrounding Structures)*. This first year course provides students with knowledge in the anatomical and morphological characteristics of teeth. It also includes a study of the eruption sequence for primary and permanent teeth as well as a study of pulp morphology for each type of tooth.

PROS 312-01. *Principles of Occlusion I*. This first year course is designed to acquaint students with a thorough understanding of the anatomic relationship that exists between the dynamics of mandibular movement (anatomy and physiology of the stomatognathic system) and occlusal morphology.

PROS 511-01. *Occlusal Adjustment*. This third year course emphasizes biological and clinical principles in the preparation of students for diagnosing and treatment planning for psychological, pathological, and physiological problems related to the gnathostomotic system. Laboratory training in the application of occlusal treatment, instrumentation and procedures for occlusal adjustment is also given.

PROS 611-01. *TMJ (Temporo Mandibular Joint) Seminar*. The dynamics of occlusion are presented in the fourth year and analyzed by instructors of the various disciplines. Biological, pathological, and psychological aspects will be emphasized.

ASDD 483-01. *National Board Review (Part I)*. The course consists of all of the basic sciences courses covered on the National Board Dental Examination Part I. The review will emphasize concepts contained in board questions. The course is held in June for students to take the examination in July.

ASDD 602-01. *Analytical Reasoning and Critical Thinking (Seniors) and ASDD 403-01 (Juniors)*. The Analytical Reasoning and Critical Thinking course is designed to teach students how to evaluate what they hear in lectures and/ or read in textbooks. The course enables students to raise and answer important questions involved with self-deception. They are taught to distinguish between fact and opinion and to decide which ideas to examine closely during exams. The difference lies between those students who merely see or hear words and those who see beyond words, achieving a higher level of reasoning and comprehension.

ASDD 610-01. *National Board Review (Part II)*. This course is offered strictly as a review of all subject areas that will be covered on the National Board Dental Examination (Part II). These areas include endodontics, orthodontics, operative dentistry, oral pathology, oral surgery, pedodontics, periodontics, pharmacology and prosthodontics. Other subject areas include occlusion, biomaterials, anesthesia roentgenotology, dental public health, behavioral science, study skills and test taking techniques. This course is a prerequisite for participation on the national dental boards (Part II). The students must complete a diagnostic examination at the beginning of the course and an advisory examination at the end of the course.

OPDN 321-01 *Introduction to Operative Dentistry*. This first year course is to teach students, to apply the biological, mechanical and esthetic principles, necessary to recognize dental caries and perform proper tooth preparation.

OPDN 402-01/403-01. *Pre-Clinical Operative Dentistry*. This is a second year technique course designed to give the sophomore dental student a basic background in the biological and manipulative fundamental principles of operative dentistry and make available the opportunity to practice these principles utilizing the various dental protective liners, bases and restorative materials for replacing lost tooth structure as a result of caries or trauma.

OPDN 421-01. *Dental Biomaterials*. This second year course presents the basic chemical and physical properties of dental materials as they relate to their manipulation by the dentist. It is intended to bridge the gap between the knowledge obtained in the basic courses in materials science, chemistry, and physics and the dental operatory.

OPDN 501-01. *Operative Dentistry*. This course is designed to acquaint the junior student with clinical procedures and regulations; to relate, review and reinforce the knowledge gained in the pre-clinical Operative Dentistry course and the sophomore Biomaterials course to clinical practice; to teach students to distinguish between decayed and normal tooth structure; to aid students with patient management; and to teach additional material and techniques not covered in the sophomore course in Operative Dentistry. Prerequisite: OPDN 402 - OPDN 403.

OPDN 531-01. *Junior Operative Clinic*. This third year course is designed for the clinical practice of operative dentistry. The major objective is to give the student practice in diagnosis, treatment planning, and comprehensive restorative care for the patient possessing all or part of the natural dentition. Prerequisite: OPDN 402 -OPDN 403.

OPDN 581-01. *Dental Auxiliary Clinic*. This third year basic course is designed to familiarize the junior student with methods of saving time and motion. It also is to introduce to the student the concept of four-handed dentistry and to familiarize him/ her with the fundamentals of utilizing the chair-side dental assistant.

OPDN 583-01. *Junior DAU Clinic*. This third year course is designed for the clinical practice of utilizing the chair-side dental assistant. Prerequisite: OPDN 581.

OPDN 611-01. *Operative Dentistry Seminar*. This fourth year course is a lecture-class participation course in which the most recent advancements in dental materials and restorative procedures are discussed, with an emphasis on esthetic materials and procedures. Clinical problems associated with patients are also presented and discussed. Prerequisite: OPDN 501.

OPDN 620-01. *Senior Dental Biomaterials Seminar*. This fourth year course is basically a complete review of all aspects of dental materials as they relate to dental practice. This course serves to reinforce the biomaterials presented during the freshman, sophomore and junior years in this field prior to graduation.

OPDN 631-01. *Senior Operative Clinic*. This fourth year course is designed for the clinical practice of operative dentistry. It involves more procedures and more advanced procedures than the junior year. Prerequisite: OPDN 531.

OPDN 681-01. *Senior DAU Clinic*. This fourth year course is designed for the clinical practice of utilizing the chair-side dental assistant. Prerequisite: OPDN 583.

## **Department of Periodontics**

### **OBJECTIVES**

The mission of the Department of Periodontics is to train pre-doctoral students in the art and science of periodontology. The Department provides pre-doctoral dental students with laboratory, pre-clinical and clinical instruction in diagnosis, treatment and prevention of periodontal disease.

### **COURSE DESCRIPTIONS**

EDPR 421-01. Periodontics I: This two semester pre-clinical course is offered in the sophomore year. Students are introduced to periodontal disease diagnosis, treatment and prevention through lectures and laboratory, and clinical practice sessions. Students work in teams of two practicing examination and treatment techniques in the clinic to build the skills necessary to treat patients.

EDPR 511-01. Periodontics II: This two semester didactic course is offered in the junior year. The course material focuses on non-surgical and surgical periodontal therapy of various forms of periodontal disease. (EDPR 421 -01 is a prerequisite for this course.)

EDPR 523-01 and 621-01. Periodontics Clinic: In the junior and senior year, students treat patients in the clinic under the supervision of faculty. A high student-faculty ratio is maintained to ensure that each student develops the skills to treat gingivitis, and early and moderate periodontitis upon graduation. Students also assist with surgical therapy to foster a familiarity of various surgical techniques.

EDPR 620-01. Senior Seminar: This seminar is offered in the fall semester and introduces the concept of critical analysis of the dental literature and advanced treatment planning. (EDPR 421 and 511 are prerequisites)

## **Department of Oral Biology and Research**

The mission of the Department of Oral Biology and Research at Meharry Medical College is to bridge Basic Sciences and the Dental clinical practice through research excellence and to educate dental scientists for academic and research leadership positions. Recent advances in basic sciences, the completion of the human genome project, the advancement of genomics and proteomics as well as the interdisciplinary nature of research in oral health and disease processes and treatment, are key to position the department as a leader in the national effort to relate these findings to systemic health, and to translate these advances into improved dental care and oral health especially as they relate to the health of underserved populations and the elimination of oral health disparities.

## **Division of Graduate Programs**

### **OBJECTIVES**

The Division of Graduate Studies is committed to establishing graduate training in the recognized specialty areas of dentistry and general practice. The program will prepare the residents to challenge the American Board in their recognized specialty area or similar certification in general dentistry. The training of the postgraduate residents will be consistent with the mission of Meharry and the SOD.

There are two postgraduate programs in the SOD - General Practice Residency and Oral and Maxillofacial Surgery.

The Oral and Maxillofacial Surgery Residency is a four year accredited program that trains residents in the full scope of oral and maxillofacial surgery. Resident training is both an inpatient and outpatient service at the SOD, Metropolitan Nashville General Hospital, Nashville Memorial Hospital, Alvin C. York Veterans Affairs Hospital and the Meharry Lentz Community Health Clinic. Residents completing the program are eligible to apply for American Board Certification.

The General Practice Residency Program is an opportunity for advance training in general dentistry. The resident positions are available for dentists seriously desiring to enhance their knowledge and clinical skills in all aspects of general dentistry. The goal of the general practice residency program is to develop clinically competent general dentists capable of providing efficient and effective comprehensive dental care and appropriate emergency care to the general public, including special needs groups, in an ambulatory or in-patient clinical setting.

## **School of Dentistry Faculty**

### **Department of Biochemistry**

**Chair:** Samuel E. Adunyah, Ph.D.

**Professor Emeritus:** Henry A. Moses, Ph.D.

**Professors:** Ifeanyi J. Arinze, Ph.D.; Salil K. Das, Ph.D.; Maria de Fatima Lima, Ph.D.

**Associate Professors:** Oksoon H. Choi, Ph.D.; Josiah Ochieng, Ph.D.

**Assistant Professors:** Emmanuel Atta-Asafo-Adeji, Ph.D., Marilyn E. Thompson, Ph.D.

**Adjunct Professors:** Richard W. Hanson, Ph.D.; C. Rollo Park, M.D.

**Adjunct Associate Professor:** James L. Shirley, M.D.

### **Department of Microbiology**

**Chair:** Fernando Villalta, Ph.D.

**Professors Emeriti:** Fred Jones, Ph.D., Mark E. Levitch, Ph.D.

**Professors:** Gautam Chaudhuri, Ph.D., Ethleen McGinnis-Hill, Ph.D., Robert G. Holt, Ph.D., Raju Ramasamy, Ph.D., Manuel Valenzuela, Ph.D.

**Associate Professors:** Frank M. Hatcher, Ph.D.

**Assistant Professors:** Minu Chaudhuri, Ph.D., Douglas R. Dorer, Ph.D.

**Instructors:** Eloise J. Cunningham, B.S., Alberta G. Hall, B.S.

### **Faculty with Secondary Appointments:**

**Professors:** George C. Hill, Ph.D., Department of Microbiology & Immunology, Vanderbilt University; Maria de Fatima Lima, Ph.D., Department of Biochemistry, Meharry; John A. Phillips, III, M.D., Departments of Pediatrics & Medicine, Vanderbilt University

**Associate Professors:** Scott M. Williams, Ph.D., Department of Internal Medicine, Vanderbilt University; Terence S. Dermody, Ph.D., Department of Pediatrics, Vanderbilt University

**Assistant Professors:** Robert F. Clark, Ph.D., Department of Psychiatry and Behavioral Medicine, Meharry; Susan A. DeReimer, Ph.D., Department of Pathology, Meharry;

Hua Xie, D.D.S., Ph.D., Department of Stomatology, School of Dentistry, Meharry

### **Department of Pharmacology**

**Chair:** Clivel G. Charlton, Ph.D.

**Professor Emeritus:** Ralph J. Cazort, M.D., M.S.

**Professors:** Mohammed A. Maleque, Ph.D., Dolores C. Shockley, Ph.D.

**Associate Professors:** Darryl Hood, Ph.D., Alfred A. Nyanda, Ph.D.

**Assistant Professors:** Twum-Ampofo Ansah, Ph.D., Sakina E. Eltom, Ph.D., Shyamali Mukherjee, Ph.D., Wan-Qian Zhao, Ph.D.

**Instructors:** Armandla Ramesh, Ph.D.

**Visiting Assistant Professor:** Otis Campbell, M.D., Ph.D.

**Adjunct Professor:** Lee Limbird, Ph.D., Department of Pharmacology, Vanderbilt University; Daniel M. Quinn, Ph.D. University of Iowa, Iowa City, Iowa

**Adjunct Associate Professors:** Syed Ali, Ph.D., National Center for Toxicological Research (NCTR); David Black, Ph.D., Aegis Laboratory, Nashville, Tennessee; Burham I. Ghanayem, Ph.D., National Institute of Environmental Health Sciences; James Powell, M.D., Proctor and Gamble Company

### **Department of Physiology**

**Chair:** Hubert K. Rucker, Ph.D.

**Professors:** Mukul R. Banerjee, Ph.D., Mohit L. Bhattacharyya, Ph.D., John T. Clark, Ph.D., Sukhbir S. Mokha, Ph.D., James J. Mrotek, Ph.D., Linda D. Sander, Ph.D., James G. Townsel, Ph.D.

**Associate Professors:** Sanika S. Chirwa, Ph.D., Robert T. Matthews, Ph.D., Evangeline D. Motley, Ph.D.

**Assistant Professor:** Michael Hill, Ph.D.

### **Department of Endodontics and Oral Diagnostic Sciences**

**Chair and Associate Professor:** Augustyne V. Hill, D.D.S., M.S.\*

**Associate Professor:** Dudley E. Felix, D.D.S.\*\*

**Assistant Professors:** Tanya M. Gibson, D.D.S.\*\*\*, Gibson Johnson, Jr., D.D.S., William D. Scales, D.D.S., Tanya A. Wright, D.D.S.\*\*\*, Robert Williams, D.D.S.

**Instructor:** Terrance L. Cason, D.D.S.

\*Diplomate American Board of Endodontics

\*\*Diplomate American Board of Oral Medicine

\*\*\*Diplomate American Board of Oral Pathology

### **Department of Oral and Maxillofacial Surgery**

**Chair and Associate Professor:** Charles W. Williams, D.D.S.

**Graduate Program Director and Professor:** C. Ray Bennett, D.D.S.

**Associate Professors:** Felix Lawrence, D.D.S., D.Sc.

**Assistant Professor:** J. Zakeeah Robertson, D.D.S., Ruth E. Ross, D.D.S.

**Visiting Assistant Professor:** James King, D.D.S.

### **Department of Orthodontics**

Chairperson and Associate Professor: Melvin S. Polk, Jr, D.D.S., M.S.

Associate Professor: Sandra G. Harris D.D.S.

Associate Professor: Shyam K. Malhotra, D.D.S.

### **Department of Pediatric Dentistry**

Adolfina Montalvo-Polk, D.D.S., Chairperson and Associate Professor

Edwin H. Hines, D.D.S., M.S.D., Professor

Sharon L. Carter, D.D.S., M.A., Assistant Professor

Eric K. Wood, D.D.S., Instructor (part-time)

Visiting Instructors: George Adams Sr., D.D.S.; George Adams Jr., D.D.S.

### **Department of Dental Public Health**

Angel Rivera Torres, D.D.S., M.P.H., M.S.P.H., Ph.D., Chairperson

Associate Professors: Cherae Farmer-Dixon, D.D.S., M.S.P.H.; Wilda Seibert, R.D.H., M.S.

Assistant Professors: Carlotta Arthur, M.A., Ph.D.; Jacinta P. Leavell, M.S., Ph.D.; Machelle Fleming Thompson, R.D.H., M.S.P.H.; Yolanda Anthony-West, D.D.S., M.S.P.H.

Adjunct Assistant Professor: Janet Clodfelter, D.D.S.

Adjunct Professor: Rueben C. Warren, D.D.S., Dr.P.H.

### **Department of Restorative Dentistry**

**Chair and Associate Professor:** Charles T. Smith, D.D.S., M.A.  
**Professor:** William B. Butler, D.D.S., M.S.  
**Professor (part-time):** Eugenia L. Mobley-McGinnis, D.D.S., M.P.H.  
**Associate Professors:** Satish Makrandi, B.D.S., James E. Tyus, D.D.S., Rolando Bernui, D.D.S., Roosevelt S. Smith, D.D.S., Henry L. Young, Jr., D.D.S.  
**Assistant Professors:** Valencia Hereford, D.D.S., Howard Dodd, D.D.S., Daphne Ferguson-Young, D.D.S., Harold O. Jackson, D.D.S.  
**Assistant Professors (part-time):** Thomas Brannon, D.D.S., William P. Davis, D.D.S., Shawna R. Chesson, D.D.S., Eric Carter, D.D.S.  
**Instructor:** Lindel Brookes, D.D.S., Ragonvna S. Walls, D.D.S.  
**Instructor (part-time):** Tommy Dorsey, D.D.S.  
**Volunteer Clinical Instructor:** Michael A. Yacko, Jr., D.M.D.

### **Department of Periodontics**

**Chairperson and Associate Professor:** Paulette J. Tempro, D.D.S.  
**Assistant Professor:** Luis Litonjua, D.M.D., M.S.

### **Department of Oral Biology and Research**

**Interim Chair:** Maria F. Lima, Ph.D.  
**Associate Professor:** Hua Xie, DDS, Ph.D  
**Research Assistant Professor:** Jie Wu, Ph.D.

### **Division of Graduate Programs**

**Associate Dean:** Charles W. Williams, D.D.S.  
**Program Director, Oral and Maxillofacial Surgery:** C. Ray Bennett, D.D.S.  
**Program Director, General Practice Residency Program:** Henry L. Young, Jr., D.D.S., M.S.

# **School of Graduate Studies and Research**

## **Administration**

**Maria de Fatima Lima, Ph.D.**, Dean

**Fred Hamilton, M.Ed.**, Assistant Dean

**Christine Minja-Trupin, Ph.D.**, Program Evaluator

**William Washington, D.P.A., M.P.A., M.P.H.**, Director, Master of Science in Public Health

## **Graduate Studies and Research Education at Meharry**

**T**he School of Graduate Studies and Research is recognized as a valuable national resource for educating Ph.D.'s in the biomedical sciences and masters-level graduates in public health. Since 1970, Meharry has conferred more than 10 percent of the Ph.D. degrees awarded nationally to African Americans in all of the biomedical sciences. Graduates of the School serve on the faculties of America's best universities as well as in leadership roles for many of the nation's health, pharmaceutical, and biomedical technology corporations.

The departments that participate in the graduate programs are housed on three floors of the West Basic Sciences Center. The Center provides some 280,000 square feet of teaching, laboratory, and office space. Each department has a seminar room, a departmental library, small group meeting facilities, , faculty laboratories, and offices. The building also houses shared seminar rooms, large lecture halls, and central research core facilities including an animal care facility; an electron microscope facility that contains two transmission microscopes and a scanning electron microscope; a central hybridoma research laboratory; a molecular biology core facility that contains an oligonucleotide synthesizer, a peptide synthesizer, a protein sequenator, and an Amgen densitometer; an Affymetrix gene array facility; a flow cytometry laboratory; a radioimmunoassay laboratory; and a neurohistological laboratory.

### **Admission to the School of Graduate Studies and Research**

**T**he SOGSR Admissions Committee has the responsibility to review all applications for admission and full authority to accept or reject any applicant. The committee is charged with the responsibility of selecting students who will make suitable candidates for graduate studies. The number of applicants greatly exceeds the capacity, and all applicants are considered on a competitive basis from the standpoints of scholarship, intelligence, aptitude, character, and general fitness to meet the historic mission of the college. The dean, SOGSR, (hereafter referred to as the dean) sends a letter informing the applicant of the committee's decision. This correspondence constitutes the only official and binding notice of acceptance or rejection. An applicant also may be admitted to the graduate program as a special student, auditing student, or with conditional admission.

### **Applications**

The Office of Admissions and Records (OAR) processes all applications to the School of Graduate Studies and Research (SOGSR). To be considered for admission as a regular student an applicant must have a complete application. A complete application consists of the following: (1) an application form properly filled out; (2) official transcripts from all colleges the applicant has attended; (3) letters of recommendation from two college instructors in the sciences (for the doctoral program) or two persons who are qualified to assess your work or academic performance (for the M.S.P.H program); (4) a report of the applicant's scores on the Graduate Record Examination; and (5) an essay focused on the applicant's academic strengths and career plans.

## **Procedures for Admission**

The deadline for all applications is April 15 of the year of anticipated matriculation. An application fee of \$45.00 must be paid to continue the process. This fee is non-refundable and cannot be credited toward tuition if the applicant is accepted.

## ***Requirements for Admission***

To be admitted to the School of Graduate Studies and Research applicants must:

- Hold a bachelor's, master's, or advanced degree from an accredited college or university;
- Have an overall B average and a B average in science courses;
- Submit scores from the General Test of the Graduate Record Examination;
- Submit two recommendations from college instructors in the natural sciences;
- Submit an essay that describes their academic background, career plans, and reasons for pursuing graduate studies.

It is the applicant's responsibility to have a report of his/her performance on the Graduate Record Examination transmitted to the Office of Admissions and Records. The test must have been taken within five years of the proposed matriculation date.

## ***Special Student***

A person may be admitted by the SOGSR Admissions Committee as a special student to take one or more courses, after obtaining permission from the dean. Special students are not candidates for degrees at Meharry, but are governed by the same scholastic regulations as regular students. An interview is required with the chairperson of the department where the courses are to be taken. Fees are pro-rated in accordance with the number of hours which the course offers.

## ***Auditing Student***

A person who is admitted by the 9:X3SR who wishes to audit a course must obtain permission from the chairperson of the department in which the course is offered. Auditing students pay the appropriate tuition.

## ***Conditional Admission***

Conditional admission status may be assigned to an applicant with deficiencies in the quality of admission materials submitted; however, the applicant's conditional status must be recommended by the degree program and approved by the Graduate Admissions Committee. For conditionally admitted students to qualify for regular status, a minimum cumulative grade point average of 3.0 (B), with no grades lower than a "B" in core courses, must be earned during the academic year in which the first 24 graded hours of graduate course work are completed for the doctoral program and 12 hours for the master's program. (Degree programs may specify additional requirements for students granted conditional admission status.) If regular status is not achieved during the first year, the student will be dismissed from the degree program and the SOGSR.

All correspondence concerning admissions should be addressed to the Office of Admissions and Records, Meharry Medical College, Nashville, Tennessee 37208. Each applicant must meet the specific requirements of the School of Graduate Studies and Research.

## ***Readmission***

An application for readmission must be made to the Director of Admissions and Records and must be approved by the Admissions Committee. The applicant must meet all requirements in force at the time of submission. Students who have been dropped from the rolls of the College are eligible for reconsideration only under extenuating circumstances.

## ***Transfer Course Credit***

### ***Doctoral Program***

After a doctoral student begins the major emphasis phase, he or she may petition his or her department to receive credit for graduate work done at other accredited institutions or from Meharry for courses taken before admission to the SOGSR-provided that the total number of credits transferred for core courses and advanced courses does not exceed nine (9) credits. Grades earned on transferred work must be equivalent to a "B" or better. Dissertation credit is not transferable. The department chairperson requests in writing that the Office of Admissions and Records enter the credits on the student's Meharry transcript. Grades earned in courses at other schools, prior to admission to Meharry are not included in computations of a student's average nor entered on the Meharry transcript. However, grades earned at Meharry before the student matriculates (e.g., bridging, joint programs, etc.) are computed in the student's GPA.

### ***Masters of Science in Public Health Program***

Students enrolled in the Master of Science in Public Health (M.S.P.H.) program may receive transfer credit after approval by the division's director. Up to six credit hours of M.S.P.H. course work may be transferred.

### ***Courses Not Eligible for Transfer Course Credit***

Correspondence or extension courses cannot be transferred for credit. Course(s) taken on a pass-fail or satisfactory-unsatisfactory basis are not eligible for transfer credit. Course credit earned in professional school, such as law, medicine, divinity or dentistry may not be transferred for graduate degree purposes. Exceptions from this rule are courses cross-listed as graduate school courses which carry graduate credits at the institution where taken. Students seeking the M.S. or Ph.D. in addition to the M.D. or D.D.S. degree may receive graduate credit, with approval of the graduate dean, for some of the basic science courses taken at Meharry.

### ***Enrollment Status***

A full-time student must register for a minimum of 12 semester hours, during the fall and spring semesters, and for a minimum of six hours during the summer semester. However, during the dissertation phase of the Ph.D. program, a student may be considered full-time even though he or she has registered for less than 12 credit hours of dissertation research. A student in the M.S.P.H. program may be considered full-time by registering for less than 12 hours of thesis research, only after being admitted to candidacy and after having completed the required course work and externship.

### **Attendance**

No student is allowed to attend a class for which he or she is not officially registered by the Office of Admissions and Records. No credit is given for coursework taken before official registration. Unexcused absences in excess of 20 percent of the scheduled classes may result in a failure in the course. A dean's excuse may be granted for personal illness, death of a close relative, financial exigencies, etc. If a dean's excuse is granted, the student will not be penalized for work missed during his or her absence from class, although departments may require make-up for the work missed. Requests for dean's excuses are made in the Office of the School of Graduate Studies and Research, and appropriate documentation is required at that time.

## **Academic Programs**

### **Doctoral Program**

The doctoral program leads to the interdisciplinary Ph.D. in biomedical sciences with major emphasis in biochemistry, microbiology, pharmacology, or physiology. The doctoral program is divided into core, major emphasis, and dissertation phases. The core phase occupies the first year of study; all students enroll in courses defined as the core curriculum courses. These courses include general biochemistry, cell and molecular biology, and laboratory rotations as well as scientific communications, bioethics and molecular biology. Students may be exempted from core courses by passing examinations prepared by the instructors for each course.

During the major emphasis phase, students complete advanced courses and begin research in either the department of biochemistry, microbiology, pharmacology or physiology. The major emphasis phase ends when the student passes comprehensive examinations, thereby designating the student a candidate for the Ph.D. degree. Most students require at least two years to complete the major emphasis phase. During the dissertation phase, the student completes the research begun during the major emphasis phase and writes a dissertation on the research.

To be granted the doctoral degree, the student must either publish or have accepted for publication a manuscript as first author in a peer-review journal, as well as present a public seminar on the dissertation research and complete an oral examination testing his or her knowledge of the methodologies and findings of the dissertation project.

### **Combined M.D./Ph.D. Program**

The M.D./Ph.D. program is offered jointly by the School of Medicine and the School of Graduate Studies and Research. Students considered for admission to the combined degree program must meet the admission requirements of both the medical and graduate schools, including outstanding performance on the Medical College Admissions Test and Graduate Record Examination; an excellent grade point average; letters of recommendation; a personal interview; and a research interest statement.

### Master of Science in Public Health Program (M.S.P.H.)

The Master of Science in Public Health (M.S.P.H.) is offered by the Division of Public Health Practice, School of Graduate Studies and Research. The M.S.P.H. degree program is committed to training students who seek optimal health for people, and their communities. The M.S.P.H. program supports the World Health Organization's definition of health: "a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity."

Students in the M.S.P.H. program receive a foundation in the basics of public health that allows them to work as health professionals in the public, private and voluntary health agency sectors at the local, state, federal and international levels. Graduates of the program work in diverse settings in health fields which are / are not involved in the direct provision of health care.

While in the graduate program, students participate in externships, which have included the U.S. Centers for Disease Control, Department of Veterans Affairs, Blue Cross/Blue Shield, Harvard University, Tennessee Hospital Association, and the American Cancer Society. These externships lead to excellent opportunities for future employment.

### ***Non-degree program***

The Graduate School conducts a post-baccalaureate research enhancement program (PREP) for underrepresented minority students. The PREP experience couples biomedical research training with complementary instruction designed to increase skills in scientific writing, critical analysis of the scientific literature, and presentation skills. This unique 2-year program is structured to meet the needs of each individual trainee to maximize their potential.

## Course Descriptions

### Doctoral Program

#### Core Curriculum

ASGS 700 *Scientific Communications*. This course studies emphasizes the three activities that occupy most of the effort of professional scientists: reading, writing, and speaking. The course covers (a) reading scientific literature; (b) oral presentation of scientific information; and (c) analyzing and improving your own writing. 2 credits

ASGS 701 *Biomedical Sciences IA*. Lectures, problem-solving sessions, and demonstrations designed to give the student mastery of the organization, composition, and function of the cell; the properties and biological functions of carbohydrates, lipids, proteins, and enzymes; the energetics and thermodynamics of life processes; metabolic pathways and their control; and protein synthesis and biochemical genetics. 4 credits

ASGS 703 *Biomedical Sciences IIA*. An examination of the control processes that occur in eukaryotic cells, and appropriate study of similar aspects of eukaryotic cells and bacteria. The origin of the cell and the anatomy and function of cellular or ganelles are examined together with the role of the cell membrane in cellular homeostasis and the transfer of information from one cell to another; the action of hormones at both the cellular and molecular level; the organization of the eukaryotic genome and the control of gene expression; and the control of cell division and differentiation. The course also offers an introduction to formal genetics, and examines the function of one or more of the systems which are responsible for integration, movement, gas exchange, defense, and ion and water balance in higher organisms. 4 credits

ASGS 705 *Biomedical Sciences IIIA*. A laboratory-lecture course which introduces research techniques and methodology covering experimental design, ultrastructural techniques, methods of analysis, cell culture, handling of biological materials, radioisotope methodology, optical instrumentation, chromatography, immunological and recombinant DNA research techniques. 4 credits

ASGS 706 *Biomedical Sciences IIIB*. A laboratory experience. The purpose of this course is to acquaint first-year graduate students with research in progress in two different faculty laboratories. The student is supposed to be a participant in the research, not merely an observer. Ideally, the student will be exposed to scientific knowledge and techniques at a greater depth than is possible in formal laboratory courses, and will participate in the kind of informal discussions which take place in research laboratories among faculty, students and staff. 4 credits

ASGS 711 *Bioethics*. A graduate level course offered for all Ph.D. graduate students in the institution. The purpose of the course is to provide an opportunity for students to discuss and understand the ethical issues related to conducting research. Special emphasis is placed on the students developing problem-solving skills that will be useful when facing situations in the laboratory that require resolution of ethical problems. The course is an interactive one with significant discussion of case studies. Also, current events related to ethics in science are

a source for materials to be discussed. Each student is required to write a paper on some ethical issue. Important in this paper is a documented presentation of different points of an ethical issue related to research. Active class participation is necessary. The students also present two skits dramatizing an ethical situation that they feel is important. The course meets in a small group setting. 4 credits.

ASGS 723. *Recombinant DNA Module*. The module consists of experiments designed to teach students important recombinant DNA techniques, including isolation of plasmid DNA, use of restriction enzymes, cloning of restriction fragments, nick translation, southern and northern hybridizations, DNA sequencing and other important techniques. Required of all students. 6 credits

## **Departmental Programs**

### **Department of Biochemistry**

#### **OBJECTIVES**

The objectives of the department are to sustain excellence in teaching and research in the academic disciplines of biochemistry, molecular biology and biochemistry of cancer and to foster lifelong learning among faculty and students through continued education activities.

#### **DEPARTMENTAL ELECTIVES**

Except for BICH 710, BICH 712, BICH 713 and BICH 799, all the other departmental electives listed are offered once every two years. Students should consult the department to ascertain in which alternating years these courses will be offered.

#### **DEPARTMENTAL ELECTIVES**

Except for BICH 710, BICH 712, BICH 713 and BICH 799, all the other departmental electives listed are offered once every two years. Students should consult the department to ascertain in which alternating years these courses will be offered.

#### **COURSE DESCRIPTIONS**

BICH 701. *Physical Biochemistry*. This course discusses chemical and physical properties of biological macromolecules. Measurements of thermodynamic and molecular parameters of carbohydrates, lipids, proteins and nucleic acids are covered. Pre-requisites: core curriculum and Physical Chemistry. 3 credits

BICH 702. *Enzymology*. A course on chemical mechanisms and kinetic analysis of enzymes, using selected examples from the literature. Mechanisms of control of enzyme activity are also discussed. Prerequisite: core curriculum and background in physical chemistry and/or calculus, or consent of instructor. 3 credits

BICH 703. *Molecular Genetics*. An advanced course on the biochemistry and molecular genetics of gene expression, gene regulation and mutation. Current advances in prokaryotic and eukaryotic systems are covered. Prerequisite: core curriculum. 3 credits

**BICH 704. Topics in Cellular and Metabolic Regulation.** An advanced course on the regulatory mechanisms controlling major metabolic and cellular physiological processes in eukaryotes. Prerequisite: core curriculum or background in metabolism or cellular physiology. 3 credits

**BICH 706. Membrane Biochemistry.** This course discusses basic and contemporary literature on the structure and functions of biological membranes and includes topics on membrane dynamics, biogenesis and transport by or through membrane components. The cytoskeleton and the extracellular matrix are also discussed. Prerequisite: background in cellular physiology and/or molecular biology. 3 credits

**BICH 710. Seminar in Biochemistry.** 1 credit.

**BICH 712. Directed Studies.** Individual instruction designed to meet the specific academic needs of the student. Prerequisite: consent of instructor. 1-2 credits

**BICH 713. Advanced Topics in Biochemistry and Molecular Biology.** A lecture course covering specialized areas of inquiry in biochemistry or molecular biology, consisting of one to three such areas per semester. This course may be taken more than once. Prerequisite: consent of instructor. This course is offered about once in every three years. 1-3 credits

**BICH 799. Thesis Research.** Students are required to conduct original research, culminating in the preparation and defense of a dissertation that is acceptable, at least in part, for publication in a professional journal.

## **Department of Microbiology**

### **OBJECTIVES**

The overall objectives of the Department of Microbiology are to provide medical students basic and clinical information, principles, concepts, and approaches that will prepare students for the practice of research.

### **COURSE DESCRIPTIONS**

**BSCI 704 Biomedical Sciences IIB.** An examination of the control processes that occur in eukaryotic cells, and appropriate study of similar aspects of eukaryotic cells and bacteria. The origin of the cell and the anatomy and function of cellular or organelles are examined together with the role of the cell membrane in cellular homeostasis and the transfer of information from one cell to another; the action of hormones at both the cellular and molecular level; the organization of the eukaryotic genome and the control of gene expression; and the control of cell division and differentiation. The course also offers an introduction to formal genetics, and examines the function of one or more of the systems which are responsible for integration, movement, gas exchange, defense, and ion and water balance in higher organisms. 4 credits

**BSCI 716. Molecular and Biochemical Parasitology.** Detailed review of current literature involving investigations of the biochemistry and molecular biology of the causative agents of several tropical diseases including leprosy, African and African trypanosomiasis, schistosomiasis and malaria. 3 credits.

BSCI 719. *Gene Transcription and Regulation.* Structure and function of different RNA polymerases (RNAPs). Role of CTD (C-terminal domain) of RNAP II. Basic transcription activation. Regulation of basic transcription initiation, elongation and termination in bacterial system. Regulation of transcription initiation, elongation and termination in eukaryotic system. Chromatin and regulation of transcription. DNA topology and gene expression. Structural studies (X-ray crystallography and NMR) of transcription factors. Nucleic acid-protein interactions. Regulation of expression of tumor suppressor genes and human tumor virus genes. Methods involved in transcription research. 3 credits

BSCI 724. *Advanced Genetics.* Consideration of the concept of a gene from a transmissional, mutational, and functional standpoint. Applications of the genetic approach, to the solution of significant biological questions will be discussed in the context of current literature with emphasis on eukaryotic systems, techniques of mammalian somatic cell genetics and applications of tissue culture methodology to biomedical problems will be examined. 3 credits

BSCI 736. *Readings in Biomedical Science.* Intensive reading under the guidance of a faculty member in an area selected by the student. The student and faculty member meet weekly to discuss the readings; the student may be required to write a paper on the semester's reading. 1-3 credits.

BSCI 783. *Medical Genetics.* This course is designed to present to the student: 1) basic concepts of Mendelian inheritance and their application to the transmission of genetic traits in humans, 2) principles of cytogenetics, including genetic diseases due to sex and autosomal, numerical and structural chromosomal abnormalities, 3) principles of human biochemical genetics as exemplified by such disorders as inborn errors of metabolism and the hemoglobinopathies, and 4) aspects of clinical diagnosis, management and genetic counseling. Required course for sophomore medical students enrolled in the regular and special medical programs. Lecture and discussions. 3 credits.

MICR 700. *Medical Microbiology.* Lectures and laboratory experiments are designed to acquaint students with the biological characteristics of viruses, bacteria, fungi, and the helminths and their role in the development of disease. Fundamental principles relating to epidemiology, the immune response, pathogenesis, hypersensitivity and laboratory identification are stressed where applicable. Students are familiarized with general principles of specimen collection and microbiological diagnosis including established seroimmunologic techniques. 8 credits

MICR 701. *Microbial Physiology.* This course will present information on the structure and function of micro-organisms, including aspects of growth, genetics and metabolism. A discussion of the physical and chemical compositions of cellular structures will be given, as well as the major classes of macromolecules (nucleic acids, proteins, polysaccharides and lipids). Synthetic and degradative reactions peculiar to microorganisms will receive special attention. 3 credits.

MICR 702. *Perspectives in Immunology.* This course consists of a series of seminars on recent research advances in immunology. Topics covered include immunochemistry, immunogenetics, cellular immunity, tumor and transplantation immunology, immunopathology and the complement system. Prerequisite: Medical Microbiology. 3 credits.

MICR 704. *Microbial Genetics*. Bacteria and bacteriophages are studied as molecular models of fundamental biochemical and genetic processes. DNA replication, mutation, gene transfer, recombination and fine structure mapping are topic areas explored in depth to form perspectives of functional molecular interactions in cells. Prerequisite, MICR 700, or MICR 701, or consent of the instructor. 3 credits.

MICR 705. *Virology*. The course is an advanced graduate course which investigates the physical and metabolic characteristics of animal viruses and their hosts. 1-2 credits.

MICR 708. *Foundations in Research*. The specific goal of the course is for the student to provide a critical review of literature relevant to his/her proposed thesis research. Each student will be guided by a three-member faculty committee that will include the student's preceptor. The other two committee members will be selected by the Department of Microbiology faculty. Preferably from the Departmental faculty. The choice of the research problem should be determined by the student in consultation with the preceptor. The student will review the literature that is pertinent to his/her individual research project. It is essential that the major effort to identify and critically analyze pertinent publications comes from the student and he/she performs a comprehensive and critical review of the literature in the field. The outcome of the course will be a student prepared paper that provides a thoroughly documented background that supports the rationale for the proposed research project. 3 credits.

MICR 709. *Host-Parasite Relationships*. The course is designed primarily for advanced graduate students. Instruction consists of lectures, informal discussions, and guest speakers. Emphasis is directed to examining the theoretical, molecular, ultrastructural and physiological elements which characterize hosts and parasites from a basic (versus applied) science perspective. Prerequisites: MICR 700, 702, and core courses or consent of instructor. 5 credits.

MICR 710. *Fundamentals in Immunology*. This is an introductory course which provides the basic concepts of immunology to non-Microbiology track graduate students. The course is subdivided into two components: medical component consisting of 23 hour lectures and four hours of small group discussion of basic concepts, followed by a graduate component consisting of 6 two hour lecture/discussion sessions. This course serves as a pre-requisite for the advanced immunology course offered by the department. 3 credits.

MICR 711. *Fundamentals of Genetic Analysis*. The course is designed for advanced graduate students and examines transmission genetics, including Mendelian inheritance, human genetic disorders, chromosomal basis of heredity, sex determination and sex linkage. 6 credits.

MICR 712. *Foundations in Cell and Molecular Biology*. The objective of the Foundations in Cell and Molecular Biology course is to introduce second year graduate students to important advances made in some areas of the field and to review pertinent literature in these areas. It is expected that upon successful completion of this course the student will be better prepared to continue with specialized coursework, and to write a research proposal prior to admission to candidacy. 4 credits.

MICR 750. *Microbiology Research*. An elective course available for students in other departments wishing to conduct limited research in the department. 1-4 credits.

MICR 850. *Microbiology Research Ph.D. Dissertation Research*. Required of students who are candidates for the doctoral degree. 1-12 credits

MICR 900. *Microbiology Seminar*. Weekly discussion of current topics in microbiological research and of work within the department. 1 credit.

MICR 901. *Advanced Seminar of Special Topics*. This course is a discussion by advanced graduate students and a faculty discussion leader who will make assignments from the current literature on a specific subspecialty. The course will examine experimental design, laboratory techniques used, validity of conclusions and contributions to the knowledge of the field under consideration. 1 credit.

## **Department of Pharmacology**

### **OBJECTIVES**

The department offers an interdisciplinary program leading to the doctoral degree in pharmacology. The objective of graduate teaching in the department is to provide students with an intensive knowledge of pharmacology as a science, sufficient exposure to pharmacological research methodology to provide skill in the practice of the science, and adequate opportunity to perform pharmacological research to give students research acumen in the discipline. The department's intensive graduate training program includes opportunities for tutorial, laboratory, and conference teaching.

More broadly, the department instills in its students a problem-solving approach to the understanding of pharmacology, an attitude that simulates reasoned, objective correlation in applying pharmacological and other knowledge to the solution of problems, both scientific and therapeutic.

Students in the Pharmacology Department may specialize in biochemical pharmacology, clinical pharmacology, chemotherapy, neuropharmacology, or toxicology.

### **COURSE DESCRIPTIONS**

PHAR 700. *Introduction to the use of Scientific Literature*. Methods and techniques of use in making scientific literature surveys will be considered. Survey of the scientific literature associated with an assigned topic is a course requirement. 2 credits

PHAR 701. *Introduction to Pharmacological Research*. Opportunity will be afforded to properly qualify medical and dental students to undertake pharmacological investigation under direction of the staff. Permission to enroll must be granted by individual members. 1-5 credits.

PHAR 702. *Pharmacology Seminar.* The seminar is devoted to review and analysis of problems of special interest in pharmacology and related fields. Sections of the seminar will be concerned with the history of pharmacology. Presentation of topics is made by invited guest lecturers, the staff, and graduate students. Graduate students are required to attend the seminar whether enrolled for credit or not. Students enrolled for credit are required to write evaluations of each seminar and submit these to their advisors for critical assessment. 2 credits.

PHAR 703. *The Teaching of Pharmacology.* Practical experience in the teaching of pharmacology is afforded for graduate students. Students will assist in the planning and presentation of laboratories and discussion sessions for and to undergraduate and professional school students. Advanced graduate students may be allowed to present lecture material under careful supervision of a staff member. 2 credits.

PHAR 705. *Cardiovascular Pharmacology.* The pharmacology of drug agents exerting major effects on the cardiovascular system will be presented in lectures, discussions, and demonstrations. Mechanism of action, basis for therapeutic application and limiting side effects of the drug agents will be discussed. Research methodology utilized in studying these agents will also be taken up. 3 credits

PHAR 706. *General Pharmacology.* The pharmacological basis of therapeutics is presented by means of lectures, conferences, demonstrations and laboratory experiments on animals and man. Emphasis is placed on the factors governing drug action, dose- effect relationships, the relationship between chemical structure and pharmacological action, the problems associated with absorption, distribution metabolism and destruction and the mechanism of action of the most important official and non-official preparations. Attention is paid to therapeutic prescription writing and toxicology. 5 credits.

PHAR 721. *Biochemical and Molecular Pharmacology.* Consideration of the following areas is taken up in this course: drug metabolism and detoxification mechanisms, mechanisms of chemotherapeutic agent action, drug effects on enzyme systems and drug effects on genetic mechanisms. Lectures, discussions and laboratory demonstrations and/or experiments are included. 3 credits.

PHAR 722. *Neuropharmacology.* Drug effects on the principal divisions of the mammalian nervous system will be considered. Mechanisms and problems concerned with ganglionic, axonal, neuromyal and central nervous system transmission will be discussed. Discussion of the mechanism of action exerted 'by neurotropic and psychotropic drugs is stressed. Lectures, discussions and laboratory demonstrations and/or experiment are included. 3 credits

PHAR 723. *Toxicology.* Principles involved in surveying drug and chemical agents for toxicity will be prcsntcd. Examples of techniques utilized in analytical toxicology will be discussed critically. Toxicological mechanisms of action, rationale for therapeutic measures against effects of toxic chemical agents, and the basis for toxicological pathology will also be taken up. Lectures, demonstrations and/or laboratory experiments are included. 3 credits

PHAR 731. *Immunopharmacology*. Mechanisms of actions exerted by drugs that affect the immune system will be stressed. Lectures and discussions are included. A written literature survey of some specific aspect of drug interaction is required. 3 credits

PHAR 732. *Endocrine Pharmacology*. The pharmacology of mammalian hormones and related drugs will be presented in lectures and demonstrations. Critical assessment of research criteria required for identification of a hormone, and demonstration of its action will be a feature of the course. The basis for therapeutic applications of these agents will also be discussed. 3 credits

PHAR 735. *Research Problems in Pharmacology*. This is essentially a tutorship course, the purpose of which is to introduce the student to problems and techniques in several rapidly advancing research areas of pharmacology. The student confers with and performs research work with an individual member of the department for one semester. During this period, the student performs the work required for a limited investigation of some aspect of the department member's research program. 2 credits

PHAR 736. *Current Topics in Pharmacological Research*. By means of lectures and / or discussion sessions, this course will offer opportunity to evaluate significant current literature in the field of pharmacology and related disciplines. Each student enrolled will be required to write and submit a critical evaluation of an assigned, current, published research article. 3 credits

PHAR 737. *Pharmacokinetics*. This course is designed to understand the pharmacokinetics principles that govern the absorption, distribution, metabolism, and elimination of drugs. Basic pharmacokinetics parameters are examined using one-and two compartment modeling. In addition, applications of pharmacokinetics are examined with respect to clinical situations, and students will be introduced to the use of computer programs in pharmacokinetics. 3 credits

PHARM 738. *Carcinogenesis*. This interactive graduate course will survey how chemical carcinogens elicit as their specific, defining, adverse effect, the production of cancer in animals and humans. The course is an intense discussion of the observation that carcinogens, in a given experimental setting and in humans, show dose response relationships. The concepts and mechanisms of bioactivation and conjugative metabolism is a focal point in this course. 3 credits

PHARM 739. *Neurotoxicology*. This course will cover the basic principles of neurotoxicology and examine the various groups and classes of chemicals that are considered neurotoxic. This course will distinguish itself by focusing on the neurotoxicity of environmental agents that surround living systems. Students will learn the criteria that define neurotoxicants and the various methods available to characterize neurotoxicity (neurochemical, behavioral, biological, molecular, etc). Attention will also be given to various biological markers of neurotoxicity and the impact of mechanistic studies on the process of risk assessments. 3 credits

PHAR 799. *Research in Pharmacology*. 1-12 credits. Students are required to conduct original research, culminating in the preparation and defense of a dissertation

## Department of Physiology

### OBJECTIVES

The objective of the Department of Physiology is to introduce to graduate students to the normal function and pathophysiology of the human body, information that will serve as the foundation for all subsequent medical education. With integrated scheduling, the presentations in the anatomies, physiology, and neuroscience are organized to complement one another and to provide students with a better understanding of clinical correlations and case reports. Since effective teaching and learning are best achieved in a scholarly environment, the faculty and staff regularly engage in various forms of biomedical research and provide opportunities for medical student involvement in such research.

### COURSE DESCRIPTIONS

**PHYS 701 Medical Physiology.** This course focuses on the mechanisms underlying the normal functions of the human body. The subject is presented in eight block, seven of which describe specific systems, and a final block which describe specific systems, and a final block which addresses intergrative functions of the body. The block topics include cellular, muscular, cardiovascular, gastrointestinal, respiratory, renal, and intergrative physiology. The course format includes lectures, tutorials, and clinical correlations. 5 credits

**PHYS 702. Human Physiology.** This course gives graduate students basic understanding of the organ systems of the human body, basic anatomy and physiology of the cell and muscle, cardiovascular, respiratory, renal, gastrointestinal, endocrine and reproductive systems, and to stimulate interest in different areas of research. The course will include lectures, discussion sessions, as well as, student presentations. 4 credits. Prerequisite: core curriculum.

**PHYS 704. Animal Experimentation.** This lecture and laboratory course is designed to provide students information and experience necessary to conduct experiments with live animals. With constant emphasis on humane, ethical treatment, the student will be guided through essential phases of live animal research. These phases cover economic and intelligent planning and maintenance through anesthetic and surgical procedures, post-operative care, sample and data collection and humane sacrifice techniques. Students, through participation, should develop an awareness of the experimental animal as a living, behaving entity and why proper treatment as acquired in this course should have career-long utility. 4 credits, Prerequisite: Permission of the Instructor.

**PHYS 706. Biology and Neuroendocrinology of Aging.** This lecture course explores age-related changes in the molecules, cells, tissues and organ systems of the body and examines the possible involvement of the hypothalamic-pituitary axis in aging processes. Topics covered will include changes during aging in normal nuclei in the hypothalamus (and elsewhere in the brain) that help to regulate pituitary hormone secretion; changes in neurotransmitters and hypothalamic pituitary-gonadal hormones; alterations in the secretion of growth hormone, corticotropin-adrenocortical hormones, thyrotropin-thyroid hormones, and their significance in terms of bodily functions. The liver will be considered particularly as it relates to time-dependent changes in drug metabolism. Various systems used to model the aging process such as cells, nematodes, paramecium, insects and rodents will be discussed. Prerequisites: core curriculum. 3 credits

PHYS 707. *Advanced Endocrinology*. This course explores the biochemistry of hormones and their mechanisms of action and examines the hypothalamus and pituitary, thyroid and parathyroids, islet cells of the pancreas and the thymus, endocrine function of the liver and kidneys, adrenal medulla and cortex, ovary and testis and gastrointestinal hormones. The effects of growth factors, prostaglandins, prostacyclins and leukotrienes will also be discussed. 3 credits. Prerequisite: Human Physiology.

PHYS 708. *Advanced Gastrointestinal Physiology*. Advanced study of current concepts in gastrointestinal physiology, mobility, secretion, digestion, absorption and hormonal regulation are presented in a lecture and laboratory format. Student presentations based on literature searches are included. 3 credits. Prerequisite: Human Physiology.

PHYS 709. *Advanced Neurophysiology*. A functional approach to nervous system mechanisms. Topics include sensory and motor mechanisms, sensory motor integration and higher functions. The course will include lectures, selected literature discussions and essay examinations. 3 credits. Prerequisite: Human Physiology.

PHYS 710. *Excitable Cells*. Topics for this course include the theory of electric current flow in excitable tissues, methods for studying ionic currents in cardiac muscle, sodium current and the spread of excitation, calcium current and the initiation of contraction, the repolarization process, potassium currents and pacemaker activity, the sodium/potassium pump, sodium/calcium exchange, interaction between sodium/potassium and sodium/calcium exchange systems, transport measurement and changes in transport during the action potential. Prerequisite: Human Physiology. 3 credits

PHYS 712. *Seminar in Physiology*. Topics relevant to physiology will be presented by faculty, visiting scholars and graduate students. Participating graduate students who have achieved candidacy status will present one seminar per year. This course is required for all graduate students studying for the Ph.D. degree in physiology. This course may be repeated for credit Pass/Fail. 1 credit. Prerequisite: core curriculum.

PHYS 713. *Synaptic Physiology*. Advanced study of synaptic function will consider physiological and biochemical aspects of transmitter metabolism and pre/post synaptic mechanisms. Format will be primarily literature readings with some lecturing. 3 credits. Prerequisite: Human Physiology.

PHYS 714. *Research in Physiology*. Participation and credit in this course are arranged by the COI of students working on their dissertations in physiology. Students will receive pass or failure grades until degree requirements have been fulfilled. At that time a letter grade will be assigned. This course may be repeated for credit. TBA credits. Prerequisite: core curriculum.

PHYS 716. *Advanced Respiratory Physiology*. This course addresses advanced concepts and current topics in the function of the respiratory system with emphasis on respiratory system with emphasis on respiratory mechanics. Students participate in lectures and discussions and prepare literature-based presentations. 3 credits. Prerequisite: Human Physiology.

PHYS 717. *Developmental Physiology*. This course examines control mechanisms of molecular, cellular and tissue interactions leading to development and differentiation. Data from model systems are explored to provide insight into fundamental problems in embryology, cancer, regeneration and aging. 3 credits. Prerequisite: core curriculum.

PHYS 719. *Methods of Neurotransmitter Physiology.* The course will provide lectures in and practical exposure to the techniques used to study: 1) neuronal pathways and morphology, e.g., chemical tracing, neuronal lesions, electrical and chemical stimulation, and staining methods, 2) neurotransmitter isolation, quantification and characterization, e.g., solvent extraction, solvent separation, chromatography, ion exchange separation, radioimmunoassay, spectrophotometric biological assays and immunohistochemistry, 3) receptor identification and classification, e.g., membrane preparation and autoradiographic techniques, and 4) transmitter release e.g., perfusion methods and *in vitro* methods. Prerequisite: core curriculum. 3 credits

PHYS 720. *Readings in Physiology and Biology.* In this course, the student should complete comprehensive reading list of subjects specifically associated with his/her area of research before the dissertation defense. There will be no formal meetings or exams; however, relevant material from the readings may be included in the dissertation defense. Pass or fail grades will be registered until degree requirements are fulfilled, at which time the COI will assign a letter grade. TBA credits. Prerequisite: COI approval.

PHYS 721. *Dissertation Research.* Students are expected to register for this course in their last semester of residence. Course is completed with the approval of the written dissertation by the COI. TBA credits. Prerequisite: COI approval.

PHYS 722. *Development of the Nervous System.* This course explores: development and plasticity of the nervous system. Topics considered will include: early embryonic development; differentiation of nerve cells; growth cones and mechanisms of neurite growth; trophic regulation and growth factors/ neuronal death during development; synapse formation; development of neurotransmitter function; regeneration; neuronal plasticity and rearrangement of synaptic connections. Prerequisite: core curriculum. 3 credits

PHYS 723. *Behavioral Physiology/Neurobiology.* This lecture and laboratory course will explore those aspects of physiology/neurobiology having the most bearing on overt behavior. It will offer perspectives on both current and persistent problems regarding the understanding of perceptual systems and behavior, and examine the neurotransmitter, hormonal, neuropeptide modulation of behavior with respect to specific anatomical loci. Prerequisite: core curriculum. 3 credits

PHYS 724. *Neuronal Physiology.* Advanced study of cellular processes related to nervous system functions will include aspects of neurophysiology, neurochemistry and neuroanatomy. Format will be primarily lectures and selected literature readings. Prerequisite: core curriculum. 3 credits

## **Division of Public Health Practice**

### **COURSE DESCRIPTIONS**

MSPH 70001. *Epidemiology I (Introductory).* This course is designed to explore principles of investigating the differential distribution of disease among population groups, provide exercises demonstrating epidemiologic techniques and introduce students to the use of data to treat and prevent disease and evaluate health care effectiveness. 3 credits.

MSPH 70201. *Biostatistics I (Introductory)*. This is an introductory course in the basic statistical concepts, principles, and methods used in the health sciences. Taught as part of the core curriculum for all Master of Science in public health students, the broad goal of this component is to enable students to have knowledge of the basics and their application in the experimental and non-experimental phases of health care administration and medical disciplines. The student should understand the traditional role of biostatistics and its newer role in the computer age and the age of innovative health care delivery systems. 3 credits.

MSPH 70301. *Health Planning I*. This course provides an introduction to the planning processes used in various health care organizations. Includes such issues as allocation of resources and institutional change in the health care environment. 3 credits.

MSPH 70501. *Strategic Management* This course provides students with a comprehensive understanding of strategic management in the health care environment. Strong emphasis is placed on the case study method. Healthcare organizations, like other organizations, are presented as ecological units relying on their environments (internal and external) as sources for attaining their various strategic objectives. As a result, students are exposed to the techniques for environmental analysis for the long-term direction of the organizations. 3 credits.

MSPH 70701. *Environmental Health*. This course is designed to survey those factors that impact upon the environment and human health. The student will be provided a conceptual framework for the study, analysis and control of various environmental problems. 3 credits.

MSPH 70801. *Health Economics*. This course is designed to acquaint students, through lectures and discussion, with those principles and techniques of economic analysis, which are helpful in developing and evaluating health programs. The course will concentrate on selected topics in economics, allocation of public goods and economic dynamics. Case studies will be selected for their special relevance to the health field. 4 credits.

MSPH 71101. *Health Care Accounting*. An intermediate level course that will expose students to the process of generating and analyzing financial information in healthcare settings. The course will cover financial, managerial and cost accounting topics. The students will learn about the accounting tools and techniques used in health care organizations through the use of theory and practical examples. The course will also educate the students of the limitations of financial information generated through the traditional processes. 3 credits.

MSPH 71201. *Health Care Seminar*. This seminar is designed to provide students an opportunity to integrate previous course content into a framework relevant to health care. Seminar sessions, utilizing case materials, the graduate faculty and occasional guest lectures, will focus on methods of health research, epidemiology, health economics, poverty and illness, evaluate research, communication skills, etc. 1-3 credit.

MSPH 71301. *Quantitative Methods in Health Administration*. This course is about managerial decision-making in health care organizations (HCOs). Thus, the quantitative methods selected are regarded as the minimum essential tools that must be a part of the health care manager's repertoire of analytic tools for effective decision-making. There are basic methods as well as advanced methods, and a general understanding of algebra, statistics, financial and managerial accounting, health economics and health services administration. 3 credits.

MSPH 71401 *Epidemiology II (Advanced)*. This advanced course deals with epidemiology theory and methods in the actual study of disease etiology with particular emphasis upon case control study methods including matching, confounding and selection techniques. Prerequisite: MPHT 70001. 3 credits.

MSPH 71501. *Organization and Human Resource Management*. This course is designed to provide a comprehensive, current introduction to the human resources management function as it relates to the delivery of health care and related services. 3 credits.

MSPH 71601. *Biostatistics II (Advanced)*. This course deals with statistics required for the analysis of medical care data. It covers further techniques for the application of statistical theory to actual data, combining lectures with computational experience. Particular emphasis will be placed upon the analysis of variance (ANOVA), linear and multiple regression, correlation and distribution free methods. Prerequisites: MPHT 70001 and 70201. 3 credits.

MSPH 71701. *Occupational Health I (Introduction)*. A general overview of occupational health and safety, including historical development, concepts and a general introduction to recognition, evaluation and control of hazards. The diagnosis, pathophysiology, management, and prevention of work connected illness and accidents are surveyed. 3 credits.

MSPH 71801. *Externship/Field Placement*. The application of skills gained in the class to actual health agency and community programs. Students will identify and solve real health problems in communities, operating agencies, local and state governments, etc. 1- 6 credits.

MSPH 72001. *Data Management*. An introduction to principles needed for processing large data files. Subject material will cover editing, encoding, structuring and manipulating data, as well as timing considerations. Use will be made of the data processing computing equipment at Meharry Medical College. 3 credits.

MSPH 72201. *Occupational Health II (Introduction)*. Workplace relationship of specific hazards such as solvents and metals are examined. Cancer is the main entity covered; its etiology, prevention, diagnosis, treatment and control. History taking (standard and predictive for placement and surveillance), patch testing, treatment trials and protective measures are reviewed. 3 credits.

MSPH 73001. *Health Administration*. An introduction to the basic principles, concepts and theories of management in the context of the health care delivery system. The course emphasizes the facts, problems and issues of health care administration at all levels of the delivery system. 3 credits.

MPHT 73201. *Health Finance*. Analytic techniques, capital budgeting, cost of capital, evaluation, leverage, aspects of financial planning and control. 3 credits.

MSPH 73601. *Research Design*. This course is designed as an overview of research design and methodology with specific attention to individual student needs as related to the completion of the thesis. 3 credits.

MSPH 73801 *Managed Care*. This course is designed to create a basic understanding of the managed health care environment in the United States. The course will cover: the history, growth and development of managed care; the various types of managed care organizations; contracting in the current health care delivery system; medical management; general management; marketing; finance; underwriting; and legal/regulatory issues. The commercial HMO/PPPO market, the emerging public HMO market (Medicaid, Medicare, CHAMPUS) and special market segments (such as worker's compensation) also will be covered in the course. The objectives of the course include: preparing students to understand the basic structures, organization and functions of managed care organizations; preparing students to function knowledgeable in a variety of managed care settings; preparing students to understand the relationship between managed care and various health care reform initiatives; and preparing students to negotiate effectively in managed care contracting scenarios. 3 credits.

MSPH 73901. *Readings in Public Health*. An intensive reading course under the guidance of a division faculty member in an area of public health. The class meets weekly to discuss the selected readings; each student will be required to write a minimum of one research paper on the semester's readings. This paper cannot be related to the student's thesis. The objectives of this course are to provide students an opportunity to investigate a topic of interest in public health in detail that is not covered by the required division curriculum for the Master of Science in Public Health degree, and to provide an opportunity for advanced graduate students to conduct individual readings in public health to broaden their areas of knowledge and potential research opportunities. 1 - 3 credits.

MSPH 74201. *Organizational Behavior*. An advanced seminar on the health care organization in a competitive environment. Emphasis on concepts and practices of total quality management, new techniques and regulations in personnel management and group development. 3 credits.

MSPH 74501. *Program Evaluation*. This course introduces students to the basics of program evaluation from the public health perspective. Elements of program evaluation will include steps as engaging stakeholders, describing the program, focusing on the evaluation design, gathering credible evidence, justifying conclusions, and ensuring the use and sharing of lessons learned. 3 credits.

MSPH 75301 *Occupational Toxicology*. Basic toxicological principles such as dose response, metabolic pathways and factors influencing toxicity are studied. The response of specific organ systems to toxic agents and recognition of clinical manifestations of specific classes of toxicants are emphasized. 3 credits.

MSPH 75701. *Industrial Hygiene*. This course is a survey of the identification, evaluation and control of those factors of the environment that may cause illness, lack of well being or discomfort among workers or among the community. 3 credits.

MSPH 76001. *Interdisciplinary Seminar*. This seminar is designed to provide students an opportunity to integrate previous course content into a framework relevant to community health scientist and practitioners. Seminar sessions utilize case materials, problem formulation, poverty and illness, epidemiology, health economics, evaluation research, etc. 2 credits.

MSPH 79001. *Health Law, Policy & Ethics.* A seminar designed to introduce the definitions, structures and functions of the law and its effects on and its use in the American health care system. Fundamental legal principles relating to the delivery of health care services in this context are emphasized. Important topics include a primer on administrative law and the medical practice acts, health care practitioners and patient relationships, medical liabilities, hospital practices and the law, economic and social regulation of health care facilities, health antitrust law and important ethics concepts in health care delivery. 2 credits.

MSPH 79201. *Health Care Marketing.* This course provides students with a comprehensive understanding of health services marketing. Strong emphasis will be placed on developing understanding of carefully selected field projects that will serve to practically apply marketing knowledge to the practitioner environment. 3 credits.

MSPH 80001. *Thesis Research.* This course will familiarize students with the process of research. The thesis process will help students better understand the effects of that process on providing new knowledge to the field of research (utilizing research design, methodology, literature search). 1 - 8 credits.

MSPH 80101. *Project Management.* This course is the non-thesis equivalent of the Thesis Research course. It is a process course designed primarily for students who choose to exercise a project management option instead of the comprehensive examination. It may also be taken by any student who wishes to learn the technical aspects of preparing and analyzing a project, from identification to implementation and evaluation. Prerequisites: MPHT 70301 – Health Planning

# School of Graduate Studies and Research Faculty

## Department of Biochemistry

**Chair:** Samuel E. Adunyah, Ph.D.

**Professors:** Ifeanyi J. Arinze, Ph.D., Salil K. Das, Ph.D., Maria de Fatima Lima, Ph.D.,

**Associate Professor:** Josiah Ochieng, Ph.D

**Assistant Professors:** Emmanuel Atta-Asafo-Adeji, Ph.D., Marilyn E. Thompson, Ph.D.

**Adjunct Professors:** Richard W. Hanson, Ph.D., C. Rollo Park, M.D.

**Adjunct Associate Professors:** James L. Sherley, M.D.

**Emeritus Professor:** Henry A. Moses, Ph.D.

## Department of Microbiology

**Chair:** Fernando Villalta, Ph.D.

**Professors:** Gautam Chaudhuri, Ph.D., Ethleen McGinnis-Hill, Ph.D., Robert G. Holt, Ph.D., Raju Ramasamy, Ph.D., Manuel Valenzuela, Ph.D.

**Associate Professor:** Frank M. Hatcher, Ph.D.

**Assistant Professors:** Minu Chaudhuri, Ph.D., Douglas R. Dorer, Ph.D.

**Instructor:** Eloise J. Cunningham, B.S.

### Faculty with Secondary Appointments:

**Professors:** George C. Hill, Ph.D., Department of Microbiology & Immunology, Vanderbilt University SOM; Maria de Fatima Lima, Ph.D., Department of Biochemistry, MMC; John A. Phillips, III, M.D., Departments of Pediatrics & Medicine, Vanderbilt University SOM

**Associate Professors:** Scott M. Williams, Ph.D., Department of Internal Medicine, Vanderbilt University SOM; Terence S. Dermody, Ph.D., Department of Pediatrics, Vanderbilt University SOM

**Assistant Professors:** Robert F. Clark, Ph.D., Department of Psychiatry and Behavioral Medicine, MMC; Susan A. DeReimer, Ph.D., Department of Pathology, MMC; Hua Xie, D.D.S., Ph.D., Department of Stomatology, School of Dentistry, MMC

**Emeritus Professors:** Fred Jones, Ph.D., Mark E. Levitch, Ph.D.

## Department of Pharmacology

**Chair:** Clivel G. Charlton, Ph.D.

**Professors:** Mohammed A. Maleque, Ph.D., Dolores C. Shockley, Ph.D.

**Associate Professors:** Darryl Hood, Ph.D., Alfred A. Nyanda, Ph.D.

**Assistant Professors:** Twum-Ampofo Ansah, Ph.D., Sakina E. Eltom, Ph.D., Shyamali Mukherjee, Ph.D., Wan-Qian Zhao, Ph.D.

**Instructors:** Armandla Ramesh, Ph.D.

**Visiting Assistant Professor:** Otis Campbell, M.D., Ph.D.

**Adjunct Professor:** Lee Limbird, Ph.D., Department of Pharmacology, Vanderbilt University; Daniel M. Quinn, Ph.D. University of Iowa, Iowa City, Iowa

**Adjunct Associate Professors:** Syed Ali, Ph.D., National Center for Toxicological Research (NCTR); David Black, Ph.D., Aegis Laboratory, Nashville, Tennessee; Burham I. Ghanyem, Ph.D., National Institute of Environmental Health Sciences; James Powell, M.D., Proctor and Gamble Company

**Professor Emeritus:** Ralph J. Cazort, M.D., M.S.

**Department of Physiology**

**Chair:** Hubert K. Rucker, Ph.D.

**Professors:** Mukul R. Banerjee, Ph.D., Mohit L. Bhattacharyya, Ph.D., John T. Clark, Ph.D., Sukhbir S. Mokha, Ph.D., James J. Mrotek, Ph.D., Linda D. Sander, Ph.D., James G. Townsel, Ph.D.

**Associate Professors:** Sanika S. Chirwa, Ph.D., Robert T. Matthews, Ph.D., Evangeline D. Motley, Ph.D.

**Assistant Professor:** Michael Hill, Ph.D.

**Division of Public Health Practice**

Director: William Washington, D.P.A., M.P.A., M.P.H.

Associate Professor: Stephanie Bailey, MD, M.S.H.S.A

Assistant Professors: Rhonda Belue, Ph.D., M.P.H., Chau-Kuang Chen, Ed.D. M.S., Otis Cosby, M.D., M.S.P.H., Christine Minja-Trupin, Ph.D., M.P.H.

Faculty with Secondary Appointments:

Associate Professors: Flora Ukoli, M.B.B.S., M.P.H., Department of Surgery, MMC;

Assistant Professors: Olufemi Adegoke, M.B.Ch.B., Dr.P.H., Department of Surgery, MMC; Green Ekadi, Ph.D., Department of Family and Community Medicine, MMC;

Alecia Malin, Dr.PH., MS, Department of Surgery, MMC; Carlotta Arthur, Ph.D., Department of Dental Public Health, MMC

Adjunct Faculty:

Professors: Roxanne Spitzer, R.N., Ph.D., M.B.A., Metro General Hospital at Meharry; Rueben Warren, D.D.S., M.P.H., Dr. PH., Office of Urban Affairs, Agency for Toxic Substances and Disease Registry;

Assistant Professor: Bonnie LaFleur, Ph.D., Department of Biostatistics, Vanderbilt University

# School of Medicine

## Administration

**PonJola Coney, M.D.**, Dean

**Pamela C. Williams, M.D.**, Vice Dean, Student and Academic Affairs

**Annie Neal, Ph.D.**, Associate Dean, Administration

**Billy Ray Ballard, D.D.S., M.D.**, Associate Dean, Graduate Medical Education

**Michael Hill**, Associate Dean, Curriculum Support and Evaluation

**Susanne Tropez-Sims, M.D.**, Associate Dean, Academic Support

**Patricia Matthews-Juarez, Ph.D.**, Associate Dean, Faculty Affairs and Development

**Vicky Mosley**, Associate Dean, Academic Computing

**Brenda Merritt**, Assistant Dean, Student and Academic Affairs

**Edna Lockert**, Assistant Dean, Counseling

**Sharon Turner-Friley**, Assistant Dean, Special Programs

## Department Chairpersons

**Lee J. Limbird, Ph.D.**, Biomedical Sciences

**Roger J. Zoorob, M.D., M.P.H.**, Family and Community Medicine

**Steven N. Wolff, M.D.**, Internal Medicine

**Patrick A. Griffith, M.D.**, Neurology

**Valerie Montgomery Rice, M.D., M.P.H.**, Obstetrics and Gynecology

**Brahm S. Parsh, M.D.**, Pediatrics (Interim)

**Samuel Okpaku, M.D.**, Psychiatry and Behavioral Sciences

**Anthony Disher, M.D.**, Radiology

**Steven Stain, M.D.**, Surgery

## Medical Education at Meharry Medical College

The School of Medicine is the oldest and largest of the three schools at Meharry. Approximately 80 students are admitted per year. The Graduate Medical Education Program has 90 approved positions in the specialties of Internal Medicine, Family and Community Medicine, Preventive and Occupational Medicine, Obstetrics & Gynecology and Psychiatry. In addition, students from the School of Dentistry, School of Graduate Studies and Research, and the Allied Health Professions Program receive training from School of Medicine faculty.

The School has nine departments: Biomedical Sciences, Family and Community Medicine, Internal Medicine, Neurology, Obstetrics and Gynecology, Pediatrics, Psychiatry and Behavioral Sciences, Radiology and Surgery. The School also is home to nationally recognized centers that provide research, training and patient care in women's health, HIV/AIDS, neuroscience, mental health and community health. The faculty and students actively serve the community through many programs of mentoring, counseling and volunteer work to inspire and direct elementary, high school and college students to careers in the health professions.

The primary clinical training site is the Nashville General Hospital at Meharry. Affiliated training sites include Veteran's Affairs Medical Center and Middle Tennessee Medical Center in Murfreesboro, Tenn.; Blanchfield Army Community Hospital at Fort Campbell, Ky.; and Matthew Walker Comprehensive Health Center, Centennial Medical Center, Baptist Medical Center and several community health centers in Nashville.

Although a historically black medical college, Meharry's student body reflects the diversity of the nation with representation from the Caucasian, Hispanic, Asian and Native American communities. The majority of Meharry's graduates keep the commitment of the principles upon which the College was founded by overwhelmingly choosing to practice in underserved urban and rural communities. More than 60 percent of the medical graduates select primary care specialties. Meharry continues to be proud of its leadership role in helping to ensure diversity in the nation's health professions work force.

## Admission to the School of Medicine

The School of Medicine at Meharry Medical College participates in the American Medical College Application Service (AMCAS). Applicants to Meharry Medical College must instruct AMCAS, Association of American Medical Colleges (AAMC), Section for Student Services, 2450 N. Street, N.W., Suite 201, Washington, D.C. 20037-1131, to forward their files to the Office of Admissions and Recruitment, Meharry Medical College, 1005 Dr. D.B. Todd, Jr. Blvd., Nashville, TN 37208-3599.

Upon receipt of the AMCAS application, persons who pass the preliminary screening are sent supplemental applications so that the evaluation process may continue. Applicants are strongly encouraged to return the completed supplemental application form to the Office of Admissions and Recruitment by February 15 of the year in which admission is sought. All supplemental applications must be accompanied by a processing fee of \$60, payable by money order or certified check. Personal checks are not accepted. This fee is not refundable, nor can it be credited toward tuition, if applicant is accepted.

The Admissions Committee reviews all applications. Candidates presenting credentials which do not meet the minimum requirements are so advised by the director of Admissions and Recruitment at the direction of the committee. Each candidate who presents the minimum requirements is evaluated competitively and is either accepted, placed on the alternate list, or rejected. The director of Admissions and Recruitment notifies the applicant of the committee's action.

Applicants accepted for matriculation are allowed three weeks to accept the invitation to attend Meharry Medical College and to submit a non-refundable \$300 deposit. This deposit is applied to the tuition of the matriculating student. If the student withdraws the application prior to May 15, two-thirds of the deposit (\$200) is refunded.

The Admissions Committee will consider candidates with the following qualifications:

1. Graduation from an approved postsecondary school, or its equivalent.
2. At least three full academic years of acceptable college credit earned in a college or institute of technology currently approved by an agency recognized by the Association of American Medical Colleges and by the Council on Medical Education of the American Medical Association. These agencies are:
  - North Central Association of Colleges and Secondary Schools
  - Middle States Association of Colleges and Secondary Schools
  - New England States Association of Colleges and Secondary Schools
  - Northwest Association of Colleges and Secondary Schools
  - Western Association of Colleges and Secondary Schools
  - Southern Association of Colleges and Secondary Schools
3. The satisfactory completion of three years of pre-medical education by the end of June of the year the applicant desires to be admitted. Courses and credits include:

General Biology or Zoology with laboratory	8 semester hrs.	12 quarter hrs.
Inorganic chemistry with qualitative analysis and laboratory	8 semester hrs.	12 quarter hrs.
Organic Chemistry with laboratory	8 semester hrs.	12 quarter hrs.
General Physics with laboratory	8 semester hrs.	12 quarter hrs.
English Composition	6 semester hrs.	9 quarter hrs.

Students who do not satisfactorily complete required college courses are not accepted.

"Satisfactory Completion" of required courses is interpreted by the Admissions Committee as an average grade of at least "C" in each subject field. "Satisfactory Completion" of three years of pre-medical education is interpreted as an average grade of at least "C" for the entire work of the three years. No student who has attained a general college average falling below "C" will be eligible for consideration.

It is recommended that the applicant supplement the basic requirements with courses in the humanities and the natural and social sciences designed to promote broad cultural development. It is recommended that elective courses be selected from such subjects as general botany, comparative anatomy, quantitative analysis, physical chemistry, mathematics, economics, history, psychology, sociology, foreign languages, philosophy, fine arts and logic. Highly specialized courses that occur in the undergraduate curriculum such as neuroanatomy, histology, human anatomy, bacteriology and physiology may not be substituted for courses generally required for entry to medical school.

Students are considered on a competitive basis in terms of scholarship and academic record, character, MCAT scores, general fitness to be a physician, and overall potential to serve the stated mission of the college. Additional materials necessary to activate the application process include favorable recommendations from pre-medical advisers or from two instructors in the natural sciences and one other faculty.

#### ***Reapplications***

Applicants who are not accepted in a given year, or any matriculated student who has officially withdrawn or been dismissed and not readmitted through the appeal process, must reapply if they wish to enter in a subsequent year. Such applicants must meet all requirements in force at the time of reapplication.

#### ***Applicants Requesting Transfer with Advanced Standing***

Open slots in the School of Medicine for transfer into the second- or third-year classes are rare. To be eligible to apply for transfer into the second and/or third year, a student must be enrolled and in good academic standing, in a Liaison Committee on Medical Education (LCME) accredited medical school. Transfers are considered on a case-by-case basis and normally granted only in cases of severe/personal hardships. Students who have been dismissed from another medical school for academic or disciplinary reasons, or who have withdrawn voluntarily are not encouraged to apply. The deadline for application for transfer is May 15 of the calendar year in which the student hopes to enter medical school. For additional information contact the Office of Admissions and Recruitment.

#### ***Interviews***

No applicant is accepted until interviewed by members of the Admissions Committee or its designees. Applicants should not present themselves for interviews until requested to do so by the Committee.

### ***Early Decision Program***

Meharry strongly sanctions participation in the Early Decision Program. Under this program, an applicant files an application only to Meharry and is guaranteed prompt notification by October 1 of either acceptance or rejection. All required application materials and official transcripts must be received by AMCAS by August 1. If not accepted under the Early Decision Program, the applicant may be considered as a regular candidate and may then apply to other schools.

It is the applicant's responsibility to have a report of his/her performance on the MCAT submitted to the Office of Admissions and Recruitment. The test should be taken in the spring of the junior year. Arrangements should be made by the applicant at the institution where he/she is presently enrolled, or by writing directly to The American College Testing Program, P.O. Box 414, Iowa City, IA 52243, for information regarding registration dates and centers for the examination. The MCAT must have been taken within the past three years. All credentials received in fulfillment of admission requirements become the property of Meharry Medical College and are kept in the permanent files of the Office of Admissions and Recruitment.

### ***The Medical Scholars Program***

The Medical Scholars Program is offered jointly by the School of Medicine and School of Graduate Studies and Research. Participants have the option of pursuing a combined course of study leading to a dual M.D./Ph.D. degree. It is expected that all pre-medical education courses will be taken at an approved college in the United States.

Highly qualified applicants to the School of Medicine identified on the basis of MCAT scores, grade-point averages, personal interviews, letters of recommendation and research experiences, are recruited as participants in the Medical Scholars Program.

The Medical Scholars Program begins in the summer before the freshman year of medicine, at which time the students receive special instruction in biomedical sciences, laboratory technology and library orientation. During the first regular year of medical study – usually the most arduous because of the heavy didactic course load and the difficult transition from undergraduate to medical school – Medical Scholars follow the standard medical curriculum, with special but limited additional assignments, whereby they are able to participate in special activities that do not require out-of-class preparation, such as clinical grand rounds and graduate seminars in biomedical sciences. Beginning with the second summer and during the two full years thereafter, students work closely with faculty research preceptors – either clinical or basic scientists – on special projects and assignments. Subsequently, the program may include scientific trips for faculty and students, as well as a Visiting Scientist Program, which brings distinguished guest lecturers to the Meharry campus.

### ***Dual Degree Programs***

Meharry's first dual program, the Fisk-Meharry Joint Program in Biomedical Sciences (JPBS), was established in 1992. Participation in the (JPBS) means joint admission to the undergraduate school and Meharry Medical College. This program is designed for talented young men and women who desire to become physicians, dentists, or researchers in the biomedical sciences. JPBS scholars follow a prescribed program of study and are expected to maintain high academic standards throughout their tenure in the program. The program involves three years of study at the undergraduate school, successful completion of the fourth year (first

year at Meharry) and satisfactory completion of the requirements for the baccalaureate degree from the undergraduate school, in either biology or chemistry. Normal progress dictates that M.D. or D.D.S. degree requirements will be completed at Meharry during the next three years. Thus, both the bachelor's degree and the professional degree requirements can be completed in seven years. The time to complete the Ph.D. or M.D./Ph.D. will vary.

Dual Degree Programs have been established at Albany State College, Tennessee State University and the following Historically Black United Methodist Schools: Bennett College, Clark Atlanta University, Claflin College, Dillard University, Hutson-Tillston University, Paine College, Philander Smith College, Rust College, and Wiley College. The colleges and universities operate their programs similar to the Fisk-Meharry Joint Program in Biomedical Sciences. Students interested in the opportunity to participate in this kind of program should contact one of the undergraduate institutions listed for information.

### ***Technical Standards for Admission***

Medical education requires that the accumulation of scientific knowledge be accompanied by the simultaneous acquisition of skills and professional attitudes and behavior. Medical school faculties have a responsibility to society to matriculate and 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. Technical standards presented in this document are prerequisite for admission to and graduation from the School of Medicine at Meharry Medical College. All courses in the curriculum are required in order to develop the essential skills required to become a competent physician.

Graduates of medical schools must have the knowledge and skills to function in a broad variety of clinical situations and to render a wide spectrum of patient care. The School of Medicine at Meharry Medical College acknowledges Section 504 of the 1973 Vocational Rehabilitation Act and PL 11-336, the Americans with Disabilities Act (ADA) 1993, but ascertains that certain minimum technical standards must be present in prospective candidates.

A candidate for the M.D. degree must have aptitude, abilities and skills in five areas: observation, communication, motor, conceptual, integrative and quantitative, and behavioral and social. Technological compensation can be made for some handicaps in these areas, but a candidate should be able to perform in a reasonably independent manner, without assistance. The use of a trained intermediary means that a candidate's judgment must be mediated by someone else's power of selection and observation. Therefore, third parties cannot be used to assist students in accomplishing curricular requirements in the five skill areas specified.

#### ***Observation***

The candidate must be able to observe demonstrations and participate in experiments in the basic sciences including, but not limited to, physiologic and pharmacologic demonstrations in animals, microbiologic cultures and microscopic studies of micro-organisms and tissues in normal and pathologic states. A candidate must be able to observe a patient accurately at a distance and close at hand. Observation requires not only the use of the sense of vision, but other sensory modalities as well. It is enhanced, for example by the sense of smell.

### ***Communication***

A candidate should be able to speak, to hear and observe patients in order to elicit information; describe changes in mood, activity and posture; and perceive nonverbal communications. A candidate must be able to communicate effectively and with sensitivity toward patients. Communication includes not only speech, but also reading and writing. The candidate must be able to communicate effectively and efficiently in oral and written form with all members of the health care team.

### ***Motor Coordination and Function***

Candidates should have sufficient motor function to elicit information from patients by palpation, auscultation, percussion and other diagnostic maneuvers. A candidate should be able to perform basic laboratory tests (urinalysis, CBC, etc.), carry out diagnostic procedures (uroscopy, paracentesis, etc.) and read EKGs and X-rays. A candidate should be able to execute motor movements reasonably required to provide general care and emergency treatment to patients. Examples of emergency treatment reasonably required of physicians are cardiopulmonary resuscitation, the administration of intravenous medication, application of pressure to stop bleeding, opening of obstructed airways, suturing of simple wounds and performance of simple obstetrical maneuvers. Such actions require coordination of both gross and fine muscular movements, equilibrium and functional use of the senses of touch and vision.

### ***Intellectual/Conceptual, Integrative and Quantitative Abilities***

These abilities include measurement, calculation, problem reasoning, analysis and synthesis. Problem solving and the critical skill demanded of physicians require all of these intellectual abilities. In addition, the candidate should be able to comprehend three-dimensional relationships and to understand the spatial relations of structures.

### ***Behavioral and Social Attributes***

Candidates must possess the emotional health required for full use of their intellectual abilities, the exercise of good 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 uncertainties inherent in the clinical problems of many patients. Empathy, integrity, concern for others, interpersonal skills, interest and motivation are all personal qualities that should be assessed during the admission and education processes.

Candidates for the M.D. degree must have somatic sensation and the functional use of the senses of vision and hearing. Candidate's diagnostic skills will also be lessened without the functional use of the senses of equilibrium, smell or taste. Additionally, they must have sufficient exteroceptive sense (touch, pain and temperature), sufficient proprioceptive sense (position, pressure, movement, stereognosis and vibratory) and sufficient motor function to permit them to carry out the activities described in the section above. They must be able to consistently, quickly and accurately integrate all information received by whatever sense(s) employed and they must have the intellectual ability to learn, integrate, analyze and synthesize data.

The Meharry Medical College School of Medicine will consider for admission any applicant who demonstrates the ability to perform or to learn to perform the skills listed in this document. 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. The following technical requirements apply:

1. The candidate is able to observe demonstrations and participate in experiments in the basic sciences.
2. The candidate is able to analyze, synthesize, extrapolate, solve problems and reach diagnostic and therapeutic judgments.
3. The candidate has sufficient use of the senses of vision and hearing and the somatic sensation necessary to perform a physical examination and perform palpation, auscultation and percussion.
4. The candidate can reasonably relate to patients and establish sensitive, professional relationships with them.
5. The candidate can communicate the results of an examination to the patient and to colleagues with accuracy, clarity and efficiency.
6. The candidate can learn and perform routine laboratory tests and diagnostic procedures.
7. The candidate can perform with precise, quick and appropriate actions in emergency situations.
8. The candidate displays good judgment in the assessment and treatment of patients.
9. The candidate possesses the perseverance, diligence and consistency to complete the medical school curriculum and to enter the independent practice of medicine.
10. The candidate is able to accept criticism and respond with the appropriate modification of behavior.

## Academic Program

The School of Medicine is organized into 11 departments that administer the instructional, research and clinical activities of the School. The clinical departments include Internal Medicine, Pediatrics, Obstetrics and Gynecology, Surgery, Family and Community Medicine, Radiology, Psychiatry, Medical Education and Pathology. The basic sciences are organized under one Department of Biomedical Sciences with five divisions: Professional Education, Cancer Biology, Microbial Pathogenesis and Immune Response, Neurobiology and Neurotoxicology and Cardiovascular Biology.

The School of Medicine offers two different curricula - a four-year and a five-year medical education program. Each curriculum promotes a high degree of personal contact between faculty and students.

### ***The Four-Year Curriculum***

The four-year curriculum of the School of Medicine is divided into two phases. Phase I consists of the first two years generally referred to as the basic sciences years. The sequencing of course content provides students with a basic, systematic pre-clinical curriculum. Daily class schedules are arranged to foster effective teaching and learning. Phase II consists of the last two years, generally referred to as the clinical years. The clinical clerkships begin in the junior year. Students are randomly assigned to the six clinical rotations-internal medicine, obstetrics and gynecology, pediatrics, surgery, psychiatry and family medicine.

The senior clinical rotations are divided into required clerkships and electives. Thirty two weeks, divided into eight clinical rotations of four weeks, are required to complete the senior year. The four required senior clerkships are internal medicine, radiology, Area Health Education Center Program of Tennessee (AHEC), and psychiatry/neurology; additional electives include four units (16 weeks).

Junior and senior clinical clerkships are taken at the Alvin C. York VA Medical Center in Murfreesboro, Nashville VA Medical Center, Nashville General Hospital at Meharry, Vanderbilt Children's Hospital, Blanchfield Army Community Hospital (BACH), Middle Tennessee Medical Center, University Medical Center, Middle Tennessee Mental Health Center, Elam Mental Health Center, Parthenon Pavilion, Centennial Medical Center and/or other affiliated sites approved by the department.

### ***The Five-Year Curriculum***

The five-year curriculum of the School of Medicine is divided into three phases. Phase I consists of an eight-week summer program, offered prior to the fall enrollment of the first-year class. Phase II, generally referred to as the basic sciences years, consists of the first two years of the curriculum. The first-year curriculum is divided into a two-year period of matriculation offering students reduced study loads. However, the sophomore year is consistent with that of the four-year curriculum. Phase III, generally referred to as the clinical years, is comprised of the third and fourth years and is consistent with that found in the four-year program.

### ***The Comprehensive Medical Review Program (CMRP)***

CMRP is an extensive review of the basic sciences to prepare students to take the United States Medical Licensure Examination (USMLE) Steps 1 and 2 Clinical Knowledge (CK). The course provides participants with concentrated reinforcement and review, as well as access to several question banks with items similar to those seen on USMLE Step 1 and 2. Students are encouraged to utilize these items on a daily basis following pre-assessment. A battery of discipline-specific comprehensive exams and practice tests are also used to profile each participant's performance. Individual counseling is affected by utilizing the performance profiles (measured outcomes), enabling feedback and direction for self-study and by providing information to the skills specialist for test-taking mechanics. This customized approach assures the individual adequate time for preparation to eliminate cognitive weaknesses while providing a mechanism to measure proficiency in each area to guide certification progression, graduation and ultimately licensure.

### ***Academic Standards and Policies***

All students are required to meet the current academic standards found in the Student Academic Policies and Procedures Manual, School of Medicine. The manual is provided to all matriculating students. Additional copies can be obtained in the Office of Student/Academic Affairs located in the Harold D. West Basic Sciences Center.

### ***Student Evaluation and Promotion***

The Student Evaluation and Promotion Committee reviews student progress and makes recommendations on each student's advancement.

If at the completion of one year's curriculum, a student has received a passing grade in all courses, the student will be promoted to the next academic level. If a student receives a grade of F in one or more courses which have total credit hours less than or equal to 11 credit hours within a given academic year, the student will be required to repeat the course(s) failed in either summer or the academic year immediately following receipt of failure.

Any student receiving a grade of F in courses totaling greater than or equal to 12 credit hours within the academic year will be required to repeat the courses failed in the academic year following receipt of the failures, or will be required to repeat the entire academic year based upon the assessment of the student's academic record and the recommendation of the Committee. During the academic year following, the student will be put on academic probation; he or she will be counseled and reevaluated at the end of that academic year.

Students receiving a grade of F in courses totaling greater than or equal to 12 credit hours in the same semester; a grade of F in courses totaling greater than or equal to 22 credit hours in a single academic year; or a grade of F in a course taken a second time will be dismissed from the School of Medicine for poor academic performance.

No student will be allowed to repeat an entire academic year more than one time, throughout matriculation. No student will be promoted to the next academic level until completing requirements for the year in which he/she was enrolled.

***Requirements for Graduation***

A student is deemed eligible for the M.D. degree after satisfactorily completing all graduation requirements outlined in the Student Academic Policies and Procedures Manual, School of Medicine, including the successful completion of the prescribed course work and attainment of passing scores on the USMLE Steps 1 and 2.

An affirmative vote of the faculty of the School of Medicine with concurrence of the dean and confirmation by the Board of Trustees is required for candidacy for the M.D. degree. Students who do not complete graduation requirements prior to commencement will receive diplomas when the requirements are completed.

# Departments and Course Descriptions

## ***Department of Biomedical Sciences***

**Chair:** Lee Limbird, Ph.D.

**Professors:** Samuel E. Adunyah, Ph.D.; Ifeanyi J. Arinze, Ph.D., Salil K. Das, Ph.D., Maria de Fatima Lima, Ph.D.; Pamela C. Williams, M.D.; Annie W. Neal, Ph.D., Fernando Villalta, Ph.D., Gautam Chaudhuri, Ph.D., Etheleen McGinnis Hill, Ph.D., Robert G. Holt, Ph.D., Raju Ramasamy, Ph.D., Manuel Valenzuela, Ph.D., Billy R. Ballard, D.D.S., M.D., Clivel G. Charlton, Ph.D., Mohammed A. Maleque, Ph.D., Dolores C. Shockley, Ph.D., Hubert K. Rucker, Ph.D., Mukul R. Banerjee, Ph.D., Mohit L. Bhattacharyya, Ph.D., John T. Clark, Ph.D., Sukhbir S. Mokha, Ph.D., James J. Mrotek, Ph.D., Linda D. Sander, Ph.D., James G. Townsel, Ph.D.

**Associate Professors:** Oksoon H. Choi, Ph.D., Josiah Ochieng, Ph.D., Juanita F. Buford, Ed.D., Jane Fort, Ph.D., Ethel Robertson, Ed.D., FNP-C, Anett Wakefield-Franklin, M.S.N., FNP-C, Leonard Webster, M.D., Frank M. Hatcher, Ph.D., Awadh Binhazim, Ph.D., George A. Breaux, M.D., Susan DeReimer, Ph.D., Zhongmao Guo, Ph.D., Arthur Jackson, Ph.D., Mukarram Uddin, Ph.D., Cecil W. Cone II, M.D., Darryl Hood, Ph.D., Alfred A. Nyanda, Ph.D., Sanika S. Chirwa, Ph.D., Robert T. Matthews, Ph.D., Evangeline D. Motley, Ph.D.,

**Assistant Professors:** Emmanuel Atta-Asafo-Adeji, Ph.D., Marilyn E. Thompson, Ph.D., Minu Chaudhuri, Ph.D., Douglas R. Dorer, Ph.D., Robert E. Burnette, M.D., Ian Fentie, Ph.D., Digna Saunders Forbes, M.D., Olugbemiga Ogunkua, Ph.D., Twum-Ampofo Ansah, Ph.D., Sakina E. Eltom, Ph.D., Shyamali Mukherjee, Ph.D., Wan-Qian Zhao, Ph.D., Michael Hill, Ph.D.

**Adjunct Professors:** Richard W. Hanson, Ph.D., C. Rollo Park, M.D.

**Adjunct Associate Professors:** James L. Sherley, M.D.

**Instructors:** Josie Hasle, B.S., Shari Wherry, M.S.N., FNP-C, Eloise Cunningham, Armandla Ramesh, Ph.D.

**Emeritus Professors:** Henry A. Moses, Ph.D., Fred Jones, Ph.D., Mark E. Levitch, Ph.D., Michael D. Davis, M.D.

### **Faculty with Secondary Appointments:**

**Professors:** George C. Hill, Ph.D., Department of Microbiology & Immunology, Vanderbilt University SOM; Maria de Fatima Lima, Ph.D., Department of Biochemistry, MMC; John A. Phillips, III, M.D., Departments of Pediatrics & Medicine, Vanderbilt University SOM

**Associate Professors:** Scott M. Williams, Ph.D., Department of Internal Medicine, Vanderbilt University SOM; Terence S. Dermody, Ph.D., Department of Pediatrics, Vanderbilt University SOM

**Assistant Professors:** Robert F. Clark, Ph.D., Department of Psychiatry and Behavioral Medicine, MMC; Susan A. DeReimer, Ph.D., Department of Pathology, MMC; Hua Xie, D.D.S., Ph.D., Department of Stomatology, School of Dentistry, MMC

## COURSE DESCRIPTIONS

**ASMD 230 - *Foundations in Clinical Medicine*** - This short introductory course is designed to acquaint students with the very basic information and skills they will need to negotiate the medical curriculum. Lecture and /or small group discussion sessions address professionalism, medicine as a profession, patient confidentiality, CPR training, evidence-based medicine, bioinformatics and 360° evaluations. Students participate in a number of assessment activities designed to identify strengths and weaknesses in academic areas, as well as proficiency in computer skills, searching the medical literature and critical analysis of Web-based information.

**ASMD 320 - *Principles and Practices of Medicine (PPM) – IA*** - This course, offered in the fall of the freshman year, concentrates on appreciation of the patient-physician encounter (styles of communication, cultural competency, patient confidentiality); development of scientific reasoning and critical thinking skills including the interpretation of biostatistics and epidemiological findings, understanding of health policy and the organization of health care systems and clinical research in the United States; and an introduction to clinical ethics and end-of-life issues. A particular highlight of the course is opportunities for all students to shadow physicians in clinical settings. Approximately half of all scheduled sessions utilize a small group format. Additional interactive sessions address medicine and societal issues relating to basic science coursework occurring parallel to the PPM course. Students are required to submit journals describing their clinical experiences and to prepare a number of papers and reports demonstrating the development of their scientific reasoning skills. **Prerequisite: ASMD 230 - *Foundations in Clinical Medicine***

**ASMD 340 - *Principles and Practices of Medicine IB*** - This course is offered during the Spring semester of the freshman year and builds on the clinical observations made by the students during their earlier clinical shadowing experiences. Having observed physicians taking histories and performing physical examinations, the students now begin to develop their own skills in these two key areas. Peer partners, standardized patients and videotaping sessions are used to help the students perfect their interviewing and examination skills. The physical examination skills learned during this semester will parallel the Integrated Neuroscience curriculum being offered simultaneously. Additionally, interactive sessions addressing medicine and societal issues relating to basic science coursework will continue to be offered in the spring as in the fall.

**ASMD 415 and 416 – *Principles and Practice of Medicine IIA and IIB (Sophomore-Four Year)*** - This course is presented in an interdisciplinary format correlated with the organ system presentations of each of the second-year disciplines. The purpose of this course is to assist students in integrating the basic and clinical sciences and to provide a framework for students to learn the interviewing and physical examination skills necessary for competent patient care. This two-semester course also serves as an introduction to the concepts involved in clinical problem solving and consists of physical diagnosis, case-based teaching and clinical correlations. **Prerequisites: ASMD 320 and 340 - *Principles and Practice of Medicine - IA and IB***

**ASMD 422, 423 - *Intermediate Physical Diagnosis*** - This course is taught to students in the third year of the five-year curricular program. It is viewed as an advanced level of physical diagnosis, which incorporates greater patient exposure and in-depth discussions of common signs and symptoms of diseases presenting in the ambulatory setting. **Prerequisites: ASMD 315, 317, 319, and 320 - *Introduction to Clinical Medicine I A-D***

**ASMD 402 - *Comprehensive Medical Review Program (CMRP)*** - The Comprehensive Medical Review Program (CMRP) is an extended review of the basic sciences to prepare students to take the USMLE Step 1 examination. After administration of a comprehensive pre-assessment examination, students receive daily quizzes that simulate USMLE Step 1 questions. This battery of discipline-specific comprehensive examinations and practice tests is used to create measured outcomes that profile each participant's performance. Individual counseling, using the performance profiles, is conducted and students receive feedback and direction for self-study. These performance profiles are also used by skills specialists to help students with the mechanics of taking standardized tests. This customized approach assures that students have adequate time to address cognitive weaknesses, while providing a mechanism to measure proficiency in each area.

**ASMD 403 - *Biostatistics, Epidemiology and Public Health*** - This course is taught during the fall semester of the freshmen year and is composed of a series of interactive sessions that provide an introduction to public health, biostatistics and epidemiology. The public health component introduces students to public health, the health care system, managed care and medical ethics. Biostatistics introduces students to data collection, the classification and analysis of statistical data and how this information relates to reading and interpreting the medical literature. Epidemiology provides students an introduction to the study of the distribution and determinants of diseases or conditions in a defined population. This section of the course will provide a practical look at epidemiologic concepts, uses of epidemiology, types of epidemiological studies and quantitative measures.

**ANAT 320 - *Gross Anatomy and Embryology*** - Gross anatomy and embryology is offered in the Fall semester of the first year of the curriculum and is a course that teaches the gross structure and developmental sequences of the human body. Students working in small groups dissect a human cadaver. Didactic and clinically oriented lectures are supplemented by prosections, radiological presentations and surface anatomy. Clinical orientations are made through periodic demonstrations and/or didactic lectures by clinicians.

**ASMD 330 - *Principles in Immunology and Host Defense*** - This course is offered in the Spring semester of the first year of the curriculum. The goal of this course is to help students achieve an integrated and correlated understanding of the immune system and its role in host response and human disease. The course encompasses a presentation of the basic immune response and the principal mechanisms involved in disease with an in-depth presentation of the pathology associated with immunologic diseases. The course has two components. The basic immunology component focuses on the processes in the innate humoral and cellular immune systems and the lymphoid tissues involved in those responses. The clinical immunology component focuses on how the immune system is involved in many areas of clinical medicine including allergy and hypersensitivity, tumor resistance, transplantation, autoimmune diseases, primary and secondary immunodeficiencies, blood transfusions, infectious diseases and immune modulation. The information is presented in a combination of didactic lectures,

laboratory exercises, small-group sessions, patient-oriented problem solving exercises, on-line clinical case evaluations and clinical correlations. **Prerequisite: ASMD 345 - Foundations in Human Disease and Treatment**

**ASMD 345 - Foundations in Human Disease and Treatment** - This course is offered to freshman medical students during the Spring semester and includes modules in microbiology, pathology and pharmacology. The goal of this course is to provide students with a foundation for understanding the cellular basis of the physiologic and biologic manifestations of disease. A focus on fundamental principles related to disease mechanisms and treatment sets the stage for coverage of specific disease processes presented in the organ system modules. Moreover, the microbiology component of the course provides students with the fundamental principles of microbial structure and function, physiology, genetics and molecular biology and understanding of the significance of microbes as disease causing agents. **Prerequisite: BICH 320 - Molecular Cell Biology and Genetics I**

**ASMD 350 - Principles in Infectious Diseases** - This course is offered in the Spring semester of the first year of the medical school curriculum. The goal of this course is to help students achieve an integrated and correlated understanding of the principles of infectious diseases involving bacterial, fungal, parasitic and viral pathogens including current knowledge regarding the epidemiology, virulence mechanisms, clinical symptoms and pathology, diagnosis, treatment and prevention of specific infectious agents. This course is divided into two sections: bacterial and fungal pathogens, and parasitic and viral agents of human disease. The approach is to present the pathogens as a survey of infectious agents but within the context of the major organ systems/tissues affected. This approach should facilitate the student's study in the organ-based courses. Information in the course is presented in a combination of didactic lectures, laboratories, small-group sessions, patient-oriented problem solving exercises and clinical correlations. **Prerequisite: ASMD 345 - Foundations in Human Disease and Treatment**

**ASMD 430 - Hematopoietic and Lymphoreticular Systems**- This course is offered to sophomore medical students during the Fall semester and builds on the knowledge obtained from the freshman year in understanding the normal immune system, structures and the response to infectious diseases of the hematopoietic and lymphoreticular systems. The course will help the students in understanding the physiological processes, the pathological changes and effects of both pharmacological and other clinical interventions to restore tissues and the organ at the molecular, cellular and macroscopic levels to their optimum functional conditions. In addition, the course will assist students in understanding the associated behavioral changes in normal and disease states as it affects the hematopoietic and lymphoreticular systems and the body as a whole. The course presents the detailed microscopic and macroscopic structures of the hematopoietic and lymphoreticular systems in health, disease, and the result of pharmacological and other clinical interventions. **Prerequisites: ANAT 320, ASMD 230, 320, 330, 340, 345, 350, BICH 320, 330, PHYS 320**

**ASMD 435 – Musculoskeletal, Skin & Related Connective Tissues** - This course is offered in the Fall semester of the second year and builds on the knowledge obtained from the freshman year in understanding the normal musculoskeletal, skin and related structure in health and in disease states. The course will help the students in understanding the physiological processes, the pathological changes and effects of both pharmacological and other clinical interventions to restore tissues and the organ at the molecular, cellular and macroscopic levels to their optimum

functional conditions. In addition, the course will assist students in understanding the associated behavioral changes in normal and disease states as it affects the musculoskeletal, skin and related connective tissues and the body as a whole. The course presents the detailed microscopic and macroscopic structures of the musculoskeletal, skin and related connective tissue in health, disease, and the result of pharmacological and other clinical interventions as they relate to the musculoskeletal, skin and related connective tissues. **Prerequisites: ANAT 320, ASMD 230, 320, 330, 340, 345, 350, BICH 320, 330, PHYS 320**

**ASMD 440 - *Cardiovascular System*** - This course is offered to sophomore medical students during the Fall semester and begins to explore how alterations in structure (anatomy) and function (physiology) of the cardiovascular system disrupt the human body functions. It provides the foundation by which the students begin to understand the cellular basis for the physiologic and biologic manifestations of diseases of the cardiovascular system and the adaptations that the body makes to the changes produced by the disease process. Integral in this course is the understanding of how the basic anatomy and physiology of the cardiovascular system relates to the adaptation and the pathogenesis of cardiovascular diseases. Topics related to blood vessels, pericardium, myocardium and endocardium serve as the basis for the course. A variety of instructional modalities including laboratory exercises, small group discussion, team learning exercises and individual assignments using clinical cases and problem sets are utilized to emphasize and integrate conceptual information. **Prerequisites: ANAT 320, ASMD 230, 320, 330, 340, 345, 350, BICH 320, 330, PHYS 320**

**ASMD 445 - *Pulmonary System*** - This course is offered to sophomore medical students during the Fall semester and is designed to assist the students in building on the foundation of knowledge of structure and functions of organs and tissues of the human body learned in the freshman year. The course will give more detailed microscopic and macroscopic structures of the pulmonary system in health, disease, and the result of pharmacological and other clinical interventions. Comprehensive and coherent didactic information presented in lecture format, small group discussions, case presentations and self-learning assignments in the pulmonary system will be utilized to emphasize and integrate conceptual information. **Prerequisites: ANAT 320, ASMD 230, 320, 330, 340, 345, 350, BICH 320, 330, PHYS 320**

**ASMD 450 - *Gastrointestinal and Hepatobiliary Function*** - This course is offered in the Fall semester of the second year and examines the physiology, pathology and pharmacological treatment of gastrointestinal and hepatobiliary function. Clinical presentations and small group discussion of patient-based cases assist the student in the correlation of basic and clinical information. The goal of this course is to assist students in understanding the structure and function of the gastrointestinal and hepatobiliary systems in health and disease. The course covers the normal and abnormal processes of the gastrointestinal system, the principles of therapeutics in the gastrointestinal system, and the gender, ethnic, and behavioral considerations affecting disease treatment and prevention, including psychosocial, cultural, occupational, and environmental factors. **Prerequisites: ANAT 320, ASMD 230, 320, 330, 340, 345, 350, BICH 320, 330, PHYS 320**

**ASMD 455 – *The Endocrine System*** - This course is offered to sophomore medical students during the Spring semester and examines the physiology, microanatomy, pathology, microbiology, and pharmacology of endocrine function and dysfunction. Clinical team learning presentations and small group discussions of patient-based cases assist the students in

correlating basic and clinical information. The goal of this course is to assist students in understanding the structure and function of the various components of the endocrine system in health and disease. The course covers the normal and abnormal processes associated with the endocrine system, the principles of therapeutics associated with endocrine function and dysfunction and the gender, ethnic, and behavioral considerations affecting disease treatment and prevention, including psychosocial, cultural, occupational, and environmental factors associated with endocrine function and dysfunction. **Prerequisites: ANAT 320, ASMD 230, 320, 330, 340, 345, 350, BICH 320, 330, PHYS 320**

**ASMD 460 – *The Reproductive System*** - This course is offered in the Spring semester of the second year and examines the physiology, microanatomy, pathology, microbiology, and pharmacology of reproductive function and dysfunction. Clinical team learning presentations and small group discussions of patient-based cases assist the students in correlating basic and clinical information. The goal of this course is to assist students in understanding the structure and function of the various components of the reproductive system in health and disease. The course covers the normal and abnormal processes in relationship to reproductive function, the principles of therapeutics associated with reproductive function and dysfunction and the gender, ethnic, and behavioral considerations affecting disease treatment and prevention, including psychosocial, cultural, occupational, and environmental factors associated with reproductive function and dysfunction (e.g., STDs). **Prerequisites: ANAT 320, ASMD 230, 320, 330, 340, 345, 350, BICH 320, 330, PHYS 320**

**ASMD 465 - *Growth, Development and Aging*** - This course is taken in the second semester of the sophomore year after students have been exposed to all organ systems from a primarily adult perspective and provides the foundation for competent and compassionate care of patients of all ages. The goal of this course is to integrate biological, social and psychological aspects of progression through the lifespan with particular emphasis on pediatric and geriatric populations. The course utilizes multiple formats including lectures, panels, small group activities, semi-structured interviews in community settings, independent readings, and a group research project which will be presented orally as well as in writing. The course covers physiological changes and pharmacodynamics associated with stage of life, the diseases and pathological states more common in children, adolescents and the elderly, the gender, ethnic, cultural and behavioral considerations affecting disease treatment and prevention across the lifespan and addresses ethical issues such as interactions with caregivers, loss, grief, death and dying, research on children and the elderly and interactions with the health care system. **Prerequisites: ANAT 320, ASMD 230, 320, 330, 340, 345, 350, BICH 320, 330, PHYS 320**

**ASMD 470 - *Renal/Urinary System*** – This course is offered in the Fall semester of the second year and is designed to assist the students in understanding the physiological processes, the pathological changes and effects of both pharmacological and other clinical interventions to restore tissues and the organ at the molecular, cellular and macroscopic levels to their optimum functional conditions. The course will allow the students to build on the knowledge obtained from the freshman year in understanding the normal immune system, structures and the response to infectious diseases of the renal/urinary system. Behavioral changes in normal and disease states as it affects the renal/urinary system and the body as a whole are an integral component of this course. **Prerequisites: ANAT 320, ASMD 230, 320, 330, 340, 345, 350, BICH 320, 330, PHYS 320**

**ASMD 475 - Great Syndromes** - This course is taken in the Spring semester of the sophomore year after students have been exposed to all organ systems. The student learns the complex dimensions of clinical judgment, including: complexities of interactions, involvement of multiple organ systems, examples of major syndromes and diseases, life stages, patient's perspective, and incorporation of basic science knowledge. Predicated on students' knowledge of the basic science organ systems, this course acquaints students with the complexities and integrative dimensions of clinical judgment. Via clinical cases involving selected syndromes, this course will explore content topics including aging, critical thinking, ethics professionalism, treatment principles and situational awareness. **Prerequisites:** **ANAT 320, ASMD 230, 320, 330, 340, 345, 350, BICH 320, 330, PHYS 320**

**ASMD 480 – Psychiatry/Behavioral Sciences - Syndromes** - This course is taken in the Spring semester of the sophomore year and is designed to enhance students' understanding of the biopsychosocial correlates of illnesses and to assist them in implementing intervention strategies directed toward improved outcomes in holistic patient management. Case studies and case presentations are introduced for the purpose of clinical correlations and problem-solving approaches. Specific topics covered in this course include adult transitions, adjustment disorders, human sexuality, the study of symptoms differentiation and classification, psychoactive substance use disorders, factitious disorders and malingering. Ethical issues related to the patient's care and forensic psychiatry are also given coverage. **Prerequisites:** **ANAT 320, ASMD 230, 320, 330, 340, 345, 350, BICH 320, 330, PHYS 320**

**BICH 320, 330 - Molecular Cell Biology & Genetics (MCBG) – I and II** – This course covers fundamental cellular, biochemical, genetic and molecular concepts that are foundational to the practice of medicine.

**MCBG I** is offered during the Fall semester to freshmen medical students and covers eucaryotic cell structure and function, cell cycle events and control and macromolecular synthesis including protein, RNA and DNA. Other aspects of DNA metabolism are also covered including genetic exchange and DNA repair. Important mechanisms that mediate the regulation of gene expression are also discussed including topics related to the extracellular matrix, epithelial and connective tissues. Basic biochemical concepts are also presented and include lectures in intermediary metabolism, amino acid synthesis and metabolism, enzyme kinetics, mechanisms of transport and fatty acid synthesis and oxidation. Students are also introduced to current molecular biology techniques including polymerase chain reaction (PCR), enzyme-linked immunosorbent assay (ELISA), Northern, Southern and Western blot analysis and the use of other molecular techniques in disease diagnosis.

**MCBG II** is offered during the Spring semester to freshman medical students and includes topics in nutrition, nutrition in hypertension and immunity, wasting disorders, blood clotting disorders, apoptosis, biochemical mechanisms of leukemias, hematopoiesis and cell signaling. Emphasis is also placed on a study of the biochemical, genetic and molecular basis for disease including blood clotting disorders, lipid storage disease, phenylketonuria and tyrosinemia. **Prerequisite:** **BICH 320 - Molecular Cell biology & Genetics (MCBG I)**

**PHYS 320 - *Integrated Neuroscience*** - The Integrated Neuroscience course will help students achieve an integrated and correlated understanding of nervous system structure, function, dysfunction and therapeutics. The course will be taught in the following blocks: (1) excitable cells and synapses, including muscle and the autonomic nervous system; (2) anatomy of the nervous system, meninges and vasculature; (3) sensory systems; (4) motor system; and (5) higher function. Each block will be composed of instruction in biochemistry, neurology, pathology, anatomy and cell biology, pharmacology, physiology, psychiatry and behavioral sciences. **Pre-requisite: ASMD 345, Foundations in Human Disease and Treatment**

## **ELECTIVE COURSES**

**ANAT – 602 – *Gross Anatomy Elective*** - Specialized sessions arranged for advanced study or research in specific anatomical areas utilizing small group activities which facilitate teacher-student interaction.

**BICH 601 - *Biochemistry Research*** – This rotation may be four to eight weeks in duration depending on the research project selected and is open to junior and senior medical students. During the course of this elective, students will receive appropriate training in the basic skills needed to conduct research including the development of hypotheses, experimental design and data analysis.

**BICH 651 – *Nutrition Research*** – This four-week course is open to third- and fourth-year medical students, interested in the various aspects of nutrition research. Students will receive training in the basic skills needed to conduct projects including the development of hypotheses, experimental design and data analysis.

**PATH 602 - *Surgical Pathology Elective*** - This course is specifically designed for third- and fourth-year medical students and focuses on introducing students to a hands-on approach to histopathology. Students participate in the daily review of gross specimens and in the diagnostic process of microscopic descriptions and pathologic diagnoses.

**PATH 902 - *Forensic Pathology Elective*** - This course is specifically designed for fourth-year medical students with an expressed interest in pursuing a career in one of the disciplines of pathology. Its major focus is to introduce students to the investigative approaches of unexplained and unnatural deaths. Prior participation in PATH 602 (Surgical Pathology Elective) is highly recommended but not required. Students rotate through the Forensic Sciences Center on Ben Allen Road, Madison, Tennessee.

**PHAR 602 - *Pharmacology Research*** - With the approval of individual faculty, advanced students are involved in research. Activities in this program include research for medical students on drug action at the cellular and molecular levels; factors affecting variation in drug response; and interaction between different diseases, such as hypertension, sickle cell disease, kidney and liver disorders.

**PHYS 602 – *Research in Physiology*** - This rotation may be four to eight weeks in duration depending on the research project selected and is open to junior and senior medical students. During the course of this elective students will receive appropriate training in the basic skills needed to conduct research including the development of hypotheses, experimental design and data analysis.

**ASMD 605 - *Computers in Clinical Medicine*** - This elective is a four-week course for third- and fourth-year medical students. It provides instruction on the use of computers and the Internet in the study and practice of medicine. During this rotation, students are introduced to various Internet sites of medical significance. Students are initially shown how to use the content of Internet sites and then given assignments on various medical and laboratory disorders using the Internet as their only resource. Upon completion of this course, students will possess the knowledge, computer skills and attitudes necessary to utilize the computer as a tool for the lifelong study and practice of medicine.

**ASMD 636 - *Clinical Management Elective*** - Students who participate in this four-week elective gain experience as a medical educator. This elective assists the senior student in developing teaching skills in the clinical and basic science setting. Principles of adult learning theory, effective teaching techniques and evaluation of clinical performance, including effective methods of giving feedback to trainees, are presented and emphasis is placed on how to efficiently track physical diagnosis/clinical skills performance. Each participant in the elective puts theory into practice by serving as an instructor for freshman and/or sophomore students in physical diagnosis and clinical interviewing. Participants also serve as evaluators of student performance during standardized patient examinations. By serving as teachers and evaluators, students enhance their own clinical skills.

## Clinical Sciences

### *Department of Family and Community Medicine*

**Chair:** Roger J. Zoorob, M.D., M.P.H., FAAFP

**Professors:** Paul Juarez, Ph.D., Maciej Buchowski, Ph.D.

**Associate Professors:** Harold Nevels, M.D., Patricia Matthews-Juarez, Ph.D., Fred Ernst, Ph.D.

**Assistant Professors:** Diane McDermott, M.D., Residency Director; Ronald McDermott, M.D., Claudia Mays, L.C.S.W., B.C.D., Assistant Residency director; Sangita Chakrabarty, M.D., Millard Collins, M.D., Green A. Ekadi, Ph.D.

**Instructors:** Louis DeSalle, M.D.

**Volunteer Faculty:** Lee Berkenshock, M.D., Chad Griffin, M.D., Robert Bishop, M.D., Ralph Hobbs, M.D., Harry Bonnaire, M.D., George L. Holmes, M.D., Matthew Brust, M.D., Cole Johnson, D.O., Mary Bufwack, Ph.D., Jose LaRaya, M.D., Jon Butler, M.D., S. L. Lampkin, M.D., Arikana Chihombori, M.D., Gita Misha, M.D., Danielle Darter Murray, M.D., Venkatt Reddy, M.D., Jason Dees, D.O., Joyce Semenza, M.D., Chet Gentry, M.D., Heather Sehuet, M.D., Ty Webb, M.D.

### **OBJECTIVES**

The department's goal is to educate and train physicians in the clinical specialty of family medicine and to encourage all physicians to provide high quality, continuous, comprehensive primary care to poor, underserved and ethnically diverse peoples who make up this nation and world. The Department provides training with family physicians teaching the basic clinical, academic and psychomotor skills necessary to provide continuing, comprehensive health care unrestricted by age, gender, organ system and location of service.

Family Practice students and residents are encouraged to evaluate existing business and office management practices in various ambulatory settings in anticipation of assuming a managerial responsibility in his or her own practice. Physicians are instructed in the appropriate use of the problem oriented medical record system and work with office personnel to handle both predictable and unpredictable clerical, managerial and personnel problems. All are encouraged to develop life-long learning habits. Students and residents learn research methods in approaching and solving problems related to health care delivery as well as the basic process of health and disease in relationship to the family unit in the community. Flexibility is recommended so that physicians may be able to assess their personal needs as well as the requirements of the community in which they wish to practice. The Department allows for on-going re-evaluation of goals and objectives in light of changing trends in medical education and health care delivery. The department also emphasizes medical ethics as it relates to patient-physician and peer relations.

### **COURSE DESCRIPTIONS**

**FAMD 502 - *Family Medicine Clerkship*** - A one-on-one preceptor experience at one of the many approved and affiliated community hospitals, office practices and health centers located in Tennessee. This clerkship focuses on ambulatory services in a comprehensive, continuing health care program, preferably utilizing a family health care team. Students are under the supervision of a physician preceptor as part of a family health care team. They are expected to share in decision-making and in planning for patients, their families and communities.

**FAMD 606 - AHEC Clerkship** - The AHEC rotation is a four-week, community-based clinical experience designed to expose senior medical students to community-based experiences in underserved communities across the state of Tennessee, with a focus on the primary care specialties. This clinical experience occurs under the tutelage of primary care physicians who have well rounded clinical practices. In addition to theoretical and clinical community-based exposure, the AHEC rotation is designed to positively influence the medical students to consider locating their own clinical practice in a rural or urban underserved area.

## ELECTIVE COURSES

**FAMD 604 - *Family Medicine Senior Elective*** – This elective experience fully utilizes the abundance of ambulatory family and community health care settings available throughout Tennessee. The objective is to progressively and systematically build upon the skills and knowledge previously gained during the first and second years and the clinical clerkship in Family Medicine. Preventive medicine, psychology and social disciplines are structured into the family health team focus. In addition to clinical experiences, students are provided with the opportunity for community involvement so that they gain more insight into the characteristics of the community and the impact environment has on the health of the population served. Our numerous preceptors permit exposure to the broad spectrum of diverse health care practice models that exist in rural and urban areas, in an effort to inculcate an adequate operational concept of health and illness management.

## *Department of Internal Medicine*

**Chair:** Steven N. Wolff, M.D.

**Assistant Chair:** Theodore Addai, M.D.

**Professors:** Asim K. Dutt, M.D., A. Cherrie Epps, Ph.D., Marquetta Faulkner, M.D., Robert Levine, M.D., James Potts, M.D., Steven Wolff, M.D.

**Associate Professors:** Vladimir Berthaud, M.D., Clinton Cummings, M.D., Cynthia Moriarty, M.D., Gerard Shu Tangye, M.D., Buntwal Somayaji, M.D., Pamela C. Williams, M.D.

**Associate Clinical Professors:** Jon Levine, M.D.

**Assistant Professors:** Richmond Akatue, M.D., Sharon Albers, M.D., Wichai Chinratanalab, M.D., Andrew Desruisseau, M.D., Michael Floyd, M.D., Chukwuemeka Ikpeazu, M.D., Darryl Jordan, M.D., Jean Lessly, M.D., Ian Morales, M.D., Ugo Oneyso- Nwachuku, M.D., Ukpong Nwankwo, M.D., Ayodeji Oso, M.D., Paul Talley, M.D., D. Scott Trochtenberg, M.D.

**Instructor:** Nathaniel Briggs, M.D.

### **COURSE DESCRIPTIONS**

**MEDI 501 – *Internal Medicine Clerkship* –** This is a 12-week core clerkship during which third-year medical students spend four weeks at various clinical sites affiliated with the Department of Internal Medicine. The students spend four weeks on each of the following services: general internal medicine service of the Nashville General Hospital, in-patient service at the Murfreesboro VA Medical Center and at one of numerous rural or urban ambulatory sites. A balanced program of clinical work is designed for students, with emphasis placed upon perfecting the techniques of history taking, physical examination, case presentation and the functional utilization and correlation of basic laboratory and clinical findings.

Students participate in rounds regularly with residents and attending physicians. In these settings the student assumes a role as an accepted and valuable member of the health team and thus plays a major role in the daily evaluation and treatment of patients. Students take night call with their team and attend weekly medical grand rounds, journal club and morbidity/mortality conferences. Daily lectures and conferences in selected subspecialty areas are given to supplement the educational program.

**MEDI 603 - *Senior Internal Medicine* -** This is a four-week clerkship for senior medical student, which may be served at either Nashville General Hospital at Meharry or the Alvin C. York VA Medical Center in Murfreesboro, Tenn. Students are expected to take call and are taught by both medical faculty and residents of internal medicine. The purpose of this clerkship is to acquaint senior medical students with the increased level of patient care responsibility required during the first year of graduate training in internal medicine, especially those of day-to-day care and acquisition of the skills for coordinating the ancillary services each patient requires. Strong emphasis is placed on further development of bedside clinical skills, i.e., history taking, physical examination and communication skills. This course fulfills the senior internal medicine requirement. **Prerequisite: MEDI 501 – *Internal Medicine Clerkship*.**

**MEDI 617 - *Intensive Care Unit Clerkship* -** This is a four-week clerkship for senior medical students, which may be served at either Nashville General Hospital at Meharry or at Alvin C. York VA Medical Center. The primary goal for this clerkship is to enable fourth-year medical

students to participate in all aspects of the care and management of critically ill patients. Students will become familiar with detailed aspects of respiratory failure and hemodynamic compromise, as well as the integrated management of these patients. Students may be assigned call duty and will be taught by medical faculty and residents. This course fulfills the senior internal medicine requirement. **Prerequisite: MEDI 501 – Internal Medicine Clerkship.**

## **ELECTIVE COURSES**

**MEDI 620 – Cardiology Elective** – This course is designed to familiarize senior medical students with current trends in cardiac physiology and pathophysiology that are utilized in the diagnosis, treatment and management of patients with a wide range of cardiac diseases. Students are taught to integrate basic science knowledge into the clinical management and problem solving process. Didactic teaching in seminars and small group sessions are used to teach students how to read electrocardiograms (EKGs) and use other diagnostic modalities to evaluate and treat patients with cardiac diseases. Students must attend the Cardiology Clinic twice weekly and participate in the consult service activities. **Prerequisite: MEDI 501 – Internal Medicine Clerkship.**

**MEDI 621 – Internal Medicine Elective** – This elective (sub-internship) is designed to prepare the student to assume responsibilities of the first year of graduate training in internal medicine, especially those of day-to-day care on the general internal medicine in-patient service. The course also provides opportunities for students to acquire the skills needed to coordinate the ancillary services each patient requires. Strong emphasis is placed on further development of bedside clinical skills, i.e., history taking, physical examination and oral and written communication skills. The sub-intern will be responsible for a small number of patients ranging from three to six as assigned by senior residents. **Prerequisite: MEDI 501 – Internal Medicine Clerkship.**

**MEDI 623 – Dermatology Elective** – The dermatology elective is designed to familiarize senior students with a variety of epidermal and dermal responses, as well as the characteristics of basic dermatologic disorders, thereby becoming knowledgeable about how to make decisions concerning diagnosis and management of most common skin problems. Students may be assigned to a Nashville General Hospital clinic or to an affiliated private practice.

**MEDI 624 – Gastroenterology Elective** – A major goal for this elective is to teach both the clinical and academic content of gastroenterology (GI). Students may be assigned to a clinic or at a private practice office. They are expected to become familiar with the scope of gastroenterology and its application to the general care of patients. Students are expected to read assigned topics on gastroenterology and then discuss those topics with the attending physician. They must attend all GI procedures, consultative rounds, informal discussions, conferences and visit other hospitals with their attending physician. **Prerequisite: MEDI 501 – Internal Medicine Clerkship.**

**MEDI 625 – Nephrology** – This elective introduces students to clinical problems in nephrology. Included in the introduction is the evaluation of patients with glomerular and interstitial renal failure and end-stage renal disease (ESRD). Students are expected to participate in daily rounds and must attend the weekly outpatient clinic in the hospital and at the Dialysis Clinic located on campus. They are assigned readings on topics for nephrology. All teaching conferences involving nephrology must be attended by students for this elective. **Prerequisite: MEDI 501 – Internal Medicine Clerkship.**

**MEDI 626 - *Pulmonary Diseases*** - This is an introductory course to acquaint the student with the important principles and practices of pulmonary medicine. It is structured to develop competency in making initial evaluations of patients with pulmonary disease; how to use chest x-rays in the evaluating process for pulmonary problems. In this course students should become competent in making initial evaluations of patients with pulmonary disease. They should become familiar with using chest x-rays as an evaluative tool for pulmonary problems and the appropriate treatment of major respiratory diseases. Under the direction of pulmonary care physicians and residents, students actively participate in the management of patients with pulmonary disorders. They must also participate in all relevant activities, including daily rounds and clinical conferences. They will also learn the basic principles for treating major respiratory diseases. Students will also learn how to manage patients with acute medical illness in the Intensive Care Unit ("ICU"). **Prerequisite: MEDI 501 – Internal Medicine Clerkship.**

**MEDI 627 - *Infectious Diseases*** – Senior-level students are introduced to the most common problems of infectious diseases in adolescents and adults and how to manage the problems. The environment for this course includes the emergency room, private practice and the hospital. Students are expected to perform workups on selected patients and then make presentations to the Infectious Disease faculty. They are expected to read cases and/or other assigned literature on infectious diseases and make reports on their findings. **Prerequisite: MEDI 501 – Internal Medicine Clerkship.**

**MEDI 628 - *Hematology/Oncology*** - This elective provides exposure to community hematology/oncology problems in an inpatient and outpatient setting. The course is designed to develop skills for evaluating, diagnosing and treating patients with anemia, solid tumors, common hematologic problems and other oncologic emergencies. Students are assigned various readings to develop an understanding of the natural history of the different kinds of malignancies. They are expected to learn how to interpret peripheral smears as well as bone marrow aspirations through review sessions with the attending physicians. **Prerequisite: MEDI 501 – Internal Medicine Clerkship.**

**MEDI 629 - *Endocrinology/Metabolism*** - The elective will help the student to develop an understanding of basic pathophysiology of endocrine diseases with emphasis on clinical endocrinology; including diabetes mellitus (I & II) and inpatient/outpatient management. It also acquaints the student with home glucose monitoring, insulin therapy and acute/chronic complications of the disease. Students will become familiar with thyroid disorders, pituitary disorders, calcium metabolism, electrolyte disorders and adrenal disease. This elective may be served in the clinic, the hospital or in a physician's private office or a combination of sites. **Prerequisite: MEDI 501 – Internal Medicine Clerkship.**

**MEDI 630 - *Medical Oncology*** - During this elective students will learn how to manage common oncology problems such as pain, infection/sepsis/opportunistic disease and emergencies associated with cancer. They will be exposed to the interdisciplinary aspect of oncology and the cooperation necessary between the chemotherapy, radiation therapist and the surgical oncologist. Students will observe and participate in treating cancer patients as it evolves through interactive discussions between patient/family and oncologist and through the use of case studies. Students are expected to attend and participate in weekly tumor boards and breast cancer seminars. Special reading assignments may be made by the attending physician. **Prerequisite: MEDI 501 – Internal Medicine Clerkship.**

**MEDI 631 - *Emergency Medicine*** - This course is structured to develop an appreciation of the role of emergency physicians and the emergency department in a medical system and to develop clinical skills appropriate to this type of setting. It provides training in how to quickly develop good rapport with patients to elicit information needed for history-taking. The course is intended to help the student to quickly assess the situation and respond rapidly to diagnose, treat and manage the patient. Students are expected to develop broad-based general medical and surgical skills as well. **Prerequisite: MEDI 501 – Internal Medicine Clerkship or SURG 501- Surgery Clerkship.**

**MEDI 635 - *General Medicine*** - This elective provides an overview of what to expect for the practice of general internal medicine. Students are expected to develop an appreciation of what is required of an attending physician when caring for inpatients as a member of an intern/resident team. Students are expected to perform essentially the same duties of an intern but with half the workload. They will participate in the management of assigned patients under the supervision of a resident. The sub-intern must attend conferences and attending rounds with the team as well as take call. A faculty preceptor is assigned to the student for regular supervision.

**MEDI 636 - *Clinical Management Elective*** - Students who participate in this four-week clerkship gain experience as a medical educator. The clerkship assists the senior student in developing teaching skills in the clinical and basic science setting. Principles of adult learning theory, effective teaching techniques and evaluation of clinical performance, including effective methods of giving feedback to trainees, are presented. There is emphasis on how to efficiently track physical diagnosis and clinical skills. The participant in the elective puts theory into practice by serving as an instructor for freshman and/or sophomore students in physical diagnosis and clinical interviewing. Participants also serve as evaluators of student performance during standardized patient examinations. By serving as teachers and evaluators, students enhance their own clinical skills. **Prerequisites: MEDI 501, SURG –501, PEDI – 501 and OBGY – 501 Clerkships. RADI - 601 is highly recommended but not required.**

**MEDI 638 - *Physical Medicine and Rehabilitation*** - Students who elect to take this course will work with York VA Medical Center in Murfreesboro, TN. They will become familiar with the psychiatry consultation services, including trauma (brain injury, spinal cord injury and multiple fractures), neurology, orthopedics and other diagnostic categories. They will have the opportunity to observe physical and occupational therapists, speech pathologists and audiologists individually or in a team approach regarding patient care. Students will also learn how to perform a functional examination and participate on the consult, outpatient clinic and electromyogram (EMG) services. **Prerequisites: MEDI 501- Internal Medicine and SURG – 501 – Surgery Clerkships..**

**MEDI 640 – *Geriatrics*** - This course provides the student with the didactic and clinical care experiences associated with the aging patient. It focuses on the interdisciplinary approach for assessment and management of elderly patients from those who are still active, functional and ambulatory, as well as those who are considered frail. Students are introduced to settings that include multiple components of the care continuum such as ambulatory clinics, day hospitals, acute inpatient hospitalization, long-term care facilities and rehabilitation. Students work with health professionals from a variety of disciplines to develop skills in evaluating and treating medical problems unique to the elderly. **Prerequisites: MEDI 501- Internal Medicine**

**MEDI 643 - *Medical Research*** - This elective in clinical research guides the student in activities which may ultimately produce a manuscript that is suitable for submission to a peer review journal. Students participate in chart and/or literature reviews and assist in designing and conducting clinical research studies. If the manuscript is suitable, it may be submitted in abstract form to a scientific meeting for possible presentation. This elective may take longer than the normal 4-week period based on the project selected, and is prearranged between a clinical researcher in the Department of Internal Medicine and the student.

## *Department of Neurology*

**Chair:** Patrick A. Griffith, M.D.

**Associate Professors:** Kenneth Gaines, M.D., Ruth Garrett, Ph.D.

**Assistant Professors:** Pradumna Singh, M.D., Robert Clark, Ph.D.

**Adjunct Assistant Professor:** Amir Arain, M.D., Vanderbilt School of Medicine

### **COURSE DESCRIPTION**

**PSYC 601 – Psychiatry/Neurology Clerkship** - This required senior clerkship is a shared four-week rotation with the Department of Psychiatry and Behavioral Sciences allowing the student neurology and psychiatry clinical experiences throughout the Nashville community. The goal of the neurology component is to teach the principles and skills underlying the recognition and management of the neurologic diseases a general medical practitioner is most likely to encounter in practice. Additional neurology exposure will occur on the consultative neurology service and diagnostic testing at Nashville General Hospital and surrounding hospitals in the Nashville/Murfreesboro region.

### **ELECTIVE COURSE**

**MEDI – 622 – Neurology Elective** - The general neurology rotation gives the student an opportunity to experience the full breadth of general neurology not seen during the Internal Medicine core clerkship. The student will participate on the inpatient neurology consultation service and in neurology clinics at Nashville General Hospital. In addition students will participate in neurophysiologic diagnostic services (EEG and EMG) and will attend the Memory Disorders Clinic. Specialized instruction will be provided for epilepsy, stroke, migraine treatment and peripheral nerve disorders. This course can not be substituted for PSYC 601.

## *Department of Obstetrics and Gynecology*

**Chair:** Valerie Montgomery Rice, M.D.

**Professors:** Marie del Pilar Aguinaga, Ph.D., PonJola Coney, M.D., Janice Whitty, M.D.

**Associate Professors:** Harold Bernard, M.D., Edward Hills, M.D., Fons Amaye-Obu, M.D., Gwinnett Ladson, M.D.

**Assistant Professors:** Anthony Archibong, Ph.D., Phillip Bourne, M.D., Ann Marie Flores, Ph.D., Stephanie Sweet, M.D., Vernita Tucker, M.D., Dineo Khabele, M.D., Naomi Sudeen-Paschall, M.D.

**Instructors:** Donald Bruce, M.D., Sandra Torrente, M.D.

**Professor Emeritus:** Henry W. Foster, M.D.

### **OBJECTIVES**

The Department of Obstetrics and Gynecology provides an academic and clinical environment conducive to the education and support of students, residents, faculty and staff, wherein the highest standards of obstetrics and gynecology are taught and practiced. The curriculum is designed to provide a thorough knowledge of obstetrics and gynecology, to encourage each student to consider advanced training in obstetrics and gynecology or another primary care field and to encourage faculty and student development through clinical and basic research.

The objective in the third and fourth years is to increase the academic and clinical awareness of students by providing them with greater exposure to a variety of obstetrical, gynecological and neonatal problems to enhance clinical correlation skills. Students actively participate in supervised patient examination and management. They are expected to take an active part in the seminars, grand rounds and demonstrations. Students are specifically assigned to attend and participate in the activities of the labor, delivery and operating rooms. They perform uncomplicated deliveries and minor surgery under supervision of the clinical staff.

### **COURSE DESCRIPTIONS**

OB/GYN 501 - ***Clerkship in Obstetrics and Gynecology*** - This course is designed to help medical students become familiar with many of the usual and unusual gynecological and obstetrical problems that will confront them, especially during their postgraduate training periods and to encourage them to cultivate the initiative and sober judgment necessary in the mastery of these problems. To achieve this objective, students are assigned to smaller groups, which rotate alternately on the obstetrical or gynecological service while gaining specific exposure to various aspects of the field. Students are required to attend weekly grand rounds, daily bedside rounds, weekly clinical pathology conferences and perinatal mortality conferences. Emphasis is placed on history-taking, physical examination, case presentation, diagnosis, clinical management, testing and laboratory. Audiovisuals, student-controlled seminars, lectures and clinical demonstrations are used liberally.

## ELECTIVE COURSES

**OBGY 602 - *Obstetrics and Gynecology Electives*** - Four-week elective courses in obstetrics and gynecology are offered each rotation during the academic year. The course is open to students in the fourth year. The primary objective of the elective is to stimulate interested students, at an early stage of their career, in the field of obstetrics and gynecology. Each student is responsible for reviewing the anatomy and physiology of the female reproductive system. The senior student choosing an elective in OB/GYN is expected to gain advanced experience closely akin to an internship (sub-internship). External electives require approval by the departmental chairperson or clerkship director.

**OBGY 603 - *Reproductive Endocrinology and Infertility Elective*** - Over a four-week period, students engaged in the Obstetrics and Gynecology clerkship will be expected to gain a thorough fundamental knowledge of reproductive endocrinology, infertility and related topics as outlined in the Education Objectives of the Association of Professors of Gynecology and Obstetrics (APGO). These objectives include an understanding of normal and abnormal puberty, amenorrhea, hirsutism and virilization, normal and abnormal uterine bleeding, dysmenorrhea, climacteric, infertility and premenstrual syndrome.

**OBGY 604 – *Research Elective*** – This is an eight- to 12-week elective, depending on research project and allows the student to implement a research project with a faculty member from the Department of OB/GYN. Students will be trained in the basic skills necessary to do research, including observation, development of hypothesis, experimental design, statistical analysis, interpretation of results, drawing of conclusions and writing of research report. The student is required to present data at student research day or a national meeting.

**OBGY 605 - *Maternal and Fetal Medicine*** - The four-week maternal and fetal medicine ("MFM") elective will consist of the following: office ultrasound, dating and fetal anatomy survey, exposure to fetal malformations, biophysical profile, prenatal care, amniocentesis, perinatal consult, genetic consult and periconceptual counseling. Students will participate in night calls and obstetrical procedures, including episiotomy, instrumental delivery, caesarean sections and cerclage procedures. Students will learn when to refer high-risk obstetrical patients to MFM, to perform obstetrical pelvic exams and to offer prenatal care. Additionally, students will analyze and interpret fetal surveillance, such as monitoring antepartum and intrapartum. Students will participate in all didactic sessions for obstetrics, as well as participate in high risk obstetrical conferences, perinatal/neonatal conferences, weekly case presentations and other departmental continuing medical education programs related to obstetrics. Students will choose a clinical topic for research, conduct a literature review and submit a paper suitable for publication.

## *Department of Pediatrics*

**Interim Chair:** Brahm Prash, M.D.

**Associate Professors:** Olayinka O. Onadeko, M.D., Brahm N. Parsh, M.D.

**Assistant Professors:** Shana Choudhury, M.D.

**Adjunct Professor:** Arnold W. Strauss, M.D.

**Adjunct Assistant Professor:** Vernat Exil, M.D.

**Volunteers:** Mina Baisch, F.N.P., Susan Campbell, M.D., Karen Cummins-Mark, F.N.P., James R. Hanely, M.D., Sarah Hessell, M.D., Sami Ismail, M.D., Margareet Johnson, M.D., Hadeer Karmo, M.D., Deidra Lanier, M.D., John Christian Taylor, F.N.P., Bernard Wiggins, M.D.

**Emeritus Professors:** E. Perry Crump, Sr., M.D., Saburo Hara, M.D.

### **OBJECTIVES**

The general objective is to equip students with a broad insight into the principles and problems of pediatrics. The aim is also to imbue students with a propensity and readiness for the application of basic science principles in the analysis and study of the clinical problems of pediatric patients.

### **COURSE DESCRIPTION**

**PEDI 501 - Pediatric Clerkship** - During a period of eight weeks, students are assigned to clinical duties in the inpatient and outpatient settings. Students obtain patients on rotation as they are admitted to the Nashville General Hospital or Vanderbilt Children's Hospital. They also see patients in the Meharry Pediatric Clinic, Matthew Walker Comprehensive Health Center and private office settings. Students have the opportunity to perform Clinical Laboratory Improvement Amendments (CLIA) waivered laboratory tests in the work-up of their cases. To ensure greater depth and more insight into the clinical problems presented by their cases, students are required to engage in certain unique supplementary diagnosis and therapeutic exercises in completing the study of the problems that the patient presents. Apart from formal lectures by the faculty on common pediatric problems, small group conferences, preferably at the bedside, are held and at that time the student's work and understanding of the patient's disease processes are discussed and evaluated. Demonstrations of the techniques of examining infants and children are given and supervised practice opportunities are provided so that each student achieves some degree of proficiency. In addition, students are given computerized cases to complete weekly. A simulated skills lab is available and allows for procedural techniques to be perfected. Attendance is required at ward rounds, ambulatory clinics and the weekly pediatric grand rounds, pediatric x-ray conference, case (morbidity and mortality) conferences and Clinical Pathology Conference (CPC).

### **ELECTIVE COURSES**

Electives in pediatrics are available to fourth year medical students. These electives can be tailor-made to suit students desiring to increase expertise in ambulatory, primary care, endocrine, newborn intensive care unit (NICU) or research. The student is expected to participate in all didactic lectures and conferences as available.

## *Department of Psychiatry and Behavioral Sciences*

**Chair:** Samuel Okpaku, M.D.

**Associate Professors:** Erlete Ascencao, Ph.D., Edna Lockert, Ph.D.

**Assistant Professors:** Gladys Bush, M.D., Mitchell Parks, M.D., William Mays, M.D.

**Adjunct Professor:** Harold Jordan, M.D.

**Adjunct Assistant Professors:** Susie Adams, M.S.N., A.P.R.N., BC Vanderbilt University, School of Nursing, Psychiatry Section; Judy Regan, M.D., Vanderbilt University, School of Medicine, Dept. of Psychiatry;

**Professor Emeritus:** Lloyd C. Elam, M.D.

**VA Murfreesboro:** Sreenivasa R. Mogali, M.D., Assistant Professor and Education Coordinator, David Busby, M.D., Assistant Instructor, Indira Challa, M.D., Instructor, Beverly M. Go, M.D., Assistant Professor, Gladys Gregory, M.D., Instructor, Ranjit Mallick, M.D., Instructor, Raleigh Marlin, M.D., Assistant Professor, Family Medicine, Madhusuellman Mudium, M.D. Associate Professor, Syed Rashid, M.D., Instructor, Mohammed Saadatnejadi, M.D., Instructor, Rao U. Tammareddi, M.D., Instructor, Joan Woods, M.D., Associate Professor

**Volunteers:** Ronald Asta, M.A., Karen Briggs, M.D., Suzanne Butler, M.D., Melvin Ferguson, M.S., L.P.E., Wayne Greer, L.C.S.W., Joseph E. Hazelton, Ed.D., William Mays, M.D., Susan R. Vaught, Ph.D.

### **OBJECTIVES**

The teaching of clinical psychiatry has two major goals: 1) imparting knowledge about psychiatric conditions and 2) cultivating sensitivity to the patient as an individual whose unique attitude toward self and the physician often play an important part in the physician's ability to diagnose and treat the patient. This sensitivity characterizes the good physician in every specialty of medicine.

### **COURSE DESCRIPTIONS**

**PSYC 501 - *Psychiatry Clerkship*** – The junior clerkship period is four weeks during which students spend ten weekdays at one of several different inpatient psychiatric facilities learning about acute psychiatric patients and their management. The facilities include the VA Medical Center - Murfreesboro, Middle Tennessee Mental Health Institute, Tennessee Christian Medical Center and Parthenon Pavilion.

**PSYC 601 - *Psychiatry Clerkship*** - This senior clerkship period is a shared four-week rotation with the Department of Neurology allowing the student two weeks of outpatient psychiatry and neurology clinic experiences throughout the Nashville community. Didactic classroom activities are held in the Elam Mental Health Center. The facilities include the VA Medical Center - Murfreesboro, Middle Tennessee Mental Health Institute, Tennessee Christian Medical Center and Parthenon Pavilion.

## ELECTIVE COURSES

**PSYC 603 – *Addiction*** - Students will be exposed to a wide variety of clientele to receive detoxification treatment for various substances as well as suffering from a variety of mental illnesses. The center offers inpatient and outpatient adult drug and alcohol detoxification programs, including the Rainbow Unit (a residential detoxification program for addicted and pregnant women and their new babies). Students actively participate in treatment team meetings, group therapy, new patient assessments and work with physicians in several ongoing substance abuse research assessment projects in data collection and analysis.

**PSYC 602 - *Forensic Psychiatry*** - The forensics unit at Middle Tennessee Mental Health Institute incarcerates individuals who have been convicted of murder and have chronic psychiatric diseases. A second unit is an observation unit for individuals who have murder charges pending and the court system has ordered observation for the individual suspected of having a psychiatric illness. Activities include new patient assessment, follow-up and active participation in team meetings. Students may assist preceptors in the preparation of expert testimony in criminal cases.

**PSYC 604 – *Psychiatry Research*** – This is a four- to twelve-week elective depending on the project selected. Students will have opportunities to assist in research in the following areas: psychometrics, college-age binge drinking, substance abuse, psychopharmacology and the elderly, forensic psychiatry and forms of abuse leading to subsequent mood disorders.

**PSYC 901 - *Visiting Psychiatry*** - All visiting Psychiatry electives must receive prior approval by the Chairman. Interested students must provide an information sheet describing the elective from the outside institution along with contact person information. This course cannot be used in place of the required Senior Psychiatry (PSYC 601).

## *Department of Radiology*

**Chair:** Anthony Dishner, M.D.

**Associate Professor:** Michael Marks, M.D.

### ***Alvin C. York Veterans Affairs Medical Center Faculty***

**Assistant Professors:** Roland Breton, M.D., Behourz Aghebet-Khairy, M.D.

**Instructor:** Sandra A. Bates, M.D.

### **OBJECTIVES**

The objective of the Department of Radiology is to provide a basic understanding of imaging methods used to diagnose and treat disease. Radiographs of normal and pathological findings of the chest, gastrointestinal tract, bone, genitourinary, vascular and the neurological systems are discussed. Integration of imaging studies with knowledge of the basic and clinical sciences is stressed in evaluating diagnostic radiographic examinations. Also included are formal lectures covering Radiation Therapy, Radiation Biology, Interventional Radiology, Nuclear Medicine, Ultrasonography, Computed Tomography, Magnetic Resonance Imaging and current Radiation Safety during the rotation. In addition, the risks and cost benefits of the various imaging techniques are reviewed and analyzed in light of health care reform and cost containment.

### **COURSE DESCRIPTION**

**RADI 601 - Senior Radiology Clerkship** - This is a four-week rotation that is offered four times a year. The format includes lectures and presentations that are held in the Learning Resources Center four hours each morning. An organ system approach is utilized and incorporates all imaging modalities. Students are also encouraged to attend interdisciplinary conferences that are held jointly with other clinical departments. Emphasis is given to the evaluation of the various imaging modalities and the formulation of a differential diagnosis by the clinic delivering primary or specialty care to the patient. The emphasis of the course is the development of a series of basic concepts on how to use imaging studies for the improvement of patient care, particularly in the managed care environment.

### **ELECTIVE COURSE**

**RADI 602 - Radiology Elective** - Electives in radiology are offered to students in their senior year. The students are introduced to the various subspecialty areas of radiology, including diagnostic, ultrasound, CT, MRI and nuclear medicine in actual clinical settings. The opportunity to evaluate imaging studies as they are being performed and interpreted is the focus of this elective. Emphasis is placed on proper selection and sequencing of studies as well as the differential diagnostic approach to interpretation. Students are assigned topics to research from the literature based upon clinical discussions.

## *Department of Surgery*

**Chair:** Steven Stain, M.D.

**Professor:** Thomas Limbird, M.D.

**Associate Professors:** Carlton Z. Adams, M.D., William Bacon, M.D., Antoinne Able, M.D., Victor Braren, M.D., Flora Ukoli, M.B.B.S., M.P.H.

**Assistant Professors:** Reginald Coopwood, M.D., Alphonse Pasipanodya, M.D., Ana Grau, M.D., Bhaskar Reddy, M.D., Patrick Souris, M.D., Sabina Francis, M.D., Olufemi Adegoke, M.B.Ch.B., Dr.P.H., Stephania Miller, Ph.D., Barbara Zhao, Ph.D., Alecia Malin, Ph.D.

### **COURSE DESCRIPTION**

**SURG 501 – *Surgery Clerkship*** - The junior surgical clerkship is served in a twelve-week block in the third year of medical school. During this time students are exposed to general surgery, the surgical specialties and the emergency medicine division at Nashville General Hospital, the Alvin C. York Veterans Administration Medical Center and the Blanchfield Community Army Hospital. Principles of acute trauma life support are incorporated into the rotation. Students are exposed on a rotating basis to evening call and the emergency room. In this role, they serve as a part of the health care team with active participation in the patient's care, under adequate supervision of staff and full- and part-time surgical specialists.

### **ELECTIVE COURSES**

**SURG 615 – *Anesthesiology*** - The goal of this course is to train students in the skill of basic airway management. This includes supplemental oxygen support, bag-mask ventilation and tracheal intubation. Intravenous catheter placement is taught, and the student is expected to develop an understanding of inhalation, intravenous and local anesthetics. The student also is expected to actively participate in the perioperative evaluation and management of patients undergoing general and regional anesthesia.

**SURG 619 - *Emergency Surgery*** - The basic purpose of this clerkship is to familiarize the student with the diagnostic and therapeutic skills for managing medical emergencies. The student is expected to learn the basic principles of emergency medical care. The student is required to research and present a topic in emergency medicine.

**SURG 616 - *General Surgery*** - This senior elective rotation is four weeks in duration and can be taken upon successful completion of the junior clerkship. The experience is designed to approximate that of an intern and consists of assignments to the operating room, outpatient clinics and inpatient service. Evaluation is made by direct observation of the attending staff. Students are required to keep a log of their surgical cases and clinical experiences.

**SURG 602 – *Ophthalmology*** - The student is required to review the ocular/orbital anatomy and learn the differential diagnosis of red eye, acute visual loss and chronic visual loss. The student will be taught to recognize the ocular manifestations of systemic disease, especially diabetes mellitus. Also the student will be an active participant in the OR and observe ophthalmic and laser surgeries performed in the clinic.

**SURG 611 – Orthopedics** - The student will gain a basic knowledge of the anatomy, physiology and pathology of the musculoskeletal system and a basic understanding of diagnostic imaging studies that are useful in the evaluation of musculoskeletal problems. The student will be instructed in foundational information about the etiology, clinical presentation and treatment regarding diseases and disorders (trauma or non-trauma) encountered in an orthopedic practice.

**SURG 612 – Otolaryngology** - The student should be able to perform a thorough head and neck exam and understand the pathophysiology of common head and neck diseases and disorders in both adults and children. The student will be taught to describe common medical and surgical treatment of these problems, indications for surgical procedures and have a basic understanding of audiometry.

**SURG 620 - Rehabilitation Medicine** - The student should have a basic knowledge of the anatomy, physiology and pathology of the musculoskeletal system. Students will participate in the outpatient evaluation and management of patients, hospital rounds and will assist in the clinic with spinal cord injury patients.

**SURG 614 – Urology** - The student is expected to acquire a basic fundamental knowledge regarding the etiology, presentation and management of common urologic conditions. Materials for reading and review will be provided to the student at the outset of the rotation. The student will be expected to participate on hospital rounds and assist in the operating room.