Academic Catalog

2016-2017

Integrity

Innovation

Service

Wisdom

Excellence

Knowledge

Morehouse School of Medicine

The 2016-2017 Morehouse School of Medicine's catalog is considered the source for academic and programmatic requirements for students entering programs during the summer 2016, fall 2016, spring 2017 and summer 2017 semesters. Although this catalog was prepared using the best information available at the time, all information is subject to change without notice or obligation. MSM claims no responsibility for errors that may have occurred during the production of this catalog. For current calendars, tuition rates, requirements, deadlines, etc. students should refer to the registrar's office website: http://www.msm.edu/Officeoftheregistrar/index.php for the semester in which they intend to enroll.

The courses listed in this catalog are intended as a general indication of Morehouse School of Medicine's curricula; therefore, courses and programs are subject to modification at any time. Not all courses are offered every semester, and faculty teaching particular courses or programs may vary from time to time. The content of a course or program may be altered to meet particular class needs.

Morehouse School of Medicine

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CAMPUS MAP

Morehouse School of Medicine

The future miracles of medicine and science are predicated on the innovation, passion, and dedication of young bright minds eager to provide solutions to health challenges across the globe. For 40 years, Morehouse School of Medicine (MSM) has trained physicians, scientists, and health care professionals dedicated to improving the lives and well-being of individuals and communities with an emphasis on underserved and vulnerable populations in Georgia, the nation and the world.

Now as we usher in a new era in the history of MSM with the launch of our 2015-2020 strategic plan, we must move beyond cataloguing health disparities to the creation and advancement of health equity. The foundation is being laid for a future that is predicated on team-based medicine to meet the demands of a dynamic health care landscape.

Morehouse School of Medicine provides a unique nurturing environment for faculty, residents, and students to hone their research, clinical skills, and public health acumen to ensure patients and communities have access to the necessary resources and care to achieve an optimal level of health.

Closing the gaps in patient care and health outcomes will require us to think differently and act boldly. Our rigorous academic courses and degree programs are designed to provide each student with an interdisciplinary insight in medicine. Our various learning communities ensure that we educate students that are culturally competent and understand the value of cognitive diversity. Moreover, through aggressive community engagement, we are advancing the mission of Morehouse School of Medicine beyond the boundaries of our campus and directly into the lives and families we serve.

It is my hope that you feel inspired and empowered to navigate your career as a health care professional. I challenge you to personify core values of Morehouse School of Medicine: knowledge, wisdom, excellence, service, integrity, and innovation.

Sincerely,

Valerie Montgomery Rice, M.D.
President and Dean

Medical Degree (MD)

MEDICAL DEGREE (MD)	
Fall 2016 Semester Calendar	
First Year Students	
Orientation	**Wed. Jun. 29 – Fri. July 1, 2016 8:30am**
Independence Day	***Mon. July 4, 2016 (Holiday)***
Fall 2016 Semester Classes Begins	**Tues. July 5, 2016**
Labor Day	***Mon. Sept. 5, 2016 (Holiday)***
Convocation (White Coat Ceremony)	Fri. Sept. 16, 2016
Constitution Day (Observed Fri. Sept. 16, 2016)	Sat. Sept. 17, 2016
Thanksgiving Break	***Thurs. Nov. 24 – Fri. Nov. 25, 2016***
Last Day of Class	***Wed. Dec. 14, 2016***
Winter Break	***Mon. Dec. 19, 2016 – Mon. Jan.2, 2017***
Spring Semester 2017 Calendar	
New Year's Day (Sun. Jan. 1, 2017)	**Mon. Jan 2, 2017 (Holiday)**
Spring Semester Begins	**Tues. Jan. 3, 2017**
M. L. King Jr. Holiday	***Mon. Jan. 16, 2017 (Holiday)***
Research Day	Wed. Feb 8, 2017
Match Day	Fri. Mar. 17, 2017
Spring Break	***Mon. Mar. 20 – Fri. Mar. 24, 2017***
Good Friday	***Fri. Apr.14, 2017 (Holiday)***
End of Term Exams	***Fri. May 19, 2017***
Last Day of Class	***Fri. May 19, 2017***
Grade Posting Period	
Fall Semester 2016 Academic Calendar	
Second Year Students	**Second Year Students**
Orientation	**Mon. Aug. 8, 2016 9:00am**
Fall 2016 Semester Begins	**Tues. Aug. 9, 2016 8:30am**
Labor Day	***Mon. Sept. 5, 2016 (Holiday)***
Convocation (White Coat Ceremony)	Fri. Sept. 16, 2016
Constitution Day (Observed Fri. Sept. 16, 2016)	Sat. Sept. 17, 2016
Thanksgiving Break	***Thurs. Nov. 24 – Fri. Nov. 25, 2016***
Winter Break	
Spring Semester 2017 Academic Calendar	
New Year's Day (Sun. Jan. 1, 2017)	**Mon. Jan 2, 2017 (Holiday)**
Spring 2017 Semester Begins	Tues. Jan. 3, 2017
M. L. King Jr. Holiday	***Mon. Jan. 16, 2017 (Holiday)***
Research Day	Wed. Feb. 8, 2017
Match Day	Fri. Mar. 17, 2017
Spring Break	***Mon. Mar. 20 – Fri. Mar.24, 2017***
Good Friday	***Fri. Apr. 14, 2017 (Holiday)***
Last Day of Class	***Fri. May 19, 2017***
Memorial Day	***Mon. May 29, 2017 (Holiday)***
Deadline for USMLE Step I Exam	**Fri. June 30, 2017**

Medical Degree (MD)

MEDICAL DEGREE (MD)	
Fall Semester 2016 Calendar	
Third Year Students	
Orientation	**Fri. July 1, 2016** 9:00am
Student Clinician Ceremony	**Fri. Jul. 1, 2016** 6:30pm
Independence Day	***Mon. Jul. 4, 2016***
Fall Semester Classes Begins	Tues. Jul. 5, 2016
Labor Day	***Mon. Sept. 5, 2016 (Holiday)***
Convocation (White Coat Ceremony)	Fri. Sept. 16, 2016
Constitution Day (Observed Fri. Sept. 16, 2016)	Sat. Sept 17, 2016
Thanksgiving Break	***Wed. Nov. 23@5:00pm – Fri. Nov. 25, 2016***
Spring Semester 2017 Academic Calendar	
New Year's Day (Sun. Jan. 1, 2017)	**Mon. Jan 2, 2017 (Holiday)**
Spring Semester Classes Begins	Tues. Jan. 3, 2017
M. L. King Jr. Holiday	***Mon. Jan. 16, 2017(Holiday)***
Match Day	Fri. Mar. 17, 2017
Career Day in Medicine Workshops	Sat. Mar. 18, 2017
Good Friday	Fri. Apr. 14, 2017 (Holiday)
Spring Break	***Fri. Mar. 14 – Sun. Mar. 16, 2017***
Memorial Day	***Mon. May 29, 2017 (Holiday)***
Clinical Comprehensive	Sat. June 4, 2017
Last day of classes	Friday Jun. 16, 2017
Fall Semester 2016 Calendar	
Fourth Year Students	
Orientation	**Fri. Jun. 17, 2016 2:00pm**
Rotation I	Tues. Jul. 5 – Fri. Jul. 29, 2016
Rotation II	Mon. Aug. 1 – Fri. Aug. 26, 2016
Labor Day	***Mon. Sept. 5, 2016 (Holiday)***
Convocation (White Coat Ceremony)	Fri. Sept. 16, 2016
Constitution Day (Observed Fri. Sept. 16, 2016)	Sat. Sept 17, 2016
Rotation III	Mon. Aug. 29 – Fri. Sept. 23, 2016
Rotation IV	Mon. Sept. 26 – Fri. Oct. 21, 2016
Rotation V	Mon. Oct. 24 – Fri. Nov. 18, 2016
Rotation VI	Mon. Nov. 21 – Fri. Dec. 16, 2016
Thanksgiving Break	***Thurs. Nov. 24 – Fri. Nov. 25, 2016***
Application for Graduation Deadline (May 2017 Graduates)	Fri. Dec. 2, 2016
Winter Break	***Sat. Dec. 17, 2016 – Mon. Jan.2, 2017***
Spring Semester 2017 Calendar	
Rotation VII	Mon. Jan. 3 – Fri. Jan. 27, 2017
M. L. King Jr. Holiday	***Mon. Jan. 16, 2017 (Holiday)***
Rotation VIII	Mon. Jan 30 – Fri. Feb. 24, 2017
Rotation IX	Mon. Feb. 27 – Fri. Mar. 24, 2017
Match Day	Fri. Mar. 17, 2017
Spring Break	***Fri. Mar. 24, 2017 - Sun. Mar.26, 2017***
Rotation X	Mon. Mar. 27 – Fri. Apr. 21, 2017
Rotation XI	Mon. Apr. 24 – Fri. May 19, 2017
Commencement Rehearsal	Wed. 17, 2017
Class Day Program	Fri. May 19, 2017
Commencement	Sat. May 20, 2017
Spring Graduation Conferral Date	May 20, 2017

Medical Degree (MD)-Rotation

Dates for individual 3rd year rotations are as follows:
12 Week Rotation Schedule
Tues. Jul. 5- Fri. Sept. 23, 2016
Mon. Sept 26-Fri. Dec. 16, 2016
Winter Break- Sat. Dec. 17, 2016- Mon. Jan. 2, 2017
Tues. Jan. 3 - Fri. Mar. 24, 2017
Mon. Mar. 27- Fri. Jun. 16, 2017
8 Week Rotation Schedule
Tues. Jul. 5- Fri. Aug. 26, 2016
Mon. Aug. 29- Fri. Oct. 21, 2016
Mon. Oct. 24 - Fri. Dec. 16, 2016
Winter Break- Sat. Dec. 17, 2016- Mon. Jan. 2, 2017
Tues. Jan. 3 - Fri. Feb 24, 2017
Mon. Feb. 27- Fri. Apr. 21, 2017
Mon. Apr. 24-Fri. Jun. 16, 2017
6 Week Rotation Schedule
Tues. Jul. 5- Fri. Aug. 12, 2016
Mon. Aug. 15- Fri. Sept. 23, 2016
Mon. Sept. 26- Fri. Nov. 4, 2016
Mon. Nov.7 - Fri. Dec. 16, 2016
Winter Break- Sat. Dec. 17, 2016- Mon. Jan. 2, 2017
Tues. Jan. 3- Fri. Feb 10, 2017
Mon. Feb. 13- Fri. Mar. 24, 2017
Mon. Mar. 27- Fri. May 5, 2017
Mon. May 8- Fri. Jun. 16, 2017

GRADUATE EDUCATION IN BIOMEDICAL SCIENCES (GEBS) (PhD, MSBR, MSBT, MSCR, MSMS)	
Fall Semester 2016 Calendar	
GEBS Orientation	Thur. Aug. 4 – Fri. Aug. 5, 2016
Fall Semester Begins (Continuing students)	Fri. July 1, 2016
Fall Semester Begins (New students)	Mon. Aug. 8, 2016
Add/Drop (Continuing students)	Fri. Jul. 8, 2016
Add/Drop (New students)	Fri. Aug. 26, 2016
Application for Graduation Deadline (December 2016 Graduates)	Fri. Sept. 30, 2016
Labor Day	***Mon. Sept. 5, 2016 (Holiday)***
Convocation	Fri. Sept. 16, 2016
Constitution Day (Observed Fri. Sept. 16, 2016)	Sat. Sept. 18, 2016
Fall Break (1st Year PhD, MSBR, MSBT, MSCR, MSNS)	Thurs. Oct. 13 – Fri. Oct. 14, 2016
Advisement Week	Mon. Oct. 24 – Fri. Nov. 4, 2016
Last Day to Withdraw from a Course with a "W" Grade	Mon. Oct. 31, 2016
Registration for Spring	Mon. Nov. 7– Fri. Nov. 30, 2016
Cross Registration/ ARCHE Deadline (Spring Semester 2017)	Tues. Nov. 15, 2016
Thanksgiving Break	***Thurs. Nov. 24 – Fri. Nov. 25, 2016***
Absolute Completion Deadline (December 2016 Graduates)	Thurs. Dec. 1, 2016
Application for Graduation Deadline (May 2017 Graduates)	Fri. Dec 2, 2016
Reading Days	Thurs. Dec. 1 – Fri. Dec. 2, 2016
Last Day of Classes	Fri. Dec. 2, 2016
Final Exams	Mon. Dec. 5 – Tues. Dec. 13, 2016
Grade Posting Period	Sat. Dec 10 – Fri. Dec 16, 2016
Fall Graduation Conferral Date (MS & PhD Students)	Dec. 31, 2016
Winter Break	***Mon. Dec. 19, 2016 – Mon. Jan. 2, 2017***
Spring Semester 2017 Academic Calendar	
New Year's Day (Sun. Jan 1, 2017)	***Mon. Jan 2, 2017 (Holiday)***
First Class Day	
Drop/Add Period	Thurs. Jan. 5, 2017
M. L. King Jr. Holiday	***Mon. Jan. 16, 2017 (Holiday)***
Qualifying Exam Part I (MS Students)	Fri. Jan. 27 and Mon. Jan. 30, 2017
Research Day	Wed. Feb. 8, 2017
Advisement	Mon. Mar. 6 – Fri. Mar. 17, 2017
Registration for Fall 2017 (Continuing Students)	Mon. Mar. 13 – Fri. Mar. 31, 2017
Last Day to Withdraw from a Course with a "W" Grade	Thurs. Mar. 17, 2017
Spring Break (All 1st Year Students Only)	Mon. Mar. 20 – Fri. Mar. 24, 2017
Good Friday	***Fri. Apr. 14, 2017 (Holiday)***
Last Day of Classes for Graduating MSMS Students	Fri. Apr. 28, 2017
Final Exams for Graduating MSMS Students	Mon. May 1 – Thurs. May 4, 2017
Absolute Completion Deadline (May 2017 Graduates)	Mon. May 1, 2017
Grade Posting for Students Graduating May 2017	Mon. May 1 – Sun. May 7, 2017
Last Day of Classes (MSBR, MSBT, MSMS)	Fri. May 5, 2017
Final Exams	Mon. May 8 – Thurs. May 12, 2017
Grade Posting Period	Fri. May 12 – Fri. Jun. 30, 2017
Class Day Program	Fri. May 19, 2017
Commencement	Sat. May 20, 2017
May 2017 Conferral Date	May 20, 2017
Qualifying Exam Part I (PhD Students)	Thurs. Jun. 1 – Fri. Jun. 2, 2017 and Mon. Jun. 5, 2017
Last Day of Classes (MSCR, MSBR, PhD Students)	Fri. June 30, 2017
Independence Day	***Tues. Jul. 4, 2017 (Holiday)***
Cross Registration ARCHE Deadline for Fall 2017	Mon. Jul. 15, 2017

Master of Public Health (MPH)

MASTER OF PUBLIC HEALTH (MPH)	
Fall Semester 2016 Calendar	
Orientation	Thur. Aug. 4 – Fri. Aug. 5, 2016
Registration (1st students only)	Fri. Aug. 5, 2016
Fall Classes Begin	Mon. Aug. 8, 2016
Drop/Add Period	Mon Aug. 8 - Thur. 11, 2016
Labor Day	***Mon. Sept. 6, 2016 (Holiday)***
Convocation	Fri. Sept. 16, 2016
Constitution Day (Observed Fri. Sept. 16, 2016)	Sat. Sept. 17, 2016
Mid-Semester Exams	Mon. Sept. 26- Fri. Sept. 1, 2016
Last Day to Withdraw from a Course with a "W" Grade	Fri. Oct. 28, 2016
Fall Break (MPH students Only)	***Mon. Oct. 31 - Fri. Nov. 4, 2016***
Cross Registration/ ARCHE Deadline (Spring Semester 2017)	Tues Nov. 1, 2016
Open Registration for Spring	Mon. Nov. 7 – Fri. Dec. 2, 2016
Application for Graduation Deadline (May 2017 Graduates)	Fri. Nov. 11, 2016
Thanksgiving Break	***Thurs. Nov. 24 – Fri. Nov. 25, 2016***
Last Day of Classes	Thurs. Dec. 1, 2016
Study Period	Fri. Dec. 2, 2016
Culminating Experience Presentations	Fri. Dec. 9, 2016
Final Exams	Mon. Dec 5. – Fri. Dec. 9 2016
Grades Due in the Registrar's Office	Fri. Dec 9 – Tues. Dec 13, 2016
Fall Semester Ends	Fri. Dec 16, 2016
Winter Break	***Mon. Dec. 19, 2016 – Mon. Jan.2, 2017***
December 2016 Graduation Conferral Date	Dec 31, 2016
Spring Semester 2017 Calendar	
New Year's Day (Sun. Jan 1, 2017)	***Mon. Jan 2, 2017 (Holiday)***
Spring 2017 Semester Begins	Tues. Jan. 3, 2017
Drop/Add Period	Mon. Jan 3- Fri. Jan. 6, 2017
M. L. King Jr. Holiday	***Mon. Jan. 16, 2017 (Holiday)***
Study Period	Fri. Feb. 17, 2017
Mid-Semester Exams	Mon. Feb. 20- Fri. Feb 24, 2017
Spring Break	***Mon. Feb. 27 – Fri. Mar. 3, 2017***
Last Day to Withdraw from a Course with a "W" Grade	Thurs. Mar 30, 2017
Application for Graduation Deadline (December 2017 Graduates)	Fri. April 7, 2017
Open Registration for Fall 2017 (Continuing Students)	Mon. Apr. 10 – Fri. July 7, 2017
Good Friday	***Fri. April 14, 2017***
Last Day of Classes	Thurs. Apr. 20, 2017
Study Period	Fri. Apr. 21, 2017
Final Exams	Mon. Apr.24 – Fri. Apr. 28, 2017
Culminating Experience Presentation	Fri. Apr. 28 and/or Mon May. 1, 2017
Grades Due in the Registrar's Office	Wed. May 3, 2017
Completion date for May Graduates	Wed. May 3, 2017
Spring 2017 Semester Ends	Fri. May. 5, 2017
Class Day Program	Fri. May 19, 2017
Commencement	Sat. May 20, 2017
Spring Graduation Conferral Date	May 20, 2017
Cross Registration/ARCHE Deadline for Fall 2017	Fri. Jul. 15, 2017

Morehouse School Of Medicine

Accrediting Organizations	First Accredited	Last Reaffirmed	Next Reaffirmation
* Southern Association of Colleges and Schools Commission on Colleges (SACS COC)			
Medical Education (MD) Philosophy (PhD) in Biomedical Science Master of Public Health Program (MPH) Master of Science in Neuroscience	1986	2014	2024
Liaison Committee on Medical Education (LCME)			
Medical Education	1985	2013	2021
Council on Education for Public Health (CEPH)			
Master of Public Health Program	1999	2007	2014
Joint Commission on Accreditation of Healthcare Organizations (JCAHO)			
Clinical Research Center	1997	2012	2015
Accreditation Council for Graduate Medical Education (ACGME)			
Graduate Medical Education Institutional Review (GME/IR)	1993	2015	2021
Family Medicine	1981	2015	2016
Internal Medicine	1991	2015	2017
Obstetrics and Gynecology	1996	2015	2019
Pediatrics	2000	2015	2015
Public Health and Preventive Medicine	1986	2015	2020
Psychiatry	1990	2015	2020
Surgery	1993	2015	2017
Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC)			
Center for Laboratory Animal Resources	2005	2011	2014
Accreditation Council for Continuing Medical Education (ACCME)			
Continuing Medical Education	1986	2013	2018

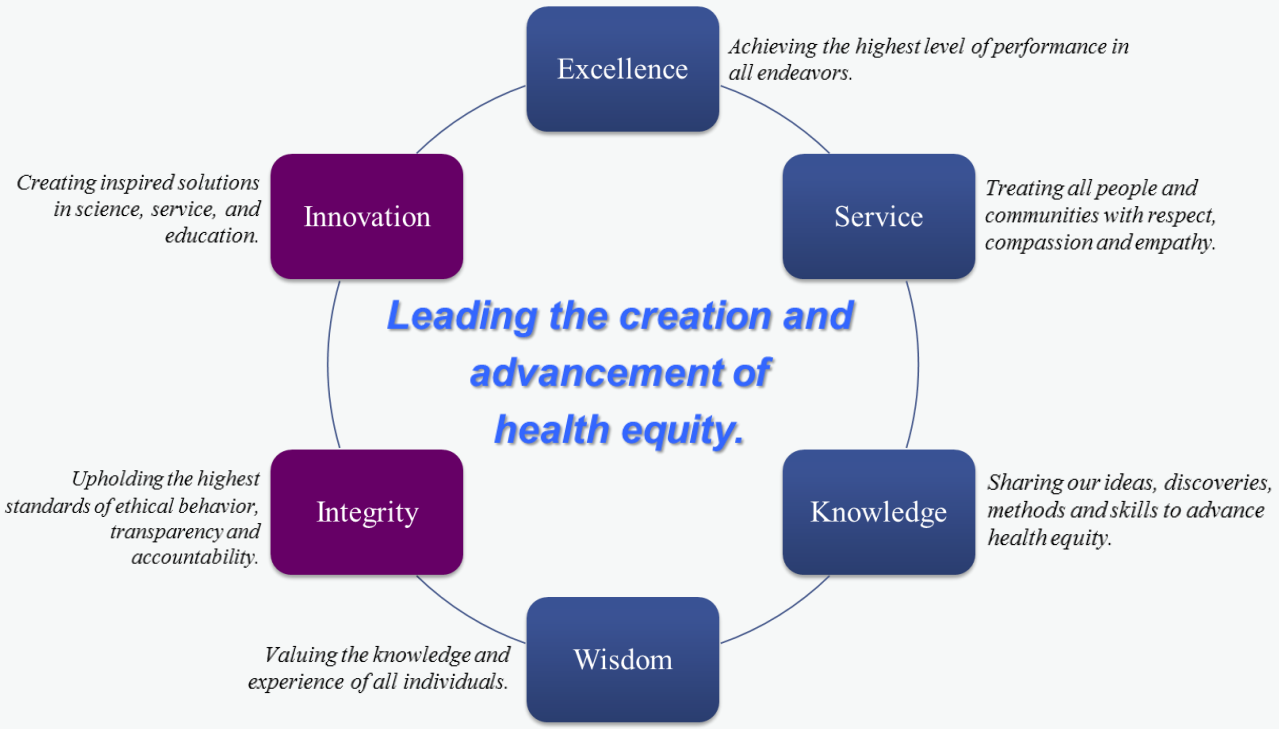
- Morehouse School of Medicine is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award doctorate and master degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 for questions about the accreditation of Morehouse School of Medicine.

ACCREDITATION

CORE VALUES

CORE VALUES

Guiding Organizational Behavior and Shaping the Future



Leading the creation and advancement of health equity.

Vision Imperatives

Translating Discovery into Health Equity

Building Bridges Between Healthcare and Health

Preparing Future Health Learners and Leaders

BOARD OF TRUSTEES

Morehouse School of Medicine

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Morehouse School of Medicine

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Director, Master of Science in Biomedical Research	Ward Kirlin, Ph.D.
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Director, Student Fiscal Affairs	Cynthia Handy
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Director, Public Safety and Emergency Preparedness and Chief of Police	Joseph R. Chevalier, Jr.
Registrar and Director of Student Information Systems	Angela Freeman, M.A.S.S.
Assistant Registrar	LaShander McQueen, MEd
Executive Director, Government Affairs	Daniel Dawes, J.D.
Chief Administrative Officer and Chief of Staff	Taya Scott, M.B.A.
Associate Vice President of Finance and Controller	Katherine Napier, E.D.B., CPA, CIA, CISA, M.B.A.
Associate Vice President of Academic Financial Services, Finance and Administration	TBD
Associate Vice President, Human Resources	Denise Brit
General Counsel	Almeta Cooper, J.D.
Chief Compliance Officer	TBD
Interim Chief Information Officer and Director	Torey Bradley

THE MISSION

We exist to:

- *Improve the health and well-being of individuals and communities;*
- *Increase the diversity of the health professional and scientific workforce;*
- *Address primary health care needs through programs in education, research and service;*

With emphasis on people of color and the underserved urban and rural populations in Georgia, the nation and the world.

History

Established in 1975 at Morehouse College as a two-year medical education program with clinical training affiliations with several established medical schools for awarding the M.D. degree, Morehouse School of Medicine (MSM) separated from Morehouse College in 1981 as an independently chartered institution. Over the ensuing years, MSM has evolved into one of the nation's leading community-based, primary care oriented, health sciences institutions, offering graduate degrees in: Biomedical Sciences (Ph.D.), Clinical Research (M.S.C.R.), Public Health (M.P.H.), Biomedical Research (M.S.B.R.), Biomedical Technology (M.S.B.T.), Bachelor of Science/Master of Science in Neuroscience (BS/MSNS), and Master of Science in Medical Sciences (M.S.M.S.) degrees.

MSM has seven accredited residency programs: Family Medicine (1981), Preventive Medicine (1986), Internal Medicine (1991), Psychiatry (1991), Surgery (1993), Obstetrics and Gynecology (1997), and Pediatrics (2000). The majority of MSM patient care and clinical training occurs at Grady Memorial Hospital, one of the largest public hospitals in the Southeast. The school's research stature and reputation have grown exponentially over the past decade.

In 2008, MSM ranked number three among the nation's community-based medical schools in research funding from the National Institutes of Health and among Georgia's four medical schools, MSM ranks number two. Moreover, MSM ranks in the top five of U.S. medical school with five or more Institute of Medicine (IOM) members, based on the ratio of the IOM members faculty size.

In 2010, MSM was recognized for being # 1 medical schools in the country among social missions, which represented a higher percentage of graduates who practice primary care, work in health professional shortage areas, and are underrepresented minorities.

Facilities and Other Resources

Most of the instruction in the preclinical courses for the MD program at MSM occurs in a 91,000 square foot facility that was constructed in 1982. The Hugh M. Gloster Basic Medical Sciences Building contains classrooms and laboratories, space for administration, faculty offices, an animal facility, and faculty research laboratories. There are 100 student capacity lecture halls, two multidisciplinary teaching laboratories (over 3,500 square feet for each) and a gross lab in this building. In 1987, construction of a 70,000 sq. ft. Medical Education Building that is attached to the Hugh M. Gloster Basic Medical Sciences Building was completed. The facility provided faculty office and research space and doubled the size of the library. This building also has group study rooms for students and a student lounge.

The Morehouse School of Medicine M. Delmar Edwards Library, physically located on the first floor of the Medical Education Building (MEB), provides information and learning resources for students, residents, faculty, staff, researchers, and the community. The Library houses open stacks of over 80,000 book and journal volumes, has areas for group and individual study, supports 24 hour Internet access to over 250 full-text electronic books and over 6,000 full text electronic journals, and is open 105 hours per week. Additional faculty offices, administrative offices, maintenance and repair shops, and central stores are contained in a second nearby, recently renovated structure of approximately 30,000 square feet.

In 1996, the School opened and dedicated a Multi-Disciplinary Research Center. It houses the Clinical Research Center, the Neuroscience Institute, and National Aeronautics and Space Administration programs. A research wing of the Medical Education Building opened in 2000 and houses the Cardiovascular Research Institute, Department of Pharmacology, Office of Sponsored Research Administration and the Division of Information Technology.

The National Center for Primary Care (NCPC) opened in 2002. The NCPC is a 106,000 square foot building on the campus of Morehouse School of Medicine, in the Atlanta University Center. The NCPC showcases a conference center with a 570-seat auditorium, large seminar room, small break-out rooms, and cafeteria for primary care and public health conferences. The Clinical Skills Laboratory within the NCPC is used to teach communication skills, as well as diagnostic and procedural skills, to students and practicing physicians. This facility, where our student have standardized patient experiences, has 12 simulation rooms, with 11 fully equipped like clinic rooms with cameras, microphones, video recording equipment, and a center teaching and monitoring area. This is adjacent to a 48 computer e-lab and small multipurpose classrooms. The building is the administration headquarters for NCPC leaders, researchers, and programs, and also home of the Masters in Public Health (MPH) Program, Preventive Medicine Residency Program, Faculty Development Program, and Center of Excellence on Health Disparities.

Facilities and Other Resources

The Morehouse School of Medicine has affiliations with the following Atlanta hospitals for major clinical teaching and research: Grady Memorial Hospital and Children's Healthcare of Atlanta at Hughes Spalding Hospital and at Scottish Rite Hospital, South Fulton Medical Center, and Atlanta Medical Center. There also exists an affiliation with the Central Alabama Veterans Health Care System in Tuskegee Alabama, Ridgeview Institute and Georgia Regional Hospital-Atlanta.

Clinical instruction for medical students and for residents is conducted at affiliated facilities. Third-year students do the major portion of their clinical clerkships at Grady Memorial Hospital, full-service hospital committed to offer medical services to the underserved including governmentally-sponsored populations. The hospital has over 800 beds and over 200 outpatient clinics (including community-based clinics). In a given year, there are over 40,000 admissions and over 750,000 outpatient encounters. Through agreements with Fulton-DeKalb Hospital Authority, Morehouse School of Medicine and Emory University School of Medicine share the responsibility for patient care and MSM is responsible for the education of its medical students and residents at Grady Memorial Hospital.

Third-year psychiatry instruction and the psychiatry residency training program occur in a number of clinical facilities throughout the Atlanta area. The facilities include: Georgia Regional Hospital, Ridgeview Institute, West Fulton Community Mental Health Center, Grady Memorial Hospital, the Tuskegee Veterans Medical Center, and the Atlanta Medical Center. The Family Medicine Residency, at the MMA Comprehensive Family Healthcare in East Point, Georgia, is located approximately 10 miles from the medical school. Third and fourth-year instruction in Family Medicine occurs at this facility.

Morehouse Healthcare (MH), Inc. is a separately incorporated faculty practice plan, staffed by MSM clinical faculty. It currently operates from three sites. The Family Practice Clinic operates as a branch of MH, and provides the patient-base for the Family Practice Residency program at the MH Comprehensive Family Healthcare Center in East Point, Georgia. At Grady Memorial Hospital, in-patient and out-patient care are provided on departmental services and residency programs in Medicine, OB/GYN and Surgery. The major facility for in-patient Pediatrics care is Children's Healthcare of Atlanta at Hughes Spalding Hospital. Private patients of our faculty receive hospital care at several Atlanta area hospitals. Also, there is a faculty practice site located at Howell Mill Road.

An essential part of MSM's educational mission is providing our medical students, graduate students and clinical trainees with faculty role models who are pursuing state-of-the-art research. Moreover, it is our educational philosophy that health care facilities that care for the underserved must play a leadership role in translational research that brings advances in basic science and clinical medicine to these special populations. We are in the top quarter of newer medical schools in total NIH research funds and at the 80th percentile in funds per faculty member in the basic science departments.

Facilities and Other Resources

Our research activities have resulted in the establishment of major research centers/ institutes:

- The **Cardiovascular Research Institute (CVRI)** was established in July 1999 as a Center of Research Excellence under the direction of Dr. Herman Taylor. The CVRI is funded in part by a grant from the NIH National Center for Minority Health and Health Disparities and the NIH Heart, Lung and Blood Institute program to develop cardiovascular research centers at Historically Black Colleges and Universities. The Institute is a multi-investigator, multi-disciplinary organization that transcends traditional academic departmental structures to focus on advancing cardiovascular research and education.

- Established in 1995, the **Morehouse School of Medicine Neuroscience Institute (MSMNI)** has active research projects addressing the molecular biology and physiology of circadian rhythms, signal transduction and modulation in the basal ganglia, regeneration of CNS neurons, functional imaging, and neurotoxicity associated with HIV infection. The projects are supported by core facilities in imaging, molecular biology, tissue culture, and histology. Dr. Guanluca Tosini is the Director.

- The **Center of Excellence on Health Disparities (CEHD)** was formed in 2002, under the leadership of Dr. David Satcher, Director of the Center of Excellence on Health Disparities, Poussaint-Satcher-Cosby Chair in Mental Health, in response to MSM's mission to improving the health and well-being of individuals and communities; increasing the diversity of the health professional and scientific workforce; and addressing primary healthcare needs through programs in education, research, and service, with emphasis on people of color and the underserved urban and rural populations in Georgia and the nation.

- Established in 2002, the **National Center for Primary Care (NCPC)** is a national resource for encouraging doctors to pursue primary care careers, for making primary care practice more effective, and for supporting primary care professionals serving in underserved areas. The mission of the National Center for Primary Care is to promote excellence in community oriented primary health care and optimal health outcomes for all Americans, with a special focus on underserved populations and on the elimination of health disparities. The NCPC team provides training for primary care practitioners, conducts practice-based research to improve health outcomes, creates protocols and tools for improving primary care effectiveness, and undertakes policy analyses focused on how to make primary care more accessible and more effective.

Facilities and Other Resources

- The **Clinical Research Center (CRC)** was established in 1996 at Morehouse School of Medicine in order to provide the infrastructure necessary for faculty at MSM to conduct clinical research. It was the first freestanding outpatient research facility of its kind in the nation to receive accreditation by the Joint Commission on Accreditation of Health Care Organization. In addition to core resources in Biostatistics, Bio-nutrition, Analytical Laboratory, Ultrasound, Nursing and Participant Recruitment, the CRC also supports a training program leading to a Master of Science in Clinical Research. The Community Physicians' Network extends the CRC's community outreach to support community based clinical trials. Dr. Elizabeth Ofili is the Director.

In addition to these major research centers/institutes, we also have programs that support a significant portion of our research and infrastructure efforts.

- The **Research Centers in Minority Institutions (RCMI)** program, funded continuously since 1986, provides significant support for our state-of-the art biomedical research technology core and shared-use facilities. The MSM RCMI Program mission is to provide the infrastructure, expertise, and atmosphere to enhance the process of biomedical research, developing our expertise in molecular, cellular, systems, organismal, and population approaches. This will provide a foundation for understanding the healthy state in humans, and allow investigation into the cause and treatment of important health problems, focusing on those that impact underserved populations. Dr. Vincent C. Bond is the Director.

- The **Minority Biomedical Research Support (MBRS)** program provides funds to support continuous research excellence, strengthen the institution's research capabilities, and provide opportunities for students to work as part of a research team. Dr. Sandra Harris-Hooker is the Director.

In support of the mission of MSM, the faculty has developed a wide variety of initiatives to promote the health of members of our community, state, and nation. Among these initiatives are breast and cervical cancer screening programs, the Health Promotion Resource Center, the Cancer Prevention Awareness Program, the Prevention Resource Center, and other similar programs. The Partnerships for Health Professions Education project supports an interlocking series of efforts to increase the numbers of African American applicants to medical schools including the Ben Carson Summer Program, the Medical Post for high school students, the Vivien Thomas Summer Research Program, focused partnerships with selected Atlanta area schools, and summer enrichment programs. The commitment to improving rural health-care and supporting practitioners is addressed in our Area Health Education Centers (AHEC) and Health Education and Training Centers (HETC).

Morehouse School of Medicine

TOGETHER WE ARE ON A MISSION!

Community Health & Preventive Medicine

Chairperson and Professor:	Beverly D. Taylor, MD
Professors:	Ronald L. Braithwaite, PhD Lee Caplan, MD, MPH, PhD Mary Langley, RN, MPH, PhD Robert Mayberry, PhD, MPH *Meryl McNeal, PhD *Herman Taylor, MD Henrie M. Treadwell, PhD
Associate Professors:	Peter Baltrus, PhD Carey Bayer, PhD, RN Virginia Floyd, MD Alula Hadgu, Dr. Ph Tabia K. Henry Akintobi, PhD, MPH Kisha Holden, PhD Rhonda C. Holliday, PhD Alma Jones, MD, MPH Stephanie Miles- Richardson, PhD Ifeoma Nnaji, MD Rakale Collins Quarrells, PhD Alexander Quarshie, MBChB, MS *Sarma Ramaseshu, MBBS LeRoy Reese, PhD Brian Rivers, PhD Ellen Yancey, PhD
Assistant Professors:	Oluwatoyosi Adekeye, MBBS Ernest A. Alema-Mensah, MS, DMin D. Elaine Archie-Booker, EdD Ijeoma Azonobi, MD Sherry Crump, MD Katherine Erwin, DDS, MSCR Gemechu Gerbi, PhD Natalie Hernandez, PhD, MPH Kofi Kondwani, PhD *Kimberly Redding, MD Desiree Rivers, PhD *Lawrence Sanders, MD, MBA

Community Health & Preventive Medicine

Jennifer Rooke, MD
Ruby Thomas, MD
Reinetta Thompson Waldrop, MSHS, DrPh
*Arletha Williams-Livingston, PhD
M. Robina Josiah Willock, PhD
Fengxia Yan, MD

Instructors:

Mary Kidd Davis, RN, MS
Megan Douglas, JD
Carla Durham Walker, MA
Gail McCray, MA
Jammie Hopkins, PhD
Latrice Rollins, PhD
Christian Thrasher, MA
Roland B. Welmaker, PhD
Angela Wimes, MA

Professor Emeritus:

Daniel S. Blumenthal, MD, MPH

Adjunct Faculty

Professors:

Paul Boumbulian, PhD
V. Ramana Dhara, MBBS, MPH
Leonard Jack, PhD
Patricia Rodney, PhD

Associate Professors:

Alexander Crosby, MD, MPH
Ayana Bucker, MD, MPH
Elvan Daniels, MD
James Griffin, PhD
William Jenkins, PhD, MPH, MS

Community Health & Preventive Medicine

Assistant Professors:	Alicia Best, PhD
	Cassandra Bolar, PhD, MPH
	Daphne Byrd, MS
	Caurence Cohen, MD
	Nazeera Dawood, M.B.B.S.
	Michael W. Early Sr., MD
	Norberto Fas, MD, MBA
	Susan Ford, MD
	Carlos Franco, MD
	Manjushree Ghose, MBBS, MD
	Alton Greene, MD, MPH
	Sandy D. Maclin, Mdiv, Dmin
	Nicole Martin, MD
	Tamer Middleton, MD, MPH
	Mae T. Morgan, MD
	Tuwanna Y. Morris, MD
	William A. Murrain, JD
	Chinyere Omeogu, MD, MPH
	Eric Phillips, MD, MPH
	Mona Saraiya, MD, MPH
	Pradnya B. Tambe, MBBS, MPH
	Raegan Tuff, PhD, MPH
	Yvette Williams, MD, MPH
	Walter W. Williams, MD, MPH
Instructors:	Sonia M. Alvarez-Robinson, MA
	Jeneita Bell, MD, MPH
	Bessie Jones, MD, MS, MPH
	Frederick Murphy, MSPH, MPIA
	Keri L. Norris, PhD, MPH

*Primary appointment in another department.

Community Health & Preventive Medicine

The Department of Community Health and Preventive Medicine focuses on training primary care physicians and public health professionals, particularly minorities, for careers in medically underserved communities and on improving health in these communities. The department provides future primary care physicians with the skills to analyze scientifically the health and health-care delivery problems of minority and underserved communities, and to understand the social, cultural, environmental and economic determinants of health and disease. As a bridge between local neighborhoods and the medical school, the department engages in research and service to improve the health of the communities of which it is a part.

At the graduate level, the department sponsors the Master of Public Health degree program and the Residency Program in Public Health and Preventive Medicine. In addition, the department offers postgraduate continuing education conferences and seminars on preventive medicine topics.

We think of the community as a “patient,” diagnosing health problems at the community level and working with the community to develop a treatment plan. We incorporate this approach into our educational programs so that the physicians and public health professionals we graduate will be able to address the needs of the underserved communities where they will practice.

Community Health & Preventive Medicine

The goals of the Department of Community Health and Preventive Medicine are:

- To conduct innovative programs of education, research, and service that focus on the special health problems of minority and other underserved populations, including those in the developing world.
- To conduct and strengthen a residency program that prepares specialists in public health and general preventive medicine.
- To advocate for community and public policy measures that improves the health of underserved communities.
- To conduct projects that will improve the health of underserved people. It is expected that all members of the department will devote a portion of their time to community service.
- To establish relationships with other community agencies and organizations with similar goals.
- To increase the number of minority public health professionals through training in the Master of Public Health Program.

Centers for research and service in the Community Health and Preventive Medicine department include the Health Promotion Resource Center, the Prevention Research Center and the Center for Community Health and Service-Learning.

Family Medicine

Chairperson and Professor:	Folashade Omole, MBBS, FAAFP
Clerkship Director:	Dolapo Babalola,MD
Professors:	*Ronald Braithwaite, MD Yuan-Xiang Meng, MBBS, PhD, MSCR Gregory Strayhorn, MD, PhD
Associate Professors:	Dolapo Babalola, MBBS Kitty B. Carter-Wicker, MD *Janice Herbert-Carter, MD, MA Marietta Collins, PhD Harry Heiman, MD Dominic Mack, MD Michelle Nichols, MD, MS Charles Sow, MD, MSCR, CPEHR
Assistant Professors:	Nicole Ash-Mapp. MD Denise Bell-Carter, MD Kirstie Cunningham, MD Jennifer Fowlkes-Callins, MD Anne Gaglioti, MD Riba Kelsey-Harris, MD, MSCR Afolake Mobolaji, MD Isioma Okwumabua, MBBS Lawrence Powell, MD Wakitria Smith, MD Arletha Williams-Livingstone, PhD Robert Williams, MD
Instructors:	Sarita Cathcart, MN, NP-C Sabrina Jackson, MMSc Susan Robinson, PA-C, MA

Family Medicine

Adjunct Faculty

Professors:
George Rust, MD, MPH
Harry Stothers, MD

Associate Professors:
Thomas J. Adamkiewicz, MD, MS
Teh Ching Chu, PhD, MS
Edith Fresh, PhD, MSW

Assistant Professors:
Mateen Akmal, MD
Irene Bailey , MD
Laurita M. Burley, PhD, MS
Clinton A. Carton, MD
Maiysha Clairborne, MD
Melanie L.M. Cooper, MD, MPH
Edward Cordovado, D.C.
Mary Dailey-Smith, MD
William K. Dancy, DDS, MS, MAGD
Zenobia Day, MD
David Derrer, MD
Michael W. Early, MD
Charmaine Emelife, MD
Akita Evans, MD, MPH
Arnold D. Gaskin, MD
Karim B. Godamunne, MD, MBA
Laskhmi Gopireddy, MD
Nadine Halliburton-Foster, MD
Darren Harper, MD
Jonathan Henderson, MD
Deborah Henry, MD
Shawn Holaway, PharmD
Robersteen Howard, MD
Vivian Iwu, DPM
Theresa Jacobs, MD
Alana Kent, MD
Sharon King, DNP, NP-C
Yvonne Maduka, MD
Sarandeep Makkar, MD, DO
Adrienne D. Mims, MD, MPH
Pamela Obi, MD
Onwura Michael Obiekwe, MD
Kitefre O. Oboho, MD, MSc

Family Medicine

Isioma Okobah, MD, MPH
Alexander Osowa, MD
Thomas Parrott , MD
Ewaul Persaud, MD
Jamya Pittman, MD
Valens Plummer, MD
Otis S. Powell, Jr., MD
Sanjay Ponkshe, MD
Donna-Marie Pummer, MS, RD
Ricardo Rodriquez, MD
Lisa M. Rosa-Re, MD
Michael Satchell, MD
Michael Solomon, MD

Instructors:

Dereje M. Aboye, MD
Joyce A. Akwe, MD, MPH
Tomia P. Harmon, MD
Veronda H. Perkins, MS
Shun Zhang, MD, MPH

*Primary appointment in another department.

The Department of Family Medicine offers programs at all levels of medical education. At the medical education level, the department collaborates in Fundamentals of Medicine II and is responsible for the required junior Clerkship in Family Medicine, and a variety of senior elective clerkships. An accredited three-year family medicine residency program, based at Atlanta Medical Center-South Campus, prepares the resident physicians for practice in underserved rural and urban communities.

At the postgraduate medical education level, the department sponsors continuing education conferences and seminars on primary care topics, and Faculty Development.

The Department of Family Medicine prepares residents and students to provide excellent comprehensive family health care with an emphasis on underserved and minority communities.

We believe in access to quality health care that stresses prevention and attention to the dignity, mental health, and spiritual health of all individuals and their families.

Our goal is to provide outstanding leadership in the provision of patient care, teaching, and research to improve the health status of families and their communities.

Medical Education

Chairperson and Associate Professor:	Janice Herbert-Carter, MD
Professor:	Martha L. Elks, MD, PhD Marlene MacLeish, EdD James McCoy, MD Meryl McNeal, PhD
Associate Professor:	Brenda Klement, PhD
Assistant Professor:	* Carey Bayer, EdD Danita Eatman, PhD *Rita Finley, PhD Brandi Knight, PhD *Anachebe Ngozi, MD
Instructor	Janice Hall, PhD Jingie Zheng, PhD

Adjunct Faculty

Assistant Professor:	Iris Kolla, MD, MPH Ronald Mixon, MD Jigar Tataria, MD

*Primary appointment in another department.

The Department of Medical Education (DOME) is the academic home for interdisciplinary faculty with a wide variety of backgrounds, degrees, and skill sets who are deeply engaged in educational activities in addition filling to multiple administrative roles. We direct and teach interdisciplinary MD courses: 1st year integrated curriculum; Pathophysiology; FOM 1, 2, 3; as well as teach in the GEBS, MPH, and Faculty Development programs. We are/aspire to be master teachers with the passion and skills to support a diverse student body. In addition to teaching, members of the DOME have administrative roles in directing the Clinical Skills Center/Standardized Patient Program, the Quality Enhancement Program/Learning Communities, the Office of Student Learning and Educational Resources (OSLER), the Office of Education Technology, and more.

Medicine

Chairperson and Associate Professor:	Richard Snyder, MD
Vice Chairs:	David W. Anderson, MD Eric L. Flenaugh, MD James W. Reed, MD
Clerkship Director:	Marvin L. Crawford, MD
Professors:	*Martha L. Elks, MD Marilyn Foreman, MD Priscilla Igho-Pemu, MBBS Chinedu Ivonye, MD *Julian Menter, PhD Chamberlain I. Obialo, MBBS Elizabeth O. Ofili, MBBS, MPH Anekwe E. Onwuanyi, MBBS James W. Reed, MD Roger Simon, MD Richard Snyder, MD Herman Taylor, MD, MPH
Associate Professors:	Felix Aikhionbare, PhD David W. Anderson, MD Khalid Bashir, MBBS Victor Blake, MD Cinnamon Bradley, MD Marvin L. Crawford, MD Balsam ElHammali, MBBCh Yohannes Endeshaw, MD, MPH Eric Flenaugh, MD Claudia Fotzeu-Toukam, MD, MPH Mesfin Fransua, MD Sanjay R. Jain, MBBS, MS, PhD Khadeja Johnson, MD Rigobert Lapu-Bula, MBBS, PhD Jolene Lowery, MD Adesoji Oderinde, MD Adefisago Oduwole, MBBS

Medicine

Chima Ohuabunwo, MBBS
Myra Rose, MD
Qing Song, MD, PhD
Harold G. Stringer, MD
Gloria E. Westney, MD, MS

Assistant Professors:

Nicolas Bakinde, MD
Kyra P. Clark, MD
Michael Flood, MD
Rachel L. M. Harris, MD, MPH
Marshaleen King, MD
Smitha John, MBBS
Aasia B. Khan, MBBS
Nnamdi Nwaohiri, MBBS
Abraham Oyewo, MBBS
Rajesh Sachdeva, MBBS
Geetanjali Vasandani, MBBS

Instructors:

Koreen Hall, MSN
Chantal Navalah, MS
Kamal Nayyar, MD
Benjamine Renelus, MD

Adjunct Faculty

Professor Emeritus:

Lonnie C. Jenkins, MD

Professors:

Judith K. Gwathmey, VMD, PhD
C. Michael Hart, MD
Robert Jansen, MD, MBA
Daniel Nixon, MD
Lawrence Phillips, MD
Louis W. Sullivan, MD

Associate Professors:

Harold Franch, MD
Kenny Frontin, MD
Robert P. Gaynes, MD
David M. Guidot, MD

Medicine

Gary Richter, MD

Assistant Professors:

Joanne S. Allam, MD
Rabih I. Bechara, MD
Sjuata Bhowmik, MD
Heather Bloom, MD
Ioana Bonta, MD
David J. Bower, MD
Michael Brathwaite, MD
Michael Brooks, MD
Marcus L. Brown, MD
Elizabeth Burgess, MD
Sean Cavanaugh, MD
William Cleveland, MD, MPH
Carter Co, MD
Larona Colbert, MD
Nadene C. Fair, MS
Abiodun Famakinwa, MD
Hirut Gebrekristos, MD
Kevin M. Glapin, MD
Leonard Gyebi, MD
Melanie Harrison, MD
Deborah G. Henry, MD
Matthew Hogan, MD
Angus C. Howard, MD, MBA
Octavian C. Ioachimescu, MD, PhD
W. Brent Keeling, MD
Aysha Khoury, MD
Gautum Kumar, MBBS

Medicine

Anna V. Longacre, MD
Erin Lundberg, MD
Kreton Mavromatis, MD
Kelly McCants
John McKnight, MD
Ashish Mehta, MD
Rao S. Mikkilineni, MD
Abid Mohiuddin, MD
Deepti Munjal, MD
Daniel Nixon, MD
Darin E. Olson, MD, PhD
Cydney T. Parker, MD
Christopher Parks, MD
Kalai C. Parthiban, MD
Neha Pathak, MD
Neal Patel, MD
Sonal Patel, MD
Jonahan Perkins, MD
Brion Randolph, MD
Maria Ribero, MD
Patricia Rich, MD
Mary Rhee, MD
Lynn Schlanger, MD
Solomon Tafari, MD, MPH, FHM
Mahdi Taha, DO
Saiprakash B. Venkateshiah, MD

Instructors:

Dereje M. Aboye, MD
DeAnn Bing, MD
Janet L. Bivens, MD
Karen A. Blanchard, MD
Dominic C. Cruz, MD
Shahed Lewis Brown, MD
Julie Jackson-Murphy, MD
Glenda Knight, MD

Medicine

Jennifer Larson, MD
Amy Miller, MD
Tomia P. Palmer-Harmon, MD
Dustin Smith, MD
Scott Steinbach, MD
Melissa Stevens, M/D
Ingrid Tanubrata, MD, MPH
Wendy L. Wright, MD

*Primary appointment in another department.

The Department of Medicine specializes in the provision of disease prevention, health promotion and care to the acutely and chronically ill adult. The department is actively involved in teaching clinical skills in the second-year and in the third-year clerkship in Medicine. A variety of clinical electives are available, including acting internship in Medicine, Medical ICU, and subspecialty experiences.

The Department of Medicine is the largest academic department in the medical school. It is comprised of the General Internal Medicine section and most of the recognized subspecialties of medicine: Cardiology, Pulmonary/Critical Care, Nephrology, Gastroenterology, Endocrinology, Infectious Diseases, and Hematology/Oncology. In addition, the Department of Medicine includes Neurology.

Members of the department are actively involved in clinical service, both clinical and laboratory research, and the education of medical students and internal medicine residents. Our principal teaching and clinical venue is Grady Memorial Hospital and the Atlanta VA .

Our Internal Medicine Residency Program earned full accreditation by the Residency Review Committee in 2015 and currently has 62 residents. There are approximately 35 active clinical research projects within the department. These include both investigator initiated and contractual research. Funded basic science research is promoted and supported.

Microbiology, Biochemistry and Immunology

Interim Chairperson and Professor:	Vincent Bond, PhD
Professors:	Francis Eko, PhD, MS Ruben Rene Gonzalez, PhD James W. Lillard, PhD Julian Menter, PhD *E. Shyam Reddy, PhD, MS *M. Veena Rao, PhD, MS Shailesh Singh, PhD Jonathan Stiles, PhD
Associate Professors:	Jorge Benitez, PhD Qing He, MD, MS Jacqueline Hibbert, PhD, MSc Deborah A. Lyn, PhD Gale W. Newman, PhD, MS Michael D. Powell, PhD, MS *Karen Randall, PhD Anisia Silva-Benitez, PhD
Assistant Professor:	Punit Kaur, PhD *Brandi Knight, PhD Yusuf Omosun, PhD William Roth, PhD, MS Rajesh Singh, PhD
Instructors:	Ming Bo Huang, PhD, MD Mingli Liu, PhD Li Ma, PhD

Adjunct Faculty

Associate Professor:	Ketema Paul, PhD
Instructor:	Hyacinth, Hyacinth, MD, PhD

*Primary appointment in another department.

Microbiology, Biochemistry and Immunology

The Department of Microbiology, Biochemistry and Immunology is responsible for instruction of first-year medical students in biochemistry and of second-year medical students in medical microbiology and immunology. The department is responsible for instruction of PhD students in Microbiology, Biochemistry and Immunology. In addition to their teaching responsibilities, the faculty are involved in scientific research that is both well-funded by extramural sources and have been published in leading journals. The research also involves PhD students and postdoctoral fellows, as well as the research staff.

Research areas in biochemistry include: space medicine; molecular genetics, metabolism, cardiovascular biology, nutrition, signal transduction, and mechanisms of cellular proliferation. Research areas in microbiology and immunology include: the immunology of AIDS, mycology, molecular parasitology, sexually transmitted diseases (STD), pathogenic microbiology, the immunology of infection, molecular virology, the mechanisms of autoimmune diseases and psychoneuroimmunology. Faculty are also actively involved in several MSM research institutes and centers. They serve as members of local and national committees and as reviewers of journal articles and grant applications. The faculty also serve as mentors for PhD students, and are involved in community programs and tutorial services.

Neurobiology

Chairperson and Professor:	John Patrickson, PhD
Professors:	Morris, Benvieniste, PhD Woo-Kuen Lo, PhD Peter MacLeish, PhD Shobu Namura, MD, DMSc *Roger Simon, MD Robert Sloviter, PhD Zhigang Xiong, MD, PhD An Zhou. PhD
Associate Professors:	Alec Davidson, PhD, MS Robert Meller, DPhil Kelwyn H. Thomas, PhD
Assistant Professor:	John Christopher Ehlen, PhD
Instructor:	Oscar Castanon-Cervantes, PhD Tiandong Leng, MD, PhD Todd White, PhD

Adjunct Faculty

Associate Professor:	Jorge Benitez, PhD

*Primary appointment in another department.

The Department of Neurobiology participates actively in the preclinical education of students in the MD program through the Organ Systems 3 course. Faculty members participate in core instruction for the PhD in Biomedical Sciences program and in research mentoring.

Neurobiology

Departmental faculty are actively engaged in biomedical research, and most of the faculty have extramural grants to support their studies. Additional research studies are carried out in a collaborative arrangement with investigators in other departments as well as at other institutions.

Departmental faculty are actively involved in the many research centers and institutes of MSM. Many members of the department are in the Neurosciences Institute. Research in this institute covers a broad range of cellular and molecular neuroscience including the molecular biology and physiology of circadian rhythm, neuroprotective effects of neuregulin, regeneration of CNS neurons, and functional imaging at the cellular level, and other areas. Several members of the department serve on Standing and Ad Hoc committees at the medical school, in the community and with the federal government. Faculty members work with high school and undergraduate students from Atlanta area colleges and universities. They also serve as advisors and/or mentors for graduate students in the graduate PhD program and as thesis/dissertation committee members.

Obstetrics and Gynecology

Chairperson and Professor:	Roland Matthews, MD
Clerkship Director:	Hedwidge Saint-Louis, MD
Professors:	Franklyn H. Geary Jr., MD Valerie Montgomery Rice, MD Veena Rao, PhD, MS E. Shyam Reddy, PhD *Winston, Thompson, PhD
Associate Professors:	Ngozi Anachebe, MD Sarma Ramaseshu, MBBS Evelyn Reynolds, MD
Assistant Professors:	Frederick Bright, MD Indrajit Chowdhury, PhD Cheryl Franklin, MD, MPH Jamil Minnis, MD Gabriel Nassar, MD Kiwita Phillips, MD Hedwige Saint-Louis, MD, MPH Barbara Simmons, MD Madeline Sutton, MD, MPH
Instructors:	Shalandra Ross, MD

Adjunct Faculty

Associate Professors:	Gerald A. Feuer, MD Djana Harp, MD Jeffrey Hines, MD Dorothy Mitchell-Leef, MD

Obstetrics and Gynecology

Chukwuma I. Onyeije, MD
Guiseppe Del Priore, MD

Assistant Professors:

Renee Allen, MD
Hope Ashby, PhD
Sharon Bent-Harley, MD
Keila A. Brown, MD
Matthew Burrell, MD
Guilherme Cantuaria, MD, PhD
Kevin Carson, MD
Jacqueline Castagno, MD
Eddie Raymond Cheeks, MD
Carla Crawford, MD
Donald A. Culley, MD
Felecia Dawson, MD
Margarett Ellison, MD, MPH
Lisa Flowers, MD
Jenelle E. Foote, MD
Jacqueline H. Grant, MD
Zsakeba T. Henderson, MD
Marion Gerald Hood, MD
Martin D. Jeffries, MD
John C. Lipman, MD
L. Dawn Mandeville, MD
John McBroom, MD
Andrea J. Murray-Stephens, MD
Vanessa Niles, MD
Moshood Olatinwo, MBBS
Charlotte Owens, MD
James D. Perkins, MD
Stephen Salmieri, DO
Frederick Sengstacke, MD
Dominique J. Smith, MD
April Speed, MD
Renee Volny, DO, MBA
Dale Wilmot, MD
Oi Wah Stephanie Yap, MD

Obstetrics and Gynecology

Instructor:	Shirley Cao, MD Kevin Edmonds, MD Jamillah Minnis, MD Shalandra Ross, MD Renee Volny, DO, MBA

*Primary appointment in another department.

The Department of Obstetrics and Gynecology at Morehouse School of Medicine provides education and training in obstetrics and gynecology to medical students in clinical skills in the second-year course in Fundamentals of Medicine 2 and in the third-year Obstetrics and Gynecology clerkship. A variety of fourth-year electives, including acting internships is available. The department also has a four-year accredited residency in obstetrics and gynecology. Faculty also provide patient care at Grady Memorial Hospital in Atlanta, and private patient care in our office practice and other hospitals. Faculty are actively engaged in research in women's health care.

Presently, the Department of Obstetrics and Gynecology is involved in a variety of clinics in Grady Memorial Hospital. They include: High Risk Obstetrics, Reproductive Endocrinology and Infertility, Continuity, Walk-In, Dysplasia, Oncology, Teen, Perinatal referrals and consultations, Ambulatory Surgery, Breast and Gynecology, and Family Planning. In addition, there are two MSM Obstetrics and Gynecology community facilities and three Grady Satellite Clinics. In the area of research, the Department of Obstetrics and Gynecology received research grants for (a) Longitudinal Study of Lead Poisoning, which focuses on maternal-fetal cord blood lead levels, placental morphology and newborn neurodevelopment, (b) Pregnancy Prevention, which is directed towards education, clinical interventions and strategies to reduce teenage pregnancy, and (c) a National Institute of Health center grant for basic reproduction research jointly with faculty in the departments of Physiology and Anatomy. The department hosts the annual HeLa Women's Health Conference, which promotes clinical research, didactic and continuing education.

Pathology and Anatomy

Chairperson and Professor:	Lawrence Wineski, PhD, MA
Professors:	Sandra Harris-Hooker, PhD, MS Douglas Paulsen, PhD Marjorie M. Smith, MD
Associate Professors:	Erika Brown, PhD *Brenda Klement, PhD
Assistant Professors:	Stacey Desamours, MD Rita Finley, PhD Sarah J. Greene, PhD Aleeia Johnson, MD Amy Mork Kimberly Redding, MD, MPH Karen E. Sullivan, MD

Adjunct Faculty

Professor:	Kenneth Alonso, MD
Assistant Professor:	Katherine Spears-Paul, DVM

*Primary appointment in another department.

The Department of Pathology seeks to utilize its activities in teaching, clinical service and research to further the understanding of causes, mechanisms of development, morphologic and functional effects and outcomes of disease states. Education is the primary objective of the department. Faculty members are very committed to quality education in the MD program through the second-year course in Pathology. Departmental faculty also participates in the education of graduate students, residents and practicing physicians. Areas of research focus include the eye, blood vessels and neoplasms.

Pediatrics

Chairperson and Associate Professor:	Yasmin Tyler-Hill, MD
Director of Pre-doctoral Education and Professor:	David A. Levine, MD
Professor:	Beatrice Gee, MD Iris Buchanan, MD, MS
Associate Professors:	Truddie E. Darden, MD *Lilly Immergluck, MD, MPH Sandra Moore, MD I. Leslie Rubin, MBBCh Yolanda Wimberly, MD, MS Jalal Zuberi, MBBS
Assistant Professors:	Latasha Bogues, MD Chevon Brooks, MD Nicholas Chin, MD Maya Eady, MD Melba Johnson, MD *Gail Mattox, MD Ghada Osko, MD Makia Powers, MD Lori M. Singleton, MD *Sara Vinson, MD
Instructor:	Michael Terao, MD
Professor Emeritus:	Frances Dunston, MD, MPH, MS

Pediatrics

Adjunct Faculty

Professors:

Jay Berkelhamer, MD
Guiseppe Del Priore, MD

Associate Professors:

Robert Campbell, MD
James Fortenberry, MD
LeRoy Graham, MD
Kiran B. Hebbar, MBBS
Kelvin Holloway, MD, MBA
Sonja Suzette Hutchins, MD
Matthew L. Paden, MD
Toni M. Petrillo-Albarano, MD
Natavaut Punyasavatsut, MD
Jose Rodriguez, MD, MBA
Atul Vats, MD

Assistant Professors:

Olufolake Adisa, MBBS
Deborah Andresen, MD
Jerome J. Armand, MD
Lemuel Arnold, MD
Roxanne Barrow, MD, MPH
Ann Beach, MD
Avril P. Beckford, MD
Wyndolyn C. Bell, MD
Luke Beno, MD
Helena K. Bentley, MD
Frank Berenson, MD
Tinnini N. Billingsly, MD
John Bleacher, MD
Lisa Bliss, JD
Latasha Boques, MD
Sylvia Caley, JD
Linda Cannon, MD
Brandie Chan, MD
Marguat Charbonnet, MD
Mary L. DeAlmeida, MD
Rachelle L. Dennis-Smith, MD
David Derrer, MD

Pediatrics

Nancy R. Doelling, MD
Loreen Doyle-Little, MD
Kathie Earles, MD
J. Robert Flamini, MD
Gary L. Frank, MD
Rachelle Friedberg, MD
Patrice T. Gaspard, MD
Kevin Kirchner, MD
Christopher Gaydos, MD
Edward Gotlieb, MD
Jacquelin Gotlieb, MD
*James P. Griffin, PhD
W. Steen James, MD
Khaliah Johnson, MD
Steven Julius, MD
Pradip P. Kamat, MD
Cheryl J. Kendall, MD
David Kotzbauer, MD
Burton Lesnick, MD
Joyce Lilly-Blain, MD
Jennifer Madden, MD
Kevin Mason, MD
Michael E. McConnell, MD
James Mitchell, MD
Gary L. Montgomery, MD
Karen Moore, MD
Monica Moore, MD
Glenda Morris-Robinson, MD
Kristine Nieh, MD
Daniel O'Banion, Jr., MD
LaToya Oglesby, MD
Nirav Patel, MD
Toni Petrillo-Albarano, MD
Nga Pham, MD
Elizabeth A. Poplawski, DO
Jonathan Popler, MD
Palanisamy Rajasekaran, MBBS
Mark S. Rappaport, MD., Ph.D
Erin M. Redwine, MD

Pediatrics

Laura Rich, MD
Benjamin Roberts, MD
Sandra M. Rodriguez-Sfeir, MD
Ida Lynn Rose-Mize, MD
Diedra Rowe, MD
Shonali Saha, MD
Robert M. Schultz, MD
Peter H. Scott, MD
Luqman Seidu, MD
Deneta Sells, MD
Shekou Sesay, MD
Jana A. Stockwell, MD
Emily Suski, JD
Taryn Taylor, MD
Javier Teyedor-Soto, MD
Joshua A. Voya, MD
Michelle Wallace, MD
Karen Wasilewski, MD
Naden White, MD
Carol Williams, MD
Julie Williamson, MD
Karen Willis, MD
Alice Wilson, MD
Lynette Wilson-Phillips, MD
Michael J. Wolf
Najaz Woods-Bishop, MD
Beverly Young, MD
Earl Young, MD

Instructors:

Fredly Bataille, MD
Angela R. Butler-Rice, MD
Kimberly M. Humphrey-Brown, MD

*Primary appointment in another department.

Pediatrics

The Department of Pediatrics has as its primary goal the development and provision of a curriculum in pediatrics that will furnish the students and residents with a broad view and knowledge of the types of problems encountered in a pediatric setting. Faculty are actively involved in teaching in the second-year clinical skills course Fundamentals of Medicine 2 and in the third-year clerkship in Pediatrics.

The clerkship is a unique community-based experience in which the students rotate to a wide variety of settings for a comprehensive introduction to the spectrum of pediatric practice.

The department also has a unique community-based pediatrics residency that is fully accredited. In addition to primary care, the department also encourages the pursuit of careers in research and academic medicine. The environment in which these concepts of medicine are developed emphasizes concern and compassion for the patient, the patient's family, and community. The practice setting for the faculty includes Children's Healthcare of Atlanta at Hughes Spalding Hospital and at Scottish Rite Hospital, Grady Memorial Hospital, and Morehouse Medical Associates, MSM's faculty practice plan.

Pharmacology and Toxicology

Chairperson and Professor:	Gianluca Tosini, PhD
Professor:	Mohamed A. Bayorh, PhD *Robert Sloviter, PhD Ward Kirlin, PhD
Associate Professors:	Jason DeBruyne, PhD *Robert Meller, PhD Karen Randall, PhD Evan F. Williams, PhD
Assistant Professors:	Kenkichi Baba, PhD Kameswara Badri, PhD *Danita Eatman, PhD Kennie R. Shepherd, PhD
Professor Emeritus:	Ralph Trottier

The Department of Pharmacology and Toxicology provides educational programs for medical students and graduate students in the biomedical sciences. Faculty members teach in the required second-year course. The department offers study and research in a variety of pharmacological and toxicological sub discipline areas, including cardiovascular, ocular, biochemical, neural, molecular, immunological and environmental. All faculty members participate in teaching, research and institutional service activities.

Physiology

Chairperson and Professor:	Winston Thompson, PhD
Professors:	Rajagopala Sridaran, PhD, MS Xuebiao Yao, PhD
Associate Professors:	Xueying Zhao, PhD
Assistant Professors:	Leonard Anderson, PhD Adel Driss, PhD Hadiyah,-Nicole Greem, PhD Nerimiah L. Emmett, PhD Sharon Francis, PhD Minerva Garcia-Bario, PhD, MS Dong Liu, MD, MS
Instructor:	William Seffens, PhD
Professor Emeritus:	David R. Mann, PhD Gordan Leitch, PhD

The Department of Physiology provides educational programs for the first-year medical students and graduate students. Graduate students and postdoctoral research fellows are accepted to work on projects in the areas of reproductive endocrinology, gastrointestinal pathophysiology and host-parasite relationships, cardiovascular molecular biology, cardiac function, and cellular physiology. One core research facility, the imaging facility, is housed in the department and directed by a departmental faculty member.

Physiology

Philosophy of the Department of Physiology

The Department of Physiology plays a key role in the education of first-year students in the MD program in the Medical Physiology course. Faculty also have key roles in graduate student education in the core curriculum, elective, and laboratory experiences. The department has as its primary goal imparting a background of basic physiological knowledge to medical and graduate students so that they may apply this information either to the practice of medicine or to the conduct of biomedical research. Departmental faculty members also have developed and maintained productive individual and collaborative research programs in a variety of areas, including cardiovascular physiology, reproductive endocrinology, and the pathophysiology of gastrointestinal infectious diseases. Faculty participate in MSM research institutes and centers, including the Cooperative Reproductive Science Research Center, the Cardiovascular Research Institute, and the Neuroscience Institute.

Psychiatry and Behavioral Sciences

Chairperson and Professor:	Gail A. Mattox, MD
Vice Chair for Education and Clerkship Director:	Quentin Ted Smith, MD
Professors:	Farzana Bharmal, MBBS *Ronald Braithwaite, PhD Quentin Ted Smith, MD
Associate Professors:	Deirdre Evans-Cosby, MD *Marietta Collins, PhD John O. Gaston, MD Sarah Herbert, MD Eugene Herington, PhD, MDiv, MSW, LCSW Kisha Holden, PhD *Rhonda Holiday, PhD Glenda Wrenn, MD
Assistant Professors:	Jean Bonhomme, MD, (Adjunct) Shawn Garrison, PhD, MS Sheril Kalarithara, MD Brian McGregor, PhD Monifa Seawell, MD Bakari Vickerson, MD *Sarah E. Vinson, MD *Elleen Yancey, PhD

Adjunct Faculty

Professors:	Robert Alpern, MD Arden Dingle, MD Benjamin Druss, MD, MPH Steven L. Jaffe, MD
Associate Professors:	Barbara D'Orio, MD, MPA Edith Fresh, PhD, MSW Emile D. Risby, MD

Psychiatry and Behavioral Sciences

Assistant Professors:

Bhushan Agharkar, MD
Edward Ajayi, MBBS
Asaf Aleem, MBBS
R. Michael Allen, MD
Alka Aneja, MBBS
Todd Antin, MD
Ashraf Attalla, MD
Ranjan Avasthi, MD
Aisha Baker, PhD
Devnon Briggs, MD
Kia Brinson-Mason
Anastasia Brown-Alvarado, MD
Jocelyn Smith Cox, MD
Erica Duncan, MD
Eamon Dutta, MBBS, MD
Bryon Evans, MD, MS
Ayman Fareed, MD
Andrew Farkas, MD, MS
Abiodun O. Famakinwa, MD
Margaret E. Frank, MD
Tiffany Gartrell, MD
Donald L. Gibson, MD
Rahul Gupta, MD
Belen Gutter, PhD
David Guttman, MD, PhD
Marcus C. Griffith, MD
L. Monique Harris, PhD
Nzinga Harrison, MD
Linda G. Harvey, MD
Kwanna V. Hayes, MD
Kristine Hsu-McDonald, MD
Nina Jefferson, PsyD
Troy B. Kapral, MD
Jaffar Khan, MD
Woo Jin Kwak, DO
Sipra Laddha, MD
Saundra A. Maass-Robinson, MD

Psychiatry and Behavioral Sciences

LaTasha McKenzie Mack, PhD
Yolanda Malone-Gilbert, MD
Kristine McDaniel, MD
Byron McQuirt, MD
Asad M. Mehdi, MD
Marcial J. Mendez, MD
Delquis Mendoza, MD
Dion Metzger, MD
Asad M. Naqvi, MBBS
Walid M. Nassif, MD
Daniel Newman, MD
Leo O. Noragbon, MBBS
Arlene Noriega, PhD
Ajitabh Pandey, MD
Ranna Parekh, MD, MPH
Dilipkumar C. Patel, MBBS
Viorica M. Pencea, MD
Paige Pittman, PsyD
Joy Reeves, PsyD
Huzaifa Seidu, MD
Angela P. Shannon, MD
Huzaifa Seidu, MD
Vanderlyn Sewell, MD
Hilaire Shongo-Hiango, MD
Rana Sibai-Drake, MD
Sultan Simms, MD
Kelly Skelton, MD
Steven Stout, MD, PhD
Olufemi Taiwo, MD
Laura Tedeja-Kurlyandchick, MD
Ravi K. Telakapalli, MD, MBBS
Daniels J. Wachtel, PsyD
Martha Ward, MD
Joseph Weissman, MD, PhD
DeJuan White, MD
Natasha Whitfield, MD
Christina Wilson, PhD

Psychiatry and Behavioral Sciences

Instructors:

Roohi Abubaker, MBBS
Kristy Jackson, MD
Christoff LeRoux, MD
John L. Moseri, MBBS
Arun Munjal, MD, DPM, DMH
Martha Ward, MD

*Primary appointment in another department.

The Department of Psychiatry and Behavioral Sciences teaches and coordinates didactic courses for first- and second-year students in (normal) Human Behavior and Psychopathology, respectively, course streams within Fundamentals of Medicine 1 and 2. The department also has a required third-year clinical clerkship and senior clinical electives. The department sponsors an accredited residency in Psychiatry. These dynamic and comprehensive undergraduate and graduate medical education programs emphasize individual professional growth of each student and resident.

The department is committed to supporting the interface of psychiatry and primary care with an emphasis on working with the community and with the underserved. We emphasize quality patient care along with the pursuit of scholarly activity and meaningful research. The Cork Institute on Alcohol and Other Addictive Disorders, established in the department in the fall of 1985 with an endowment from the Joan B. Kroc Foundation, has the mission of serving as a leader in the areas of professional education about substance use and addiction among African-American and underserved populations.

Surgery

Chairperson and Professor:	Ed Childs, MD
Clerkship Director:	Frank Jones, MD
Professors:	Derrick Beech, MD *James McCoy, MD Joel Okoli, MD, MPH Assad Taha, MD, PhD
Associate Professor:	Clarence, Clark III Omar Danner, MD Larry Hobson, MD Shanetta Johnson Frank Jones, MD Leslie Ray Matthews, MD
Assistant Professors:	Keren Bashan-Gilzenrat, MD Ayana Chase, MD Dzifa Kpodza, MD Jonathan Nguyenm MD Jacquelyn Turner, MD
Professor Emeritus:	Arthur B. Lee, MD, DSc Med

Adjunct Faculty

Professor Emeritus:	James Densler, MD
Professors:	George Daneker, MD Frederick Cason, MD Ralphael Gershon, MD Peter Rhee, MD, MPH Atef Abdel Salam, MD Alan M. Yahanda, MD
Associate Professors:	Titus D. Duncan, MD

Surgery

Assistant Professors:

James K. Bennett, MD
John Bleacher, MD
William R. Boydston, MD
William Brown, MD
Joseph Bussey, MD
Jenelle E. Foote, MD
Julie Glasson, MD
Anita Johnson, MD
John Louis-Ubgo, MD
George Raschbaum, MD
Kellie Rose, MD
William W. Rose III, MD
Scott Steinberg, MD
Mark Stovroff, MD
Alan M. Yahanda, MD
Raul Zambrano, MD

The Department of Surgery provides comprehensive clinical education in general surgery for students and residents. The department collaborates in instruction of first-year students in Human Morphology. There is a third-year clerkship in surgery as well as fourth-year elective. The department sponsors an accredited surgery residency.

The focus of the department is to provide superior surgical care to patients, to train our medical students and our residents in the practice, art, and compassion of surgery, and to make the department a local, regional, and nationally recognized Department of Surgery with excellence in education and patient care.

Our philosophy is to specifically address adversity issues in the surgery workforce. Our motto has been “a chance to make a difference, a tradition of excellence.” It goes without saying that the philosophy of the department is also to be a team player with the institution, joining with all facets of MSM in partnership to enhance, elevate, and to help MSM continue its very special mission. Departmental faculty are involved in breast cancer and other research as well as roles in national leadership in surgery and surgical education.

Morehouse School Of Medicine

MEDICAL EDUCATION

Admission Requirements and Procedures

The Committee on Admissions is responsible for the acceptance of all students entering the first-year class at MSM. Morehouse School of Medicine encourages applications from, and gives full consideration to, all applicants for admission and financial aid without regard to sex, race, handicap, color, creed, sexual orientation, gender identity, or national or ethnic origin. MSM is committed to recruiting, enrolling, and educating substantial numbers of persons from racial groups underrepresented in medicine. The Admissions Committee selects those applicants who are more likely, in its opinion, to become the best students and physicians and fulfill the mission of the school.

Accreditation

Morehouse School of Medicine is accredited by the Southern Association of Colleges and Schools (SACS). In 1998 and 2013, Morehouse School of Medicine, following survey visits and reviews by the Liaison Committee for Medical Education (LCME), received full accreditation for additional periods of seven and eight years, respectively.

Selection Factors

The selection of students by the committee is made after careful consideration of many factors. Among them are intelligence, preparedness, motivation and aptitude. In the evaluation, account is taken of the candidate's scores on the Medical College Admission Test (MCAT), evidence of academic achievement, the extent of academic improvement, balance and depth of academic program, difficulty of courses taken and other indications of maturation of learning ability. The Committee is also interested in the activities of the applicant outside of the classroom including the nature of extracurricular activities, hobbies, the need to work, research projects and experiences, evidence of activities that indicate concurrence with the school's mission, and evidence of pursuing interests and talents in depth. Finally, the Committee looks for evidence of personal character and responsibility, compassion, honesty, motivation, and perseverance which, in the Committee's opinion, indicate that the applicant shows promise of contributing to the advancement of the art, science, and practice of medicine after obtaining the MD degree. The Committee's consideration of these factors is based on all components of the applicant's file including letters of recommendation, the academic record, the supplemental application, and the interview if the latter is granted. Qualified residents of the State of Georgia will be given high priority. Students who have been dismissed from medical school will not be considered for admission. International applicants must have a permanent resident visa.

Admission Requirements and Procedures

Entrance Requirements

Completion of the baccalaureate degree is required for admission to the MD program. The education of a physician is life-long. The years of formal schooling are only preparation for the self- education that a physician must continue throughout his/her professional life. Applicants are encouraged to have a broad educational background. No specific major is deemed superior to another. A major goal of undergraduate college work should be the development of the applicant's intellectual talents and to provide for his/her overall development and maturation. The premedical studies required for admission are set in order to provide the student with a firm grounding in subjects considered essential for the study of medical sciences, to provide the Committee on Admissions a means to evaluate aptitude for scientific work, and to determine interest in the sciences. The following courses must be included in undergraduate study:

Biology w/laboratory (one year)
General Chemistry w/laboratory (one year)
Organic Chemistry w/laboratory (one year)
Physics w/laboratory (one year)
College level Mathematics (one year)
English (including composition) (one year)

One academic year equals either three quarters, two semesters; or one semester and two quarters.

The Committee on Admissions prefers that the required premedical courses not be taken on a Pass/Fail basis, but that grades be received. The committee recommends that, if two or more introductory courses are offered by the undergraduate departments, the applicant take the more rigorous of the basic science courses.

An accepted student is responsible for completing all prerequisite course work prior to matriculation. It is understood that a student accepted by the school will be denied admission if he/she fails to complete all specifically required courses and to maintain a good record of scholastic performance and conduct during the period following acceptance.

All applicants are required to take the Medical College Admission Test (MCAT). Results of the test must be received by MSM before an applicant can be completely evaluated by the Committee on Admissions.

Applicants are strongly urged to take the test no later than the Spring of the calendar year preceding the year of entrance into the medical school so that the score can be considered early and the test can be taken again if improvements in performance are desired. Those who take the test at a later date may find themselves at a logistical, if not competitive, disadvantage in that the class may be filled, or largely so, before receipt of test scores. Applicants are not penalized for retaking the MCAT. Applications and information about the test may be obtained from college advisors or by writing directly to:

Medical College Admission Test
The American College Testing Program
P.O. Box 456
Iowa City, Iowa 52243
(319) 337-1357

For information see: www.aamc.org/students/mcat/start.htm

Students accepted for admission must pay tuition and fees in accordance with MSM policy in order to enter. Students may apply for loans, scholarships, and grants in aid in order to meet these financial obligations. The ability to finance a medical education is not a factor in the selection of candidates for admission. However, the final responsibility for payments of fees and tuition and for the provision of living expenses lies with the student. The School may require proof of financial resources before granting matriculation. Only U.S. citizens or international students holding a permanent resident visa are eligible for financial aid.

Application Procedure

Morehouse School of Medicine participates in the American Medical College Application Service (AMCAS) of the Association of American Medical Colleges. AMCAS is a centralized procedure for applying to any participating medical school with only one application and one set of official transcripts of academic work. Formal application for admission to the first-year class must be submitted through AMCAS. The AMCAS application for admission, common to all participating medical schools, is available online only at www.aamc.org. Applicants should follow the AMCAS menu.

For more information, applicants may call: (202) 828-0600
For information see: http://www.aamc.org/audienceamcas.htm

Admission Requirements and Procedures

Regular Admission

Morehouse School of Medicine will accept AMCAS applications to the first-year entering class beginning June 1 of the year prior to enrollment. The deadline for having all required credentials into AMCAS is December 1 of the year prior to admission. (This is a receipt date, not a postmark date.) AMCAS applications received after December 1 will not be forwarded to MSM.

Upon receipt of the application from AMCAS, the Admissions Office identifies qualified applicants and invites them to submit the MSM online supplemental application. Communication with applicants at this stage of the application process is usually by email. The non- refundable $50.00 application fee is collected online with submission of the online supplemental application. The methods of payment are Visa, MasterCard or electronic check. The electronic check payment option is available up to eight (8) days prior to the supplemental deadline date, which is usually the first Friday in January. See the online application instructions for the exact date. Applicants are encouraged to submit materials well in advance of the deadline to allow sufficient time for receipt of all materials requested and to resolve any logistical problems that may occur prior to the deadline.

Three (3) individual letters of recommendation, preferably from science faculty who have taught you, or a pre-medical committee composite letter of recommendation are required to complete the application. Once all supplementary materials are received and the application is complete, the applicant's admission credentials are reviewed and evaluated. Selected applicants are invited for a personal interview. Following the interview, if granted, final decisions are made by the Committee on Admissions. Decision notifications begin in November and continue until the class is filled.

Early Decision Admission

This is an optional program for the applicant whose first-choice school of medicine is MSM and who desires an admission decision by October 1st. To receive this special consideration the applicant must:

1. Submit an AMCAS application as an Early Decision applicant to Morehouse School of Medicine (You will be restricted from applying to any other medical schools until Morehouse reaches a decision) We strongly advise applicants considering applying as an Early Decision applicant to seek advice from the Director of Admissions in advance;

2. Be a resident of the State of Georgia
3. Present an academic program of a minimum of 90 semester/135 quarter hours that indicates completion or plans for completion, of all courses required for admission
4. Have a superior academic record and correspondingly strong scores on the MCAT
5. Submit all required credentials to AMCAS by August 1
6. If invited, appear for a personal interview on a mutually convenient date prior to October 1 and,
7. Accept a position in the class, if offered one

The AMCAS Application for Admission contains complete instructions regarding the Early Decision Program.

Personal Interview

After all application materials have been received, the completed application is screened for possible interview. The Committee on Admissions would like to interview every applicant who passes the initial evaluation screening process, but since this involves thousands of applicants, that is not possible. Only those students who, on the basis of application data, appear to merit serious consideration for admission are selected for interviews. Approximately 5% of all applicants will be invited to MSM for an interview. Invitations for interviews are by email and in writing, and the Admissions Office schedules all appointments. The interview is at the applicant's expense.

Non-Disclosure Policy

Morehouse School of Medicine's policies applying to the disclosure of information on student records are consistent with federal and state regulations. Applicants should be aware that letters and statements of recommendation or evaluation are prepared, submitted, or retained with a documented understanding of confidentiality and are not subject to inspection by applicants. To ensure that the confidentiality of materials in each applicant's file is protected members of the Admissions and Student Affairs Office staff will not divulge over the telephone, or in writing, information regarding a decision on an applicant. One exception to this rule is that, if written consent is given, the Admissions Office may inform the student's premedical advisor of action taken on the application by the Committee.

Medical Degree

Accepted Applicants

Upon notification of an offer of acceptance for admission to MSM, the applicant is required to submit a letter of intent. The applicant must respond to the offer of admission within two weeks. An extension of this deadline may be granted upon written request by the applicant. A $100 reservation deposit (certified check or money order only) is required with the acceptance of the offer. If the accepted applicant withdraws from the class with written notification to the Admissions Office prior to May 15, the deposit is refunded.

Transfer Students

Transfer admissions are rare. However, applications are accepted from students in LCME accredited U.S. and Canadian schools of medicine, who are in good academic standing, have the full approval of the dean of their current school, and have a cogent reason for requesting transfer. Admission is contingent upon space availability therefore, academically qualified applicants can still be denied admission due to lack of space.

Former Medical Students

Students are not considered for admission who have previously matriculated in medical school or have been dismissed for academic reasons.

Objectives of the MSM Medical Curriculum

Morehouse School of Medicine, a historically black institution established to recruit and train minority and other students as physicians, biomedical scientists, and public health professionals committed to the primary healthcare needs of the underserved, has a primary goal to provide an academic environment that acknowledges education as the primary function of the institution that supports and promotes lifelong learning as a foundation for excellence in clinical practice, biomedical science, and public health practice. A major objective of the undergraduate medical program is to graduate students who are competent, caring, effective healthcare practitioners.

The undergraduate medical program requires that candidates for the MD degree acquire certain knowledge, skills, and attitudes that are essential for functioning in a broad variety of clinical situations. To render a wide spectrum of primary care, a graduate must develop:

1) A mastery of the concepts necessary for the prevention, diagnosis, treatment, and management of common medical problems, including the ability to:

a) Explain the normal development, structure and physiologic function of the body, organ systems, tissues, and cells, and their interrelationships.

b) Identify the molecular, biochemical, cellular, and physiologic mechanisms that are important in maintaining the body's homeostasis.

c) Differentiate the biochemical, immunologic, pharmacologic, and microbiologic principles related to issues of disease, laboratory tests, and therapeutics.

d) Distinguish the various etiologies (genetic, developmental, metabolic, toxic, iatrogenic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of diseases (pathogenesis), the associated altered structure and function (pathology and pathophysiology) and characteristic pathologic and laboratory manifestations.

e) Relate common epidemiologic and risk factors for diseases and the role and impact of psychological, behavioral, social, sexual, economic, and cultural factors on health and disease.

f) Explain the ethical, legal, and economic issues that impact health and medical care.

2) Basic skills, including the ability to:

a) Perform and record a complete and accurate health history, sensitive to patient needs and the nature of the situation.

b) Perform and record an accurate and complete physical examination, sensitive to patient needs and the nature of the situation.

c) Develop an appropriate diagnostic and therapeutic plan, appropriately using information resources, laboratory and imaging testing.

d) Communicate (in writing and orally) effectively and respectfully with peers, faculty, colleagues, and other members of the health care team, understanding the role of consultations and referrals.

e) Communicate with patients in an effective, respectful, and compassionate manner, including counseling them on risks, prevention, lifestyle and therapy issues.

f) Analyze the medical literature and other information resources to address medical questions and to sustain professional growth.

g) Apply techniques of population health, including methods of analysis of the health and health problems of defined populations and development of interventions to improve the health of populations.

Throughout training, a candidate must demonstrate medical professionalism including ethical behavior, moral reasoning, cultural competency, honesty, integrity, dependability, and commitment to service.

Medical Degree

Students who complete the undergraduate medical education program obtain an unqualified medical degree. The students must pass: 1) all courses in the undergraduate medical curriculum to acquire essential knowledge and develop skills needed for competent medical practice, and 2) two certifying medical licensure examinations (USMLE, Steps 1 and 2-CK and CS).

Medical education requires that the accumulation of scientific knowledge be accompanied by the simultaneous acquisition of skills and professional attitudes and behavior. Thus, in addition to academic requirements, technical standards have been established for admission and graduation from Morehouse School of Medicine.

These standards are published in the student handbook and define aptitude, abilities and skills in the following areas: observation, communication, motor coordination of function, conceptual, intellectual-conceptual, integrative and quantitative abilities, behavioral and social attributes.

Due to the unique mission of the institution, particular effort is made to promote graduate education in primary care areas. In this regard, another objective of the undergraduate program is to have the majority of graduates choose residency training in primary care specialties. Through training sites in rural and inner city areas, students also discover the special needs of patients in those areas that are historically underserved with regard to physician care. Through achievement of these objectives, graduates of the MD program will be equipped to: 1) enter and complete programs of graduate medical education, 2) qualify for medical licensure, and 3) provide competent, sensitive medical care. In addition, they should have acquired the motivation and skills necessary for continued learning and for understanding the evolving primary healthcare needs of underserved patient populations.

Technical Standards for Medical School Admissions and Graduation

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, and thus, admission to medical school has been offered to those who present the highest qualifications for the study and practice of medicine. Technical standards have been established as prerequisites for admission to and graduation from MSM. All courses in the curriculum are required in order to develop essential skills required to become a competent physician.

Medical Degree

Graduates of medical school must have the knowledge and skills to function in a broad variety of clinical situations and to render a wide spectrum of patient care. Morehouse School of Medicine acknowledges Section 504 of the 1973 Vocational Rehabilitation Act and PL 101-336, the Americans with Disabilities Act (ADA), but ascertains that certain minimum technical standards must be present in the prospective candidates.

A candidate for the MD degree must have aptitude, abilities, and skills in five areas: 1) observation, 2)communication, 3) motor, 4) conceptual, integrative and quantitative, and 5) behavior 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.

- Observation necessitates the functional use of the sense of vision and other sensory modalities. The candidate must be able to observe demonstrations and participate in experiments in the basic sciences. The candidate must also be able to observe a patient accurately at a distance and close at hand.
- Communication includes not only speech, but reading and writing. A candidate must be able to communicate effectively and sensitively with patients and all members of the healthcare team.
- Candidates should have sufficient motor functions to elicit information from patients by palpation, auscultation, percussion, and other diagnostic maneuvers. A candidate should be able to do basic laboratory tests, carry out diagnostic procedures, 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. Such actions require coordination of both gross and fine muscular movements, equilibrium and functional use of the senses of touch and vision.
- Intellectual, integrative and quantitative abilities include measurement, calculation, reasoning, analysis, and synthesis. Problem solving, the critical skill demanded of physicians, requires all of these intellectual abilities. In addition, the candidate should be able to comprehend three-dimensional relations and to understand the spatial relationships of structures.
- Candidates must possess the behavioral and social attributes required for full use of their intellectual abilities. The exercise of good judgment, prompt completion of all responsibilities attendant to the diagnosis and care of patients, and the development of mature, sensitive, and effective relationships with patients are important.
- 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. (Adopted from the College of Medicine at the University of South Florida Technical Standards.)

Medical Degree

Learning Communities

Students in the MD program are placed in longitudinal learning communities at the start of first year. These eight learning communities (Knowledge, Wisdom, Excellence, Compassion, Integrity, Leadership, Innovation and Service) are linked to curricular elements in the Fundamentals of Medicine course. Led by faculty mentors and student leaders, these communities have both curricular and extra-curricular roles. Through participation in these communities, students address residency competencies in teamwork, communication, professionalism, and life-long learning skills. These communities foster peer-to-peer mentoring as well as faculty to student mentoring.

Curriculum

The educational program offered by Morehouse School of Medicine which leads to the Doctor of Medicine (MD) degree, focuses both on scientific medicine and on meeting the primary healthcare needs of patients who are underserved. Most of the first and second-year classes are offered in the Hugh Gloster Basic Medical Sciences Building on the main campus. Clinical experience begins in the first-year with clinical preceptorships in private offices. Clinical experience is continued in a state-of-the-art clinical skills training lab located in the National Center for Primary Care located on the main campus. Learning through community service is also an element of the first-year curriculum. In addition, clinical preceptorships in health clinics and physicians' offices are part of the educational program. The entire first-year curriculum extends over ten and one/half months.

Students may elect to participate in the five year program or may be directed to do so on the basis of performance. This decelerated curriculum allows three years to complete the first two years of the basic sciences curriculum. The second-year of the curriculum begins in mid-August and concludes with the United States Medical Licensing Examination, Step 1 (USMLE, Step 1). The ten-month curriculum includes course work in clinical medicine taught in affiliated hospitals and clinics.

The academic schedule for the third year begins in early July and ends in late June. During this twelve-month period, students must complete all of the following clerkships: Surgery, Family Medicine, Psychiatry, Internal Medicine, Pediatrics, Obstetrics and Gynecology, and a longitudinal full year course, Fundamentals of Medicine 3.

The academic schedule for the fourth year begins in early July and ends in late April. During this ten-month period, students must complete the remaining required course, the Senior Selective. The MD Curriculum and Evaluation Committee has decided that MSM acting internship programs or ICU electives satisfy the requirement. Some ambulatory rotations, including Rural Primary Care, may also satisfy the requirement. Students must complete an additional 6 electives, of which 4 must be clinical electives. The electives program, which must be approved for each student in order to ensure a balanced program, may include electives at other LCME accredited medical schools.

Curriculum for the Doctor of Medicine Program

FIRST YEAR CURRICULUM

Fall and Spring Semesters		**Semester Credit Hours**
Molecules, Structures, Mechanisms Curriculum		
Basic Principles	(Unit 1)	10.0
Organ Systems 1	(Unit 2)	10.0
Organ Systems 2	(Unit 3)	10.0
Organ Systems 3	(Unit 4)	10.0
Community Health		4.0
Fundamentals of Medicine 1		7.0
Total Credit Hours =		**51.0**

First-Year Course Descriptions

MEDI 530-533 Molecules, Structures, Mechanisms Curriculum (40 hours)

Molecules, Structures, and Mechanisms is an integrated curriculum across the first-year that combines classroom, lab, small group, and self-directed study to cover the basic principles of biochemistry, physiology, and anatomy in an organ-systems organization. The course is organized into four units:

Basic Principles	(Unit 1)	(10 hours)
Organ Systems 1	(Unit 2)	(10 hours)
Organ Systems 2	(Unit 3)	(10 hours)
Organ Systems 3	(Unit 4)	(10 hours)

Within these units, core themes of biochemistry, histology and cell biology, embryology, physiology, gross anatomy, neurobiology, and normal behavior are integrated. The overarching theme is normal human biology. Curriculum Director, Brenda Klement, PhD.

MEDI 530 Basic Principles of Human Biology (10 Credit hours)

This course presents the core principles of biochemistry, cell structure and biology, basic embryology, and basic cellular physiology. The following topics are presented: structures of biological compounds, pH and buffers, protein structure, hemoglobin and myoglobin, enzyme kinetics and mechanisms, intermediary metabolism and regulation, bioenergetics, cellular physiology, organization and structure of cells, and basic tissue types. July-September, Course Director: Bill Roth, Ph.D. (letter grade)

MEDI 531 Organ Systems 1 (10 Credit hours)

Building on the content of basic principles, this course presents an integrated introduction to structure and function of the organ systems. This course includes musculoskeletal (with emphasis on back and upper extremity), cardiovascular, respiratory, and gastrointestinal systems, including histology, embryology, gross anatomy, and physiology. Instructional methods include lecture, gross lab, demonstrations, problem sessions, case-based, and self-directed study. September- December, Course Director: Lawrence Wineski, Ph.D. Prerequisite—Completion of MEDI 530. (letter grade)

MEDI 532 Organ Systems 2 (10 Credit hours)

Building on the content of Organ Systems 1, this course continues instruction in histology, embryology, physiology and gross anatomy of the organ systems, continuing with renal, endocrine, gonadal/pelvic (with lower extremity), hematologic and other systems. Instructional methods include lecture, gross lab, demonstrations, problem sessions, case-based and self-directed study. January-March. Course Director: Sridaran Rajagopala, Ph.D. Prerequisite—completion of MEDI 531. (letter grade)

MEDI 533 Organ Systems 3 (10 Credit hours)

This course completes the first year Organ systems sequence with head, neck and nervous systems. The basic anatomy and physiology of the central nervous system are integrated in this course. The major portion of the course is organized by systems, i.e., sensory (e.g., visual, auditory), motor, limbic and autonomic. In the laboratory, gross and microscopic sections of the brain and spinal cord are studied and head and neck are dissected. March-May. Course Director: John W. Patrickson, PhD Prerequisite—completion of MEDI 532. (letter grade)

MEDI 509 Community Health (4 credit hours)

This unique, community-based course minimizes lectures, relying primarily on a format of assigning students to small interdisciplinary groups that pursue health promotion activities

in the fall semester, students analyze the health problems of their designated community, and develop and present policy recommendations to faculty and the center staff. In the spring, students develop health promotion interventions to address the community needs previously identified. Course Director: Ijeoma Azonobi, MD, MPH (September–May) (letter grade)

MEDI 511 Fundamentals of Medicine 1 (7 credit hours)

Fundamentals of Medicine 1 is a first-year course sequence that combines the courses, Clinical Preceptorship, Human Values 1, Human Behavior, and Epidemiology and Biostatistics into a year-long inter-disciplinary sequence. This sequence introduces students to the health care system, primary care practice, core clinical skills, ethics, aspects of normal human behavior, communication skills, and principles of biostatistics and epidemiology. The course sequence integrates clinical areas to enhance the student's development and retention of core knowledge and skills in these areas. This course is interdisciplinary with core faculty from Medical Education, Community Health, Family Medicine, and Psychiatry. This course also links to our learning community experiences. Course sequence director: Martha Elks, MD, PhD: Course Directors Martha Elks, MD, PhD, Monifa Seawell, MD, Ruby Thomas, MD (July–May) (letter grade)

Clinical Preceptorship Component

For most students, the Preceptorship Program is a student's first exposure to patient care. This experience allows students to view the practice of medicine and the healthcare system through the eyes of both the physician and the patient. The component helps students learn to develop empathetic patient relationships. Students experience the practice of primary care medicine in several different urban and rural settings involving Family Practice, Internal Medicine, Pediatrics and Obstetrics and Gynecology. The recognition of community problems is stressed as well as the support systems available to approach these problems. Course Component Director: Ruby Thomas, MD

Epidemiology and Biostatistics Component

This course covers methods including epidemic investigations, study design, Bayes, Theorem, and hypothesis testing. Instructional methods include lecture, discussion, problem solving, and computer- based tutorials. The course includes computer-based tutorials. Course Component Director: Martha Elks, MD, PhD

Human Behavior Component

This course sequence covers the human life cycle from birth to death, with a focus on normality and adaptive behavior. It includes historical evaluation of psychiatric nomenclature and the efforts to define with increasing precision deviation from normality. Course Component Director: Monifa Seawell, MD

SECOND YEAR CURRICULUM

Course	**Semester Credit Hours**
Pathophysiology	7.0
*Nutrition	1.0
Microbiology and Immunology	7.0
Pharmacology and Toxicology	7.0
Pathology	12.0
Fundamentals of Medicine 2	8.0
Total Credit Hours=	**42.0**

*Pass/Fail Course

MEDI 600 Pathophysiology (7 credit hours)

This is a two-semester course designed not only to cover the pathophysiological mechanisms of disease, but also to develop the students' clinical reasoning abilities. It is intended to be a year-long board review and, as such, integrates the basic sciences with clinical topics. The course is taught in an interactive case-based format where student participation and initiative are crucial to success. Student evaluation is based on performance on USMLE-type multiple choice questions and team-based learning sessions. Course Director: Janice Herbert-Carter, MD (October- May) (letter grade)

MEDI 601 Nutrition (1 credit hour)

This course is designed to increase student understanding of the basic nutritional principles needed for general patient care. Course content includes: nutritional assessment and support; diet and disease trends; nutritional disorders. Course Director: Marjorie Smith, MD (August-December) (Pass-fail)

MEDI 602 Medical Microbiology and Immunology (7 credit hours)

This course covers all of the agents of infectious diseases, the nature of the infections they cause, host responses and the natural and clinical defenses against infectious diseases. The goal of this course is to provide the student sufficient conceptual and practical knowledge of Medical Microbiology and Immunology to enter clinical training or preparation for more advanced study of infectious diseases. Prerequisite: Satisfactory completion of the first-year undergraduate medical education curriculum. Course Director: Michael Powell, PhD (August-May) (letter grade)

MEDI 603 Medical Pharmacology and Toxicology (7 credit hours)

Medical Pharmacology and Toxicology is a course for second- year medical students and graduate students. The course lectures include: introduction to the principle of pharmacokinetics (how the body acts on the drug) and pharmacodynamics (how the drug acts on the body) and a survey of major classes of therapeutic agents with emphasis on their mechanism(s) of action and therapeutic use(s), adverse effects and drug interactions. The department also incorporates lectures, small group-sessions (patient-oriented problem solving; peer assisted learning), case studies, clinical correlation conference and objective-based examinations into the course. Prerequisite: Satisfactory completion of medical courses in biochemistry and physiology. Course Director: Karen Randall, PhD, Ward Kirlin, PhD, (August-May) (letter grade)

MEDI 606 Pathology (12 credit hours)

This is a required course for medical students. It introduces the student to the study of disease and serves as a bridge between the basic and clinical sciences. The first part of the course covers general processes in pathology that are common to many diseases, including cell and tissue reactions to injury, neoplasia, and non organ specific disorders such as genetic diseases, immune diseases, environmental disorders, infections, and nutritional diseases. The remainder of the course involves discussions of organ-specific disease states (systemic pathology). Specifically, the course covers causes, pathogenetic mechanisms, morphologic and functional effects of diseases, and relates these to the patient in terms of

The course also incorporates principles relating effective use of the clinical laboratory in the diagnosis of selected diseases. An important aspect of the course is the introduction to the language of medicine and correct use of medical terminology. Teaching methods include lectures, simulated clinical case discussions, and laboratory sessions utilizing computer-simulated cases, fixed gross specimens, glass slides, color prints and transparencies. The case simulations allow the student to correlate clinical information with the morphology. These case vignettes also allow the student to begin to organize clinical data from various sources in order to solve clinical problems and strengthen skills in clinical reasoning. Prerequisite: Satisfactory completion of Medical School courses in Human Morphology, Biochemistry, Neuroscience, and Medical Physiology. Course Director: Marjorie Smith, MD (August-May) (letter grade)

MEDI 611 Fundamentals of Medicine 2 (8 credit hours)

This course includes Introduction to Patient Care (IPC), Physical Diagnosis, Human Values 2, and Psychopathology components. This course builds on the understanding of the doctor-patient relationship and interviewing skills. Large group meetings are held in the Fall for discussion, demonstration, and practice of the physical examination. For the remainder of the year, students are divided into small groups under the direction of the clinical faculty for the study of medical history-taking, physical examination, and the oral and written patient presentation. Individual patient assignments on the medical wards are supplemented by small group sessions. Course Directors: Khadeja Johnson, MD, Martha Elks, MD, PhD; Pediatrics Director, David Levine, MD; Gynecology Director, Jamil Harp, MD (August-May) Psychopathology Director: Quentin Ted Smith, MD (letter grade)

Human Values 2 Component

Human Values II builds on Human Values I in presentations, discussions and group presentations, with an emphasis on cultural competence, cultural appreciation, domestic and other violence, and personal and family impacts of death. Course Director: Martha Elks, MD, PhD

Psychopathology Component

Students are introduced to techniques of psychiatric and psychological assessment, to the most common psychiatric disorders and emergencies, to crisis intervention, and to psychopharmacology. A survey of the relationship of psychiatry and the applied behavioral sciences of other disciplines and specialties is provided. Medical students should become sensitized to a variety of social and cultural problems infringing on patients

THIRD YEAR CURRICULUM

Required Clerkships	**Semester**	**Credit Hours**
Internal Medicine	15.0	(12 weeks)
Pediatrics	10.0	(8 weeks)
Obstetrics/Gynecology	10.0	(8 weeks)
Psychiatry	8.0	(6 weeks)
Surgery	10.0	(8 weeks)
Family Medicine and Rural Health	8.0	(6 weeks)
Fundamentals of Medicine 3	2.0	
Total Credit Hours=	**63.0**	

Third-Year Course Descriptions

MEDI 700 Third Year Clerkship in Internal Medicine (15 credit hours)

Students spend a 12 week rotation on the medical inpatient services of Grady Memorial Hospital and the Atlanta VA Medical Center, and ambulatory sub specialty experience. The students collect the database, formulate the problem list, devise the initial plans and follow each patient in a problem-oriented fashion. To a large extent the students have primary responsibility for their patients, working under the close supervision of house staff and faculty. Under the direction of house staff, students will work as an integral member of a service team consisting of an attending faculty member, senior resident, two interns and another student. Each student makes rounds, presents patients to the attending faculty, and takes calls every fifth night. Each student completely works up two or three new patients per week during the two-month rotation. Student goals are to learn how to collect data, identify and define individual components and clarify their relationship to each other, apply pathophysiologic principles to the clinical setting, organize problems for solution and follow them systematically through to their resolution. Course Director: Marvin L. Crawford, MD (July-July) (letter grade)

MEDI 702 Third Year Clerkship in Obstetrics and Gynecology (10 credit hours)

Obstetrics and Gynecology spans the entire age range of the female patient and is extensively health-oriented with emphasis on prevention of illness and on surgical and obstetrical techniques. Students participate actively in the prenatal intrapartum and postpartum care of normal and abnormal obstetrical patients. They are actively involved with the diagnosis and treatment of minor and major gynecological problems in the outpatient department and on the hospital wards. Students are also exposed to the different obstetrical and gynecological subspecialties, including maternal fetal medicine, oncology, reproductive endocrinology and infertility. Course Director: Jamil Harp MD (July-July) (letter grade)

MEDI 703 Third Year Clerkship in Pediatrics (10 credit hours)

Oriented to Primary Care Pediatrics in medically underserved settings, this required clerkship features a three week ambulatory placement in a community private practice or a Kaiser or Wellstar Office. The inpatient section of the course includes a two-week rotation at Children's Healthcare of Atlanta at Hughes Spalding or Scottish Rite and a one-week service in Neonatology at Gwinnett Medical Center. Finally, there are two community/ subspecialty weeks where students spend time in either subspecialty offices or clinics. There are also two half-days weekly for case discussions, computer based clinical simulations, and other classroom activities. The clerkship is largely based on a national curriculum developed by the Council on Medical Student Education in Pediatrics and the Ambulatory Pediatrics Association. Clerkship Director: David A. Levine, MD (July-July) (letter grade)

MEDI 704 Third Year Clerkship in Psychiatry (8 credit hours)

This is a seven-week rotation during the third year. Emphasis is on the clinical application of principles of psychiatry and aberrant behavior learned in the first two years. Students are assigned rotations at Ridgeview Institute, a psychiatric service facility; The Atlanta VA Medical Center, an in/outpatient hospital; Georgia Regional Hospital/Atlanta, a public psychiatric facility; and Peachford Behavioral Healthcare System, a psychiatric and addictive disease treatment inpatient hospital. Atlanta VA and Georgia Regional Hospital offer a broad spectrum of psychiatric disorders in both inpatient and outpatient settings. Clinical responsibilities include performing admission histories and psychiatric examinations, formulating psychodynamic aspects of the case, psychiatric differential diagnosis and actively participating in the psychotherapeutic and psychopharmacologic treatment and management of patients. Students attend and participate in rounds and ward teaching conferences.

Students also participate in group therapy to gain further insight into the psychiatric problems of patients and their families. A clinical case teaching conference is held weekly with an attending physician to demonstrate interview techniques, discuss differential diagnosis, and to allow for in-depth discussion of psychodynamics of selected patients. A lecture series addresses clinical aspects of the diagnosis and treatment of the major psychiatric disorders. Some selected topics are interviewing skills, emergency psychiatry, behavioral medicine, psychopharmacology, suicide, substance abuse, and forensic issues. Prerequisite: Promotion to the third year. Course Director: Quentin T. Smith, MD (July-July) (letter grade)

MEDI 705 Third Year Clerkship in Surgery (10 credit hours)

Third Year Clerkship in Surgery is a required eight-week rotation offered for all students who successfully complete all Basic Science requirements. The rotation is under the guidance of Morehouse School of Medicine, Department of Surgery's clinical faculty at Grady Memorial Hospital. Emphasis is on the use of basic science principles, while developing clinical diagnosis and management skills. Students are expected to participate fully in the diagnosis, treatment, and management of patients on the surgical teams, including in-house call. Didactic lectures, conferences and rounds are mandatory. Participation in the operating room is under the supervision of residents and faculty attending. Mini rotations in pediatric surgery, urology, and otorhinolarynogology give students subspecialty experience. Students participate in a suture workshop during the first week of the Clerkship. The didactic lectures/ workshops will cover General Surgery and its subspecialties. MCQ computer administered exams are given as a part of the student evaluation. Interim Course Director: Frank Jones, MD (July-July) (letter grade)

MEDI 707 Third Year Clerkship in Family Medicine and Rural Health (8 credit hours)

The Family Medicine clerkship is a required eight-week clerkship. It is designed to meet the educational objectives in Family Medicine, Pediatrics, and Obstetrics and Gynecology. The student will have the opportunity to evaluate acute and chronic medical problems that frequently occur in the community. Even though the emphasis is on the development of effective clinical skills in the ambulatory patient care setting, experiences in the direct care of patients on family medicine hospital services, including labor and delivery, are also provided. Students are assigned a prenatal patient and expected to participate in delivery.

Sites may include the Morehouse Medical Associates Family Medical Center and Comprehensive Family Healthcare Center, the offices of practicing family physicians, community health centers, and South Fulton Medical Center/Atlanta Medical Center – two merged hospitals -- where students serve as sub-interns. Providing healthcare for senior citizens, adolescents, and obstetrical patients is strongly emphasized. Course Director: Dolapo Babalola, MD (July–July) (letter grade)

MEDI 711 Fundamentals of Medicine 3 (2 credit hours)

This is a year long inter-disciplinary/multi-disciplinary seminar course that meets weekly across the third year. This course continues the multi-disciplinary, multi-theme and interactive approach of Fundamentals of Medicine 1 and 2. All third-year students participate in this year-long sequence of weekly 1 1/2 hour sessions covering a variety of topics. Among the areas covered are the health care system, diagnostic imaging, medical decision making and evidence-based medicine, professionalism and ethics, subspecialty areas, applied basic sciences, rehabilitation and career planning, exam preparation, and related topics. Instruction is by case discussion, lecture, in-class exercises, demonstrations, clinicopathologic conference, presentations, skills sessions, focused assignments and selected readings. The course addresses inter-disciplinary and subspecialty topics that are key in the practice of medicine, but not otherwise covered in other clerkships. Course Directors: Martha Elks, MD, PhD and David Levine, MD (July–July) (letter grade)

FOURTH YEAR CURRICULUM

Required Clerkships	**Semester**	**Credit Hours**
Senior selective*	5.0	(4 weeks)
**Elective Rotations	25.0	(28 weeks)
Total Credit Hours =	**35.0**	

*Medicine Ward service, Surgery Ward service, Obstetrics Ward service, Inpatient Pediatrics Acting internship, Medical Intensive care unit, Surgical Intensive care unit, Ambulatory Adult Health, Rural Health, **Pass/Fail Course

Fourth-Year Course Descriptions

Elective Courses are detailed in a separate electives catalog.

Morehouse School of Medicine reserves the right to terminate or modify program requirement content, and the sequence of program offerings from semester to semester or year to year, for educational reasons which it deems sufficient to warrant such actions.

Further, MSM reserves the right to terminate programs for financial or other reasons which it determines warrant such action. The content, schedule, requirements, and means of course presentation may be changed at any time by the School of Medicine for educational reasons which it determines are sufficient to warrant such action. Programs, services, or other activities of the School may be terminated at any time due to reasons beyond the control of the School including but not limited to, acts of God, natural disasters, destruction of premises, labor disturbances, governmental order, financial insolvency, or other reasons or circumstances beyond the control of the School of Medicine.

Academic Regulations

Academic policies, academic requirements, and objectives for specific courses within each of the phases of the curriculum are determined by the teaching faculty responsible for the course, subject to approval by the MD Program Curriculum and Evaluation Committee and the Academic Policy Council.

The determination of grades is the responsibility of the department having jurisdiction over a course. Course directors provide grading policies for their courses at the beginning of each course. These policies allow students to understand how grades are calculated and to evaluate their academic standing at any time. Grades may be based on performance on written or oral examinations, standardized testing, papers, presentations, faculty evaluation, attendance and other factors. Non-cognitive performance, including maturity, demeanor, cooperation, responsibility, ethics, and similar attributes are also factors in the assessment of performance. For each required course and clerkship, students will be expected, as a professional duty, to provide feedback regarding their experiences and perceptions about the content covered, methods of presentation, and the effectiveness of presentations. Departments and course directors in cooperation with the Student Academic Progress and Promotion Committee set criteria for remediation and/or repeat of failed courses.

Class Attendance and Examination Policy

Class attendance rules are established by individual course directors or instructors; however, class attendance is expected. Attendance throughout the clinical clerkships and other clinical experiences involving patient care is required. Excessive absences will result in incomplete or no credit for clinical experiences. Laboratory assignments are usually cooperative endeavors, thus absenteeism of one student is an imposition on others. If excessive, such absenteeism is regarded as a serious breach of conduct.

Attendance is required for some specific sessions and courses. Attendance is mandatory for tests and final exams. Excused absence from an examination must be obtained from the Dean of Student Affairs prior to the examination or upon documentation of illness or other emergency taking place at the time of the examination. An unexcused absence from an examination will constitute a failure on the examination. Whether an absence is excused is determined only by consultation of the course director with the Dean of Student Affairs. Examinations to make-up a deficiency due to an excused absence can be scheduled only in the week following final examinations.

Student promotion from one year to the next, recommendations for repeat of courses, or recommendations of dismissal are based upon academic performance in courses as well as upon evaluation of professional attitude and judgment, emotional health, fiscal responsibility, character and professional ethics, as determined by the Student Academic Progress and Promotions Committee of MSM.

Satisfactory performance on the United States Medical Licensing Examination, Step 1 (USMLE, Step 1) is required for promotion to the third year. A total passing score satisfies this criterion for promotion.

Similarly, in order to qualify for receipt of the MD degree from MSM, students must record an overall passing score on the United States Medical Licensing Examination, Step 2 (CK and CS) (USMLE, Step 2).

Medical Degree

Requirements for the Degree of Doctor of Medicine

The course of medical education for the Doctor of Medicine degree ordinarily consists of a minimum of four years of study. Students recommended for the degree of Doctor of Medicine shall have completed an entire course of instruction as matriculated medical students, and must have demonstrated the knowledge, skills, maturity, emotional stability and integrity judged by the faculty to be essential to an effective physician. Each student must pass both Step 1 and Step 2 CK and CS of the USMLE as a requirement for graduation. Upon completion of the curricular requirements, the degree is awarded following the recommendation of the Promotions Committee, the Faculty, the Dean and the approval of the Board of Trustees. Candidates must have discharged all current indebtedness to the School to qualify for graduation.

Morehouse School of Medicine confers the MD degree in May and December of each year. However, there is only one Commencement Exercise in May of each year. All students must complete all requirements for receipt of the MD degree within one month of the diploma date in order to receive a diploma.

Honors in Community Service/ Honors in Translational Neurobiology

Students who demonstrate excellence in the first-year Community Health course are invited to participate in the Honors in Community Service Program. This mentored program involves additional community service and planning, executing, evaluating and reporting on a community service project. Students receive recognition of this honor at graduation.

A second program, Honors in Translational Neurobiology combines a research experience in clinical or bench neuroscience along with translation of findings to the community through community presentations, empowerment, or both. This mentored program combines work with the Neuroscience Institute with the Center for Service Learning. Students receive recognition of this honor at graduation.

Dual Degrees

Students have pursued combined degrees including, but not limited to MD, PhD, MD, MSCR, and MD, MPH. Information on the curricula and courses of these degree programs are outlined in the Graduate Education in Biomedical Sciences (PhD, MSCR) and Public Health Education (MPH) sections of the catalog.

Morehouse School Of Medicine

GRADUATE EDUCATION

Graduate Education in Biomedical Sciences (GEBS)

Graduate Education in Biomedical Sciences

http://www.msm.edu/Education/GEBS/index.php

Associate Dean for Graduate Studies:	Douglas F. Paulsen, PhD
Senior Associate Dean for Clinical Research:	Elizabeth Ofili, MD, MPH
Assistant Dean for Educational Outreach and Health Careers:	Rita B. Finley, Ph.D.

Overview

MSM is accredited by the Southern Association of Colleges and Schools. The Graduate Education in Biomedical Sciences Program offers programs of study leading to the MS in Biomedical Research (MSBR), MS in Biomedical Technology (MSBT), MS in Clinical Research (MSCR), M.S. in Medical Sciences (MSMS), B.S/M.S. in Neuroscience, and PhD in Biomedical Sciences. The first PhD was awarded in 1998. The MS programs are newer, accepting our first MSCR students in 2002, first MSBR students in 2008, first MSBT student in 2009 and the B.S./M.S in Neuroscience dual degree program was introduced in 2014 The primary goal of these programs is to produce scientists, especially individuals underrepresented in science, well trained to teach and conduct biomedical research. Our first MSMS students enrolled in 2012. The MSMS program is designed to enrich and prepare students for entry into advanced health-professions training (e.g., medical school). MSM-trained biomedical scientists are encouraged to have a special commitment to resolving diseases that disproportionately affect underserved populations and educating underrepresented minority students. The mission is a key factor in guiding the selection of applicants for admission and in developing the program curricula.

These graduate programs are overseen by the Graduate Education in Biomedical Sciences Committee (GEBSC), a committee of the graduate faculty, which sets program policy and serves in an advisory capacity to the MSM Academic Policy Council in general and to the Associate Dean for Graduate Studies in particular.

The **PhD in Biomedical Sciences** program is designed to develop independent investigators capable of assuming leadership roles in academic, government, and corporate biomedical research. It involves a core-didactic curriculum followed by extensive faculty-guided dissertation research directed toward contributing new discoveries that will advance the field in which the student is interested.

Graduate Education in Biomedical Sciences (GEBS)

The program provides a broad background in the basic biomedical sciences and advanced training in specific fields pertinent to human health.

The **MS in Clinical Research** program is a broad-based multi-disciplinary graduate level program in clinical research designed to prepare clinical faculty, senior residents, doctorate -level non-MSM faculty, undergraduate/masters-level students, and current MSM PhD or MD students for a career in clinical and translational research. The program provides training in the principles and methods of biostatistics, epidemiology, genetics and clinical trials, outcomes research, health services research, health economics and application of these principles and methods to clinical research. A Multidisciplinary Clinical and Translational Research (MCTR) **Certificate program** is also offered to address the needs of a variety of trainees who will participate as members of multidisciplinary research teams.

The **MS in Biomedical Research** program provides a core-didactic and thesis-based curriculum for college graduates seeking a terminal, thesis-based Master's degree or considering the future pursuit of doctoral degrees in research or the health sciences. The program allows students to obtain a graduate degree; further explore career options in the biomedical sciences; document their ability to handle graduate-level coursework; and conduct a mentored research project in an area of interest to them. Some coursework completed for the MSBR program may be applicable toward the requirements for the PhD program at MSM if the student subsequently gains admission to that program.

The **MS in Biomedical Technology** program is a non-thesis degree program for college graduates preparing for, or already engaged in, biomedical technology careers. The classroom curriculum is similar to that of the thesis-based program. Beyond the classroom, students in this program will focus on gaining experience in developing and applying experimental design, and a variety of state-of-the-art biomedical research methods and instrumentation.

The **MS in Medical Sciences** program is an interdisciplinary degree. It may be used as a stand-alone degree by students seeking career enhancement in fields such as the pharmaceutical industry or the health science professions; by students seeking credentials in the biomedical sciences as a preliminary to applying for medical school or other health sciences professional programs; or by students seeking to enhance their knowledge base and exposure prior to choosing a career direction.

Graduate Education in Biomedical Sciences (GEBS)

The program challenges students in advanced-level graduate courses, provides support for improving MCAT scores, helps develop an understanding of available careers in the health professions, provides diverse clinical experiences, improves communications skills through writing workshops and mock interviews, improves study methods, and assists in improving strategies for developing successful applications to health professions programs.

The **M.S. in Neurosciences** degree provides a core-didactic and thesis-based curriculum with an emphasis in the area of Neuroscience. The degree requires successful completion of two years of specified course work towards the Bachelor of Sciences degree from an undergraduate institution in the Atlanta University Center, and is only offered as a dual degree (BS/MSNS). The program will allow students to obtain a terminal, thesis-based Master's degree or consider pursuit of a doctoral degree in Neuroscience. Students will conduct a mentored research project in the area of Neuroscience.

The **MS in Clinical Research/PhD in Biomedical Sciences** dual-degree program is designed to develop outstanding students as independent investigators capable of assuming leadership roles in clinical and translational research in academic, government, or corporate environments. It includes graduate-level coursework from both the MSCR and PhD programs as well as extensive faculty-guided dissertation research that includes clinical and/or translational studies. Students may apply to enter this program after their first year in either the PhD or MSCR program.

Training leading toward both the **MD and PhD in Biomedical Sciences** degrees is available to medical students interested in pursuing both degrees at MSM. This program requires completion of the full medical curriculum, a modified didactic component for the PhD curriculum, as well as extensive faculty-guided dissertation research in basic and/or clinical sciences. Qualified medical students may enter this program after completing their first two years of preclinical training. After completing additional PhD coursework, students embark on their dissertation research and then return to medical school for their clinical training once that research has been completed.

Graduate Education in Biomedical Sciences (GEBS)

Application Process

Application instructions and application forms for GEBS degree programs (**PhD, MSBR, MSBT, and MSMS**) can be viewed at https://www.applyweb.com/mh2/. Applicants must apply online by setting up a secure account. This system allows you to work on your application, save your work, and return until you're ready to submit. There is a $50 non-refundable application fee for all GEBS degree programs. Applicants seeking admission to the all GEBS degree programs must:

- Hold a baccalaureate degree or the equivalent from an accredited undergraduate institution.
- Have a record of superior academic achievement in undergraduate studies in the natural sciences (e.g., biology, chemistry, or physics).

Other application requirements are program-specific

- The Graduate Record Exam (GRE) General Exam is required for all PhD, MSBR and MSBT applicants and MSCR applicants who do not already hold doctoral degrees. Scores cannot be older than 5 years.
- Applicants to the MSCR/PhD Dual-Degree program must have successfully completed the first year core curriculum for either the MSCR or PhD degree with a GPA of 3.0 or better.

MSCR Applicants who do not already hold doctoral degrees must meet the following criteria:

- 3.0 GPA
- One year of general or inorganic chemistry
- One year of organic chemistry (or one semester of organic chemistry and one
- semester of biochemistry)
- One year of college mathematics (at least college algebra)
- Medical College Admissions Test (MCAT) scores no older than three years (no
- minimum score for admission, but verbal reasoning score should not fall below 5).

Application Deadlines

PhD applications for fall admission are due by February 1.

- MSBR, MSBT, and MSMS applications for fall admission are due by May 1.
- MSCR applications for fall admission are due by May 1.

- MSCR applications for continuing MSM students to an MSCR dual degree program are due by November 9.

Additional information about program content and degree requirements may be obtained by calling the Office of Graduate Education in Biomedical Sciences at (404) 752-1580, by sending an email to GEBS@msm.edu, or by sending your request to the address below. Please specify which program you are inquiring about.

Graduate Education in Biomedical Sciences
Morehouse School of Medicine
720 Westview Drive SW
Atlanta, GA 30310-1495

International Applicants

Additional requirements for international applicants are included on the web pages listed above for application instructions. If you have difficulty accessing this document online, you may request that a copy be sent by email, FAX, or post, through one of the contact points listed above.

Selection Criteria and Selection Process

Selection of applicants for the graduate degree programs in the biomedical sciences is competitive. Applications are evaluated by the appropriate Admissions Committee. The evaluations are based on undergraduate and graduate background and performance in general and performance in the sciences in particular. In addition, performance on the Graduate Record Examination (PhD, MSBR, MSBT, MSCR) or Medical College Admissions Test (MSMS) and letters of reference from former or current science instructors and research mentors are important in judging a student's preparedness for graduate study.

For the PhD, MSBR, MSBT, and MSCR programs, prior research experience is recommended but is not required. For all programs, applicants are invited for interviews which are required for admission to graduate study. After considering the applicants for each class, the Admissions Committee forwards its recommendations to the Associate Dean, who offers admission based on the Committee's recommendations, the availability of space in the program, and the availability of funding.

Graduate Education in Biomedical Sciences (GEBS)

DOCTOR OF PHILOSOPHY in BIOMEDICAL SCIENCES

Program Director: Ward Kirlin, PhD

Program Manager: Jamillah McDaniel, MPH, PhD

Requirements for the PhD Degree

Coursework

The first year of study is focused on instruction in core (required) courses covering fundamental aspects of cell, tissue, and organ system structure and function, as well as biochemistry, molecular biology and biomedical genetics. An additional course that provides background information and examples of research in areas of active interest to MSM research faculty is also required. The core curriculum also introduces methods, instrumentation, ethics, critical thinking, and writing skills critical to success as a professional scientist. Students are required to earn a B in each of their core courses to advance in the program and to maintain stipend support. At the end of the first year, students identify an advisor for their advanced study and research. Students may study with graduate faculty in a variety of basic science and clinical departments conducting basic and translational biomedical research. Current areas of focus include AIDS and infectious diseases, cancer, cardiovascular disease, cell biology, molecular biology, neuroscience, reproductive biology, temporal (circadian) biology, and vision research. The student's research advisor must be a member of MSM's graduate faculty. Once an advisor is identified, students take elective courses and begin gaining research experience in the advisor's laboratory. Elective courses must be selected with the approval of the research advisor to assure an adequate knowledge base for the field of study chosen.

Qualifying Exam

The qualifying exam for the PhD in Biomedical Sciences involves 3 parts: 1) the Core Comprehensive Exam (CCE); 2) the Elective Competency Certification (ECC); and 3) the Dissertation Proposal. The CCE is administered at the end of the first year of study (in June for students who entered the previous fall). The exam includes closed-book essay questions and oral examinations by the directors of the Core Courses. A minimum score of 80% is required on each section to pass this comprehensive exam.

Once students have passed the CCE, they complete their lab rotations and select an advisor who will help them select their elective courses, their dissertation research project, and their dissertation committee.

The second part of the qualifying exam process involves a competency certification (ECC) covering the student's elective studies. To complete this requirement, students must submit a form signed by their dissertation advisor certifying that the student has achieved the expected level of competency in the elective studies.

The third part of the qualifying exam process is the development of a formal dissertation research proposal describing the background, experimental design, methods, and timeline for the student's dissertation research. After submitting the proposal in the required format, the student will defend it in an oral presentation to their dissertation committee. Committee approval of both the written proposal and oral presentation of the proposal constitutes successful completion of the third part of the qualifying exam.

Degree Candidacy

Students having earned a B or better in their graduate course work and having passed all parts of their qualifying exam are eligible to apply for degree candidacy. After earning candidacy, students will expend most of their effort completing their dissertation research and preparing their dissertation. During the conduct of the dissertation research, the student is required to convene regular (once per semester minimum) meetings of the dissertation committee to report progress, receive direction, and earn dissertation research credit.

Completion of Degree Requirements

Once the dissertation research is completed to the satisfaction of the student's committee, the student must prepare a written dissertation describing the background, approach, and results of the work, including a discussion of the significance of the findings in advancing scientific knowledge. Successful dissertation research must constitute a significant, original contribution to scientific knowledge as judged by the dissertation committee. Once the dissertation has reached its final stages, the student must, with the approval of the committee, schedule a public presentation and defense of the work. The student's committee will determine whether the student has successfully defended the dissertation. The committee often requires final adjustments to the written dissertation after a successful oral defense. Once the dissertation has been successfully defended and the final modifications accepted by the committee, copies of the final document must be submitted to the graduate office to complete the requirements for the PhD degree.

Graduate Education in Biomedical Sciences (GEBS)

Curriculum for the PhD in Biomedical Sciences*

FIRST YEAR CURRICULUM

Fall Semester		**Semester Credit Hours**
GEBS 517	Graduate Biochemistry	3
GEBS 517L	Graduate Biochemistry Lab	2
GEBS 535	Human Biology	3
GEBS 535L	Human Biology Lab	2
GEBS 534	Scientific Integrity	2
GEBS 533	Critical Thinking and Scientific Communication I	2

Spring Semester		**Semester Credit Hours**
GEBS 537	Integrated Biomedical Sciences	4
GEBS 528	Biomedical Genetics	3
GEBS 528L	Biomedical Genetics Lab	2
GEBS 546	Critical Thinking and Scientific Communication II	2
GEBS 513	Laboratory Rotation 1 (6 weeks)	1

SECOND-YEAR CURRICULUM

Course		**Semester Credit Hours**
GEBS 514	Laboratory Rotation 2 (6 weeks)	1
GEBS 547	Research Data Analysis	3
GEBS 610	Preparing a Research Proposal	2
GEBS 503	Seminar in Biomedical Sciences I	1
GEBS 504	Seminar in Biomedical Sciences II	1
GEBS 509	Biomedical Sciences Presentation I	1
	Elective(s)	TBD (8 h minimum)
GEBS 749	Supervised Research (Prior to candidacy)	TBD

GEBS 800	Dissertation Research (Requires candidacy)	TBD (25 h minimum)

THIRD-YEAR CURRICULUM

Course		Semester Credit Hours
GEBS 505	Seminar in Biomedical Sciences III	1
GEBS 506	Seminar in Biomedical Sciences IV	1
GEBS 510	Biomedical Sciences Presentation II	1
	Elective(s)	TBD (8 minimum)
GEBS 800	Dissertation Research (Requires candidacy)	TBD (25 minimum)

FOURTH-YEAR CURRICULUM**

Course		Semester Credit Hours
GEBS 507	Seminar in Biomedical Sciences V	1
GEBS 508	Seminar in Biomedical Sciences VI	1
GEBS 800	Dissertation Research (Requires candidacy)	TBD (25 minimum)

**The PhD curriculum is subject to ongoing revisions and may change during a student's tenure, including changes that may affect graduation requirements.*

***Depending on the rate of progress toward achieving research goals, dissertation research often continues beyond the fourth-year of matriculation in the PhD program. The student's dissertation committee determines when, and whether, sufficient research has been successfully completed to merit the PhD degree.*

Graduate Education in Biomedical Sciences (GEBS)

MASTER OF SCIENCE in CLINICAL RESEARCH

Program Director:	Elizabeth O. Ofili, MD, MPH, FACC
Program Co-Director:	Alexander Quarshie, MBChB, MS
Program Manager:	Ulochi Nwagwu, MPH

Requirements for the MSCR Degree

Coursework

The Master of Science in Clinical Research program is designed to allow the trainees to complete the Clinical Research Education and Career Development (CRECD) program in 15 or 24 months. Trainees who elect the 15-month option will devote at least 75% effort to the program. The schedule is sufficiently flexible to allow optimum participation of students and instructors. Trainees with ongoing clinical responsibilities will be best served by flexibility in the access to didactic teaching materials and interchanges with faculty. E-learning facilities will be provided to address this challenge, and enhance the training experience. The didactic coursework is structured to provide mastery of the fundamentals of Clinical Research, in the traditional disciplines of epidemiology, biostatistics, data analysis and clinical trials. A unique course has been developed that will challenge the trainees from incorporating social science and behavior theory concepts to understanding health disparities. The course will also cover ethical issues in clinical research, the legacy of the Tuskegee experiments, and their impact on participation by African Americans in Clinical Research.

Practical Skills Workshop

A required practical skills workshop series consists of an introduction to principles and practices of clinical research. The practical skills workshop series is offered during the Fall semester of the first year. This series is designed to help trainees begin work on their mentored projects. Topics covered include: introduction to clinical research, SAS, GIS, obtaining research support and grant funding mechanisms, proposal development, study designs, analysis of secondary data, cultural competency, career development, human subject advocacy, proposal submission process and grant administration.

Clinical Research Seminar Series

This monthly series features CRECD trainees, Morehouse School of Medicine instructors, consultants, and mentors as well as distinguished outside speakers.

Trainees will have an opportunity to gain exposure to a variety of role models from within, as well as outside the Morehouse School of Medicine community. Trainees will also present their work for critical review and comments. This format will expose the trainees to contemporary critical thinking on health disparities, generate new ideas, and foster research collaboration within Morehouse School of Medicine and other collaborating institutions.

Mentored Research Project

The mentored research project will account for 12 of the 36 credit hours required for successful completion of the MS in Clinical Research. Applicants to the MSCR program will develop research proposals in consultation with their clinical chairs and/or research mentors and submit them for review and approval by the Curriculum Committee. The proposal will form the basis for the mentored research project.

Minimum Entrance Requirements for the Categories of MSCR Students

MSM faculty/senior residents or NIH, CRECD-funded applicants:

Faculty appointment at MSM (7 years or less)
Must be U.S. citizens or have permanent resident visa status
Letter from the chair of your department
Must have a terminal degree
Three individual letters from persons who are capable of speaking to your professional skills and goals
Two- to three-page research abstract or narrative
Applicant and lead mentor NIH style biosketches
Fully completed online application

Doctorate Level - Non-MSM Faculty:

Terminal degree
Three individual letters from persons who are capable of speaking to your professional skills and goals
Two- to three-page research abstract or narrative
Applicant and lead mentor NIH style biosketch
Fully completed online application

Graduate Education in Biomedical Sciences (GEBS)

Undergraduate/Master's Level

- GRE Scores
- Bachelor's Degree
- Narrative on research interest or experience (can be substituted for narrative on application)
- Two letters of professional reference
- Lead mentor NIH-style biosketch (if applicable)
- Official transcript
- Fully completed online application

Current PhD or MD student

- Good academic standing
- One letter from mentor stating their commitment to be your lead mentor while in the program
- One additional letter of reference
- Lead mentor NIH style biosketch
- Two- to three-page research abstract or narrative
- Fully completed online application

Graduate Education in Biomedical Sciences (GEBS)

Curriculum for the MS in Clinical Research*

FIRST YEAR CURRICULUM

Fall Semester	**Semester Credit Hours**
Principles of Clinical Research	2
Clinical Research Seminar (P/F)	1
Fundamentals of Biostatistics	3
Mentored Research Project (P/F)	1
Community Engagement and Health Disparities	2
Practical Skills Workshop Series	1

Spring Semester	**Semester Credit Hours**
Clinical Trials	2
Analysis of Frequency Data	3
Clinical Research Seminar (P/F)	1
Mentored Research Project (P/F)	1
Introduction to Epidemiology	3
Scientific Writing and Communication	3

SECOND-YEAR CURRICULUM

Fall Semester	**Semester Credit Hours**
Introduction to Medical Informatics	2
Mentored Research Project (L/G)	6
Ethics of Clinical Research in Vulnerable Populations	2
Clinical Research seminar	0

Spring Semester	**Semester Credit Hours**
Mentored Research Project (L/G)	4
Clinical Research Seminar	0

Graduate Education in Biomedical Sciences (GEBS)

PhD in BIOMEDICAL SCIENCES / MS in CLINICAL RESEARCH DUAL DEGREE

Program Co-Director:	Elizabeth O. Ofili, MD, MPH, FACC
Program Co-Director:	Douglas F. Paulsen, PhD, FAAA
Program Co-Director:	Alexander Quarshie, MBChB, MS
Program Manager:	Ulochi Nwagwu, MPH
Program Manager:	Jamillah McDaniel, MPH, PhD

Coursework

Students may enter this dual-degree program through either Ph.D. or M.S.C.R. enrollment after completing the first year of study in either program. In both cases, application to the dual-degree program is required. Because core coursework for each separate program is required, the order in which the coursework is completed depends on the program of initial entry. In either case, two years of coursework are required to complete the core curriculum. The core courses included in this program are those found in the individual programs. Because the core courses in each program satisfy the elective requirements for the other, no additional elective courses are required, although students may take additional electives if they choose. The program is designed to be completed in six years.

Qualifying Exam

The qualifying exam for the PhD in Biomedical Sciences component of the dual degree involves 2 parts: 1) the Core Comprehensive Exam (CCE) and 2) the Dissertation Proposal. The CCE is administered at the end of the first year of PhD study (in June for students who entered the previous fall). The exam includes closed-book essay questions and oral examinations by the directors of the Core Courses. A minimum score of 80% is required on each section to pass this comprehensive exam.

The second part of the qualifying exam process is the development of a formal dissertation research proposal describing the background, experimental design, methods, and timeline for the student's dissertation research. For MSCR/PhD students, at least one specific aim of the dissertation proposal must involve clinical or translational research as judged by their dissertation committee and the dual-degree program directors. After submitting the proposal in the required format, the student will defend it in an oral presentation to their dissertation committee. Committee approval of both the written proposal and oral presentation of the proposal constitutes successful completion of the second part of the qualifying exam.

Degree Candidacy

Students having earned a B or better in their graduate course work and having passed all parts of their qualifying exam are eligible to apply for degree candidacy. After earning candidacy, students will expend most of their effort completing their dissertation research and preparing their dissertation. During the conduct of the dissertation research, the student is required to convene regular (once per semester minimum) meetings of the dissertation committee to report progress, receive direction, and earn dissertation research credit hours.

Completion of Degree Requirements

Once the dissertation research is completed to the satisfaction of the student's committee, the student must prepare a written dissertation describing the background, approach, and results of the work, including a discussion of the significance of the findings in advancing scientific knowledge. Successful dissertation research must constitute a significant, original contribution to scientific knowledge as judged by the dissertation committee. Once the dissertation has reached its final stages, the student must, with the approval of the committee, schedule a public presentation and defense of the work. The student's committee will determine whether the student has successfully defended the dissertation. The committee often requires final adjustments to the written dissertation after a successful oral defense. Once the dissertation has been successfully defended and the final modifications accepted by the committee, copies of the final document must be submitted to the graduate office to complete the requirements for the dual degree.

Curriculum for the PhD in Biomedical Sciences / MS in Clinical Research dual degree *

OPTION 1: For students entering through the PhD Program

FIRST YEAR CURRICULUM

Fall Semester		**Semester Credit Hours**
GEBS 517	Graduate Biochemistry	3
GEBS 517L	Graduate Biochemistry Lab	2
GEBS 535	Human Biology	3
GEBS 535L	Human Biology Lab	2
GEBS 534	Scientific Integrity	2
GEBS 533	Critical Thinking and Scientific Communication I	2

Spring Semester		**Semester Credit Hours**
GEBS 537	Integrated Biomedical Sciences	4
GEBS 528	Biomedical Genetics	3
GEBS 528L	Biomedical Genetics Lab	2
GEBS 546	Critical Thinking and Scientific Communication II	2
GEBS 513	Laboratory Rotation 1 (6 weeks)	1

SECOND-YEAR CURRICULUM

Fall Semester		**Semester Credit Hours**
GEBS 514	Laboratory Rotation 2 (6 weeks)	1
GEBS 550	Practical Skills Workshop	1
GEBS 524	Fundamentals of Biostatistics	3

GEBS 547	Research Data Analysis	3
GEBS 511	Clinical Research Seminar (Substitutes for GEBS 503)	1
GEBS 516-1	Mentored Research Project	1
GEBS 502	Principles of Clinical Research	2
GEBS 532	Community Engagement and Health Disparities in Clinical and Translational Research	2

Spring Semester		**Semester Credit Hours**
GEBS 500	Introduction to Epidemiology	3
GEBS 522	Clinical Trials	2
GEBS 511	Clinical Research Seminar (Substitutes for GEBS 504)	1
GEBS 610	Preparing a Research Proposal	2
GEBS 516-2	Mentored Research Project	1
GEBS 520	Analysis of Frequency Data	3

THIRD-YEAR CURRICULUM

Course		**Semester Credit Hours**
GEBS 501	Introduction to Medical Informatics	2
GEBS 512	Ethics of Clinical Research in Vulnerable Populations	2
GEBS 523	Grant Writing and Proposal Development	3
GEBS 505	Seminar in Biomedical Sciences III	1
GEBS 506	Seminar in Biomedical Sciences IV	1
GEBS 509	Biomedical Sciences Presentation I	1
GEBS 800	Dissertation Research (Requires candidacy)	TBD (25 minimum)

Graduate Education in Biomedical Sciences (GEBS)

FOURTH-YEAR CURRICULUM

Course		Semester Credit Hours
GEBS 507	Seminar in Biomedical Sciences V	1
GEBS 508	Seminar in Biomedical Sciences VI	1
GEBS 510	Biomedical Sciences Presentation II	1
GEBS 800	Dissertation Research (Requires candidacy)	TBD (25 minimum)

FIFTH-YEAR CURRICULUM**

Course		Semester Credit Hours
GEBS 800	Dissertation Research (Requires candidacy)	TBD (25 minimum)

Curriculum for the MS in Clinical Research/PhD in Biomedical Sciences*

OPTION 2: For students entering through the MSCR Program

FIRST-YEAR CURRICULUM

Fall Semester		**Semester Credit Hours**
GEBS 550	Practical Skills Workshop	1
GEBS 524	Fundamentals of Biostatistics	3
GEBS 511	Clinical Research Seminar (Substitutes for GEBS 503)	1
GEBS 516-1	Mentored Research Project	1
GEBS 501	Introduction to Medical Informatics	2
GEBS 502	Principles of Clinical Research	2
GEBS 532	Community Engagement and Health Disparities in Clinical and Translational Research	2

Spring Semester		**Semester Credit Hours**
GEBS 500	Introduction to Epidemiology	3
GEBS 522	Clinical Trials	2
GEBS 511	Clinical Research Seminar (Substitutes for GEBS 504)	1
GEBS 523	Grant Writing and Proposal Development	3
GEBS 516-2	Mentored Research Project	1
GEBS 520	Analysis of Frequency Data	3
GEBS 513	Laboratory Rotation 1 (6 weeks)	1

Graduate Education in Biomedical Sciences (GEBS)

SECOND YEAR CURRICULUM

Fall Semester		**Semester Credit Hours**
GEBS 517	Graduate Biochemistry	3
GEBS 517L	Graduate Biochemistry Lab	2
GEBS 535	Human Biology	3
GEBS 535L	Human Biology Lab	2
GEBS 534	Scientific Integrity	2
GEBS 533	Critical Thinking and Scientific Communication I	2

Spring Semester		**Semester Credit Hours**
GEBS 537	Integrated Biomedical Sciences	4
GEBS 528	Biomedical Genetics	3
GEBS 528L	Biomedical Genetics Lab	2
GEBS 546	Critical Thinking and Scientific Communication II	2
GEBS 610	Preparing a Research Proposal	2
GEBS 514	Laboratory Rotation 2 (6 weeks)	1

THIRD-YEAR CURRICULUM

Course		**Semester Credit Hours**
GEBS 512	Ethics of Clinical Research in Vulnerable Populations	2
GEBS 547	Research Data Analysis	3
GEBS 505	Seminar in Biomedical Sciences III	1
GEBS 506	Seminar in Biomedical Sciences IV	1
GEBS 509	Biomedical Sciences Presentation I	1
GEBS 800	Dissertation Research (Requires candidacy)	TBD (25 minimum)

Graduate Education in Biomedical Sciences (GEBS)

FOURTH-YEAR CURRICULUM

Course		Semester Credit Hours
GEBS 507	Seminar in Biomedical Sciences V	1
GEBS 508	Seminar in Biomedical Sciences VI	1
GEBS 510	Biomedical Sciences Presentation II	1
GEBS 800	Dissertation Research (Requires candidacy)	TBD (25 minimum)

FIFTH-YEAR CURRICULUM**

Course		Semester Credit Hours
GEBS 800	Dissertation Research (Requires candidacy)	TBD (25 minimum)

**The MSCR/PhD curriculum is subject to ongoing revisions and may change during a student's tenure, including changes that may affect graduation requirements.*

***Depending on the rate of progress toward achieving research goals, dissertation research may continue beyond the fifth-year of matriculation in the MSCR/PhD program. The student's dissertation committee determines when, and whether, sufficient research has been successfully completed to merit the MSCR/PhD degree. A clinical and/or translational specific aim must be included in the dissertation.*

Graduate Education in Biomedical Sciences (GEBS)

MASTER OF SCIENCE in BIOMEDICAL RESEARCH

Program Director: Karen Randall, PhD

Program Manager: Jamillah McDaniel, MPH, PhD

Requirements for the MSBR Degree

Coursework

The first semester of study is focused on instruction in core (required) courses covering fundamental aspects of cell, tissue, and organ system structure and function, as well as biochemistry and molecular biology. It also introduces methods, instrumentation, ethics, critical thinking, and writing skills critical to success as a professional scientist. Students are required to maintain a B average in their coursework to advance in the program. In the second semester students take elective courses and identify an advisor for their advanced study and research. Students may study with graduate faculty in a variety of basic science and clinical departments conducting basic biomedical research. Current areas of focus include AIDS and infectious diseases, cancer, cardiovascular disease, cell biology, molecular biology, neuroscience, reproductive biology, temporal biology, and vision research. The student's research advisor must be a member of the MSM graduate faculty. Once an advisor is identified, students gain research experience in the advisor's laboratory.

Qualifying Exam

The qualifying exam for the MS in Biomedical Research involves 2 parts: 1) the Core Comprehensive Exam (CCE) and 2) the Thesis Proposal. The CCE is administered at the end of the first semester of study (in January for students who entered the previous fall). The exam includes closed-book essay questions and oral examinations by the directors of the Core Courses. A passing grade (80%) is required overall on the closed–book components and on the oral exam to obtain an overall pass for the CCE. Once students have passed the CCE, they complete their lab rotations and select a research advisor.

The research advisor will help students plan their thesis research projects, and select their thesis committee. The second part of the qualifying exam process is the development of a formal thesis research proposal describing the background, experimental design, methods, and timeline for the student's thesis research. After submitting the proposal, the student will defend it in an oral presentation to their thesis committee. Committee approval of both the written proposal and oral presentation of the proposal constitutes successful completion of the second part of the qualifying exam.

Completion of Degree Requirements

Once the thesis research is completed to the satisfaction of the student's committee, the student must prepare a written thesis describing the background, approach, and results of the work, including a discussion of the significance of the findings in advancing scientific knowledge. Successful thesis research must constitute a significant, original contribution to scientific knowledge as judged by the thesis committee. Once the thesis has reached its final stages, the student must, with the approval of the committee, schedule a public presentation and defense of the work. The student's committee will determine whether the student has successfully defended the thesis. The committee usually requires final adjustments to the written thesis after a successful oral defense. Once the thesis has been successfully defended and the final modifications accepted by the committee, copies of the final document must be submitted to the graduate office to complete the requirements for the MSBR degree.

Graduate Education in Biomedical Sciences (GEBS)

Curriculum for the MS in Biomedical Research*

FIRST YEAR CURRICULUM

Fall Semester		**Semester Credit Hours**
GEBS 517	Graduate Biochemistry	3
GEBS 517L	Graduate Biochemistry Lab	2
GEBS 535	Human Biology	3
GEBS 535L	Human Biology Lab	2
GEBS 534	Scientific Integrity	2
GEBS 533	Critical Thinking and Scientific Communication I	2

Spring Semester		**Semester Credit Hours**
GEBS 546	Critical Thinking and Scientific Communication II	2
GEBS 513	Laboratory Rotation 1 (4 weeks)	1
GEBS 514	Laboratory Rotation 2 (4 weeks)	1
	Elective(s)	TBD (4 h minimum)

SECOND-YEAR CURRICULUM

Course		**Semester Credit Hours**
GEBS 547	Research Data Analysis	3
GEBS 503	Seminar in Biomedical Sciences I	1
GEBS 504	Seminar in Biomedical Sciences II	1
GEBS 509	Biomedical Sciences Presentation I	1
	Elective(s)	TBD (4 h minimum)
GEBS 675	Thesis Research**	TBD (12 h minimum)

**The M.S. curriculum is subject to ongoing revisions and may undergo changes during a student's tenure, including changes that affect graduation requirements.*

*** The student's thesis committee determines when, and whether, sufficient research has been successfully completed to merit the M.S. degree. A minimum of 12 hours of Thesis Research is required for the degree*

Graduate Education in Biomedical Sciences (GEBS)

MASTER OF SCIENCE in BIOMEDICAL TECHNOLOGY

Program Director: Michael D. Powell, PhD

Program Manager: Jamillah McDaniel, MPH, PhD

Requirements for the MSBT Degree

Coursework

The first semester of study is focused on instruction in core (required) courses covering fundamental aspects of cell, tissue, and organ system structure and function, as well as biochemistry and molecular biology. It also introduces methods, instrumentation, ethics, critical thinking, and writing skills critical to success as a professional scientist. Students are required to maintain a B average in their coursework to advance in the program. In the second semester students take elective courses and identify an advisor for their technical training program. The technical advisor must be a full member of the Morehouse School of Medicine Graduate Faculty.

Qualifying Exam

The qualifying exam for the MS in Biomedical Technology involves 2 parts: 1) the Core Comprehensive Exam (CCE) and 2) the Technical Apprenticeship Proposal. The CCE is administered at the end of the first semester of study (in January for students who entered the previous fall). The exam includes closed-book essay questions and oral examinations by the directors of the core courses. A passing grade (80%) is required overall on the closed–book components and on the oral exam to obtain an overall pass for the CCE. Once students have passed the CCE, they complete their lab rotations in core laboratories and select a technical advisor.

The second part of the qualifying exam process is the development of a technical apprenticeship proposal. This involves a number of steps, all of which lead to the approval of the student's technical apprenticeship proposal by his or her technical advisory committee.

The technical advisor will help the student plan the technical apprenticeship program, and choose a technical advisory committee.

The formal technical apprenticeship program document should describe the students' educational background and experiences in research and technology; the students' objectives and goals; and the concepts, techniques, and methodologies the student intends to learn through the apprenticeships, including appropriate advisors for these. After submitting the proposal, the student will defend it in an oral presentation to the technical advisory committee. Committee approval of both the written proposal and oral presentation of the proposal constitutes successful completion of the second part of the qualifying exam.

Technical Apprenticeship Program

The student must select, with the aid of the technical advisor, a training program and a technical advisory committee. That committee must include the advisor and at least two additional professional scientists with relevant technical expertise, one of whom must be a member of the Morehouse School of Medicine Graduate Faculty. Any full member of the Morehouse School of Medicine Graduate Faculty may chair this committee, but it is generally the technical advisor. Additional committee members may be included based on appropriate expertise. Students may select among the existing core laboratories at MSM (https://rcenterportal.msm.edu/node/38) or, with the assistance and approval of the technical advisor, or devise a hybrid program that encompasses their individual interests and needs.

Completion of Degree Requirements

While completing the technical apprenticeship requirements, the student should be discussing the nature of their culminating examination. In most cases this will involve the assignment of some sort of unknown or technical problem related to the student's apprenticeship to be solved. The culminating examination should be completed no later than mid-March for the student to participate in the May commencement ceremony. The student's committee will determine whether the student has successfully completed his or her examination. All members of the student's technical advisory committee must be present at the assessment of the examination results and approval must be unanimous. The technical advisory committee may require analyses be repeated or that additional analyses be carried out to achieve a passing score.

Graduate Education in Biomedical Sciences (GEBS)

Curriculum for the MS in Biomedical Technology*

FIRST YEAR CURRICULUM

Fall Semester		**Semester Credit Hours**
GEBS 517	Graduate Biochemistry	3
GEBS 517L	Graduate Biochemistry Lab	2
GEBS 535	Human Biology	3
GEBS 535L	Human Biology Lab	2
GEBS 534	Scientific Integrity	2
GEBS 533	Critical Thinking and Scientific Communication I	2

Spring Semester		**Semester Credit Hours**
GEBS 546	Critical Thinking and Scientific Communication II	2
GEBS 513	Core Laboratory Rotation	1
	(4 weeks)	1
GEBS 514	Core Laboratory Rotation	2
	(4 weeks)	1
	Elective(s)	TBD (4 h minimum)
GEBS 625 -630	Supervised Technical Apprenticeships**	TBD (20 minimum)

SECOND-YEAR CURRICULUM

Course		**Semester Credit Hours**
GEBS 547	Research Data Analysis	3
GEBS 503	Seminar in Biomedical Sciences I	1
GEBS 504	Seminar in Biomedical Sciences II	1
GEBS 509	Biomedical Sciences Presentation I	1
	Elective(s)	TBD (4 h total)
GEBS 625 -630	Supervised Technical Apprenticeships**	TBD (20 total)

**The M.S. curriculum is subject to ongoing revisions and may undergo changes during a student's tenure, including changes that affect graduation requirements.*

*** The student's technical advisory committee determines when, and whether, sufficient work has been successfully completed to merit the M.S. degree. A minimum of 20 hours of Supervised Technical Apprenticeship is required for the degree.*

Graduate Education in Biomedical Sciences (GEBS)

MASTER OF SCIENCE in MEDICAL SCIENCES

Program Director: Rita B. Finley, PhD

Program Manager: Kyndra Stovall, PhD

Requirements for the MSMS Degree

The Master of Science in Medical Sciences Degree is a two-year non-thesis program designed to increase competency in the biomedical sciences, thereby enhancing academic credentials for entry into medical school or placement into careers in the health sciences. The first year of study focuses on instruction in core science courses such as Biochemistry and Anatomy & Physiology, as well as foundational courses in the public health sciences such as Fundamentals of Public Health and Epidemiology. Additionally, the program includes a series of courses aimed at enhancing performance on the Medical College Admissions Test (MCAT) and includes an online course in Medical Terminology. In the second year, standardized exam preparation continues and introductory courses in key biomedical science courses are added such as Introduction to Neurobiology, Introduction to Medical Pharmacology and Introduction to Medical Microbiology, along with courses in Biostatistics, Ethics in Vulnerable Populations and Medical Informatics. During the second year, in lieu of a thesis, a culminating project will be conducted.

Completing the Requirements

Students are required to maintain an overall B average in their coursework to advance in the program and to earn the degree. Students who have successfully completed the first year with a 3.0 GPA may receive a certificate of course completion.

Curriculum for the MS in Medical Sciences*

FIRST YEAR CURRICULUM

Fall Semester		**Semester Credit Hours**
GEBS 554	Basic Chemistry	3
GEBS 518	Principles of Anatomy & Physiology I	3
GEBS 541	Critical Thinking and Problem Solving I	4
GEBS 544	Survey of Medical Terminology	1
GEBS 545	Introduction to Public Health	2

Spring Semester		**Semester Credit Hours**
GEBS 519	Principles of Anatomy & Physiology II	3
GEBS 539	Introduction to Health Professions	2
GEBS 542	Critical Thinking and Problem Solving II	3
GEBS 524	Fundamentals of Biostatistics	3
GEBS 548	Community Health Assessment	3

SECOND-YEAR CURRICULUM

Spring Semester		**Semester Credit Hours**
GEBS 552	Introduction to Neurobiology	3
GEBS 552L	Introduction to Neurobiology Lab	2
GEBS 601	The Biology of Disease: Current Concepts	3
GEBS 500	Introduction to Epidemiology	3
GEBS 553	Basic Medical Microbiology	3

Spring Semester		**Semester Credit Hours**
GEBS 551	Introduction to Medical Pharmacology	3
GEBS 528	Biomedical Genetics	3
GEBS 650	Service Culminating Project	3
	Elective(s)	
GEBS 501	Medical Informatics	3
GEBS 512	Ethics of Clinical and Translational Research in Vulnerable Populations	3

**The M.S. curriculum is subject to ongoing revisions and may undergo changes during a student's tenure, including changes that affect graduation requirements.*

Graduate Education in Biomedical Sciences (GEBS)

MASTER OF SCIENCE in NEUROSCIENCES

Program Director: Morris Benveniste, PhD

Requirements for the MSNS Degree

The Master of Science in Neuroscience degree provides a core-didactic and thesis-based curriculum with an emphasis in the area of Neuroscience. The degree requires successful completion of two years of specified course work towards the Bachelor of Sciences degree from an institution in the Atlanta University Center, and is only offered as a dual degree (BS/MSNS). The program will allow students to obtain a terminal, thesis-based Master's degree or consider pursuit of a doctoral degree in Neurosciences. Students will conduct a mentored research project in the area of Neuroscience. Students are required to maintain an overall B average in their coursework to advance in the program and to earn the degree. Candidates must complete the MS curriculum requirements along with requirements for their Bachelor of Science degree at their institution.

Curriculum for the MS in Neuroscience*

JUNIOR YEAR CURRICULUM

Fall Semester		**Semester Credit Hours**
GEBS 703	Essentials in Neuroscience I	4

Spring Semester		**Semester Credit Hours**
GEBS 704	Essentials in Neuroscience II	3

Summer Semester		**Semester Credit Hours**
GEBS 515	Intro to Neuro Laboratory Techniques	3

SENIOR YEAR CURRICULUM

Fall Semester		**Semester Credit Hours**
GEBS 534	Scientific Integrity	2
GEBS 533	Critical Thinking and Scientific Communication	2

Spring Semester		**Semester Credit Hours**
GEBS 705	Essentials in Neuroscience III	3

Graduate Education in Biomedical Sciences (GEBS)

MASTER-YEAR CURRICULUM

Course		Semester Credit Hours
GEBS 540	Critical Thinking and Scientific Communication In Neuroscience	2
GEBS 547	Research Data Analysis	3
GEBS 509	Biomedical Science Presentation I	1
GEBS 675	Thesis Research	22

**The M.S. curriculum is subject to ongoing revisions and may undergo changes during a student's tenure, including changes that affect graduation requirements.*

Graduate Education in Biomedical Sciences (GEBS)

GEBS 500: Introduction to Epidemiology (3 Credit hours)
This course provides students with knowledge of patterns of disease occurrence in human populations and factors that influence these patterns. This course is designed to enable students to identify and use systematic procedures that are helpful in determining epidemiological relationships. Principles and methods of epidemiologic investigation, both of infectious and non-infectious diseases are discussed. Prerequisite: GEBS 524 Fundamentals of Biostatistics. Spring. Letter Grade, Course Director: Gregory Strayhorn, M.D., Ph.D.

GEBS 501 Introduction to Medical Informatics (2 Credit hours)
This course will address using data from clinical information systems in performing clinical research, including the strengths and limitations of these data. Topics include: overview of medical informatics, discussion of the nature of computer-based data including medical vocabularies, large databases, the web, and confidentiality-related issues. Prerequisites: Enrollment in an MSM degree program or permission of the MSCR program administration. Fall. Letter Grade, Course Director: Alexander Quarshie, MBChB, M.S.

GEBS 502 Introduction to Principles of Clinical Research (2 Credit hours)
This course is offered in collaboration with NIH and delivered through video-conferencing. It provides an overview and introduction to the various types of clinical research including patient-oriented research, epidemiology, behavioral sciences and health services research, and introduction to evidence-based medicine for clinical researchers. The course introduces protocol design, mentoring development, and gathering of evidence, including decision analysis. Prerequisites: Enrollment in an MSM degree program or permission of the MSCR program administration. Fall. Letter Grade. Course Director: Alexander Quarshie, MBChB, M.S.

GEBS 503-508 Seminar in Biomedical Sciences I-VI (1 Credit hour each)
Students are required to attend scientific seminars in biomedical research in order to keep up-to-date with the latest discoveries and developments in biomedical research. Students attend a minimum of 6 research seminars per semester, document their attendance, and write and submit a summary for each. Prerequisite: Enrollment in PhD, MSBR or MSBT program. Fall and Spring. Pass/Fail. Course Director: Doug Paulsen, Ph.D.

Graduate Education in Biomedical Sciences (GEBS)

GEBS 509 – 510 Biomedical Science Presentation I-II (1 Credit hour each)
Students are required to prepare and give a scientific presentation (either seminar or poster format) at a public, advertised venue. PhD students are required to give two such presentations and MS students are required to give one prior to graduation. Qualified presentations include: One presentation at the Annual Curtis L. Parker Student Research Day, any one-hour seminar advertised to the MSM community and open to the public, or a platform or poster presentation at a national scientific conference accompanied by a published first-author abstract. This requirement is specifically in addition to the student's thesis or dissertation proposal and defense presentations Prerequisite: Enrollment in PhD, MSBR or MSBT program. Fall and Spring. Pass/Fail. Course Director: Doug Paulsen, Ph.D.

GEBS 511 Clinical Research Seminar (1 Credit hour)
This course features local, regional, and national cutting edge research topics relevant to health disparities, and allow trainees to hear from leading experts on clinical and translational research. The research seminars are presented by MSM faculty, Atlanta CTSI faculty and visiting scientists, and provide a forum to explore collaborative research and mentoring opportunities. MSCR Trainees are featured in a special session where they present their work for critical review and comments. This format exposes the trainees to contemporary critical thinking on health disparities to generate new ideas and to foster research collaboration within the Morehouse School of Medicine as well as with collaborating Atlanta CTSI institutions. Prerequisites: Enrollment in an MSM degree program or permission of the MSCR program administration. Spring. Pass/Fail. Course Directors: Alexander Quarshie, MBChB, M.S. and Rigobert Lapu Bula, M.D., Ph.D.

GEBS 513-514 Laboratory Rotations I-II (1 Credit hour each)
The objective of this course is to provide students with experiences that will allow them to make an informed choice with respect to the focus of their research or technical apprenticeship. A second objective is for the student to practice proper methods for logging research methods and results in a laboratory notebook. Each PhD student must complete two 6-week rotations and each MS student must complete two 4-week rotations. Prerequisite: Enrollment in PhD, MSBR or MSBT program. Fall and Spring. Pass/Fail. Course Director: Doug Paulsen, Ph.D.

Graduate Education in Biomedical Sciences (GEBS)

GEBS 515 Introduction to Neuroscience Laboratory Techniques (2 Credit hours)
This a two-week intensive laboratory course for M.S. in Neuroscience students as a part of the B.S./M.S. in Neuroscience Program. The course is designed to expose students to laboratory techniques commonly used in today's biological laboratories. It will combine both lecture and practical laboratory experiences and include compulsory biohazard safety, and animal handling and care components. Techniques will include laboratory calculations, DNA, RNA, and PCR analyses, electrophoresis, Western blotting, immunohistochemistry, tissue culture, microscopy and neurophysiology. Prerequisite: Enrollment in BS/MS in Neuroscience Program. Spring. Pass/Fail. Course Directors: Robert Meller, D. Phil.

GEBS 516 Mentored Research Project (MSCR – Total of 12 Credit hours)
This course provides an opportunity for students to integrate the competencies acquired in course work, learn how to write a research proposal, develop a research design, analyze data for presentation at a national scientific meeting and generate a scientific manuscript. Four major outcomes of the mentored project that must be satisfied prior to receiving the MSCR degree include 1) submission and presentation of an abstract at a regional or national scientific meeting, 2) submission of a manuscript to a peer-reviewed journal, 3) submission of a grant to a funding agency, and 4) final presentation of the student's mentored research. Mentor evaluation forms must be signed by the student's lead mentor indicating that all of the above requirements have been satisfied. Prerequisites: Enrollment in an MSM degree program or permission of the MSCR program administration. Fall and Spring. Year 1, Pass/Fail, Year 2 L/G. Course Director: Alexander Quarshie, MBChB, M.S.

GEBS 517 Graduate Biochemistry (3 Credit hours)
The overall goal of this course is to provide information in different formats that will aid in the student's understanding of biochemical principles and enhance problem-solving abilities. Students are expected to be competent, reliable, self-directed and to do extensive critical reading and analysis of some information available through internet resources and in original publications. Understanding biochemical principles, key concepts and current research is a necessity since biochemistry provides a foundation for many other components in the graduate curriculum. Prerequisite: Enrollment in an MSM degree or postbaccalaureate certificate program. Fall. Letter Grade. Course Director: Jacqueline Hibbert, Ph.D.

Graduate Education in Biomedical Sciences (GEBS)

GEBS 517L Graduate Biochemistry Laboratory (2 Credit hours)
This is an integrated lecture and lab course covering basic theories and techniques used in the experimental life sciences. The students will have an opportunity to experience a broad range of biochemical and molecular techniques that are currently used in the fast-paced modern biomedical research. The goal of this course is to introduce students to basic research techniques through laboratory exercises designed to provide experiences with the equipment and techniques that are the foundations for modern biomedical research. Prerequisite: Enrollment in an MSM degree program. Fall. Letter Grade. Course Directors: Jacqueline Hibbert, Ph.D. and Karen Russell Randall, Ph.D.

GEBS 518 Principles of Anatomy and Physiology I (3 Credit hours)
This is a team-taught course that provides an overview of cellular structure and function, levels of tissue organization, early embryology, as well as the morphology and function of the cardiovascular, lymphatic and respiratory systems of the human body. The course integrates laboratory exposure with didactic anatomy and physiology presentations to further emphasize the principles of organization as related to major clinical and functional themes. This segment of the two semester course deals with cell and tissue structure and function and begins coverage of the organ systems. The course composition will include a virtual histology lab, selected gross anatomy pro-sections and radiological anatomy. Prerequisites: Enrollment in the M.S. in Medical Sciences Program or permission of course director and program administration. Fall. Letter Grade. Course Director: Rita Finley, Ph.D.

GEBS 519 Principles of Anatomy and Physiology II (3 Credit hours)
This is a team-taught course that provides an understanding of the morphology and function of the digestive, skeletal, muscular, nervous, endocrine, and reproductive systems of the human body, as well as an overview of fetal development. The course integrates laboratory exposure with didactic anatomy and physiology presentations to further emphasize the principles of organization as related to major clinical and functional themes. This segment of the two-semester course focuses on completing the coverage of organ system structure and function. The course composition will include a virtual histology lab, selected gross anatomy prosections, the Anatomy in Clay Learning System, and radiological anatomy. Prerequisites: Enrollment in the M.S. in Medical Sciences Program or permission of the course director and program administration. Spring. Letter Grade. Course Director: Rita Finley, Ph.D.

GEBS 520 Analysis of Frequency Data (3 Credit hours)
This course is intended to provide a more detailed approach to the analysis of categorical data in clinical and translational research. Topics covered: Tests and measures of association for contingency table analysis; goodness of fit, and the odds ratio, Estimation and hypothesis testing within the context of the general linear model (the analysis of variance, multiple regression, logistic regression and survival analysis) are addressed. Prerequisites: GEBS 524 and enrollment in an MSM degree program or permission of the MSCR program administration. Spring. Letter Grade. Course Director: Fengxia Yan, Ph.D.

GEBS 522 Clinical Trials (2 Credit hours)
Principles for the design and conduct of clinical trials are discussed. Emphasis will be given to protocol preparation, randomization, sample size, trial monitoring, ethical issues and data analysis. Prerequisites: Enrollment in an MSM degree program or permission of the MSCR program administration. Spring. Letter Grade. Course Director: Priscilla Pemu, M.D., M.S.C.R.

GEBS 523 Grant Writing and Proposal Development (3 Credit hours)
The objective(s) of this course are to develop: 1) the ability to evaluate a variety of funding sources, write concept papers and letters of intent in biomedical sciences, 2) an approach to writing a competitive research proposal, 3) an understanding of the NIH review process. The course provides an overview of these processes in a series of didactic discussions and take-home assignments. Students are required to design a study for specific disease and prepare a scientific protocol and a grant application using Public Health Service Form 398 including the development of a consent form and budget. Emphasis will be placed on grantsmanship and scientific writing, the Institutional Review Board and NIH review process. Prerequisites: Enrollment in an MSM degree program or permission of the MSCR program administration. Spring. Letter Grade. Course Director: Lilly Immergluck, Ph.D.

GEBS 524 Fundamentals of Biostatistics (3 Credit hours)
This course introduces various statistical methods used in clinical and translational research and public health management. Students are trained in probability theory, data management and interpretation of results. The standard statistical package SPSS is used with hands-on demonstrations. Topics include: Probability distributions and conditional probability; descriptive statistics; estimation; hypothesis testing; statistical inference; parametric and non-parametric statistical methodology. Prerequisites: Enrollment in an MSM degree program or permission of the program administration. Fall. Letter Grade. Course Director: Fengxia Yan, Ph.D.

GEBS 525 Laboratory Rotation III (1 Credit hour)
The objective of the core rotations (GEBS 513-514) is to help students make an informed choice with respect to their research focus their major research advisor. This 8-week elective rotation requires students to work in a laboratory other than that of the major advisor to develop additional skills and experience that may be helpful in their thesis or dissertation project.

Prerequisites: Completion of GEBS 513 and GEBS 514, permission of the student's research advisor, permission of the supervisor of the laboratory in which the rotation is to be carried out, enrollment in the MSM PhD in Biomedical Sciences or MS in Biomedical research program. Fall and Spring. Pass/Fail. Course Director: Doug Paulsen, Ph.D.

GEBS 528 Biomedical Genetics (3 Credit hours)
The purpose of this core course is to introduce students to human genetics, the role of genetics in human diseases, methods to detect disease susceptibility genes, the ethics of genetic testing and gene therapy for genetic diseases. Prerequisites: Grade of B or better in GEBS 517 and 517L or permission of course director. Enrollment in MSM degree program. Spring. Letter Grade. Course Director: Gale Newman, Ph.D.

GEBS 528L Biomedical Genetics Lab (2 Credit hours)
The objective of these laboratory exercises is to provide a hands-on experience in the detection of mutations and disease genes. The goal of this course is to instruct you on when and where to use the appropriate techniques for detection of genetic mutations. Prerequisites: Grade of B or better in GEBS 517 and 517L or permission of course director. Enrollment in MSM degree program. Spring. Letter Grade. Course Director: Robert Meller, D. Phil.

GEBS 531 Clinical Core Laboratories (2 Credit hours)
This course is designed to provide trainees with hands-on exposure to existing core units at the Clinical Research Center and how they support clinical and translational research. These cores are Noninvasive Cardiovascular and Hemodynamics, Analytical and Protein Profiling, Bionutrition, Nursing, Recruitment/Retention, Biostatistical and Data Management, Clinical Trials, Research Subject Advocate and Data Safety Monitoring Cores. Prerequisites: Enrollment in an MSM degree program or permission of the MSCR program administration. Spring. Pass/Fail. Course Director: Alexander Quarshie, MBChB, M.S.

GEBS 532 Community Engagement and Health Disparities in Clinical and Translational Research (2 Credit hours)
This course introduces key issues in health disparities and community engaged research. Focus is on ways to assess and address health disparities, with an emphasis on inner-city and African American populations. Approaches to community engagement and community-centered research are addressed. Prerequisites: Enrollment in an MSM degree program or permission of the MSCR program administration. Fall. Pass/Fail. Course Director: Rakale Quarells, Ph.D.

GEBS 533 Critical Thinking and Scientific Communication I (2 Credit hours)
The main objective of this course is to develop scientific writing and critical thinking skills necessary for scientific research. Students will learn skills to improve their ability to write clearly and logically and to critically analyze and communicate their opinions by both oral and written presentations. Students will be evaluated by a series of written exercises. A critical thinking pre- and post- test will be given to assess progress. Prerequisites: Enrollment in an MSM degree program or permission of the program administration. Fall. Letter Grade. Course Director: Gale Newman, Ph.D.

GEBS 534 Scientific Integrity (2 Credit hours)
This course is designed to cover contemporary ethical issues at the interface of science and ethics and the professional expectations of scientists in the responsible conduct of scientific research. Topics include Methods & Mandates, Scientific Records, Authorship and Peer Review, Intellectual Property, Conflicting Interests, Human and Animal Experimentation, and Genetic Technology. Didactic tasks involve student exercises, discussion leadership, analyses of cases, case presentation and report writing. Prerequisites: Enrollment in an MSM degree program or permission of the course director. Fall. Letter Grade. Course Director; Jonathan Stiles, Ph.D.

GEBS 535 Human Biology (3 Credit hours)
Human Biology is a team-taught course that provides a broad overview of major cellular components, basic tissue types, organs and organ systems. It is designed to introduce the student to the structural and functional integration of the major organ systems by working from the single cell level to the organ system level emphasizing the relationship of structure and function. Prerequisites: Enrollment in an MSM degree program or permission of the program administration. Fall. Letter Grade. Course Director: Rajagopala Sridaran, Ph.D.

GEBS 535L Human Biology Laboratory (2 Credit hours)
This course complements the content of the Human Biology lecture course by covering microscopic structure and approaches to studying the function of cells, tissues, organs and organ systems. It includes study of the relationship between structure and function of major cellular organelles, cells associated with the four basic tissue types, organs and organ systems through histological and microscopic methods as well as functional studies. Prerequisites: Enrollment in an MSM degree program or permission of the program administration. Fall. Letter Grade. Course Director: Brenda Klement, Ph.D.

GEBS 537 Integrated Biomedical Science (4 Credit hours)
This course is intended to provide students a strong understanding of the current and future research objectives in four fields of biomedical science. Each field, Cancer biology, HIV/ AIDS and Infectious Disease, Neuroscience, and Cardiovascular Research will be taught in successive 4 ½-week modules by research faculty from those fields. Prerequisites: Grade of B or better in GEBS 517, 517L, 535, and 535L or permission of program administration. Course Coordinator: Doug Paulsen, Ph.D.; Cancer Component Director: Ward Kirlin, Ph.D.; Cardiovascular Component Director: Leonard Anderson, Ph.D., Neuroscience Component Director: Morris Benveniste, Ph.D.; HIV/AIDS and Infectious Disease Component Director: Vincent Bond, Ph.D.

GEBS 537-01 Integrated Biomedical Science: Cancer Component (1 Credit hour)
This component of the Integrative Biomedical Sciences Course will provide students with a critical look at specific areas of cancer biology, providing an assessment of what constitutes the science of cancer and where the field may be going in the future. The Cancer Biology component will consist of two class meeting per week. Each class will meet for two hours (an extra 20 minutes will be added when a quiz is scheduled). Prerequisites: Grade of B or better in GEBS 517, 517L, 535, and 535L or permission of course director and program administration. Spring. Letter Grade. Course Director: Ward Kirlin, Ph.D.

GEBS 537-02 Integrated Biomedical Science: Neuroscience Component (1 Credit hour)
This component of the Integrative Biomedical Sciences Course will provide students with critical concepts in the field of Neuroscience. Lectures will include discussion of seminal experiments leading to the key discoveries that serve as part of the foundation of the field. Prerequisites: Grade of B or better in GEBS 517, 517L, 535, and 535L or permission of course director and program administration. Spring. Letter Grade. Course Director: Morris Benveniste, Ph.D.

GEBS 537-03 Integrated Biomedical Science: Cardiovascular Component (1 Credit hour)

The cardiovascular component of the Integrative Biomedical Sciences course will provide graduate students with a fundamental knowledgebase in the principles of cardiovascular biology at the molecular, cellular, and tissue levels. In addition to providing introductory didactic instruction in the field of cardiovascular biology, this component will also integrate leading-edge of vascular biology lectures with new developments that emerge at the interface with other inter-disciplinary fields (e.g. stem cell biology, epigenetics, systems biology, and genomic science). Prerequisites: Grade of B or better in GEBS 517, 517L, 535, and 535L or permission of course director and program administration. Spring. Letter Grade. Course Director: Leonard Anderson, Ph.D.

GEBS 537-04 Integrated Biomedical Science: HIV/AIDS and Infectious Disease Component (1 Credit hour)

This component of the Integrative Biomedical Sciences Course will provide students with critical concepts in HIV/AIDS, Malaria, and Multidrug Resistant Bacteria. Lectures will include discussion of seminal experiments leading to the key discoveries that serve as part of the foundation of the field. Prerequisites: Grade of B or better in GEBS 517, 517L, 535, and 535L or permission of course director and program administration. Spring. Letter Grade. Course Director: Vincent Bond, Ph.D.

GEBS 539 Introduction to Health Professions (2 Credit hours)

In this seminar and clinical experience course, students will develop an understanding from practitioners of various medical specialties and other health professions, the academics and personal responsibilities required to become a well-functioning health professional. Professions explored will include, but are not limited to, medicine, public health, clinical translational research, community-based participatory research and other related areas. Students will also participate in a variety of diverse clinical experiences. Personal statements, interviewing strategies, and similar topics will be addressed in workshops and skills sessions. Prerequisites: Enrollment in the MS in Medical Sciences Program or permission of course director and program administration. Spring. Letter Grade. Course Director: Rita Finley, Ph.D.

GEBS 540 Critical Thinking and Scientific Communication in Neuroscience (2 Credit hours)

This course is required for M.S. in Neuroscience students as a part of the B.S./M.S. in Neuroscience Program and is offered as an elective for other graduate students. It exposes students to the vast literature of Neuroscience, including a focus on experimental design and critical analysis. The course takes place in a discussion format. Grading will be based on students' preparation for each discussion as well as on submitted critiques of journal articles. Prerequisite: GEBS 533 Critical Thinking and Scientific Communication I. Spring. Pass/Fail. Course Director: Morris Benveniste, Ph.D.

GEBS 541 Critical Thinking and Problem Solving I (4 Credit hours)

Students will be introduced to several problem-solving techniques that will be useful in their preparation for the MCAT exam. Students will work within in small discussion groups where they will have the opportunity to analyze, discuss, and exchange ideas. From these discussions, students will improve their abilities to comprehend, evaluate, and apply knowledge in order to score successfully on the MCAT. The primary goal of this course is to develop critical thinking and problem-solving skills that will be beneficial for successful performance on the MCAT. Therefore the course objectives are to critically analyze information, clearly express thoughts in a written and verbal manner, evaluate information provided in a standardized test format and to participate in group discussions strengthening problem-solving skills Prerequisites: Enrollment in the MS in Medical Sciences Program or permission of course director and program administration. Fall. Letter Grade. Course Directors: Brandi Knight, Ph.D.

GEBS 542 Critical Thinking and Problem Solving II (3 Credit hours)

Through readings, online lectures, and group discussions, basic concepts of biology, chemistry, organic chemistry, physics, and verbal reasoning, and test-taking strategies will be addressed. Group problem-solving and critical thinking skills will be addressed in workshops and ongoing in-class problem-solving sessions. Prerequisites: Enrollment in the M.S. in Medical Sciences Program or permission of course director and program administration. Spring. Letter Grade. Course Directors: Brandi Knight, Ph.D.

GEBS 544 Survey of Medical Terminology (2 Credit hours)
Medical Terminology is offered to introduce aspiring healthcare professionals to the new language of medicine—a language that they will use throughout their careers. The course is offered in an online, self-directed format to allow students to cover required material efficiently, while also completing other required courses in the program. Students will be introduced to vocabulary for human body structures, functions, and diseases. The online course is divided into sections that emphasize etymology, definition, pronunciation and correct utilization of medical terms.

GEBS 545 Introduction to Public Health (3 Credit hours)
Fundamentals of Public Health, an interdisciplinary foundation course for first year MSMS students, is designed to improve their analytical and practical skills in the essential principles (values, ethics and attitudes) and core competencies in public health. Students will explore successful examples in public health, including how scientific discoveries and regulatory policies have both contributed to mitigate risk factors and improve health outcomes. The course familiarizes students with key concepts such as equity, human rights, social justice, gender, development, underdevelopment, globalization and structural adjustment policies and their impact on domestic and global health issues. Prerequisites: Enrollment in the MSMS program or permission of the course director. Fall. Letter grade. Course Director: Mary Langley, PhD, MSMS, RN, ICPS

GEBS 546 Critical Thinking and Scientific Communication II (2 Credit hours)
This is a continuation of GEBS 533. The main objective of this course is to develop scientific writing and critical thinking skills necessary for scientific research. Students will learn to critically analyze and communicate their opinions by both oral and written presentations. In addition, students will receive training and produce oral and written reports to enhance their scientific communication skills. Prerequisites: Enrollment in an MSM degree program or permission of the program administration. Fall. Letter Grade. Course Director: Gale Newman, Ph.D.

GEBS 547 Research Data Analysis (3 Credit hours)

This course guides graduate students through the application of statistical and graphical methods for biomedical data analysis and presentation based on their projected needs for graduate research. Readily available statistical and graphical software (SigmaPlot and Microsoft Excel) will be used for data analysis. The course involves a blend of didactic lectures and practical application sessions to apply appropriate techniques to research data from student projects. Fall. Letter Grade. Course Directors: Ward Kirlin, Ph.D., Gale Newman, Ph.D.

GEBS 548 Community Assessment and Health Promotion (3 credit hours)

This course is designed to provide students with the knowledge and skills required to assess and organize communities for health promotion interventions. Further, this course will provide integrated material in three areas of program development - planning, implementing and evaluating. Students will work as teams in selected communities and engage in fact-finding activities that lead to a presentation of recommendation for improved community health to community stakeholders and policymakers. Prerequisites: GEBS 545. Enrollment in an MSM degree program or permission of the course director and program administration. Spring. Letter Grade. Course Director: Mary Langley, Ph.D.

GEBS 550 Practical Skills Workshop Series (1 Credit hour)

This series is designed to help trainees to begin work on their mentored projects. Topics covered include, Introduction to Clinical research, Obtaining research support and grant funding mechanisms, Proposal development, Study designs, Analysis of secondary data, Cultural competency, Career development, Human subject advocacy and Introduction to medical informatics. New topics on Introduction to Translational research and Health disparities, and Research and grants administration will be introduced. Prerequisites: Enrollment in an MSM degree program or permission of the MSCR program administration. Fall. Pass/Fail. Course Director: Alexander Quarshie, MBChB, M.S.

GEBS 551 Introduction to Medical Pharmacology (3 credit hours)

This course is intended to orient graduate students and those who are interested in improving their credentials to compete for admission to a medical school within the general scope of pharmacologic science. The course is designed to introduce students to concepts of the interactions of chemical agents with living tissues. It will also provide an overall perspective of pharmacology, emphasizing basic principles and mechanisms involved in drug interactions. Specific categories of drugs will be presented and discussed based on the basic mechanism of action of the drug group. Specific drug classes to be discussed include those with an action on the autonomic and central nervous systems, and the cardiovascular system. Prerequisites: Enrollment in the M.S. in Medical Sciences Program or permission of course director and program administration. Spring. Letter Grade. Course Director: Karen Randall, Ph.D.

GEBS 552 Introduction to Neurobiology (4 credit hours)

This lecture course is designed to be an introduction to neuroanatomy and neurophysiology. It provides a survey of the basic functional organization and anatomy of the central nervous system (CNS). The topics include the external and internal morphology of the cerebral cortex, diencephalon, brain stem, and spinal cord. The blood supply to the major components of the CNS will be presented. The student will also be introduced to the connectivity within the CNS and the corresponding functional significance in the study of the following: ascending sensory system, descending motor systems, spinal reflexes, auditory and vestibular systems, and visual system. The higher integrative function of the CNS will be presented in the study of the hypothalamus, limbic system, and the cerebral cortex. Prerequisites: Enrollment in the M.S. in Medical Sciences Program or permission of course director and program administration. Fall. Letter Grade. Course Director: John Patrickson, Ph.D.

GEBS 552L Introduction to Neurobiology Lab (2 credit hours)

The laboratory section is designed to re-enforce the information presented in the Neurobiology lecture course. Students will have hands-on collaborative laboratory exercises utilizing brain specimens, models, and histological slides of the CNS in conjunction with the laboratory manual. Prerequisites: Enrollment in the M.S. in Medical Sciences Program or permission of course director and program administration. Fall. Letter Grade. Course Director: John Patrickson, Ph.D.

GEBS 554 Basic Biochemistry (3 credit hours)

This core course for the MS in Medical Sciences program is designed to provide a foundation in biochemistry that will enable the student to succeed in medical curricula. The broad areas to be covered include structural biochemistry, energy generation, basic intermediary metabolism, molecular biology, and gene expression. Prerequisites: Enrollment in the MSMS program or permission of the course director and program administration. Fall. Letter Grade. Course Director: William Roth, Ph.D.

GEBS 600 Advanced Molecular Biology (3 Credit hours)

The objective of this course is to provide graduate students with an understanding of contemporary molecular biology concepts, their application to basic biomedical research and to disease processes. The format includes direct student participation in which each student is required to present assigned research papers as well as to submit summary reports on discussed papers. Prerequisites: Prerequisites: Grade of B or better in GEBS 517 and 517L or permission of course director. Enrollment in an MSM degree program. Fall or Spring. Letter Grade. Course Director: Deborah Lyn, Ph.D.

Graduate Education in Biomedical Sciences (GEBS)

GEBS 601 The Biology of Disease: Current Concepts (3 credits).
This course will introduce M.S. in Medical Sciences students to key clinically relevant topics in Cardiovascular Disease, Cancer, and Infectious Diseases while providing an opportunity for the students to engage in critical thinking and active learning. Prerequisites: Enrollment in the M.S.M.S. Program and satisfactory completion of GEBS 518 and GEBS 519 Principles of Anatomy & Physiology I & II or permission of the course director. Fall. Letter Grade. Course Director: Minerva Garcia-Barrio, Ph.D.

GEBS 610 Preparing a Research Proposal (1 Credit hour)
The objective of the course is to guide PhD students through grant proposal development and assist them in preparing a pre-doctoral fellowship proposal which will serve as their dissertation proposal in the MSM Ph.D. in Biomedical Sciences program. A further objective of this course is for students to work with their research advisors to submit their proposal when complete to the NIH for consideration for NRSA pre-doctoral fellowship funding. Prerequisites: Enrollment in the MSM PhD in Biomedical Sciences program or permission of the program administration. Spring. Pass/Fail. Course Director: Michael Powell, Ph.D.

GEBS 625-630 Technical Apprenticeships I-VI (5 Credit hours each)
This 8-week apprenticeship involves full-time work in service laboratories. MSBT students are required to complete GEBS 625 - 628. Three of these internships must be in MSM core research service laboratories. The fourth, or even a fifth (GEBS 629) or sixth (GEBS 530) may be offsite at another institution or company. Each apprenticeship must culminate in a written summary including detailed experimental protocols for the work performed. Prerequisites: Completion of the MSBT Core curriculum including lab rotations, approval of the student's Technical Advisor, the host laboratory supervisor, and course director. Fall and Spring. Pass/Fail. Course Director: Michael Powell, Ph.D.

GEBS 650 Culminating Project (3 Credit hours)
Students will complete a mentored health-related service-learning project and develop a health science educational product for credit. Spring. Letter Grade. Course Director: Rita Finley, Ph.D.

GEBS 675 Thesis Research (up to 9 Credit hours per semester)
MSBR students must accumulate a minimum of 12 credit hours of Thesis Research in order to graduate. This course allows students to receive course credit as they collect data for their thesis project as well as while writing their thesis. MS students in their second year of training and beyond register for 9 credit hours total per semester.

Thesis research hours reflect the number of hours remaining after any other course credits for that semester are subtracted. To receive credit for Thesis Research, students must submit forms signed by their thesis committee indicating that they have made adequate progress on their thesis research. Prerequisite: Completion of required lab rotations and selection of advisor. Fall and Spring. Pass/Fail. Course Director: Ward Kirlin, Ph.D.

GEBS 700 Cell and Developmental Biology (3 Credit hours)
This course will introduce students to the dynamics of differentiation and embryonic development. Lectures, student presentations, and discussions will familiarize students with one of the most incredible processes in the living world: embryonic development. Prerequisites: Completion of GEBS 517 and 535, and enrollment in an MSM degree program or permission of the course director. Fall. Letter Grade. Course Director: Leonard Anderson, Ph.D.

GEBS 702 Advances in Reproductive Biology (3 Credit hours)
Selected current areas of reproductive biology of interest to the students and faculty will be reviewed by the Faculty and relevant research papers will be assigned for student presentation and class discussion. Prerequisites: Enrollment in an MSM degree program or permission of the course director and program administration. Fall or Spring. Letter Grade. Course Director: Kelwyn Thomas, Ph.D.

GEBS 703 Essential Neuroscience I: Neurophysiology & Neuropharmacology (4 Credit hours)
The course consists of two concurrent blocks of coordinated lectures (Neurophysiology and Neuropharmacology) for graduate students in the second year of study. This elective course is strongly suggested for students focusing on Neuroscience Research and may be required by your research advisor. The goal of this course is to impart to the student a basic, but in-depth, understanding of the major concepts of signal transduction within the nervous system. Coverage will include how ionotropic and metabotropic mechanisms mediate changes in the potential of excitable membranes. Subjects will be taught with a didactic emphasis on experimental design to test hypotheses of critical concepts in the field of Neuroscience. Lectures will include discussion of seminal experiments leading to the key discoveries that serve as part of the foundation of the field. Prerequisites: GEBS 537 or 537-02, enrollment in an MSM degree program or permission of the course director and program administration. Fall. Letter Grade. Course Directors: Morris Benveniste, Ph.D. and Robert Meller, D. Phil.

GEBS 704 Essential Neuroscience II: Systems Anatomy, Function and Neurodevelopment (3 Credit hours)

The course consists of two concurrent blocks of lectures (Systems Structure and Function, and Anatomy and Neurodevelopment) for graduate students in the second year of study. This elective course is strongly suggested for students focusing on Neuroscience Research and may be required by your research advisor. This course will impart to the student a basic, but in-depth, understanding of the anatomical and functional connections in several parts of the nervous system with a focus on input, modulation and output of local circuits. Subjects will be taught with didactic emphasis on experimental design to test hypotheses of critical concepts in the field of Neuroscience. Lectures will include discussion of seminal experiments leading to the key discoveries that serve as part of the foundation for the field. Prerequisites: GEBS 537 or 537-02, GEBS 703, enrollment in an MSM degree program or permission of the course director and program administration. Spring. Letter Grade, Course Director: Morris Benveniste, Ph.D.

GEBS 705 Essential Neuroscience III: Neurobiology of Disease (2 Credit hours)

The course covers neurological diseases and the mechanisms by which they are manifested. There will be a focus on how experiments have elucidated pathologic mechanisms and/or the pharmacology of disease reversal or symptom reduction. This course is for M.S., Ph.D., and B.S./M.S. students in the second year of study and while listed as an elective, is strongly advised as a part of a 3-course sequence for Neuroscience Research students. The emphasis is on experimental design to test hypotheses of critical concepts. Lectures will include discussion of seminal experiments leading to foundational discoveries of neuroscience. Prerequisites: GEBS 703, GEBS 704 or permission of the course director and program administration. Fall. Letter Grade, Course Director: Robert Meller, Ph.D., Co-director: Roger Simon, M.D., Ph.D.

GEBS 706 Molecular Mechanisms in Cardiovascular Science (3 Credit hours)

The course will provide students with an understanding of the cellular, molecular, and biochemical mechanisms involved in the field of cardiovascular science. Special emphasis will be placed on reading and interpreting the original literature, integrating information to develop new approaches, and organizing research literature to develop an understanding of the complex issues in cardiovascular science. Prerequisites: Enrollment in an MSM degree program or permission of the course director and program administration. Spring. Letter Grade. Course Director: Dong Liu, Ph.D.

GEBS 708 Cancer Biology (3 Credit hours)
This course is designed to provide the background for understanding a number of genetic, cellular, molecular, and biochemical mechanisms involved in different aspects of cancer biochemistry. This course will also emphasize reading and interpreting the primary literature, integrating information to develop new approaches, and organizing research literature to develop an understanding of a complex field. Prerequisites: Enrollment in an MSM degree program or permission of the course director and program administration. Spring. Letter Grade. Course Director: Ward Kirlin, Ph.D. and Shailesh Singh, Ph.D.

GEBS 710 Basic Bioinformatics (2 Credit hours)
This course will introduce the basic concepts of bioinformatics. The goal of this course is to help the students to better 1) understand the basic concepts of bioinformatics, 2) access bioinformatics data, 3) communicate with bioinformaticians and computer programmers, and 4) apply bioinformatics in their research. Fall. Letter Grade. Course Director: Qing Song, Ph.D.

GEBS 749 Supervised Research (up to 9 Credit hours per semester)
This course allows PhD students who have not yet achieved candidacy to receive course credit as they learn methods and collect preliminary data for their dissertation project, as well as while writing their dissertation proposal. Ph.D. students in their second year of study and beyond register for 9 credit hours total per semester. Supervised research hours reflect the number of hours remaining after any other course credits for that semester are subtracted. Prerequisite: Completion of laboratory rotations and selection of an advisor. Fall and Spring. Pass/Fail. Course Director: Doug Paulsen, Ph.D.

GEBS 752-01 Special Topics in Bioinformatics: Pathways Studio® Software (2 Credit hours)
This course is designed to train potential Ariadne Genetics Pathway Studio® users how to effectively navigate and utilize the software. This software analyzes signaling, metabolic and disease pathways from gene-expression or proteomic data input. Using the software provided, the instructor will cover specific aspects of the software in class and assist students during class to understand these steps. An assignment will be given for each class to be turned in for the next class session. Students will submit a final project that covers all of the software features. Prerequisites: Passing grade in GEBS 528 and 528L or permission of the course director and program administration. Fall Letter Grade. Course Director: Gale Newman, Ph.D.

GEBS 753-01 Special Topics in Cardiovascular Research: Population/Evolutionary Genetics (2 Credit hours)
This course is intended to be a narrow survey of genetic aspects of evolution including traditional empirical and theoretical population genetics, medical genetics, ecological genetics and the relationship between microenvironment and macroenvironment. The goal of this course is to help students understand the current state, course of development and likely future directions of population, medical, ecological/evolutionary genetics. Prerequisites: Enrollment in an MSM degree program or permission of the course director and program administration. Fall or Spring. Letter Grade. Course Director: Felix Aikhionbare, Ph.D.

GEBS 753-02 Special Topics in Cardiovascular Research: Bioinformatics Analysis of Epigenetic-Mediated Cell-Specific Genes (2 Credit hours)
Graduate students will be introduced to the major gene expression databases (such as, the NCBI's gene expression omnibus (GEO) database), along with epigenomic databases (such as the Epigenomic Atlas). This course will provide students with knowledge and experience in using these databases and tools to solve biomedical research problems and allow them to have practical tools for discovering novel genes specifically or preferentially expressed in their cells of interest. This could lead the students to carrying out follow-up studies as part of their research laboratory projects that may confirm the cell-specific expression of the novel gene(s) and define the gene's role or function in cells. Prerequisites: GEBS 528 and 528L. Enrollment in an MSM degree program or permission of the course director and program administration. Fall or Spring. Letter Grade. Course Director: TBA

GEBS 757 Special Topics in Immunology (2 Credit hours)
This is an introductory course in immunology where the students will first learn about basic human host responses. The second half of the course focuses on inflammation, immune function, or dysfunction in the areas of interest to the students, such as infectious and cardiovascular disease, neurobiology and cancer. Prerequisites: Enrollment in an MSM degree program or permission of the course director and program administration. Spring or Fall. Letter Grade. Course Director: Gale Newman, Ph.D.

GEBS 758 Special Topics in Microbiology: Bacterial Pathogenesis (2 Credit hours)
The course will provide students with a current vision of the strategies bacterial pathogens exploit to a) gain entrance to the human body, b) adhere and colonize specific anatomical sites, c) spread within the body, d) evade innate and adaptive defense mechanisms, and e) become resistant to antibiotics.

The course will focus on themes of bacterial pathogenesis at the molecular level and the use of animal models in infectious disease research. The course format includes weekly lectures followed by discussions of research articles illustrating translation of basic research to diagnosis, treatment and prevention. Fall or Spring. Letter Grade. Course Director: Anisia Silva-Benitez, Ph.D.

GEBS 759-01 Special Topics in Neurobiology: Neuronal Electrophysiology (2 Credit hours)

This is an upper level course dealing with electrical signaling within the nervous system. It will discuss the role of ion channels in generating the intrinsic signals found in excitable tissue and will explore the mechanisms by which neurons communicate with other neurons or target cells. The course will highlight the role of specificity of connections in understanding how information is encoded and processed within the nervous system. Reading of the original literature will be emphasized. Prerequisites: GEBS 535 and 537 or 537-02. Enrollment in an MSM degree program or permission of the course director and program administration. Fall or Spring. Letter Grade. Course Director: Peter MacLeish, Ph.D.

GEBS 759-02 Special Topics in Neurobiology: Cell Communication in Neurodegenerative Disorders (2 Credit hours)

The overall goal of this course is to improve the student's understanding of cellular communication within the nervous system and its involvement in neuroprotection and neurodegenerative disorders. The objectives include an understanding of the following: (a) Neurotrophic and growth factor signaling; (b) Mechanisms of apoptosis; (c) Neuroprotection; (d) Neurodegenerative disorders. Special emphasis of the course will be on reading and interpreting the original literature. Active participation and targeted follow up projects to topics covered in the reading will be emphasized. In the end, students should have an improved understanding of the field and improved confidence to analyze and critique the conceptual frame work and experimental approaches on a number of neuroscience topics. Prerequisites: GEBS 535, 535L and 537 or 537-02. Enrollment in an MSM degree program or permission of the course director and program administration. Fall or Spring. Letter Grade. Course Director: TBA

GEBS 762-01 Special Topics in Physiology: Biophotonics. (2 Credit hours)
Biophotonics is the science of generating and harnessing light (photons) to image, detect and manipulate biological materials. In modern biomedical sciences, Molecular imaging offers the basis for the extraordinary, non-invasive and quantitative analytical tools useful in the laboratory environment to interrogate biological pathways relevant to systems biology as well as in the diagnosis and treatment of diseases in the clinics. Imaging specific molecules and their interactions in space and time is essential to understand how genomes create cells, how cells constitute organisms and how errant cells cause disease. The excitement and challenge for next generation of biomedical research is to be able to employ biophotonic strategies to solve complex biomedical problems. This elective course will facilitate the thesis research program development. Prerequisites: GEBS 535 and 535L. Enrollment in an MSM degree program or permission of the course director and program administration. Fall or Spring. Letter Grade. Course Director: Xuebiao Yao, Ph.D.

GEBS 764-01 Special Topics in Science Education: Biomedical Genetics Laboratory (2 Credit hours)
This special topics course allows students to earn credit functioning as laboratory teaching assistants (TA's) where they will be involved in assisting students enrolled in the Biomedical Genetics Laboratory Course. Student laboratory TA's will enhance their understanding of the use of genetic technologies by having the responsibility of instructing and assisting graduate students with laboratory exercises that include DNA isolation, detection of single nucleotide polymorphisms, insertion deletions and gene expression. Prerequisites: Prerequisites: Grade of B or better in GEBS 528 and 528L and overall B average in MSM degree program or permission of the course director and program administration. Spring. Letter Grade. Course Director: Gale Newman, Ph.D.

GEBS 764-02 Special Topics in Science Education: Human Biology Laboratory (2 Credit hours)
This special topics course allows students to earn credit functioning as laboratory teaching assistants (TA's) where they will be involved in assisting students enrolled in the Human Biology Laboratory Course. Student laboratory TA's will enhance their understanding of the structure and function of human cells tissues and organs by having the responsibility of instructing and assisting graduate students with laboratory exercises designed to provide experiences with microscopy, physiology, and educational technology. Prerequisites: Grade of B or better in GEBS 535 and 535L and overall B average in MSM degree program or permission of the course director and program administration. Fall or Spring. Letter Grade. Course Director: Brenda Klement, Ph.D.

GEBS 764-03 Special Topics in Science Education: Biochemistry Laboratory (2 Credit hours)

This special topics course allows students to earn credit functioning as laboratory teaching assistants (TA's) where they will be involved in assisting students enrolled in the Graduate Biochemistry Laboratory Course. Student laboratory TA's will enhance their understanding of the basic theories and techniques of a broad range of biochemical and molecular techniques that are currently used in the fast-paced modern biomedical research by having the responsibility of instructing and assisting graduate students with laboratory exercises designed to provide experiences with the equipment and techniques that are the foundations for modern biomedical research. The TA's will have an opportunity to gain practical teaching and tutoring experiences. Additionally, TA's will gain experience in organizing and prepping for laboratory exercises, and assessing protocols prior to the actual student lab. Prerequisites: Grade of B or better in GEBS 517 and 517L and overall B average in MSM degree program or permission of the course director and program administration. Fall or Spring. Letter Grade. Course Director: Jacqueline Hibbert, Ph.D.

GEBS 766-01 Special Topics in Pharmacology: Essential Pharmacology for Biomedical Research (2 Credit hours)

This course aims to provide students with the basic concepts of pharmacological activity, how drugs work and how genes modify their actions, and to illustrate the importance of pharmacology and drug action in all areas of biomedical science. This course will provide an in-depth understanding of fundamental principles of rational drug therapy and the role of pharmacology in the treatment of common diseases. Prerequisites: Completion of GEBS 517and enrollment in an MSM degree or permission of the course director and program administration. Fall, Letter Grade. Course Director: Karen Randall, Ph.D.

GEBS 800 Dissertation Research (up to 9 Credit hours per semester)

Ph.D. students must accumulate a minimum of 25 credit hours of Dissertation Research in order to graduate. This course allows students to receive course credit as they collect data for their dissertation project as well as while writing their dissertation. Ph.D. candidates in the dissertation phase of their studies register for 9 credit hours total per semester. Dissertation research hours reflect the number of hours remaining after any other course credits for that semester are subtracted. To receive credit for Dissertation Research, students must submit forms signed by their dissertation committee indicating that they have made adequate progress on their dissertation research. Prerequisite: Ph.D. Candidacy. Fall and Spring. Pass/Fail. Course Director: Ward Kirlin, Ph.D.

Graduate Education in Biomedical Sciences (GEBS)

GRADUATE FACULTY AND THEIR RESEARCH

Felix Aikhionbare, Assistant Professor, Ph.D., University of Nebraska. Differences between human ovarian and colorectal cancer in normal and cancerous tissue.

Leonard M. Anderson, Assistant Professor, Ph.D., Northwestern University. Cardiovascular genomics; vascular smooth-muscle-cell fate determination from stem cells.

Mohamed A. Bayorh, Professor, Ph.D., Howard University. Cardiovascular: neurochemical, and signaling pathways in actions of polyunsaturated fatty acids, vasoactive substances, and drugs of abuse.

Morris Benveniste, Associate Professor, Ph.D., Weizmann Institute of Science (Israel). NMDA channels in synaptic integration; scorpion toxin action on sodium channels.

Vincent C. Bond, Professor, Interim Chair of Microbiology, Biochemistry, and Immunology, Ph.D., Penn State University. HIV/AIDS pathogenesis, DNA virology; mammalian cell biology.

Lee Caplan, Professor, Assistant Director of Research, M.P.H., Harvard University, M.D., Albert Einstein College of Medicine, Ph.D., Johns Hopkins University. Epidemiology.

Indrajit Chowdhury, Instructor, Ph.D., Banaras Hindu University (India). Hormone signaling and action in the hypothalamic-pituitary-ovarian axis.

Alec Davidson, Assistant Professor, Ph.D., Florida State University. Integrative analysis of circadian systems in mammals.

Jason DeBruyne, Assistant Professor, Ph.D. University of Houston. Cellular and genetic mechanisms underlying circadian timekeeping.

Danita Eatman-Daniels, Ph.D., Assistant Professor, Wright State University. Hormonal regulation of hypertension.

Francis Eko, Associate Professor, Ph.D., University of Vienna (Austria). Immunity and pathogenesis of *Chlamydia,*HSV-2, *Vibrio cholerae,* and related pathogens.

Graduate Education in Biomedical Sciences (GEBS)

Martha Elks, Professor; Senior Associate Dean Educational Affairs; M.D., Ph.D., University of North Carolina, Chapel Hill. Educational issues, teaching and assessing professionalism, educational methodology.

Rita Finley, Assistant Professor; Assistant Dean, Educational Outreach and Health Careers, Director of M.S. in Medical Sciences Program, M.S., Tennessee State University, Ph.D., Atlanta University. Biomedical education.

Sharon Francis, Assistant Professor, Ph.D., University of Alabama at Birmingham. Molecular physiology and vascular biology of hypertension and obesity-related vascular diseases.

Minerva Garcia-Barrio, Assistant Professor, Ph.D., University of Salamanca (Spain). Molecular biology; gene expression in vascular smooth muscle and cancer.

Beatrice Gee, Assistant Professor, MD, Tufts University School of Medicine. Pathophysiology of cerebral artery stenosis leading to stroke in sickle cell disease.

Ruben Gonzalez-Perez, Professor, Ph.D., University of Toulouse (France) University of Havana (Cuba). Leptin signaling in cancer.

Shanchun Guo, Instructor, M.D., Binzhou Medical College (China), M.S., Third Military Medical University (China) Ph.D., Beijing Medical University. Tumor marker identification and development, mammalian cell gene regulation, transgenic mouse and functional genomics.

Sandra A. Harris-Hooker, Vice President and Executive Vice Dean, Research and Academic Administration, Ph.D., Atlanta University. Endothelial cells and smooth muscle in atherosclerosis; in vitro blood vessel modeling.

Jacqueline Hibbert, Associate Professor, Ph.D., University of the West Indies. Metabolic response to disease; effects on protein and energy nutritional requirements.

Ward Kirlin, Professor, Ph.D., Emory University. Chemical carcinogenesis and toxicology; induction pathways in carcinogen activation and detoxification.

Graduate Education in Biomedical Sciences (GEBS)

Brenda J. Klement, Assistant Professor, Ph.D., Kansas State. Endochondral bone formation and skeletal tissue changes in microgravity.

Brandi Knight, Assistant Professor, PhD, Morehouse School of Medicine. Medical education, basic biomedical science, cancer.

Rigobert Lapu-Bula, Associate Professor, M.D., University of Kinshasa (Congo), Echocardiography, health disparities.

James Lillard, Professor; Associate Dean, Research Affairs; Ph.D., University of Kentucky College of Medicine, MBA, Emory University. Role of chemokines in modulating mucosal immunity, inflammation, and cancer cell metastasis.

Dong Liu, Assistant Professor, M.D., Ph.D., Zhejiang University, Therapeutic angiogenesis with stem cells.

Woo-Kuen Lo, Professor, Ph.D., Wayne State University. Eye ultrastructure and cell biology; intercellular junctions; cell membrane and cytoskeleton of the lens.

Deborah A. Lyn, Associate Professor, Assistant Dean for Student Affairs, Ph.D., University of the West Indies. Genetic markers and mechanisms for susceptibility to cardiovascular and infectious diseases.

Peter MacLeish, Professor; Chair, Neurobiology; Director, Neuroscience Institute. Ph.D., Harvard. Functional organization of the vertebrate retina; axonal regeneration; Purkinje cell viability.

Robert M. Mayberry, Professor; Director of the Biostatistics, Study Design, and Data Management Core, Research Center for Clinical and Translational Sciences (R-CENTER); Associate Director, Clinical Research Center. MS, MPH, Ph.D., University of California, Biostatistics.

Robert Meller, Associate Professor, D.Phil., University of Oxford (England). Rapid ischemic tolerance, Rapid events mediating neuroprotection.

Julian Menter, Professor, Ph.D., George Washington University. Dermatology, photobiology, and photochemistry; physical organic and physical biochemistry.

Graduate Education in Biomedical Sciences (GEBS)

Shobu Namura, Professor, M.D., Ph.D., Kyoto University (Japan). Cerebrovascular functions and their sequelae after stroke.

Gale Newman, Associate Professor, Ph.D., Louisiana State University. Pathogenesis of HIV-associated nephropathy.

Elizabeth Ofili, Professor, Senior Associate Dean for Clinical Research, M.D., M.P.H., Ahmadu Bello University (Nigeria). Preventive cardiology- early detection and treatment of heart disease.

John W. Patrickson, Professor, Ph.D., Howard University. Chronobiology; neural mechanisms in the generation of circadian rhythms.

Douglas F. Paulsen, Professor; Associate Dean for Graduate Studies; Ph.D., Wake Forest University School of Medicine. Skeletal patterning during embryogenesis; microgravity effects on the musculoskeletal system.

Priscilla Pemu, Professor, M.D., University of Benin, College of Medicine (Nigeria). Obesity and its relationship to cardiometabolic risk.

Christopher Phillips, Associate Professor, M.D., University of Maryland. Cardiovascular disease.

Michael D. Powell, Associate Professor, Ph.D., University of Texas at Dallas. Role of cellular factors in the regulation of HIV-1 reverse transcription.

Alexander Quarshie, Associate Professor; Director, Biomedical Informatics Program; Co-Director M.S. in Clinical Research program. MBChB University of Ghana, MSc, University of London. Statistical and clinical training, clinical and translational research, biostatistics.

Karen Randall, Associate Professor, Ph.D., University of the West Indies (Jamaica). Relationship of opioid receptors and cell signaling in the eye to identify drug targets in the design of novel drugs for the management of glaucoma.

Veena N. Rao, Professor; Co-Director, Cancer Biology Program, M.S., Ph.D., Osmania University (India). Molecular and functional dissection of ELK-1 and BRCA-1 tumor suppressor genes in cancers.

Graduate Education in Biomedical Sciences (GEBS)

E. Shyam P. Reddy, Professor; Co-Director, Cancer Biology Program, M.S., Ph.D., Andhra University (India). Functional role of ets, fusion oncoproteins, and tumor suppressors in cancer.

William Roth, Assistant Professor, M.S., Louisiana State University, Ph.D. University of Mississippi. DNA sequencing.

David Satcher, Professor, Director, Satcher Leadership Institute; Director, Center of Excellence on Health Disparities, M.D., Ph.D., Case Western Reserve University, health disparities, health policy.

Kennie Shepherd, Assistant Professor, Ph.D., Florida A&M University. Neurodegenerative disorders and neuroprotective therapies.

Anisia Silva-Benitez, Assistant Professor, Ph.D., University of Havana. Regulation of *Vibrio cholerae* infection and pathogenesis.

Roger Simon, Professor, M.D., Cornell Medical College. Endogenous neuroprotective mechanisms in the brain.

Rajesh Singh, Instructor, Ph.D., Banaras Hindu University (India), Role of chemokines and their receptors in tumor progression and potential role of inflammation in tumor development and progression

Shailesh Singh, Associate Professor, Ph.D., Banaras Hindu University (India). The role of chemokines in cancer metastasis.

Robert Sloviter, Professor, Ph.D., Pennsylvania State University. Structure, function, and malfunction of the hippocampus and temporal lobe in epilepsy.

Marjorie Smith, Professor, Pathology and Anatomy, M.D., Howard University. Pathology education.

Qing Song, Assistant Professor, M.D., Peking University; Ph.D., University of South Carolina. Molecular mechanisms of genetic susceptibility to cardiovascular disease, obesity, and diabetes.

Graduate Education in Biomedical Sciences (GEBS)

Rajagopala Sridaran, Professor, Ph.D., University of Health Sciences (Chicago). Reproductive endocrinology; gravity during pregnancy; GnRH in fertility; corpus luteum demise and parturition.

Jonathan Stiles, Professor, Ph.D., University of Salford (England). Molecular and cell biology of *Trypanosoma-, Plasmodium-,* and *Trichomonas*-induced pathogenesis.

Gregory Strayhorn, Professor, M.D., Ph.D., University of North Carolina, Chapel Hill. Social determinants of health and chronic disease.

Kelwyn H. Thomas, Associate Professor, Ph.D., University of California, San Diego. Gene regulation of cellular differentiation; germ-cell development in mouse testis.

Winston Thompson, Professor and Chair, Physiology, Ph.D., Rutgers. Cell and reproductive biology; molecular mechanisms of ovarian follicle development and cyst formation.

Gianluca Tosini, Professor; Chair, Pharmacology and Toxicology; Interim Chair, Physiology; Director, Circadian Rhythms and Sleep Disorders Program; Ph.D., University of Bristol (England). Interactions between retinal and hypothalamic circadian clocks.

Evan F. Williams, Associate Professor, Ph.D., Howard University. Role of nucleoside transporters in cardiovascular function; ocular purinergic systems.

Lawrence E. Wineski, Professor and Chair, Pathology and Anatomy, Ph.D., University of Illinois. Neural organization of craniofacial musculature; microgravity effects on the musculoskeletal system, anatomical sciences education.

Elleen Yancey, Associate Professor, Ph.D. Behavior modification intervention for adult African-American men with a history of substance abuse and risky sexual behavior.

Xuebiao Yao, Professor, Ph.D., Berkeley. Mitotic chromosome segregation; establishment and maintenance of cell polarity; biophotonics.

Zhigang Xiong, Professor, M.D., Ph.D., University of Ottawa, Ion channels and neurological disorders.

Graduate Education in Biomedical Sciences (GEBS)

Yan Feng Xia, Assistant Professor, M.D., M.S., Qingdao University Medical College, M.S. Georgia State University. Biostatistics, Health Disparities.

Xueying Zhao, Assistant Professor, M.D., M.S., Ph.D., Suzhou Medical College. Epoxygenase metabolites and endothelial function in cardiovascular and renal disease.

An Zhou, Associate Professor, Ph.D., Copenhagen University., Proteomics and protein effectors of neuronal disorders.

Morehouse School Of Medicine

MASTER OF PUBLIC HEALTH

Master of Public Health Program

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Assistant Dean for Graduate Education in Public Health and Director, Master of Public Health Program:	Stephanie Miles-Richardson, DVM, PhD
Program Manager:	Brenton Powers, MPH
Academic Advisor & Mentor:	Elaine Archie-Booker, EdD, RN, ICPS
Academic Advisor & Mentor:	Reinetta Thompson Waldrop, DrPH, MSHS, FACHE
External Relations Coordinator:	NyThea Tolbert, MPH

History of the Program

The Master of Public Health (MPH) Program at MSM was established in 1995 to address the increasing shortage of underrepresented minorities in leadership positions in the field of public health. MSM trained public health professionals are prepared for a career that will engage them in addressing and protecting the health of people of color, minorities, and underserved communities that are disproportionately affected by preventable chronic conditions and illnesses. The MPH curriculum ensures that all MSM MPH degree recipients are proficient in the community focused work that undergirds the social mission of the institution while still meeting or exceeding the accreditation standards set forth by Council on Education for Public Health (CEPH). The curriculum offers the opportunity for students to customize their MPH degree through 14 credit hours of electives. Importantly, Practicum Experience, Public Health Leadership Seminars, Career Development Workshops, and Culminating Experience ensure that students have the practical, research, communication and professional skills necessary to become leaders in the public health profession. The Program was accredited initially in 1999 by CEPH making it the first accredited MPH Program at a Historically Black College and University.

The MPH Program focuses on providing unique opportunities for students to become engaged in community-based participatory research, student-directed learning, problem solving, and the development of skills and competencies essential to the practice of public health.

Master of Public Health Program

MPH

MSM is located within the historic West End community in Atlanta. As such, there are ample opportunities for student engagement through participation in service-related activities and community planned events. Our courses equip students with foundation knowledge and concepts essential for them to better understand the needs of the populations they serve. Our community-focused course work and required community service hours ensure a strong service-learning component to our MPH Program.

Program Mission and Goals

Mission

The mission of the MSM Master of Public Health Program is to develop, through graduate education, public health leaders who are fluent in community-focused public health practice, particularity in underserved communities.

WE EXIST, BECAUSE WE MUST
Honor *the mission,* ***Serve*** *the community,* ***Do*** *the work*

The program's goals are to address leadership, education, research and service are as follows:

Goal I: Excellence in Leadership
Develop public health leaders, who are fluent in community focused public health practice.

Goal II: Excellence in Education
Foster critical thinking and academic rigor while providing a unique connection to community health practice.

Goal III: Excellence in Research
Engage in research that addresses the needs of communities with emphasis on underserved populations.

Goal IV: Excellence in Service
Create strong sustainable partnerships that will improve the health of underserved populations.

Master of Public Health Program

Governance

The Academic Policy Council (APC) establishes academic policy for the School of Medicine. The APC consists of all department chairs, the Director of the Library, two elected student representatives, and two elected faculty representatives. The faculty standing committee of the MPH Program is the Graduate Education in Public Health (GEPH) Committee which is a subcommittee of the APC. The subcommittees of GEPH are Admissions, Curriculum, and Student Academic Progress.

Graduate Education in Public Health (GEPH): This committee shall oversee the program of study leading degrees in Public Health education. It is the responsibility of the Committee to make policy recommendations concerning admissions, curriculum, evaluation, graduation, progress, remediation and the possible waiver of course work towards awarding of the MPH degree. It shall also recommend individuals to the APC who will be awarded these degrees. This committee has subcommittees for Admissions, Curriculum and Student Academic Progress.

Admissions Committee: The Admissions Committee is responsible for the acceptance of all students entering the MPH program.

Curriculum Committee: The Curriculum Committee is responsible for the development of a program curriculum that will lead to the fulfillment of the objectives of the program.

Student Academic Progress Committee (SAPC): The SAPC Committee is responsible for monitoring the academic performance of each MPH student.

MPH Advisory Committee: The MPH Advisory Committee is an external body comprised of representatives from community health agencies, public health agencies, alumni, and student representatives. The MPH Advisory Committee currently has three primary roles:

1. Provide expert advice and guidance in all aspects of the MPH program, including recruitment, mentoring, curriculum and development.
2. Facilitate and promote involvement and collaboration with key partners in the community, government health agencies at the federal, state and local levels, private health partners and foundations, and representatives from the broader corporate community.

3. Assist the MPH program in describing and articulating opportunities for collaboration within the broader academic system in Georgia.

Community Service

There are ample opportunities for student engagement within the community through participation in service-related activities and community planned events. The Program's core courses equip students with foundational knowledge and concepts essential for them to better understand the needs of the populations they serve. Additionally, the Community Health Assessment & Improvement (MPH 508) course and required community service hours ensure a strong service-learning component to our MPH Program. Students are exposed to numerous opportunities for active participation in community service.

Student Organization

The Master of Public Health Student Government Association (MPHSGA) is administered entirely by students. The primary function of the organization is to provide students with a greater degree of participation in decision-making processes of the Program. The MPHSGA elects officers each Spring who serve a one-year term. Students are selected by the Association to serve as full members on various program and academic committees in the development of curriculum and administrative policies of the program. MPHSGA is a member of the MSM Student Government Association. The MPHSA is actively involved with the American Public Health Association.

Alumni Association

All MPH graduates attain membership in the MSM Alumni Association upon graduation. The purpose of the Alumni Association is to promote the welfare and interest of the School of Medicine and support and advance graduate education for public health. The MPH Alumni have also developed a Morehouse MPH Alumni list-serve.

Additional Publications

MPH Publications

The following publications also contain additional information for MPH students:

- **MPH Program Course Schedule Listing:** The listing, published each semester, includes course titles, numbers, instructor, time, course hours, day, and location of courses, and is available in the MPH Program office and the MSM Registrar's Office.
- **Practicum Experience Guidelines:** The guide outlines policies, procedures, responsibilities, planning, and implementation of this course. Appendices include forms, summaries and a glossary.
- **Culminating Experience Guidelines:** The guide explains policies and procedures for conducting the student research experience. Descriptions of thesis and manuscript guidelines are included. Appendices include sample forms, statement and checklists.
- **MPH Student Handbook:** On admission to the program, all students receive a copy of the MSM Student Handbook which contains institutional policies and procedures relevant to student life. Copies are distributed at Registration by the Registrar's Office.

Application Requirements

Application Requirements for the Master of Public Health Degree

Individuals interested in applying to the MPH Program should meet all of the following requirements:

Completion of a bachelor's degree, or equivalent, from a U.S. school accredited by a regional accrediting organization recognized by the Council for Higher Education Accreditation (CHEA) or the U.S. Department of Education, or from an appropriately accredited non-U.S. institution is required. Official transcripts from each undergraduate and graduate institution are required. Applicants who have completed coursework at, or hold a bachelor's or advanced degree from an institution of higher learning outside the United States must have their transcript(s) certified for equivalency to U.S. degrees or coursework by a credential evaluation service that is a member of the National Association of Credential Evaluation Services (NACES).

Master of Public Health Program

Applicants who have completed coursework at, or hold degrees from, a postsecondary institution in Australia, Canada (except Quebec), New Zealand, or the United Kingdom will normally not need to have their academic transcripts evaluated and certified for equivalency.

- Official Graduate Record Examination (GRE) scores (from within the past five (5) years)
- Personal narrative statement (two to three pages) answering specific questions
- Three letters of reference

International applicants are also required to submit:

- Test of English as a Foreign Language (TOEFL) for foreign students whose first language is not English. A passing score on the ECFMG English test is acceptable for foreign medical graduates.

Applicants with a terminal professional degree who have an active professional license in their field are exempt from test scores. Applicants who do not possess an active professional license in their field must submit their doctoral transcripts.

All applicants without an MPH degree should submit an online application to the Morehouse School of Medicine MPH Program. In addition to the application, the following must also be submitted:

- Official transcripts from all undergraduate and graduate institutions
- Personal narrative statement (two to three pages) answering specific questions, as outlined in the Morehouse School of Medicine MPH Program application
- Three letters of reference, one of which must be written by a previous residency director
- Documentation of at least one completed year of supervised clinical training in a primary care specialty that is accredited by the ACGME
- Scores from USMLE
- An un-restricted Georgia medical license or licensure in another state

MPH/PM applicants are exempt from GRE test scores with proof of a license to practice medicine. Application fees for MPH/PM applicants will be waived. Acceptance to the residency program is contingent upon admission to the MPH program.

Application Deadline: MPH/PM applicants are eligible for Fall admission only.

Application Requirements for Special Status Students

The following information must be submitted in addition to the online application:

- Official transcripts from all undergraduate and graduate schools attended. (Refer to the first bullet under "Application Requirements for the Master of Public Health Degree")
- Personal narrative statement (one page) answering a specific question
- Three letters of reference

Application Deadlines

Regular Full-time and Part-time students: March 1

Prospective students may apply over the Internet by visiting the Morehouse School of Medicine website at http://www.msm.edu/Education/MPH/index.php and selecting the "Apply" link.

Additional information about application materials and the admissions process may be obtained by calling the Office of Admissions and Student Affairs at (404) 752-1650, sending an email to MPHadmissions@msm.edu, or sending your request to:

Morehouse School of Medicine
Office of Admissions and Student Affairs
720 Westview Drive SW
Atlanta, GA 30310-1495

Degree-Seeking Applicants

Full-time Study (Degree completion in four semesters)
MPH students who register for 12 or more credit hours in the Fall or Spring semester are considered full-time students. A minimum of 12 credit hours per semester is required to complete the degree in four semesters. Students who wish to register for more than 15 credits per semester must obtain permission from their Academic Advisor and Mentor. All full-time students are billed a flat rate. Academic progress and standards apply to all students.

Part-time Study (Degree completion in five or more semesters)

MPH students who register for 11 credits or less are considered part-time students within the MPH Program. Six credit hours per semester are needed to be eligible for financial aid. The Admission procedures for part-time students are the same as those for full-time students. Academic progress and standards apply to all students.

Acceptance to the MPH program is based on the profile of the applicant. This profile includes: academic qualifications, work experiences, community or volunteer service, career goals, and the relative strength of each applicant compared to the current pool of applicants.

The MPH Admissions Committee makes the final selection and notifies accepted applicants. All applications, transcripts, test scores and letters of reference are housed in the MSM Office of Admissions. An application will not be considered until all materials (including test scores) have been received.

International Applicants

There are additional requirements for international applicants which are available online. Only U.S. citizens or permanent residents qualify for financial aid. All others must provide proof of financial support.

Cross-Registration

Cross-registration is available through the Atlanta Regional Council for Higher Education (ARCHE). Contact the MSM Registrar's office for additional information.

Academic Regulations

Weekly class attendance including all examinations and other evaluation activities is mandatory. Excessive absenteeism may be deemed grounds for course failure or dismissal from the MPH program. Excused absence from an examination must be obtained prior to the examination or upon acceptable documentation of an emergency at the time of examination. An unexcused absence from a test or examination can result in a failing grade for that portion of the course.

Master of Public Health Program

All requirements for the MPH degree must be completed within five calendar years of commencing the program. Leave of absence and withdrawal from the program will be granted in accordance with the guidelines set forth in the MSM Student Handbook. If a student withdraws or takes a leave of absence while on academic probation, the probationary period resumes upon return.

Each student's continued enrollment in the MPH program is contingent upon academic progress and the demonstration of conduct consistent with high standards of professionalism and personal honesty.

Grading System

Grade	Meaning	Grade Points	Credits
A	Superior work	96-100	4.0
A-		90-95	3.7
B+		85-89	3.3
B	Satisfactory	80-84	3.0
B-	Less than Satisfactory	75-79	2.7
C	Marginal	70-74	2.0
F	Failing		0.0
P	Pass		*
W	Withdraw without penalty		*
WF	Withdraw while failing		0.0
IP	In progress		*
I	Incomplete		*

D is not a letter grade used in the MPH program's grading system.

*Indicates grade not included in the calculation of a student's grade point average (GPA).

Cumulative grade point averages will be calculated each semester. The GPA is computed by (1) multiplying the points earned by the course credit hours; and (2) dividing this product by the total number of semester hours carried. The minimum standard for graduate work leading to the Master of Public Health degree is a B average (3.0 GPA). Only grades of A and B may be modified as A-, B+, B-.

No course credit will be allowed for an F, W, WF, IP*, or I. When a course, seminar, or research activity is intended to last more than one semester, the notation IP* (In Progress) is made at the end of each grade period
until the final grade is given. When assigned work is not completed during a prescribed period, the notation "I" may be given with consent of the instructor. If the work is not satisfactorily completed within the time allowed by the instructor, up to one year, a final grade of F is given.

Advisement

MPH Student Advisement Process

The academic advisement process is intended to ensure that all students receive guidance and direction in completing the prescribed plan of study. Full-time and part-time students are advised by the Academic Advisor & Mentor. Students follow a prescribed Course Enrollment Sequence that documents their curriculum plan for their matriculation in the program.

Prior to the beginning of the following semester, each student meets with their Academic Advisor & Mentor and revises the Course Enrollment Sequence, if necessary. At this time, students register for classes.

As required course work is completed, the student and External Relations Coordinator jointly develop plans for the completion of the Practicum Experience. The Culminating Experience (CE) Course Director and Curriculum Manager will advise students on CE policies and procedures.

The External Relations Coordinator and Academic Advisor & Mentor also inform students of opportunities for fellowships and grants, consult with students on continuing their education, and provide students with job announcements and information on career opportunities. Information on these and additional opportunities is available in the Career Development Office.

Master of Public Health Program

Academic Program

The MPH Program offers a generalist curriculum consisting of core courses (28 credit hours) and elective courses (14 credit hours). In addition, all students must complete a Practicum (3 credit hours) and Culminating Experience (3 credit hours), attend Career/ Personal Development Workshops, Academic Writing Workshops, and a total of 8 Public Health Leadership Series seminars.

Course Offerings

Core Courses (28 credit hours): All students are required to complete the following core courses:

MPH 500 Biostatistics (3 credit hours)
This course introduces various statistical methods used in public health management, research, and education. Students are trained in biostatistical data analysis and the interpretation of standard statistical packages.

MPH 501 Introduction to Environmental Health (3 credit hours)
This course introduces all students to the fundamentals of environmental health sciences. It is designed to enable students to recognize environmental health problems, initiate assessments, and communicate with other professionals and the lay public regarding environmental health issues.

MPH 502 Epidemiology (3 credit hours)
This course provides students with knowledge of patterns of disease occurrence in human populations and factors that influence these patterns. The course is designed to enable students to identify and use systematic procedures that are helpful in determining epidemiological relationships. Students will gain insight and be able to recognize situations in their public health practice where epidemiological principles are to be applied.

MPH 503 Health Administration, Management, and Policy (3 credit hours)
This course provides an introduction to major issues in management of health programs and services. The course exposes students to an overview of the theories of management and administration. Specific aspects of health service delivery, policy and management are explicated with emphasis on the role of the manager in contemporary health systems.

MPH 504 Social and Behavioral Aspects of Public Health (3 credit hours)
This course provides a survey of the socio-structural, cultural, micro-ecological, and personal determinants of human behavior. This core course provides students with a general appreciation of the central role that human behavior plays in the development and prevention of illness and in the promotion of health. Specific interventions targeted at African Americans are presented to illustrate these theoretical constructs.

MPH 505 Fundamentals of Public Health (1 credit hour)
The interdisciplinary foundation course for first-year MPH students is designed to improve their analytical and practical skills in the fundamental principles (values and ethics) and core competencies in domestic and global public health issues. The course integrates theory and practice as important characteristics of learning and includes presentations by public health professionals, films, site visits, case studies, and individual and group presentations of assigned projects.

MPH 506 Research Methods (3 credit hours)
This course is designed to provide an overview of qualitative and quantitative research methodologies and provide practical experience for students to apply skills learned. Qualitative research methods will be taught and practiced as a way of further understanding the deeper meaning and context of attitudes, beliefs and behaviors within communities and as related to program design and outcomes. This course is designed to assist students with the Culminating Experience Requirement.

MPH 508 Community Health Assessment & Improvement (3 credit hours)
Prerequisite: MPH 505 Fundamentals of Public Health

This course examines methods of community health assessment, planning, implementation, evaluation and ways for improvement. Students learn to develop or adapt a health promotion program that reflects cultural competence, analyze types of program evaluations that can be used for a health promotion program and create written materials to support a health promotion program. Building on the core competencies of public health, the course will include team-building activities, lectures, engaging with community emergency responders and community organizing and service.

MPH 509 Global Health Systems (3 credit hours)

This course is designed to allow students to examine health systems from a global perspective, and understand approaches to evaluate and recommend improvements to their performance.

The course focuses on historical overviews of health systems in developed and low and middle income countries and their attempts to address health related issues, including the burden of disease, vulnerable populations, and disaster management. In particular, an extensive overview of the financial, organizational, and professional complexity of the U.S. healthcare delivery system is presented.

MPH 510 Health Program Planning & Evaluation (3 credit hours)

This course introduces students to quantitative, qualitative, ethnographic methods of quality measurement and improvement in public health and economic evaluations of programs. Students will learn formative and summative program evaluation methods explore public health standards for conducting program evaluation and introduce student to the principles and practices of healthcare finance as it relates to economic evaluations of programs.

Other Required Courses (6 credit hours)

MPH 690 Practicum Experience (3 credit hours)

Prerequisite: MPH 508 Community Health Assessment & Improvement

This course provides students with worksite experience (360 practical hours, 120 community service hours – 480 total) at a public or private health service organization in the U.S. or abroad during the summer (May-August). Students apply classroom theory and competencies to practical situations in the field. This course also helps students identify needed job skills and possible work opportunities in their area of specialization. Students are required to successfully complete four core courses and two track required courses prior to starting their Practicum Experience. Arrangements can be made for part-time students in the spring and fall semester.

MPH 691 Culminating Experience (3 credit hours)

Prerequisite: MPH 506 Research Methods

This course provides an opportunity for students to synthesize and integrate the knowledge base and competencies acquired in coursework and practicum. Students can demonstrate this achievement through writing and presenting a master's thesis or manuscript which is submitted to a pre-selected Public Health or Public Health related journal.

MPH 695 Career/Personal Development Workshops (0 credit hours)
These workshops provide technical skills required to lay the foundation for proficient performance in the job market. Professional success mandates effective marketing of skills, knowledge and abilities for new
opportunities. Professional and career development training classes are the critical elements to a successful career.

MPH 699 Public Health Lecture Series (0 credit hours)
These lectures expose students to innovative leaders in public health who explore a variety of issues and strategies used in public health and provide a forum for exchange on contemporary practice and theory. Local, regional and national leaders present on selected topics and students interact in a roundtable format. Students must attend five seminars per semester for a total of 20 to meet the graduation requirements. Verification of attendance is required for graduation.

Electives (14 credit hours)

MPH 517 Statistical Computer Methods I (3 credit hours)
Prerequisite: MPH 500 Biostatistics
This course provides intermediate level of SAS and SPSS to gain proficiency in the use of data management, processing and storage, manipulation and retrieval of data and statistical summaries are emphasized.

MPH 507 Grant and Proposal Development (2 credit hours)
The course is designed to familiarize students with specific written and oral communication skills needed to develop competitive grants and proposals for international health programs, public programs and community-based organizational settings. The course incorporates a focus on cultural competency while establishing fundamental proposal development skills that facilitate public health practice.

MPH 511 Financial Management for Health Administrators (2 credit hours)
This course in Financial Management for Health Administrators is divided into two modules: Economics in Public Health, and Public Health Budgeting and Financial Management. Healthcare Economics is taught during the first half of the semester (through mid-terms); and Public Health Budgeting and Financial Management is taught during the second half of the semester (through finals).

Healthcare Economics is taught during the first half of the semester (through mid-terms); and Public Health Budgeting and Financial Management is taught during the second half of the semester (through finals). The overall goal of this course will be to introduce students to the principles and practices of healthcare finance as they relate to economics, budgeting, financial management and reporting in the public health environment.

MPH 534 Health Communications (3 credit hours)
This course is intended to complement courses in social and behavioral approaches to community health. This includes the intervention core in Community Health Education and the social and behavioral science perspectives in MPH programs in general. This course is primarily a critical review of theory, research, and applications of mass media in public health but also includes discussion of planning principles in developing media-based public health interventions. (Fall)

MPH 535 Public Health Emergency Preparedness and Disaster Management (2 credit hours)
This course provides an overview of the fundamentals of emergency preparedness and disaster management at the local public health department level. Course instruction will blend the application of management theory with practical applications and students will learn how to develop and effectively implement disaster preparedness plans. Through this approach, students will strengthen their knowledge of emergency preparedness and the management of public health disasters that may be terrorist, biological, or chemical in nature.

MPH 625 Spheres of Ethics (3 credit hours)
This course will provide a philosophically grounded introduction to ethics. This introductory course discusses ethics evolution from theology and philosophy to ethics and includes, but not limited to: morality, virtual ethics, bioethics, and public health ethics. Ethical approaches to social justice will provide a unifying framework for examining public health, racial and ethnic health issues, health and health care disparities. The course introduces the students to programmatic and research strategies for shaping individual, group, community, public health and public policy.

MPH 693/694 Directed Study (1-3 credit hours)
Directed Study is an MPH course in which students pursue independent research under the guidance of a MSM faculty member. Students can complete a Directed Study to pursue in-depth research in a general area covered in a course, or to explore a topic not normally covered in the curriculum.

MPH 701 Advanced Epidemiology

Prerequisite: MPH 502 Epidemiology

Preventive Medicine Resident Required Course

This course provides a broader and more in depth presentation of epidemiologic concepts and methods with the aims of advancing epidemiologic reasoning abilities and enhancing proficiency for epidemiologic research and practice. It provides a more rigorous presentation and discussion of specific epidemiologic concepts, methodologic issues, and principles which underlie analytical techniques for advancing scientific inquiry and program decision making.

MPH 711 Clinical Preventive and Population Health Services

Prerequisite: MPH 507 Grant and Proposal Development

Preventive Medicine Resident Required Course

The aim of this course is for students to understand the evidence that is needed to produce and interpret evidence-based recommendations for an intervention or service. The approaches to shared decision making and to facilitating behavioral change advocated by the USPST F and CTF can also be useful. This course is intended for students to understand the basis for these recommendations and not only memorize the recommended interventions. Case studies, interactive sessions, such as small-group and computer-based interactions, and patient encounters will enhance student understanding of important concepts, illustrate the use of the evidence and the implications of the recommendations.

MPH 712 Advanced Biostatistics

Prerequisite: MPH 500 Biostatistics

Preventive Medicine Resident Required Course

The course is designed for students to have advanced knowledge on common and advanced statistical methodologies by applying them into practical applications in biomedical and public health fields with abilities of performance of computational application and to have better understanding on the statistical/data analysis in the medical literatures. The course covers fundamental theory and background of the methods, computational application using SAS/SPSS/Sigma plot, interpretation of the analysis results, and prepare for the final analysis report. The main theme of the course is related with construction and analysis of multivariable models using regression analysis and ANOVA methods that include analysis of covariance (ANCOVA) and repeated measures analysis.

The most critical part of this course is to deal with statistical issues that encounter in analyzing multivariable models such as model assumption checking, model diagnosis, multicollinearity, transformations, model-building strategies, and missing data imputation. Through the course, many practical examples will be provided with statistical software applications in the class, and weekly-based SAS lab sessions will be provided for students to perform the statistical methods.

MPH 702 Cancer Epidemiology (2 credit hours)

The goal of this course is to provide an overview of the important concepts and tools fundamental to the understanding, design, and conduct of cancer epidemiology studies. It will provide an overview of the biology of cancer, as well as the major epidemiologic concepts critical to cancer epidemiology. We will study many of the major cancer sites, including breast, lung, colon, prostate, cervix and melanoma, reviewing descriptive data on incidence and mortality, risk factors, and methodological issues involved in studying these cancers. We will review several major risk factors for cancer, including tobacco, nutrition, infections, and environmental exposures.

MPH 704 Introduction to Cancer Prevention & Control (2 credit hours)

Cancer is the second leading cause of death in this country, making its prevention and control important in public health practice. This urgency is exacerbated by the existence of racial/ethnic disparities in cancer incidence, morbidity and mortality. Using an integrative, collaborative and translational approach, this course is designed to examine concepts, methods, issues, and applications related to cancer risk reduction. Students will gain access to a broad perspective of scientific and public health practices. The spectrum of research and practices including diet and diet-related lifestyle factors (such as weight and physical activity) and tobacco (including prevention/cessation), will be studied in detail.

MPH 705 The Politics of Health Care Policy (3 credit hours)

The course has two primary goals – teach MPH students (1) that the formation of health care policy is a political exercise and (2) how politics – primarily the concern of politicians to be elected and re-elected – influences the formulation of health care policy. By having a better understanding of and appreciation for the politics behind health care policy, MPH students will be more effective advocates for policies and programs they might support or champion over the course of their careers. To that end, one of the key assignments of the class will be to write an outline and present to the rest of the class what ideal health care policy would look like.

At the end of the semester, students will do a follow-up project, including a written product and a subsequent presentation that evaluates the political concerns that would have to be addressed to make their ideal health care policy a reality.

Morehouse School of Medicine reserves the right to terminate or modify program requirement content, and the sequence of program offerings from semester to semester or year to year, for educational reasons which it deems sufficient to warrant such actions.

Further, MSM reserves the right to terminate programs for financial or other reasons which it determines warrant such action. The content, schedule, requirements, and means of course presentation may be changed at anytime by the School of Medicine for educational reasons which it determines are sufficient to warrant such action. Programs, services or other activities of the School may be terminated at any time due to reasons beyond the control of the School including but not limited to, acts of God, natural disasters, destruction of premises, labor disturbances, governmental order, financial insolvency, or other reasons or circumstances beyond the control of the School of Medicine.

GENERAL INFORMATION/POLICIES

General Information For Students

Financial Information

Tuition and Fees

Tuition and fees for each academic year are set in March of the preceding year by the Board of Trustees. Amounts are published in the Student Handbook and are available from the Office of Admissions and Student Affairs. MSM reserves the right to change the fees and tuition at any time without notice. However, if a change is made, it will not become effective until the next
academic year.

Registration and Payment of Tuition, Fees and Other Financial Obligations

Tuition and fees may be paid in two installments. The first installment is due on the day of registration. The final installment is due in January or on the date listed on the promissory note. Registration dates are specified in the calendar published in the student handbook. Failure of the student to register on or before the date specified in the published calendar will result in a late registration fee of $50.00 which will be added to the amount due. A student will not be allowed to register until tuition and fees are paid or satisfactory arrangements are made to cover all expenses. A student who has not satisfied all past due financial obligations to MSM will not be allowed to register until all accounts are settled. No transcripts will be released for any student or former student, nor will any degree be awarded to any student who has a financial obligation to the school.

Tuition payments and account payments carry a service charge if a check is returned for insufficient funds, or if payment is stopped on the check. Any returned check must be cleared within seven (7) days. Registration will be withdrawn if a student fails to satisfy all financial obligations to the school.

Refund Policy

If a student leaves the medical school for any reason (dismissal, withdrawal, transfer) tuition is refundable according to the following decreasing percentage scale:

Period After Registration	Tuition Refunded
First 5 Class Days	100%
Second 5 Class Days (2 weeks)	80%
Third 5 Class Days (3 weeks))	60%
Fourth 5 Class Days (4 weeks)	40%
Fifth 5 Class Days (5 weeks)	20%
After the Fifth Week	0

Should a medical student need to decelerate in the curriculum such that the anticipated graduation date is changed, the tuition and fee charges will be pro-rated accordingly.

Financial Assistance

The ability to finance your education at MSM does not influence the admissions process. However, if the student cannot make satisfactory arrangements to pay tuition and fees and to provide living expenses, the registration process cannot be completed. Students who have documented financial need that cannot be met by family and personal resources may apply for scholarships, loans, and grants. The Office of Student Fiscal Affairs is prepared to assist applicants and students in preparing applications for financial aid.

Accepted and alternate list students will receive the link to the online institutional Loan/ Scholarship Application, a Needs Analysis Form (Free Application for Federal Student Aid, FAFSA), and other necessary financial aid information and instructions. An official, signed copy of the parent's and applicant's current U.S. individual income tax return is required for students who wish to be considered for institutional financial aid (i.e., grants, scholarships, low interest loans). Complete parent information must also be provided on the FAFSA. All information is held in strict confidence. The policies of the institution in regard to financial aid are contained in the Financial Aid Prospectus, which is available on the MSM website.

Many donors have generously provided grants, scholarships and other forms of financial aid for MSM students who qualify for such assistance. These funds are considered institutional financial aid and are awarded based on financial need (according to the Needs Analysis Form) to students who meet the financial aid deadline and provide complete parent income information. Students who wish to apply for private loan funds (alternative loans) will be subject to a credit check by the lender (bank).

General Information For Students

General Policies

Academic Records

Official academic records are maintained by the Registrar. Access to these records is governed by the Family Educational Rights and Privacy Act of 1974, as amended. A listing of all students' records maintained by the institution is contained in the Student Handbook, which is available from the Office of Admissions and Student Affairs.

Library

The M. Delmar Edwards Library supports excellence in teaching, learning, research, service and practice by acquiring, developing, managing and delivering information resources to Library users. It is physically located on the first floor of the Medical Education Building (MEB), provides information and learning resources for students, residents, faculty, staff, researchers, and the community. The Library has areas for group and individual study. All Library areas have Wireless Network Access. In addition to online, full-text books and journals, along with open stacks of books and journals, the Library houses an archive, audio-visual collection, and electronic laboratory. The Library also provides intranet access to information resources and support and guidance in the selection, access, and use of these resources. Librarians are available to assist in training users to effectively use Library resources to answer reference queries and to perform searches for information. The Library is a resource member of the National Networks of Libraries of Medicine Southeastern Atlantic Region (NNLM/SEA), the Consortium of Biomedical Libraries in the South (CONBLS), the Southern Chapter of the Medical Library Association (SCMLA), the Georgia Health Sciences Library Association (GHSLA), the Atlanta Health Sciences Library Consortium (AHSLC) and the Atlanta Regional Council for Higher Education (ARCHE).

Community Service

Central to the mission of MSM is the expectation that graduates will provide service to disadvantaged communities. In addition to emphasizing this point in our pedagogy, MSM students participate in a series of community service projects prior to their graduation. The program also provides an opportunity for undergraduate students who are interested in pursuing careers in medicine and the biomedical sciences to develop mentoring relationships with medical students from MSM.

Medical students actively participate in the Medical Post Program, where they meet regularly with high school students interested in healthcare careers. They also make frequent classroom presentations in local schools, serve as volunteers in community health programs, participate in career days, and serve as judges at science fairs.

General Information For Students

The Student Sight Saver Program (SSSP) is one of the Friends of the Congressional Glaucoma Caucus Foundation's three core projects. Through this program, the students, advised by the Director of Student Activities, and led by a Student Sight Saver coordinator, learn about new techniques in screening and detection, and new treatments for diseases of the eye. In just the first year, the Morehouse School of Medicine SSSP screened close to three hundred people and conducted twelve screenings with an ophthalmologist on-staff as well as other Morehouse School of Medicine medical physicians.

Honors in Community Health and Service selects students in high academic standing for the program based on an interest in community service, faculty recommendations and academic performance. Students perform a specified number of community service hours each year, identify a service project relating to their professional interest, and develop personal and community learning objectives. Working with a faculty advisor and a community site, students develop, implement and later present their scholarly project before faculty and peers. Students are recognized on class day and receive honors at graduation.

Drug-Free School

Purpose

To promote a drug-free workplace in all School-owned, leased or operated facilities.

Responsibility

Under the direction of the President, the Dean, Associate Deans and Vice Presidents, will ensure compliance with this policy. All individuals with supervisory responsibility shall implement this policy.

Policy

1. Guidelines: It is the policy of MSM that the unlawful manufacture, distribution, dispensation, possession, sale, processing or use of any controlled substance by faculty, staff or students is prohibited while on School property or while on School business. Consequently, anyone found to be in violation of federal, state, local and/or School policy will be subject to disciplinary action up to and including termination or expulsion. DEFINITION: A controlled substance is any chemical for which there are explicit regulations regarding its manufacture, distribution, dispensation or use.

Therefore, in accordance with the Federal Drug-Free Workplace Act of 1988, all School employees and students must, as a condition of employment or enrollment, (i) abide by the school policy on controlled substances, and (ii) inform the School in writing of any conviction for violation of a criminal drug statute, when violations occur in the workplace, no later than five calendar days after such conviction. The School must then notify any grant or contracting agency of the conviction within ten calendar days of notice from employee or student, when the employee's/student's salary is paid from a federal grant or contract. The employee/student agrees that as a condition of receiving a federal grant or contract the employee/student will not engage in the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance in conducting any activity with such federal grant or contract.

2. The School recognizes the accepted professional definition of addiction. Addiction is a harmful complex bio-psychosocial, primary disease, characterized by the progressively debilitating, compulsive use of a mood altering substance at the expense of one's values, goals, vocation, family and social life.

3. Any employee or student convicted of a violation of a criminal drug statute or involved in illegal use or abuse of any controlled substance, may as a condition of continued employment or enrollment, be required to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, local, health, law enforcement, or other appropriate agency. The School offers counseling and referral assistance via an Employees Assistance Program (EAP) provided by an external source or an internal student counseling service. The employee's supervisor, School's EAP Liaison (Discrimination Harassment Officer), Associate Dean for Student Affairs, and/or the Assistant Vice President for Human Resources will make the necessary referral(s) to the EAP or Student Counseling Services. Department directors, supervisors, or employees who are affected by illegal use or abuse of drugs are responsible for notifying the EAP directly, or contacting the EAP Liaison at (404) 752-1846.

4. Employees who are concerned about a substance abuse problem may contact the EAP directly, or may be referred by a supervisor concerned with the employee's substandard performance. Preliminary substance abuse counseling and referral is available through the EAP. Employees will be seen individually for assessment, referral and treatment as required. Follow-up contacts will be available as necessary to meet the employee's needs.

5. There is no cost to employees who contact the EAP for services rendered by its counselors. However, there may be some costs incurred when referrals are made to outside clinics, physicians, and rehabilitation programs.

6. All contacts with the EAP and EAP Liaison are kept strictly confidential.

7. Undiagnosed and untreated substance abuse problems, including addictions, do not excuse any employee's substandard job performance. Any employee's refusal to seek treatment for alcohol or drug abuse, including addiction, will not be tolerated and is grounds for dismissal.

8. To educate employees on the dangers of drug abuse, the School has established a drug-free awareness program. Periodically, employees will be required to attend training sessions at which the dangers of drug abuse, the School's policy regarding drugs, the availability of counseling services, and the School's employee assistance program will be discussed.

Discrimination/Discriminatory Harassment

Responsibility

The Department of Human Resources and all department chairpersons, managers and supervisors shall ensure compliance with this policy. The Associate Vice President of Human Resources is charged with the policies and procedures which prohibit discrimination and discriminatory harassment. Ms. Denise Britt, the Associate Vice President of Human Resources, is located in the Department of Human Resources, Harris Building, 720 Westview Drive, S.W., Atlanta, Georgia 30310-1495. Phone number (404) 752-1600, fax number (404) 752-1639.

Policy

1. In compliance with federal law, including the provision of Title IX of the Education Amendment of 1972 and Section 504 of the Rehabilitation Act, it is the policy of MSM that all employees and students should be able to enjoy and work in an educational environment free from discrimination and discriminatory harassment. Discrimination or discriminatory harassment of any person or group of persons on the basis of race, color, national origin, religion, sex, sexual orientation, age, disability, or veteran's status is specifically prohibited at MSM. Any person privileged to work or study at MSM who violates this policy, will be subject to disciplinary action up to and including permanent exclusion from the institution.

2. Discriminatory harassment includes conduct (oral, graphic or physical) directed against any person or group of persons because of their race, color, national origin, religion, sex, sexual orientation, age, disability, or veteran status, and that has the purpose of, or reasonably foreseeable effect of, creating an offensive, demeaning, intimidating, or hostile environment for that person or group of persons. Such conduct includes, but is not limited to, objectionable epithets, demeaning depictions or treatment, and threatened or actual abuse or harm.

3. In addition, sexual harassment includes unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature when:

a. submission to such conduct is made either explicitly or implicitly the basis for employment or academic decisions affecting that employee or student; or

b. such conduct has the purpose or effect of unreasonably interfering with an employee's work performance or a student's academic performance or creating an intimidating, hostile, or offensive employment, education, or working environment.

4. All members of the institution's Senior Staff Department Chairpersons, Department Heads, Faculty and supervisors at all levels should take appropriate steps to disseminate this policy statement and to inform employees and students of procedures for lodging complaints. All members of the faculty, staff and student body are expected to assist in implementing this policy.

5. Any employee or student with a complaint of discrimination or discriminatory harassment should contact MSM's Discrimination Grievance Officer (DGO)) or the Vice President for Human Resources or Director of Student Counseling to obtain information on the procedure for handling such complaints.

"Morehouse School of Medicine is committed to providing academic and employment environments that are free from unlawful discrimination, including harassment, on the basis of protected characteristics, including race, color, national or ethnic origin, sex, age, disability, religion, veteran status, sexual orientation, genetic information, gender identity, or any other characteristic protected by applicable law in the administration of the School's programs and activities. As such, MSM admits or hires qualified persons of any race, color, national or ethnic origin, sex, age, disability, religion, sexual orientation, and gender identity to all the rights, privileges, programs, and activities generally accorded or made available at the School. MSM also prohibits retaliation against members of the MSM community raising concerns about discrimination and harassment".

General Information For Students

Please see the Morehouse School of Medicine Nondiscrimination and Anti-Harassment Policy for a more in depth discussion of the School's nondiscrimination, anti-harassment and anti-retaliation policies and grievance procedures. Further information is also available on the web at www.msm.edu.

Disability Antidiscrimination Policy for Programs and Services

It is the policy of Morehouse School of Medicine to ensure that all institutional goods, services, facilities, privileges, advantages, and accommodations are meaningfully accessible to qualified persons with disabilities in accordance with the Americans with Disabilities Act (ADA) of 1990, Section 504 of the Rehabilitation Act of 1973, and other pertinent federal, state, and local disability anti-discrimination laws.

Student Health Services

Morehouse Healthcare Center (MHC) offers off-campus comprehensive medical care to students. The SEHS-IC (Student Health Services-Infection Control) offers general comprehensive medical care, acute primary health care services and services in Infection Control and Immunizations at the Clinical Research Center on the Westview campus on Tuesday and Thursday afternoons. For more comprehensive evaluations and labs, services are available at the Comprehensive Family Healthcare Center in East Point. Additional information on Student Health Services is contained in the student handbook and can be obtained from the Office of Student Affairs. Regularly enrolled MSM students with valid ID cards and health insurance are eligible for healthcare at the 1513 E. Cleveland Avenue Building 500, East Point, ,Georgia 30344. Hours are Monday-Friday, except official MSM holidays, 8:30 am-5:00 pm. Please call (404) 756-1241 for an appointment.

Counseling Services

The Counseling Services staff is available to offer assistance with a variety of personal and academic problems. The Counseling Services Center offers a variety of services designed to help students maximize their potential while at MSM. All students are encouraged to talk over any issue or concern with a staff member. Personal as well as academic counseling is available. Counseling sessions are confidential. Services are available free of charge to all matriculating students, their families, and significant others. Additional information on Counseling Services is contained in the student handbook, which is available from the Office of Student Affairs.

Housing

The School does not have student housing. The Counseling Center provides limited information concerning apartments and rooms that are available in the city.

General Information For Students

Student Government Association

Students are represented at MSM through class officers, student organization representatives and student members of committees. Selection of these representatives is done through class elections run entirely by the class involved.

The Student Government Association is the general student representative body. The Constitution for the Student Government Association has been established so that students may govern themselves more effectively and take a more active part in affairs of the School. The opinions of medical students on curricular and professional matters are actively sought by the
faculty. Students serve on several school committees.

Student Organizations

Chapters of the following student organizations are active at MSM:

- Student National Medical Association
- American Medical Student Association
- American Medical Women's Association
- Anesthesiology Interest Group
- Alpha Omega Alpha Honor Medical Society
- Pre-alumni Association
- American Medical Association Medical Student Section
- Delta Omega Public Health honor Society
- MPH Student Association (MPHSA)
- Bonnie Simpson Orthopedic Surgery Interest Group
- Christian Medical and Dental Associations
- Emergency Medicine Interest Group
- Family Medicine Interest Group
- Health Students Taking Action Together

General Information For Students

Awards

Each year just prior to Commencement, Class Day is held in order to recognize the accomplishments of graduating seniors, faculty, and staff. Superior academic performance by students who have excelled in all academic programs are recognized. These awards include (but are not limited to) the following:

- The President's Leadership Award is presented to a graduating senior who has demonstrated outstanding accomplishments in leadership and performance.
- The Primary Care Award is presented to the graduating student who most clearly exemplifies the mission of the School.
- Teacher of the Year Awards are presented to faculty based on elections held by second-year students (first- and second-year faculty) and fourth-year students (third- and fourth-year faculty).
- Rising Star Award is presented to a first-year PhD student who has demonstrated outstanding academic accomplishments.
- The PhD Student of the Year award is presented to a fourth-year student who has demonstrated excellence in accomplishments and performance.
- Department awards are given to students on the basis of outstanding academic performance in specific disciplines.
- Awards sponsored by private industry are given to recognize community service, leadership, excellence in basic science and excellence in clinical medicine.

Alumni Association

An active national alumni association has been formed to provide a means for the alumni to communicate with one another and to support the institution. Graduates and students who have completed up to two years are eligible for membership.

Summer Experiences

Medical students are strongly encouraged to augment their curriculum with summer and academic year experiences in clinics (with approved preceptors), in basic science and clinical research with faculty, and at government agencies. Many have modest stipends to support living expenses. These experiences include, but are not limited to:

- Family practice preceptorships
- NIH summer research internships
- Research with basic science and clinical faculty
- Neuroscience Institute/NSBRIEPOP
- GE-National Medical Fellowship, Primary Care Leadership Program

The Office of Admissions and Student Affairs will assist students in identifying programs.

Morehouse School of Medicine

GRADUATE MEDICAL EDUCATION

Other Educational Programs

OFFICE OF GRADUATE MEDICAL EDUCATION
http://www.msm.edu/Education/GME/index.php
Office Phone Number: (404) 752-1857

Yolanda Wimberly, M.D., M.Sc, F.A.A.P., F.S.A.M

Associate Professor of Pediatrics
Associate Dean for Graduate Medical Education
ACGME Designated Institutional Official
Chair Graduate Medical Education

Director:	Tammy Samuels, MPA
Program Manager:	Jenay Hicks
Database Coordinator:	Paulette Neal-Parham

RESIDENCY

Graduate Medical Education

Graduate Medical Education, as the next educational phase after medical school, is an integral component of the Morehouse School of Medicine (MSM) medical education program continuum. It is goal-centered in the school's strategic plan. MSM is the sponsor of seven (7) residency programs accredited by the Accreditation Council for Graduate Medical Education (ACGME) and must ensure the educational quality within each of these programs. MSM is committed to providing an optimal educational and scholarly environment for residents, with teaching and supervision by MSM faculty.

Residents are Physicians and Students

The Accreditation Council for Graduate Medical Education (ACGME) accredits all residency education programs in the United States. The council and institutions participating in graduate medical education (residency education) follow certain principles. Accreditation standards emphasize the importance of the education setting residents are placed in. As the sponsor of residency programs, MSM follows the Institutional Requirements of the Accreditation Council for Graduate Medical Education (ACGME).

Other Educational Programs

The responsibility for monitoring residency education at MSM belongs to the Graduate Medical Education Committee (GMEC). Each residency program, under the leadership of the program director, follows the standards within the ACGME program requirements for its specialty.

Resident Eligibility and Selection

MSM residency programs participate in the National Resident Matching Program (NRMP) for applicants for the first Post-Graduate Year (PGY). These residency programs and positions are listed in the AMA Graduate Medical Education Directory and the Fellowship and Residency Electronic Interactive Database Access System (FREIDA). MSM residency programs use the Electronics Residency Application Service (ERAS) to process applications to their programs. All organizations addressed in this section are web-based and have excellent information on their programs and services on the internet. They may be accessed through the MSM Residency Education Page on the MSM website.

The Resident and MSM Educational Environment

Morehouse School of Medicine offers a full educational milieu designed to prepare the resident for future responsibilities and opportunities. The medical school mission is incorporated into the curriculum of each residency program, and MSM residency programs objectively prepare residents for the community environment in which they will practice. Further, our residents are expected to become leaders in this environment during and after the completion of the program.

We are proud of the fact that results transcend rhetoric in our placement of physicians in underserved areas. Sixty-three percent of our residency program graduates have pursued primary care practice and sixty-seven percent remain in the state of Georgia. There is also an increase in the number of resident graduates who have shown an interest in teaching medical students and residents.

Major objectives of the MSM residency programs are to provide for education, patient care, and scholarly activities. It is strongly emphasized that residents be progressively responsible for the supervision and teaching of medical students and other residents on the service to which they are assigned. Medical students are expected to become a productive member of a team or educational group.

Other Educational Programs

Residents are responsible for following the quality assurance guidelines at all assigned facilities. Scholarly activities and the opportunities to investigate are made available to residents in clinical, community, and basic science settings.

Residency Education Programs

MSM is committed to its history and tradition of leadership in patient centered teaching and service to the underserved. MSM has educational affiliates in and around the Atlanta metropolitan area that provide ample hands-on learning experiences with the teaching support an award-winning faculty. Our main Affiliate training sites include Grady Memorial Hospital, Atlanta VA Medical Center and Children's Healthcare of Atlanta.

Residency Program	Authorized Residents	PGY 1- Resident Positions
Family Practice (1981) (404) 756-1256	18	6 categorical
Internal Medicine (1992) (404) 756-1325	61	19 categorical 4-preliminary
Obstetrics and Gynecology (1997) (404) 616-1692	16	4 categorical
Pediatrics (2001) (404) 756-1393	18	6 categorical
General Psychiatry (1991) (404) 756-1440	16	4 categorical
Public Health and General Preventive Medicine (1986) (404) 752-1852	8	N/A: PGY 2 level– and licensure is a pre-requisite for entry
General Surgery (1993) (404) 616-1424	22	2 categorical 12 preliminary
TOTALS	**159**	

Morehouse School of Medicine

OFFICE OF EXTENDED PROFESSIONAL EDCUATION

Director of EPE Accreditation:	Denise N. McGee
Director of Educational Programs:	Nakisha Harris, MAEd

Overview

MSM is accredited with commendation by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians. The Committee on Continuing Medical Education (CME), established by the Academic Policy Council of MSM, provides a program that supports healthcare professional's commitment to lifelong learning and practice improvement.

The Office of Extended Professional Education (OEPE) was established for the purpose of collaborating with faculty, clinical departments, community physicians and educators to identify educational needs and then implement activities to address these needs.

Continuing Education offerings are delivered using traditional formats (seminars, short courses, workshops and Internet) locally, nationally and internationally. Regularly Scheduled Series (RSS), which include grand rounds, also are sponsored by MSM clinical departments. The primary target audience includes MSM clinical faculty, community and other physicians, residents, nurses, allied health professionals and medical students. In addition, the EPE Office collaborates with other institutions that are not accredited as CME providers.

The Office of Extended Professional Education offers a hands-on approach to program development and education for both accredited and non-accredited activities, as well as total meeting management services.

For program and additional information please contact the Office of Extended Professional Education at (404) 752-1106 or email the office at msm-cme@msm.edu.

Morehouse School of Medicine

OFFICE OF FACULTY AFFAIRS AND DEVELOPMENT
Office Phone Number: (404) 752-1723

Erika Brown, Ph.D.
Associate Dean for Faculty Affairs and Development
Director, Integrated Planning and Decision Support
Associate Professor, Pathology and Anatomy

Manager of Faculty Records:	Alicia Gibbs
Faculty Coordinator:	Renee Flewellen
Faculty Development Liaison:	Nakisha Harris, MAEd

Overview

The Office of Faculty Affairs and Development (OFAD) is a service-oriented unit and its primary goal is to provide comprehensive resource support for faculty, with respect to their professional careers at MSM. The office seeks to ensure fair and consistent treatment of faculty, and to assist academic departments in recruitment, orientation, professional development, promotion and retention of faculty and scholars. This office also provides oversight, advice and assistance for the processing of all faculty personnel matters, including the establishment, integration and implementation of personnel policies and procedures.

Morehouse School of Medicine

SATCHER LEADERSHIP INSTITUTE (SHLI)
Office Phone Number: (404) 752-8654

Founding Director and Senior Advisor:	David Satcher, MD, PhD
Interim Director:	Kisha B. Holden, PhD, MSCR

The mission of the Satcher Health Leadership Institute (SHLI) is to develop a diverse group of exceptional health leaders, advance and support comprehensive health system strategies, and actively promote policies and practices that will reduce and ultimately eliminate disparities in health. The vision of the institute is to be a leading transformative force for global health equity. Our four (4) goals are to:

- Develop excellent leadership training programs and services.
- Provide and model ethical leadership that addresses all determinants of health to create conditions for health equity.
- Improve comprehensive systems of integrated services and strategic partnerships.
- Achieve financial sustainability through the development of diverse funding sources and programs.

The Satcher Health Leadership Institute values diversity, integrity, trustworthiness, consensus-building, prevention as a priority, and equal access to quality healthcare for all persons.

The Satcher Health Leadership Institute consists of the following five (5) divisions:

- The Division of Behavioral Health
- The Center of Excellence for Sexual Health (CESH)
- Community Voices: Healthcare for the Underserved
- The Division of Health Policy
- The Division of Health Promotion and Disease Prevention

In addition to the five (5) divisions, Satcher Health Leadership Institute partners with the National Institutes of Health (NIH)-funded Transdisciplinary Collaborative Center (TCC) for Health Disparities Research and the Kennedy Forum/NIH jointly-funded Kennedy Family Center for Mental Health Research and Policy.

Also within the Satcher Health Leadership Institute are three (3) leadership development programs:

- The Smart and Secure Children Parent Leadership Program
- The Health Policy Leadership Fellowship Program
- The Community Health Leadership Program

Satcher Health Leadership Institute is unique because of three (3) core ideas not found in other health leadership institutes. The Satcher Health Leadership Institute prioritizes the elimination of health disparities by encouraging leadership among underrepresented minorities; works to develop replicable standards and strategies in health leadership; and promote and foster a diverse and inclusive health leadership network.

Division of Behavioral Health

The mission of the Division of Behavioral Health is to reduce and ultimately eliminate disparities in behavioral health, including mental health, substance abuse and developmental disabilities. Our mission is achieved through training and development of existing and emerging leaders, empowering and supporting community leadership, and implementing innovative programs that inform meaningful and effective policies and practices in Behavioral Health.

Center of Excellence for Sexual Health

The Center of Excellence for Sexual Health (CESH) in the Satcher Health Leadership Institute at Morehouse School of Medicine (SHLI/MSM) seeks to raise the level of national dialogue on human sexuality, sexual health and well-being in a sustained, informed, honest, mature and respectful way and link that dialogue to actions that reflect both scientific evidence and deeply held beliefs. These actions include preparing the next generation of community leaders in sexual health, encouraging inclusion of people with disabilities and chronic conditions in sexual health discourse, integrating sexuality into medical and religious education and building bridges to improve sexual health in America. CESH assists leaders of divergent viewpoints in building agreements on controversial issues regarding sexual health to strengthen sexual health through public health and improve the sexual health of the American people.

Community Voices: Healthcare for the Underserved

Established in 1998, Community Voices: Healthcare for the Underserved is a multidimensional, nationally recognized initiative created to address healthcare issues plaguing underserved communities.

Morehouse School of Medicine

This division of the Satcher Health Leadership Institute is focused on improving the health outcomes of marginalized populations. Community Voices (CV) strategically designs culturally sensitive interventions to respond to its core components of: 1) health and prison, 2) mental and behavioral health, 3) men's health, 4) adult and childhood obesity, and 5) health and social policy. The common thread woven into each facet of our programs is the CV mission: to listen to voices in the community that often go unheard and take an active leadership role in improving health for all.

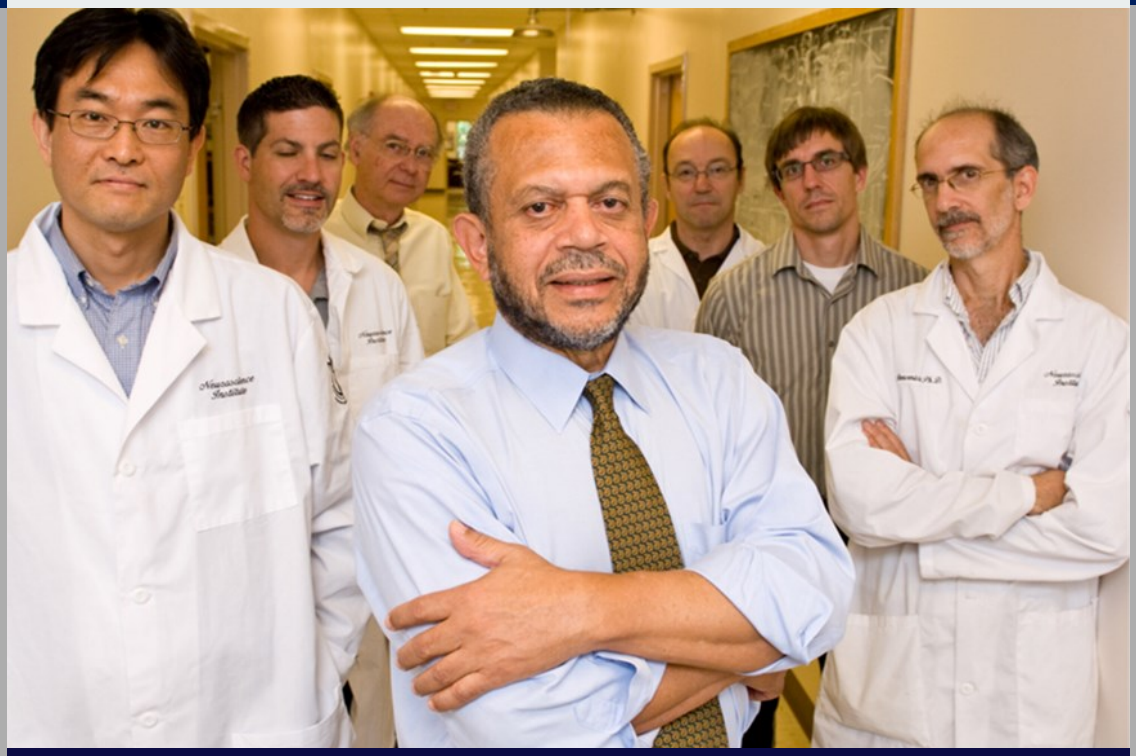
Division of Health Policy

The Division of Health Policy provides leadership and prepares leaders committed to promoting policies and practices that reduce disparities and advance health equity. Our work is multidisciplinary, acknowledging that achieving health equity requires a health-in-all-policies approach that collaborates across sectors and disciplines. To this end, our activities are focused on: (1) Developing, training, and engaging emerging and established leaders and students in the promotion, development, and implementation of policies and practices that reduce disparities and advance health equity; (2) Engaging communities, organizations, and leaders across all sectors to advance policies to improve the conditions for optimal health and health equity; (3) Conducting and collaborating on research that informs best practices, models, and policies that reduce disparities and advance health equity; and (4) Influencing policy and resource allocation to promote health equity through testimonies, publications, and active communication of relevant and timely information to decision makers, professional organizations, and the public.

Division of Health Promotion and Disease Prevention

The Division of Health Promotion and Disease Prevention at the Satcher Health Leadership Institute, Morehouse School of Medicine promotes and supports the development, delivery, and dissemination of services that ensure and protect the health of all Americans, especially those disproportionately affected by health disparities. Its mission is to provide health information, health leadership training, and health education to the communities of greatest need.

Morehouse School of Medicine



FACULTY

Morehouse School of Medicine

Oluwatoyosi Adekeye Instructor
Community Health and Preventive Medicine 2010, MPH University of North Carolina Greensboro, MBBS Ahmadu Bello University, Zaria, Nigeria 2005.

Felix O. Aikhionbare Associate Professor
Medicine 1997, MSc Jackson State University 1989, PhD, University of Nebraska-Lincoln 1995.

Mukaila Akinbami Instructor
Physiology 1990, MS University of Missouri 1984, PhD University of Missouri 1989.

Tabia K. Henry Akintobi Associate Professor
Community Health and Preventive Medicine 2006, MPH University of South Florida 1999, PhD University of South Florida 2006.

Ernest Alema-Mensah Assistant Professor
Community Health and Preventive Medicine 2001, MS Clark Atlanta University 1991.

Ngozi F. Anachebe Associate Professor
Obstetrics and Gynecology 2002, MD Morehouse School of Medicine 1998.

David W. Anderson Associate Professor
Medicine 1992, MD State University of New York Health Science Center 1988.

Leonard M. Anderson Assistant Professor
Physiology 2003, PhD Northwestern University Medical School 1999.

Dorothea E. Archie-Booker Assistant Professor
Community Health and Preventive Medicine 1999, MS Georgia State University 1985, EdD University of Georgia 1996.

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Family Medicine 2016, MD Morehouse School of Medicine, 1994.

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Community Health and Preventive Medicine 2012, MD Morehouse School of Medicine 2005.

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Pharmacology and Toxicology 2012, PhD Hokkaido University 2008.

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Family Medicine 2007, MBBS University of Guyana School of Medicine 2000.

Methode Bacanamwo Associate Professor
Physiology 2001, MS Clemson University 1992, PhD University of Illinois 1996.

Morehouse School of Medicine

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Medicine 2013, MD University of Leipzig 1994.

Peter T. Baltrus Associate Professor
Community Health and Preventive Medicine 2003, PhD University of Michigan 2003.

Karen Bashan-Gilzenrat Assistant Professor
Surgery 2016, MD University of Connecticut Health Center 2008

Khalid Bashir Associate Professor
Medicine, Medicine 2005, MBBS Government Medical College 1992.

Carey Roth Bayer Assistant Professor
Pediatrics 2007, MEd Widener University 2003, EdD Widener University 2005.

Mohamed A. Bayorh Professor
Pharmacology and Toxicology 1984, PhD Howard University1980.

Denise Bell-Carter Assistant Professor
Family Medicine 1999, MD University of Medicine and Dentistry 1989.

Jorge Benitez Associate Professor
Microbiology, Biochemistry and Immunology PhD CENIC, Havana Cuba 1983.

Morris Benveniste Professor
Neurobiology 2005, PhD Weizmann Institute of Science 1988.

Derrick Beech Professor
Surgery 2011, MD Medical College of Virginia 1988.

Farzhana M. Bharmal Professor
Psychiatry and Behavioral Sciences 1995MBBS Liaquat Medical College 1982.

Victor Blake Associate Professor
Medicine 1995, MD Mount Sinai School of Medicine 1984.

Latasha Bogues Assistant Professor
Pediatrics 2016, MD University of Connecticut Health Center 2008.

Vincent C. Bond Associate Professor
Microbiology, Biochemistry and Immunology 1990, MS Pennsylvania State University 1979, PhD Pennsylvania State University 1982.

Iris D. Buchanan-Perry Associate Professor
Pediatrics 1998, MD State University of New York 1978.

Morehouse School of Medicine

FACULTY

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Medicine 2007, MD University of Illinois College of Medicine 1998.

Ronald L. Braithwaite Professor
Community Health and Preventive Medicine 2004, MS Southern Illinois University 1969, PhD Michigan State University 1974.

Frederick O. Bright Assistant Professor
Obstetrics and Gynecology 1995, MD Howard University 1991.

Chevon Brooks Assistant Professor
Pediatrics 2009, MD Howard University 2004.

Erika Brown Associate Professor
Pathology and Anatomy 2013, PhD University of Alabama at Birmingham 2003.

Lee Caplan Professor
Community Health and Preventive Medicine 2001, MD Albert Einstein College of Medicine 1985, PhD Johns Hopkins 1992.

Kitty B. Carter-Wicker Associate Professor
Family Medicine 1995, MD Morehouse School of Medicine 1992.

Oscar Castanon-Cervantes Instructor
Neurobiology 2015, PhD University of Mexico 1995.

D. Sarita Cathcart Instructor
Family Medicine 1990, MN Emory University 1987.

Aalok Chandora Assistant Professor
Psychiatry and Behavioral Sciences 2017, MD Morehouse School of Medicine 2008.

Ed Childs Chairperson and Professor
Surgery 2012, MD Texas A&M Health Science Center 1989.

Nicola Chin Assistant Professor
Pediatrics 2017, MD Temple University 1993.

Indrajit Chowdhury Instructor
Obstetrics and Gynecology 2010, PhD Banaras Hindu University, Varanasi, India 1999.

Clarence Clark III Assistant Professor
Surgery 2012, MD Penn State University College of Medicine 2004.

Kyra Clark Assistant Professor
Medicine 2012, MD Penn State University College of Medicine 2004.

Marietta Collins Associate Professor
Family Medicine 2016, PhD Emory University 1995.

Marvin L. Crawford Associate Professor
Medicine 1991, MD University of Iowa 1988.

Sherry Crump Assistant Professor
Community Health and Preventive Medicine 2015, MD The University of Virginia School of Medicine 1987.

Kirstie Cunningham Assistant Professor
Family Medicine MD Wake Forest University 1995.

Omar K. Danner Associate Professor
Surgery 2009, MD University of Alabama School of Medicine 1995.

Truddie E. Darden Associate Professor
Pediatrics 1989, MD University of Alabama School of Medicine 1981.

Alec Davidson Associate Professor
Neurobiology 2006, MS and PhD Florida State University 2001.

Mary Davis Instructor
Community Health and Preventive Medicine 1988, MSHA College of St. Francis 1988.

Jason DeBruyne Associate Professor
Pharmacology and Toxicology 2011, PhD University of Houston 2002.

Claire Douglas Instructor
Medicine 2013, MD Ross University School of Medicine 2009.

Carla Durham Instructor
Community Health and Preventive Medicine 2011, MA Georgia State University 2002.

Maya Eady Assistant Professor
Pediatrics 2016, MD Medical College of Georgia 2007.

Danita Eatman Assistant Professor
Pharmacology and Toxicology 2004, PhD Wright State University 1996.

John Christopher Ehlen Assistant Professor
Neurobiology 2007, PhD Kent State University 2000.

Francis O. Eko Professor
Microbiology, Biochemistry and Immunology 2000, MS University of Calabar 1987, PhD University of Vienna 1993.

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CAMPUS MAP

A. Louis W. Sullivan National Center For Primary Center (NCPC)
B. Hugh M. Gloster Building (HGB)
C. Medical Education Building (MEB)
D. Research Wing
E. Public Safety/Parking Deck
F. Multi-Disciplinary Research Center (MRC)
G. Facilities
H. Harris Building

CAMPUS MAP