Rosalind Franklin University of Medicine and Science and the Chicago Medical School reserve the right to change, at any time and without notice, their requirements, regulations, course and program offerings, fees, charges, and other matters addressed in this catalog. RFUMS must reserve the right to modify or terminate programs described herein. However, modification of program requirements will not adversely affect those students already enrolled in a program, nor will termination of a program affect anything other than the closure of admission thereto.
# Table of Contents

**General Content**
- Letter from the Dean ........................................ 4
- Introduction ...................................................... 5
- History ................................................................... 5
- Mission ................................................................. 6
- Vision ..................................................................... 7
- Core Competencies ............................................... 7
- Accreditation ......................................................... 7
- Equal Opportunity ................................................ 8
- Location .................................................................. 8
- Application Procedure ........................................... 8
- AMCAS ................................................................. 8
- MCAT ..................................................................... 8
- Admission Requirements ....................................... 9
- Admissions Committee Procedures .......................... 9
- Advanced Standing ............................................... 10
- Non-Immigrant International Students .................... 10
- Academic Performance Standards and Measurement .... 10
- Grading ................................................................. 10
- Professionalism Expectations ................................... 11
- Student Records and Transcripts .............................. 11
- Leave of Absence .................................................... 11
- Tuition and Other Educational Expenses .................. 12
- Tuition and Fee Payment Policy ............................... 12
- Refunds and Withdrawals ....................................... 12
- Health Care and Health Insurance ............................ 13
- Disability Insurance .............................................. 13
- Students with Disabilities ........................................ 13
- Technical Standards ............................................... 13
- Requirements for the MD Degree ............................. 15
- Requirements for the Combined MD/PhD Degree ....... 15
- MD with Distinction in Research Program .................. 16
- MD with Distinction in Basic Science ......................... 16
- Educational Competencies and Learning Objectives .... 16
- Statement of Policy on Professionalism and Ethics ....... 18
- Student Treatment ................................................... 18
- Teaching Hospital Affiliations .................................. 18
- Continuing Medical Education .................................. 20
- Graduate Medical Education .................................... 21
- Financial Assistance ............................................... 21
- Scholarships ......................................................... 21
- Academic Records ................................................. 22
- Academic Calendar ................................................ 22
- Student Housing ..................................................... 22
- Student Services and Programs ............................... 22
- CMS Office for Student Affairs and Medical Education ... 23
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS Learning Communities</td>
<td>23</td>
</tr>
<tr>
<td>Career Counseling</td>
<td>23</td>
</tr>
<tr>
<td>CMS Office for Undergraduate Studies</td>
<td>23</td>
</tr>
<tr>
<td>Student Organizations, Services and Activities</td>
<td>24</td>
</tr>
<tr>
<td>Honors, Awards and Prizes</td>
<td>24</td>
</tr>
<tr>
<td>Additional Policies and Resources</td>
<td>25</td>
</tr>
</tbody>
</table>

**Departmental Information**

**Basic Science Departments**
- Department of Biochemistry and Molecular Biology 25
- Department of Cell Biology and Anatomy 27
- Department of Cellular and Molecular Pharmacology 28
- Department of Microbiology and Immunology 30
- Department of Neuroscience 31
- Department of Physiology and Biophysics 32
- Global Health 34
- Office of Undergraduate Studies 35
- Interprofessional Healthcare Studies 41

**Clinical Science Departments**
- Department of Anesthesiology 42
- Department of Emergency Medicine 42
- Department of Family and Preventive Medicine 46
- Department of Medicine 50
- Department of Neurology 62
- Department of Obstetrics and Gynecology 64
- Department of Pathology 67
- Department of Pediatrics 69
- Department of Physical Medicine and Rehabilitation 78
- Department of Psychiatry and Behavioral Sciences 81
- Department of Radiology 84
- Department of Surgery 86
- Division of Ophthalmology 92
Dear Prospective Student,

Welcome to Chicago Medical School, where we are committed to educating students to become physicians of the highest caliber, independent thinkers capable of asking important questions, and leaders in a highly complex and rapidly evolving healthcare system.

At its core, medicine has been and always will be about our relationship with our patients as we strive to maintain health and relieve suffering. And yet, the amazing pace of recent advances in health care has created knowledge and tools for us to work better than ever: sophisticated improvements in therapies and surgical techniques, greater understanding of the importance of teamwork, integrated systems development that allows medical practice over distance, and an emphasis on patient safety and continuous quality improvement.

While we emphasize the fundamental skills of a physician, including excellent communication, technical expertise, and sound reasoning and problem solving, we also know that students must develop the skills required to adapt and thrive in the healthcare world of tomorrow. Our curriculum includes innovative methods of instruction, an emphasis on leadership, professional growth and development, a supportive atmosphere with individual guidance and mentoring, opportunities to participate in bench or clinical research, and interprofessional learning in the classroom and clinical setting. Our students learn from an incredibly diverse array of patients at a wide variety of clinical sites in and around Chicago. By the time they graduate, Chicago Medical School students are well prepared to pursue residency training in any specialty.

John Tomkowiak, MD, MOL
Dean, Chicago Medical School
INTRODUCTION
The Chicago Medical School at Rosalind Franklin University of Medicine and Science is dedicated to
encouraging and educating students to become competent, responsible, concerned physicians. The
school seeks to help students acquire knowledge, skills and attitudes for a lifelong career of learning and
professional service.

Students, faculty and administration strive together to meet these goals at all organizational levels. The
Chicago Medical School provides an environment where students work closely with faculty and
administration. The school is vitally concerned with meeting students' developmental needs, both
professional and personal.

HISTORY
Rosalind Franklin University of Medicine and Science is a five-college health sciences university that was
originally built around the Chicago Medical School (CMS), which has been educating physicians and
furthering biomedical research for more than 100 years. Established in 1912, CMS physician and citizen
founders aimed to build a combined medical school and hospital in which employed men and women
could study medicine at night, a common practice at the time. Many of Chicago's finest medical teachers
and practitioners who had been associated with Jenner Medical School transferred to CMS when Jenner
closed in 1917.

William Dorland, editor of the well-known medical dictionary, was dean of the school for a time. The
school's most note-worthy period of development took place under the direction of John J. Sheinin, MD,
PhD, DSc, who served as dean and president from 1932 to 1966. The school successfully met the
challenges arising from the revolutionary restructuring of American medical education following the
Flexner Report. In 1930, the school moved to what was to become one of the world's largest
aggregations of medical facilities. Located just west of downtown Chicago, this complex contained three
medical schools, seven hospitals, colleges of dentistry, pharmacy, nursing, and two undergraduate
universities. CMS occupied an eleven-story facility in a renowned research and educational center.

In 1967, the University of Health Sciences was established. The university comprised the Chicago
Medical School, the School of Related Health Sciences (now named the College of Health Professions),
and the School of Graduate and Postdoctoral Studies. In 1980, the university relocated to its current
campus in North Chicago, Illinois, adjacent to the Captain James A. Lovell Federal Health Care Center.

The new campus included the university's Basic Sciences Building, a 400,000-square-foot facility that
houses a 52,000-square-foot Boxer Library and the Daniel Solomon, MD, and Mary Ann Solomon
Learning Resource Center, as well as administrative offices, classrooms, auditoriums, basic science
departments, research and teaching laboratories, and dining areas. The Heather Margaret Bligh Cancer
Research Laboratory, a cancer immunology research and treatment complex, is located on the north
end of the Basic Sciences Building.

The university, granted full accreditation by the North Central Association in 1980, represented one of
the first educational institutions in the country devoted exclusively to educating men and women for a
broad range of professional careers in health care and research. In 2001, the Dr. William M. Scholl
College of Podiatric Medicine (established in 1912) became part of the university structure.
In January 2004, the university publicly announced its intent to change its name to Rosalind Franklin University of Medicine and Science, in honor of Rosalind Franklin, PhD, a pioneer in the field of DNA research. The name change became legal on March 1, 2004, at which time the School of Related Health Sciences also changed its name to the College of Health Professions.

In addition to the name change and the announcement of several new strategic initiatives, the university was experiencing profound growth. In October 2002, the university opened its Health Sciences Building, a 140,000-square-foot facility that houses laboratories, auditoriums, classrooms, departmental offices, a student union, the Feet First Museum, University Bookstore, recreational game room, exercise facility, and a café. The university became a residential campus for the first time in its history when three student housing facilities, totaling 180 apartments, opened in July 2003.

From 2004 to 2009, the university has significantly and steadily expanded its student base and set record enrollment growth, from 1,664 students to 1,940 — a 16 percent increase in the student population. By strengthening its research enterprise and attracting pre-eminent scientists, the institution now provides greater access to leading-edge research opportunities. This growth will continue to be fueled by the increased interest in the programs in the College of Health Professions and the new College of Pharmacy.

In 2010, the university broke ground on the 23,000-square-foot Interprofessional Education Center which offers additional small group learning classrooms, laboratories, clinical simulation spaces, and an amphitheatre. It is the home of the College of Pharmacy, which welcomed its inaugural freshman class in fall 2011.

The new Rothstein Warden Centennial Learning Center opened in October of 2013. The 73,000-square-foot, three-story building is named in recognition of former Board of Trustees chair Mrs. Ruth Rothstein and current chair Dr. Gail Warden, for their steadfast support of the institution. The building includes office space to consolidate the CMS clinical departments, educational space, a wellness center, an expanded food services operation and student common areas. Nearly 75% of the educational space is dedicated to foster collaborative learning and enhances interactions between faculty and students.

Dr. Rosalind Franklin, through her pioneering work in the science of DNA and through her unflagging perseverance, serves as a role model for our faculty and students, and represents the future of biomedical science and integrated health care. Her history mirrors our own in many profound ways, marked by dedication to discovery even in the midst of difficult times. Upon that history, her legacy guides the future of the university itself.

After 100 years of excellence in healthcare education, Rosalind Franklin University of Medicine and Science has only just begun to write its history. We hope you will join us in creating bold visions for an ambitious future.

To learn more about Dr. Rosalind Franklin and the university’s dedication to her legacy, visit www.lifeindiscovery.com.

MISSION
To educate physicians to be leaders in an interprofessional environment, who are able to adapt, innovate and discover in an ever changing healthcare landscape.
VISION
Chicago Medical School graduates will be leaders in developing and delivering the health care of tomorrow.

CORE COMPETENCIES
CMS strives to instill in every student the incumbent medical and scientific knowledge, skills, attitudes, and values that the field of medicine and society expect of a physician. The following measurable core competencies and their associated objectives, our touchstones of excellence, reflect this overall goal:

I. Medical and Scientific Knowledge. Demonstrate knowledge about established and evolving biomedical, clinical, epidemiological and social-behavioral sciences and apply this knowledge in caring for ill and healthy patients of all ages.

II. Patient Care and Prevention. Demonstrate patient-centered care that is compassionate, appropriate and effective for the promotion of health, quality of life, prevention of illness, treatment of disease, and the end of life.

III. Professionalism and Self-Awareness. Demonstrate a commitment to professional service, adherence to ethical principles, and awareness of one’s own interests and vulnerabilities.

IV. Practice-Based, Life-Long Learning. Demonstrate the ability to appraise and assimilate scientific evidence to evaluate and improve patient care practices.

V. Systems-Based, Interprofessional Practice. Demonstrate an awareness of and responsiveness to the larger context of health care and be able to call on system resources and other healthcare professionals to provide optimal care.

VI. Interpersonal and Communication Skills. Demonstrate effective understanding, information exchange, and teamwork with patients, their families, peers and other health professionals.

ACCREDITATION
Rosalind Franklin University of Medicine and Science receives its degree-granting authority from the Illinois Board of Higher Education and is accredited by the Higher Learning Commission.

Higher Learning Commission
230 South LaSalle Street, Suite 7-500
Chicago, IL  60604
800.621.7440

CMS is fully accredited by the Liaison Committee on Medical Education (LCME). The U.S. Department of Education recognizes the LCME for accreditation of programs of medical education leading to the MD degree in the United States and Canada. Accreditation is a process of quality assurance in post-secondary education that determines whether an institution or program meets established standards for function, structure, and performance. The accreditation process fosters institutional and program
improvement. It is a prerequisite for eligibility of graduates to obtain medical licensure in most states, and for students to sit for U.S. Medical Licensure Examinations and to obtain federal student loans.

EQUAL OPPORTUNITY

It is the policy of Rosalind Franklin University of Medicine and Science not to discriminate on the basis of race, sex, sexual orientation, color, creed, religion, national origin, disability or age in admissions or employment or in any programs or activities. It is the university's intent to comply with applicable statutes and regulations, including Title IX of the 1972 Education Amendments and Section 504 of the Rehabilitation Act of 1973. Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 both prohibit discrimination against individuals with disabilities by mandating a provision of “reasonable accommodation” to place limitations on what services can be provided. It is the university's goal to assist students in developing their potential in light of what is feasible and reasonable under the law. Refer to the RFUMS Student Handbook for Educational Opportunity Policies and Procedures.

LOCATION

The Chicago Medical School is located on the campus of Rosalind Franklin University of Medicine and Science at 3333 Green Bay Road, North Chicago, IL 60064. The university is situated in the northern suburbs of Chicago, with easy access to downtown Chicago and the surrounding areas by car or public transportation. For directions and a map, click here.

APPLICATION PROCEDURE

Applicants for admission to the first-year class must be initiated through the American Medical College Application Services (AMCAS), sponsored by the Association of American Medical Colleges. Applications must be filled out and submitted online through the AMCAS Web site listed below. If you have any questions regarding your application, please contact AMCAS directly:

AMCAS
Section for Student Services, 2501 M Street, N.W., Lobby 26 Washington, DC 20037-1300
www.aamc.org
(202) 828-0600

Designate Chicago Medical School on the drop-down list of medical schools provided in the AMCAS application. The deadline for receipt of applications at AMCAS is November 1st.

The MCAT (Medical College Admissions Test) is required for admission. Chicago Medical School will only accept MCAT scores that are no older than three years from the year you plan to matriculate. Application forms for the MCAT are available from your pre-medical advisor or by writing directly to:

MCAT
Program Office
P.O. Box 4056
Iowa City, Iowa  52243-4056
(319) 337-1357

Upon receipt of the AMCAS application, CMS will forward additional materials and instructions to you to complete the application. Candidates must submit a $125 application fee when submitting the supplemental application materials. Applicants receiving an AMCAS fee waiver automatically receive a waiver of the CMS application fee.
ADMISSIONS REQUIREMENTS
Applicants to CMS are required to have completed 90 hours of undergraduate level education at an accredited institution. Listed below are those science courses currently required for admission to the school. In addition, applicants are urged to seek a broad-based education that includes the humanities and social sciences.

- Biology: A one year course with laboratory experience is required. Advanced placement credits can be used to satisfy this requirement, but the intellectual rigor is better demonstrated if upper level courses are taken when advanced placement credits are granted.
- Chemistry: Full year course in general (or inorganic) chemistry with laboratory is required. Advanced placement credits may be used to meet this requirement. A full year of organic chemistry with laboratory is required. A one semester course in organic chemistry supplemented by a semester course in biochemistry will substitute for the traditional year of organic chemistry. If the biochemistry course does not have a laboratory component, either an advanced chemistry course with laboratory or an in depth, wet laboratory, research assistant experience will substitute.
- Physics: A one year course with laboratory is required. Advanced placement credits may be used to meet this requirement.
- Mathematics: A one year course in calculus and a semester course in statistics are advised, but not required.

In addition to meeting coursework requirements, CMS applicants should have leadership experience, excellent communication skills, a high level of professionalism, and demonstrated dedication to service. The admissions committee is seeking applicants who understand the importance of interprofessional health care and thrive in a diverse community.

Rosalind Franklin University does not and will not provide any commission, bonus, or other incentive payment based directly or indirectly on success in securing enrollment or financial aid to any persons or entities engaged in any student recruiting or admissions activities or in making decisions regarding the award of student financial assistance.

ADMISSIONS COMMITTEE PROCEDURES
The CMS Student Admissions Committee is responsible for selecting candidates for the entering class and for advanced standing. The Admissions Committee is comprised of CMS faculty members, administrators and students. The application process commences when CMS receives the completed AMCAS application form. The applicant is then required to submit a minimum of three letters of recommendation (from professors under whom s/he has studied as well as medical professionals under whom s/he has worked), or a single composite recommendation from a preprofessional advisory committee. Such letters of recommendation must come directly from the author or the school. Under the Family Educational Rights and Privacy Act of 1974, applicants are required to either 1) waive their right of access to letters of recommendation, or 2) retain their right of access to letters submitted on their behalf. If an applicant retains the right to access the letters of recommendation, such access must be obtained through the former professor, supervisor or committee who submitted the letter. All letters of recommendation obtained by CMS are treated as confidential. An applicant with an approved AMCAS application is also required to submit a Supplemental Application.
Upon receipt of all required information, each application is screened to determine which applicants will be invited to CMS for a personal interview. No applicant is admitted without an interview. The applications of interviewed candidates will be reviewed at least monthly, and favorable recommendations made to the Dean until the class is filled. Applicants not accepted will be notified in writing. Those candidates offered admission must accept the school’s offer of admission in writing within two weeks of the date of the letter offering them admission, and must simultaneously make a deposit of $100 to hold the seats offered to them. Those who do not do so will be deemed to have rejected CMS’s offer of admission and the positions offered to them will then be offered to others. The deposit will be credited toward tuition upon matriculation, or will be refunded if the applicant notifies the school by letter, within the permitted time, of his or her desire to withdraw.

ADVANCED STANDING
Advanced standing is limited to filling places in the second or third year classes that have been vacated by attrition. It is anticipated that very few vacancies will be available in upcoming years because of the low attrition rate of CMS students. Students from other U.S. medical schools and U.S. citizens attending foreign medical schools will be given priority consideration should any vacancies exist. Applications for transfer become available February 1, with the deadline being June 1.

NON-IMMIGRANT INTERNATIONAL STUDENTS
CMS is authorized under federal law to enroll non-immigrant international students. Information about appropriate certification of international students is available in the Office of Admissions.

ACADEMIC PERFORMANCE STANDARDS AND MEASUREMENT

Grading
The CMS Class of 2019 (Academic Year 2015-16) will receive a designation of pass or fail for all preclinical, basic science classes. Numeric grades will be maintained by the Office of Student Affairs, which will weigh the grades earned by students by course credits. This will provide an overall ranking of student performance that will be reported in the Medical Student Performance Evaluation (MSPE, “Dean’s letter”). Transcripts will report P/F for all courses except third year clerkships and fourth year intramural electives, which will be graded A-B-C-F. No GPA will be reported on the transcript. Students with a weighted cumulative score of 89.5% or higher, accumulated from their first two years of course work will be recognized as having achieved “MD with Distinction in Basic Sciences.”

Grades in courses and clerkships at Chicago Medical School are determined on the basis of established standards of performance; a statistical distribution function for grades is not assumed. A pass/fail grading system is used for sophomore elective courses. All other courses and clerkships are graded on an A, B, C, F system. These grades are defined as follows:

A — High Achievement (4 quality points)
B — Above Average Achievement (3 quality points)
C — Average Achievement (2 quality points)
F — Fail (0 quality points)

A grade of Incomplete (I) is given when sufficient evaluation data have not yet been acquired and/or when the student has not yet met all of the requirements of the course or clerkship. An academic incomplete is given when a student elects not to take an examination or complete an assignment at the scheduled time without a valid excuse and prior approval of the Dean. If a student receives an
Incomplete (I) grade, necessary coursework must be completed by the deadline indicated by the instructor. If coursework is not completed by the deadline, the grade of I becomes a grade of F.

Please consult the Registrar’s Website for the university grading policy.

**Professionalism Expectations**

We are a community-based medical school with affiliations that range across four counties in Illinois (Lake, Cook, Kane, and McHenry) and portions of Southeast Wisconsin. It is a requirement that students possess the means for transportation to and from clinical experiences that may begin as early as their first year.

To meet the principal requirements for the MD degree, a student's performance must be evaluated as at least competent in each and every course and clerkship. Most importantly, the CMS student is expected to develop and maintain the highest standards of ethical integrity, professional judgment, and reliability in personal relationships essential to the competent, honest, responsible practice of medicine, as evidenced by specific acts within the medical student role. Failure to do so may result in probation or dismissal. The student’s achievement reflects cognitive performance AND meeting or exceeding the standards for the six core competencies of the Chicago Medical School. Professionalism is assessed using a number of metrics including appropriate behavior, completion of course surveys and active and timely participation in assignments. In clinical clerkships, performance on each of the competencies is reported separately and is accompanied with a narrative description of the student's performance in the clerkship. A student must complete all requirements of the first two years of medical school and pass the USMLE Step 1 before starting any third year clinical clerkships. This must be accomplished within three calendar years from the time of first matriculation. All requirements for graduation must be completed within 5-1/2 calendar years from the time of first matriculation. This time frame does not include approved leaves of absence. The total amount of time that can pass with leaves of absence is 7 years from the time of first matriculation.

A student may be dismissed upon failure to achieve satisfactory academic progress, which may include failure in more than two basic science courses or clinical clerkships, for twice failing a course or clerkship, for failing twelve or more weeks of senior electives, or for documented failure to develop and maintain acceptable standards of ethical integrity, professional judgment and reliability in personal relationships. A student may be dismissed for failure to meet the maximum time requirement set forth for completing the second, third and fourth years (see requirements for the MD degree).

Recommendations concerning advancement, graduation, dismissal and awards are made by the Student Evaluation, Promotion and Awards Committee (SEPAC). The voting committee is comprised of CMS faculty members recommended by the Academic Assembly and two student members appointed by the Associate Dean for Student Affairs and Medical Education. The Associate Dean for Student Affairs and Medical Education in CMS represents students' interests before this committee.

**STUDENT RECORDS AND TRANSCRIPTS**

All documents and records pertaining to a student's admission and academic performance in the university are filed in the Office of the Registrar. Refer to the RFUMS Student Handbook for information regarding Students' Personal and Academic Information.

**LEAVE OF ABSENCE**

Students at CMS are expected to maintain continuity and due diligence in meeting the performance expected of them throughout their medical school career. In particular, they are expected to attend and
participate fully in all course evaluations of their performance and in all clinical course and clerkship activities. A leave of absence is a temporary interruption of academic progress, granted for up to one year at a time, which does not compromise academic objectives determined by the academic program. Any withdrawal or leave of absence must be approved by the appropriate granting authority.

In general, a Leave of Absence may be granted to a CMS student for the purpose of reaching a specific goal that is directly related to the student’s medical career. This goal is to be pursued according to a specific plan of action, to be submitted for approval along with the petition for Leave of Absence. Also, students in good academic standing may be granted a leave for a worthwhile purpose not directly related to medicine. Leaves of Absence requested for reasons of health, maternity, or finances will be granted as a matter of course. Upon resolution of the conditions for which the Leave of Absence was granted, the student must make a petition to be readmitted to the same academic standing he or she maintained when the leave began.

For policy information regarding Leave of Absence and Withdrawal, please visit the Office of the Registrar website.

TUITION AND OTHER EDUCATIONAL EXPENSES
The following table shows the educational expenses for entering students at CMS effective for the 2015-2016 academic year.

<table>
<thead>
<tr>
<th>Direct Educational Expenses</th>
<th>Annual Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>$52,366.08</td>
</tr>
<tr>
<td>Student Council Fee</td>
<td>$40.00</td>
</tr>
<tr>
<td>Disability Fee (varies)</td>
<td>$250.00</td>
</tr>
<tr>
<td>Technology Fee</td>
<td>$200.00</td>
</tr>
<tr>
<td>Student Service Fee</td>
<td>$90.00</td>
</tr>
<tr>
<td>Health Insurance*</td>
<td></td>
</tr>
<tr>
<td>Books &amp; Supplies, Freshmen</td>
<td>$2,656.00</td>
</tr>
<tr>
<td>National Board Fees, USMLE Step I, Sophomores</td>
<td>$600.00*</td>
</tr>
<tr>
<td>National Board Fees, USMLE Step II, Seniors</td>
<td>$1,875.00*</td>
</tr>
</tbody>
</table>

*Required of all CMS students.

TUITION AND FEE PAYMENT POLICY
All students will pay full tuition for 14 quarters.

Tuition and fees are due on the first day of each term according to the university’s academic calendar, regardless of when classes actually start. Beginning on the first day of each term, a penalty fee of 7% and an interest fee calculated on a daily basis at the rate of 18% per annum is assessed to each student's account which is not yet paid.

Failure to pay tuition and fees in full by the end of the academic term will result in a student not being allowed to register for the subsequent term.

When a student is authorized to take an altered schedule or reduced course load because of academic difficulties, personal health reasons, or for other reasons, full tuition will be charged.

REFUNDS AND WITHDRAWALS
If a student withdraws from the program before the end of the first week of classes, 100% refund of tuition is made. When withdrawal is made before the end of the second week, the refund is 75%; before the end of the third week, 50%; before the end of the fourth week, 25%. After that time, no refund is granted.

**HEALTH CARE AND HEALTH INSURANCE**

All students must have a health insurance policy in effect while enrolled in the university. Under the university's health insurance contract, students may purchase group hospitalization and medical care insurance for themselves and their families. Coverage under this plan is comprehensive. It is important to note that those individuals who choose to be covered by a plan other than the school's health insurance must present proof of current coverage at the time of registration. Also, health maintenance contracts (HMOs) will not be honored unless affiliated with the Rosalind Franklin University Health System.

Students should be vaccinated for tetanus/diphtheria, rubella (German measles), rubeola (measles), mumps, varicella (chicken pox), and polio. A tuberculosis skin test (PPD) within six months prior to matriculation is required. Hepatitis B vaccination is required (or must at least be started) prior to matriculation.

**DISABILITY INSURANCE**

All medical students presently enrolled at RFUMS are covered by a disability insurance policy. The policy, offered at group rates, yet on an individual basis, is designed to provide medical students with excellent coverage at reasonable rates. As with requirements for health insurance, the cost of this disability insurance program is the responsibility of each individual student. Cost is determined by age and will differ for individuals based on this fact. All students must be part of the disability group insurance.

**STUDENTS WITH DISABILITIES**

It is the intent of Rosalind Franklin University Medicine and Science and CMS to comply with applicable law concerning students with disabilities, including Title IX of the 1972 Education Amendments, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990. These acts prohibit discrimination against individuals with disabilities by mandating the provision of reasonable accommodations to make programs and activities accessible to otherwise qualified individuals. These statutes recognize that there may be technical standards of behavior that must be met in the pursuit of a given profession or training. The Chicago Medical School has determined a set of Technical Standards of behavior which it considers necessary for the candidate for the MD degree. These Technical Standards are listed below. Inquiries about the Medical School policies on disabilities should be directed to the Americans with Disabilities Act Coordinator in the Division of Student Affairs and Inclusion.

**TECHNICAL STANDARDS**

A candidate for the MD degree must possess abilities and skills which include those that are observational, communicational, motor, intellectual-conceptual (integrative and quantitative), and behavioral and social. The use of a trained intermediary is not acceptable in many clinical situations in that it implies that a candidate's judgment must be mediated by someone else's power of selection and observation.

1. **Observation**

   The candidate must be able to acquire a defined level of required information as presented through demonstrations and experiences in the basic sciences, including but not limited to information through
physiologic and pharmacological demonstrations in animals, microbiological cultures and microscopic images of microorganisms and tissues in normal and pathologic states. Furthermore, a candidate must be able to:

- Observe a patient accurately, at a distance, and close at hand, with or without standard medical instrumentation, to acquire information from written documents, and to visualize information as presented in images from paper, films, slides or video.
- Interpret X-ray and other graphic images, and digital or analog representations of physiologic phenomenon (such as EKGs) with or without the use of assistive devices.

Such observation and information acquisition necessitates the functional use of visual, auditory and somatic sensation while being enhanced by the functional use of other sensory modalities. In any case where a candidate’s ability to observe or acquire information through these sensory modalities is compromised, the candidate must demonstrate alternate means and/or abilities to acquire and demonstrate the essential information conveyed in this fashion. If the alternatives are acceptable, it is expected that obtaining and using such alternate means and/or abilities shall be the responsibility of the student. Costs of necessary accommodations should be reasonable and will be properly borne by the university when not the responsibility of the student or otherwise funded.

II. Communication
A candidate must be able to speak, to hear and to observe patients by sight in order to elicit information, describe changes in mood, activity and posture, and perceive nonverbal communications. A candidate must be able to communicate effectively and sensitively with patients and their families. Communication includes speech and writing. The candidate must be able to communicate effectively and efficiently in oral and written form with all members of the healthcare team.

III. Motor
It is required that a candidate possess the motor skills necessary to directly perform palpation, percussion, auscultation and other diagnostic and therapeutic maneuvers, basic laboratory tests and diagnostic and therapeutic procedures. The candidate must be able to execute motor movements reasonably required to provide general and emergency medical care, such as airway management, placement of intravenous catheters, cardiopulmonary resuscitation, application of pressure to control bleeding, suturing of wounds and the performance of simple obstetrical maneuvers. Such actions require coordination of both gross and fine muscular movements, equilibrium and functional use of the senses of touch and vision.

IV. Intellectual-Conceptual (Integrative and Quantitative) Abilities
The candidate must be able to measure, calculate, reason, analyze, integrate and synthesize. In addition, the candidate must be able to comprehend three-dimensional relationships and to understand the spatial relationships of structures. Problem solving, the critical skill demanded of physicians, requires all of these intellectual abilities. The candidate must be able to perform these problem-solving skills in a timely fashion.

V. Behavioral and Social Attributes
The candidate must possess the emotional health required for full utilization of his or her intellectual abilities, the exercise of good judgment, the prompt completion of all responsibilities attendant to the diagnosis and care of patients, and the development of mature, sensitive, and effective relationships with patients. The candidate must be able to tolerate physically taxing workloads and to function effectively under stress. He or she 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 patients. Compassion, integrity, concern for others, interpersonal skills, interest and motivation are all personal qualities that will be assessed during the admissions and educational process.

REQUIREMENTS FOR THE MD DEGREE
To be awarded the MD degree from CMS, a student must accomplish the following:

- Pass courses in Anatomy, Biochemistry, Clinical Genetics, Embryology, Epidemiology, Histology, Essentials of Clinical Reasoning, Foundations for Interprofessional Practice, Introduction to Bioethics and Health Law, Clinical Molecular and Cell Biology, Medical Neuroscience, Clinical Reflections I and Physiology to complete the first academic year.

- Pass courses in Essentials of Clinical Reasoning, Clinical Neuroscience, Microbiology and Immunology, Pathology, Pharmacology, Clinical Skills, Clinical Reflections II and Patient Safety to complete the second academic year. Students must complete 3 credits of sophomore electives and must pass the USMLE Step 1 to complete the second year of the curriculum.

- Pass clinical clerkships in Emergency Medicine, Family Medicine/Primary Care, Internal Medicine, Neurology, Obstetrics/Gynecology, Pediatrics, Psychiatry, Surgery, Clinical Reflections III, Basic Sciences Revisited, and a required Clinical Skills Exam (OSCE) to complete the third year of the curriculum.

- Pass a required four-week Sub-Internship (Family Medicine/Primary Care, Internal Medicine, Emergency Medicine or Surgery), Clinical Reflections IV and 32 weeks of approved electives (with at least 12 of the 32 weeks being intramural, at least 24 of the 32 weeks clinical). Students must also pass USMLE Step 2 CK and sit for Step 2 CS to graduate. Starting with the Class of 2017, students must pass both Step 2 CK and Step 2 CS to graduate and must have passing scores by February 1 to enter the residency match.

- Perform all student functions in a professional and ethical manner.

- Meet the Technical Standards of the university as delineated above.

- Complete all requirements in no more than 7 years from first matriculation (including leaves of absence) and in no more than 5-1/2 total years of enrollment.

REQUIREMENTS FOR THE COMBINED MD/PHD DEGREE
The Combined MD/PhD Degree Program is designed for individuals who are strongly motivated to have a career in both academic medicine and research. These students pursue combined degrees and have been judged by the admission committees of both the School of Graduate and Postdoctoral Studies and the Chicago Medical School to have met all admission requirements. Upon enrollment in the Combined MD/PhD Program, the student is considered to be concurrently studying in both CMS and SGPS through completion of both their PhD and the remaining 2 years of their clinical studies. After studying for two years in the clinical program at RFUMS and sitting for the USMLE Step I exam, MD/PhD students pursue their PhD through a funded program before finishing their third- and fourth-year clinical rotations. In the PhD phase of the program, students are mentored by experienced primary investigators and train in cutting-edge laboratories. The PhD phase of the program must be completed before the student may return to the clinical clerkship phase of their MD studies (M3/M4).

REQUIREMENTS FOR THE COMBINED MD/PhD DEGREE
To begin studies as a combined degree student, the applicant must be accepted into both the Chicago Medical School and the School of Graduate and Postdoctoral Studies. Application may be made either simultaneously to both schools during the initial AMCAS entry-level application process or directly to SGPS after the completion of the first year of CMS medical education.
ENTRY-LEVEL MD/PHD STUDENTS
The application process begins with an application to the Chicago Medical School through AMCAS (www.amcas.org). Students designate their application to the Chicago Medical School as “Combined Medical/PhD” when applying. Candidates must submit all required documents for completion of the Chicago Medical School file (MCAT, supplementary application, letters of recommendation and application fee, etc.) and abide by the standard CMS application deadlines. Accepted MD/PhD candidates are admitted jointly to both the Chicago Medical School and the School of Graduate and Postdoctoral Studies. Those students not accepted for Entry-Level combined degree positions will continue to be evaluated for MD positions.

INTERNAL MD/PHD STUDENTS
Current RFUMS students beginning their M2 year at the Chicago Medical School are also eligible to apply for the Combined Degree program, with what is known as a “Track II application”. These are highly motivated students who have found a calling to become physician scientists. These students must have maintained a 3.5 GPA while enrolled at RFUMS and have laboratory experience at RFUMS with a willing and approved research mentor in one of the six (6) basic science degree granting departments. Track II students, if admitted, enter the Graduate phase of the program after completion of their M2 year and completion of their Step I USMLE and begin working immediately with their research mentor towards their PhD.

Due to the extensive coursework completed by Combined Degree students in their clinical phases of training, the student’s Research Committee will determine the complete course requirements for the PhD phase of the student’s training. The requirements may or may not include the required courses of the department. Nevertheless, Combined Degree students are required to successfully complete the following SGPS courses:

- GIGP – 507 Art of Scientific Presentation
- GIGP – 510 Computer Applications in Biomedical Sciences
- GIGP – 508 Ethics and Regulatory Issues in Biomedical Research
- GIGP – 514 Principles in Experimental Design and Biostatistics

MD WITH DISTINCTION IN RESEARCH PROGRAM
This program offers students with a special interest in research the opportunity to pursue a project in depth in either basic or clinical sciences, under the direction of a research mentor. Students are required to submit a written project proposal (with the aid of the mentor), to identify a faculty committee (other than the mentor) to oversee the student’s progress, and to submit a final project report with data of publishable quality. Upon satisfactory completion, students receive a certificate and recognition on Awards Day, and a notation appears on the student’s transcript.

MD WITH DISTINCTION IN BASIC SCIENCE
Students with a weighted cumulative score of 89.5% or higher, accumulated from their first two years of course work will be recognized as having achieved MD with Distinction in Basic Science.

EDUCATIONAL COMPETENCIES AND LEARNING OBJECTIVES
The objectives of the CMS educational program were redefined in fall of 2004 and again revised 2013, with all measurable learning objectives aligned with the six institutional competencies.
Competency and Objectives

1. Medical and Scientific Knowledge: Demonstrate knowledge about established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences and apply this knowledge in caring for ill and healthy patients of all ages. Specifically, the student must:

   a. Describe the normal structure and function of the body.
   b. Distinguish the causes and underlying mechanisms of disease.
   c. Identify the epidemiology of common illnesses.
   d. Describe the principles and methods of diagnostic decision-making (to include clinical, laboratory, pathologic and imaging studies).
   e. Describe the principles of therapeutic decision-making.

2. Patient Care and Prevention: Demonstrate patient-centered care that is compassionate, appropriate and effective for the promotion of health, quality of life, prevention of illness, treatment of disease, and the end of life. Specifically, students must:

   a. Identify factors that place individuals at risk for disease or injury and use strategies to prevent or slow the disease process.
   b. Perform reliable (comprehensive and problem focused) history and physical examinations.
   c. Order and appropriately interpret the results of commonly used diagnostic procedures.
   d. Perform routine technical procedures.
   e. Construct appropriate diagnostic and therapeutic strategies for patients with common acute and chronic conditions.
   f. Provide effective education to patients and their families.

3. Professionalism and Self-awareness: Demonstrate a commitment to professional services, adherence to ethical principles, and awareness of one’s own interests and vulnerabilities. Specifically students must:

   a. Apply the theories and principles that govern ethical decision-making in medicine.
   b. Demonstrate respect, dignity, compassion, and integrity when engaging patients, their families, peers, the university community, and other healthcare providers.
   c. Recognize how one’s own limitations, personal biases, and vulnerabilities may impact patient care and interactions with other healthcare providers.
   d. Seek and respond appropriately to performance feedback.

4. Practice-based, Lifelong Learning: Demonstrate the ability to appraise and assimilate scientific evidence to evaluate and improve patient care practices. Specifically, students must:

   a. Search for, evaluate, and apply evidence-based medicine in the context of patient care.
   b. Apply current technology to access, manage, and use biomedical information for solving clinical problems.
   c. Develop the ability to self-assess and demonstrate a willingness to engage in reflective practice.
   d. Provide constructive feedback to peers/colleagues aimed at fostering professional growth and improving patient care.
5. **Systems-based, Interprofessional Practice**: Demonstrate an awareness of and responsiveness to the larger context of health care and be able to call on system resources and other healthcare professionals to provide optimal care. Specifically, students must:

a. Identify one’s own role on the healthcare team and how it is complementary to other health professionals in the delivery of patient care.
b. Recognize when and how to initiate the assistance of other healthcare providers in the context of patient care.
c. Describe various healthcare practice types, delivery systems, and how they are used to meet the needs of the community.
d. Identify systematic practices that improve patient safety, minimize error, and contribute to continuous quality improvement.

6. **Interpersonal Communication Skills**: Demonstrate effective understanding, information exchange, and teamwork with patients, their families, peers and other health professionals. Specifically, students must:

a. Demonstrate the ability to initiate and sustain professional relationships with patients, their families, and other members of the healthcare team.
b. Use effective listening, questioning, verbal, nonverbal, and writing skills when communicating with patients and their families.
c. Prepare and organize comprehensive, timely, and legible medical records.
d. Use effective verbal presentation and written skills when communicating with colleagues, superiors, and other members of the healthcare team.

**STATEMENT OF POLICY ON PROFESSIONALISM AND ETHICS**
All students at Rosalind Franklin University are expected to exhibit professional, responsible and ethical behavior. Students should display this behavior as students in the university, as healthcare providers in the clinical setting and as researchers in the laboratory or clinic. All students should possess the highest degree of personal integrity and be able to reason about ethical issues in their professional life. Students are expected to treat patients and research subjects with respect, compassion and sincerity, regardless of race, color, creed, ethnic origin, religion, disability, gender, sexual orientation, or socioeconomic class, and to maintain strict confidentiality. Students are expected to be honest and trustworthy, to respect the property of others, and to follow the code of professional ethics appropriate to their discipline. Any departures from these standards may result in disciplinary action.

**STUDENT TREATMENT**
Students have a right to work and study in an environment free from harassment. The university will not tolerate student mistreatment. A core principal of RFUMS is the education of students who will meet the healthcare needs of society in a caring, competent, and professional manner. Insensitivity during training/education runs counter to the fundamental tenets of health care and impairs the ability of many students to maintain their idealism, caring, and compassion past training into their careers. Refer to the RFUMS Student Handbook for the Student Treatment Policy.

**TEACHING HOSPITAL AFFILIATIONS**
*Advocate Christ Medical Center (ACH)* is a 648-bed teaching, research and referral medical center in Oak Lawn, Illinois. It also is one of two sites of the Advocate Children’s Hospital (the other being in Park Ridge). The hospital provides 80,000 emergency room visits and 335,356 outpatient visits per year,
admits 38,877 patients per year and has an average occupancy rate of 88% with an average length of stay of 5.2 days. The medical center is a leader in cardiology, pediatrics, surgical services, oncology, women’s services and emergency medicine.

**Advocate Illinois Masonic Medical Center (AIMMC)** is a 309-bed teaching hospital located in the Lakeview neighborhood on the north side of Chicago. The hospital has served the North Side community of Chicago for more than 100 years. The hospital provides 38,534 emergency room visits and 157,257 outpatient visits per year, admits 18,981 patients per year and has an average occupancy rate of 74% with an average length of stay of 4.95 days. As a Level I trauma center, the hospital is located just east of the Edens Expressway (I-94), close to Wrigley Field.

**Advocate Lutheran General Hospital (ALGH)** is a 582-bed teaching, research and referral hospital, and a Level I trauma center. The hospital provides 57,400 emergency room visits and 294,665 outpatient visits per year, and admits 29,241 patients per year and has an average occupancy rate of 69% with an average length of stay of 5.13 days. It also is one of two sites of the Advocate Children’s Hospital (the other being in Oak Lawn). Located in Park Ridge, Illinois, the hospital serves the north and northwest suburbs of Chicago. Advocate Lutheran General Hospital is the primary teaching hospital for CMS.

**Advocate Condell Medical Center** is a newly transitioned 273-bed multidisciplinary hospital that has been serving the community since 1928 in Libertyville, Illinois. As the largest healthcare provider in Lake County, Advocate Condell is a community-based hospital with more than 2,400 employees.

**Advocate Good Shepherd Hospital** is a 169-bed multidisciplinary hospital located in Barrington, Illinois, and has been serving the northwest suburbs for more than 30 years. Highly-skilled physicians and clinical professionals provide a comprehensive range of services including advanced surgical capabilities, emergency services backed by the resources of a level II trauma center and a state-of-the-art Birth Center. A nationally-recognized cancer program, a health & fitness center as well as an extensive range of outpatient services round out the healthcare program.

**John H. Stroger, Jr., Hospital of Cook County (CCH)** is a 460-bed teaching and research medical center, caring for the underserved residents of Cook County. Located in downtown Chicago, the hospital serves as the hub for the Cook County Bureau of Health Services most serious and complicated medical services, providing 844,638 outpatient visits and admitting 23,511 patients per year with an average length of stay of 5.19 days. It also enhances the delivery of specialty and sub-specialty care for the entire Bureau network.

**Mount Sinai Hospital** is a 432-bed teaching, research and tertiary care facility which is a part of the Sinai Health System, along with Schwab Rehabilitation Hospital, Sinai Community Institute, Sinai Medical Group and Sinai Health First. The hospital provides 46,889 emergency room visits and 1,084,682 outpatient visits per year and admits 21,064 patients per year with an average length of stay of 3.9 days. It is located in downtown Chicago just west of the Kennedy Expressway (I-90/94).

**The Captain James A. Lovell Federal Health Care Center (FHCC)** is the first integrated medical institution between the Department of Defense (Navy) and the Veterans Affairs Administration. Its vision is “Creating the future for federal health care.” The FHCC consists of 88 hospital beds, 124 nursing home care beds, 125 domiciliary beds, 18 mental health beds for patients requiring residential treatment for substance abuse, homelessness, post-traumatic stress disorder and psychosocial rehabilitation and 4 observation beds. Recently, a new integrated ambulatory facility including multiple medical and surgical
specialty clinics was opened to provide care for both active duty and veteran populations. The hospital provides approximately 20,000 annual emergency rooms visits, over 2,400 acute admissions with a length of stay of approximately 4 days in acute med/surg units and over 500,000 outpatient visits a year.

**Centegra Health System** is located in McHenry County and is a Level II Trauma Center. It comprises three hospitals (a fourth one planned), two fitness centers, three immediate care centers, nearly a dozen physician care locations and numerous specialty care services. As of 2013, the health system had over 4,000 employees and 500 volunteers. Centegra has nearly 460 physicians on staff. The health system has capacity for 343 inpatients. In 2013, the health system admitted 18,843 patients, served 66,668 emergency room visits, and provided care for 28,871 immediate care visits. The State of Illinois approved a new Centegra hospital, which will open in 2016 in Huntley, Illinois.

**Saint Anthony Hospital** is a 151-bed hospital located in Chicago, Illinois. Founded in 1897, Saint Anthony Hospital is a faith based, nonprofit community teaching hospital dedicated to serving the health needs of Chicago’s near southwest side. More than 70% of patients come from six densely populated zip codes on Chicago's west and southwest side.

**Mercy Hospital and Medical Center** is a general medical and surgical hospital in Chicago, IL. It performed nearly at the level of nationally ranked U.S. News Best Hospitals in 2 adult specialties in 2013. Mercy Hospital and Medical Center has 291 beds. The hospital had 16,353 admissions in the 2012, and performed 2,018 annual inpatient and 3,825 outpatient surgeries, and 56,172 emergency room visits.

**The Elgin Mental Health Center** (formerly Elgin State Hospital) is a 500-bed mental health facility operated by the State of Illinois in Elgin, Illinois.

**CONTINUING MEDICAL EDUCATION (CME)**
Continuing Medical Education (CME) is considered an integral part of the continuum of medical education in the school and in the life-long process of education of the physician. Since 1974, CMS has sought to participate in this professional development. The mission of the CMS program is as follows:

The mission of the Continuing Medical Education (CME) program of the Chicago Medical School at Rosalind Franklin University of Medicine and Science is to certify high quality educational programs, appropriate in depth and breadth, accurate in content, and free of commercial bias, that promote change, development, and improvement in their target audiences.

The purpose of our programs is to provide activities which are evidence-based and designed to produce a change in learner competence and performance, with the goal of improving patient outcomes. Insofar as Rosalind Franklin University has as its mission the training and development of healthcare professionals from many disciplines, our activities seek to promote the concepts of the team-based approach to healthcare delivery. In addition, as part of our institutional mission, we commit to continuing development that promotes leadership within the healthcare field, as well as activities which will enable our learners to better train and prepare the healthcare leaders of tomorrow.

The intended target audiences, in order of priority, are: the physician faculty of Chicago Medical School and the healthcare professionals of Rosalind Franklin University and its major affiliated medical centers, the healthcare providers of the local community, and the healthcare providers of the greater community and society in general.
The content areas of CME activities shall include but not be limited to: clinical medical sciences (new, reviewed, and investigational), basic sciences (new, reviewed, and investigational), theory and practice of healthcare delivery systems, and the education of healthcare professionals including communication skills, bioethics, and leadership.

The types of activities certified shall include: department-specific, interdepartmental, and specialty-specific regularly scheduled conferences, non-recurring solo and jointly sponsored conferences, internet-based CME, and enduring materials. The expected results of these activities include changes in learner strategies that increase their competence and changes in what learners report that they will do in practice, resulting in improved performance. It is anticipated that these changes in competence and performance will effect changes in patient care that will be manifested in improved patient outcomes.

Each year, about 20 symposia are sponsored by the CME office in conjunction with the school departments. In addition, approximately 18 recurring conferences, grand rounds and tumor boards are sponsored by the CME office on campus and at affiliated hospitals. The education program is fully accredited by the Accreditation Council for Continuing Medical Education and provides appropriate credit for the Physician's Recognition Award of the American Medical Association. Credit is applicable for state medical licensure.

GRADUATE MEDICAL EDUCATION (GME)
CMS offers ACGME (Accreditation Council for Graduate Medical Education) accredited residency training programs in Medicine and Psychiatry, and Fellowships in Cardiology, Interventional Cardiology, Endocrinology, Infectious Disease, and Pulmonary Medicine.

Chicago Medical School is committed to supporting Graduate Medical Education (GME) programs of the highest caliber. The goal of these programs, consistent with the strategic goals of Chicago Medical School and Rosalind Franklin University of Medicine and Science, is the training of highly skilled, scholarly physicians whose practices will engender the highest ideals of compassion and professionalism.

FINANCIAL ASSISTANCE
Student Financial Services at Rosalind Franklin University of Medicine and Science (RFUMS) is committed to helping students secure the funding necessary to realize their educational goals. Financial Aid is awarded to students in the form of loans, work-study, and scholarships.

To apply for financial aid, students must complete an annual financial aid application, which is available on the Student Financial Services website. Additionally, students must complete a Free Application for Federal Student Aid (FAFSA) and use the school code 001659. FAFSA results are used to assess student financial need, which is used in the awarding of subsidized Federal loans.

Students needing additional information may contact Student Financial Services by calling (847) 578-3217 or via email at financial.services@rosalindfranklin.edu.

Scholarships

CMS Alumni Scholarships and Trustee Merit Scholarships
The university awards a number of scholarships for CMS students. The Trustee Merit Scholarships and the CMS Alumni Scholarships are highly selective and are made possible through the generous support of the university's Board of Trustees and CMS alumni.

**Private CMS Scholarships and Loans**
Through the efforts of several CMS benefactors, a limited number of direct gift awards and a restricted amount of institutional loan funds are made available to medical students experiencing extreme financial need. Amounts vary according to financial need and the availability of funds.

**Armed Forces Health Professions Scholarships**
This program provides financial assistance to medical students in exchange for active duty service in the Armed Forces (Air Force, Army, or Navy). One year of service as a medical officer is required for each year of financial support, with a minimum of 3 years of service. The Armed Forces pays full tuition, fees, books, supplies, equipment, and a monthly stipend for living expenses. For further information, please call: Army (414) 476-6622; Navy (847) 688-7100, ext. 165; or Air Force (312) 922-2923.

**National Health Service Corps (NHSC) Scholarship**
This competitive program provides scholarship funds to medical students who agree to practice medicine in a high priority health manpower shortage area, as assigned by the NHSC. The minimum service obligation is two years. The scholarship provides for payment of tuition, required fees, and a monthly living expense stipend. For additional information on the NHSC Scholarship, contact the Bureau of Health Professions at 1-800-221-9393, press “1.”

**Global Health Travel and Project Scholarships**
Through the generosity of donors, alumni, faculty and the Libertyville Sunrise Rotary, students may apply for up to $1000 for travel and up to $1000 for project scholarships to support their participation in for-credit global health electives. Scholarships are awarded as tuition credit after completion of all elective requirements.

**ACADEMIC RECORDS**
A copy of each student’s complete academic record at the university is furnished upon request after each academic quarter attended. A written request form is available on the Registrar’s Website. Students are encouraged to periodically monitor their academic progress via WebAdvisor.

**ACADEMIC CALENDAR**
All schools within RFUMS operate using a quarter calendar and credit is expressed in quarter hours.

**STUDENT HOUSING**
RFUMS offers on-campus living for students in modern apartments. For more information about the one- and two-bedroom apartments or to learn how the Office of Student Housing can assist you in locating off-campus housing, visit the Student Housing website.

**STUDENT SERVICES AND PROGRAMS**
The Division of Student Affairs and Inclusion helps students maximize their academic experience and supports their academic success by fostering their professional, mental, physical, and social development and by enhancing the quality of campus life. Programs and services are provided to augment students’ ability to learn and develop life skills necessary to become productive and caring.
members of our global society. Programs and services include academic support services, multicultural student services, student counseling service, student life, and tutoring and study skills assistance. See the RFUMS Student Handbook for a list and description of programs and services offered and visit the Division website.

**CMS OFFICE FOR STUDENT AFFAIRS AND MEDICAL EDUCATION**
Throughout the student’s medical education, the CMS Office for Medical Student Affairs and Diversity provides resources, programs, and support to ensure a smooth progression through medical school and transition to residency. From orientation and the White Coat Ceremony to Senior Awards Day and graduation, the office oversees the students’ academic progress and professional development.

**CMS LEARNING COMMUNITIES**
The communities provide medical students a familiar cohort of peers that lasts throughout medical school. Under the leadership of a physician faculty mentor (the community mentor), approximately 48 students (comprising one-fourth of each medical school class) develop trust and help one another adapt to the culture of medicine. Communities link vertically with students in other classes through a faculty advisor system. Students in each class from 9-10 faculty advisor groups will be incorporated into a single learning community. Community mentors are responsible for advising, clinical mentoring, teaching, and social support. Community mentors serve as role models in classroom and clinical settings. They reflect on their own views of clinical medicine and provide examples of medical interactions for the students to discuss.

Community mentors participate in ceremonies marking important transitions in the students’ education, including the White Coat Ceremony (at orientation), the Body Donor Memorial Ceremony (spring of M1 year), the transition to clinical medicine ceremony (end of M2 year), and graduation. Each community has a limited budget for social gatherings, and mentors work with student volunteers to arrange informal gatherings. Faculty advisors are invited to these informal settings, designed to build familiarity and trust among students and faculty affiliated with the community.

**CAREER COUNSELING**
Throughout medical school, students are exposed to educational programs and various resources to enhance their career decision-making skills. Student-sponsored organizations play a significant role in introducing students to different medical fields. Additionally, the CMS Office for Medical Student Affairs and Diversity oversees a structured and well-developed career information program which includes a faculty-student advisor program. The AMA-AAMC Careers in Medicine is available for the benefit of medical students.

**CMS OFFICE FOR UNDERGRADUATE STUDIES**
The CMS Office for Undergraduate Studies schedules classes, gathers course and clerkship evaluations, and analyzes student performance against national standards as part of the evaluation of the CMS educational program leading to the MD. The office works closely with the Office for Student Affairs, and the Curriculum Committee, which is the faculty body responsible for the development, design, and implementation of all components of the CMS educational program leading to the MD. The office also manages several courses including first-year courses in Epidemiology and Introduction to Bioethics and Health Law, a second-year course in Patient Safety, the two-year interprofessional Essentials of Clinical Reasoning course, the capstone Clinical Skills course given just prior to entrance into the third-year clinical rotations, the required M3 Basic Sciences Revisited and the Clinical Skills Exam, plus several sophomore and senior electives.
STUDENT ORGANIZATIONS, SERVICES AND ACTIVITIES

CMS is concerned with the total educational environment of its students and strives to facilitate their personal growth as well as intellectual development. For a list of student organizations, visit the Office of Student Life.

University Student Council
Students in all schools participate in the RFUMS Executive Student Council. This group is organized and run entirely by students and is concerned with the overall policy and direction of the institution as these relate to student concerns. The Council plans and supports campus social events and student delegate trips to national professional group meetings. It also names student representatives to school committees and appoints observers to the University Board of Trustees. In addition to the representatives from each school, all interested students in any of the schools are welcome to participate voluntarily in the Council's activities.

In addition to the University Executive Student Council, CMS has chapters in many of the national medical student associations. These include the American Medical Student Association, American Medical Women's Association, Student National Medical Association, Organization of Student Representatives (student branch of the Association of American Medical Colleges) and Beta Tau (CMS chapter of the national coed medical fraternity, Phi Delta Epsilon).

Student Participation in University Governance
Student representatives participate as members of most committees of the medical school and have their own representatives on the school’s Faculty Executive Council and Academic Assembly. A few of the committees on which students serve include: Admissions; Student Evaluation; Promotion and Awards; Curriculum; Faculty-Student Forum; Year 1/Year 2, Year 3/Year 4, and Evaluation and Assessment Subcommittees of the Curriculum Committee; and faculty and dean search committees.

HONORS, AWARDS AND PRIZES

CMS publicly recognizes outstanding scholarship, research accomplishments and community service of its students. As part of the commencement activities in June, graduates are recognized for meritorious achievements during their medical school careers.

Alpha Omega Alpha
Alpha Omega Alpha Honor Medical Society was organized nationally in 1902; the CMS Chapter was chartered in 1965. This society promotes scholarship and research in medical schools, encourages high standards of character and conduct among students and graduates, and recognizes high achievement in medical science and practice. Students who have demonstrated leadership and academic promise of future achievement are elected. Membership is selected from the top 25 percent of any graduating class. Honorary membership in the society, as well as honorary alumni and faculty membership may be conferred upon individuals who have distinguished themselves in various areas of medicine, teaching, research and practice.

Gold Humanism in Medicine Honor Society: Chicago Medical School
The Gold Humanism Honor Society honors medical students, residents, role-model physician teachers and other exemplars for “demonstrated excellence in clinical care, leadership, compassion and dedication to service.” Organized to elevate the values of humanism and professionalism within the field of medicine and its constituent institutions, the Society plays an important role in the educational
environment at CMS. Students are selected for membership during their junior year by peer nomination with final selection by a committee of students and faculty. The student members are responsible for projects throughout the year.

Awards and Prizes
Alumni Association Scholastic Achievement Award
Board of Trustees Scholarship Award
Clerkship Awards
Dean's Award for Service to the School
John J. Sheinin, MD, PhD, Research Award
Leonard Tow Humanism in Medicine Award
Ronald Bangasser, MD ’75, Memorial Award
Ronald M. Reifler Primary Care Award
Martin Gecht, MD ’44, Memorial Award
American Medical Women’s Association Glasgow-Rubin Certificate of Commendation for Academic Achievement
Humanitarian Award
Exceptional Senior Independent Project Awards

ADDITIONAL POLICIES AND RESOURCES
All students are required to follow the policies that supplement this Catalog which include, but are not limited to, RFUMS Student Policies Handbook. Please consult these documents for additional information. The RFUMS Student Policies Handbook also details resources available to all students including housing, health insurance, student organizations, and Executive Student Council.

BASIC SCIENCE DEPARTMENTS

DEPARTMENT OF BIOCHEMISTRY AND MOLECULAR BIOLOGY
The Department of Biochemistry and Molecular Biology participates in the education of medical students in their first year. Required courses offered by the department are Clinical Molecular Cell Biology, Clinical Genetics and Medical Biochemistry. These courses provide medical students with the necessary biochemical and molecular biological background for the study of normal and abnormal physiological processes and encourage the attitudes and skills necessary for the continued integration of molecular information into further formal and informal training.

While maintaining a commitment to teaching excellence, faculty members have very active research programs in metabolic regulation, proteomics and biomarker discovery, membrane transport proteins, neuroendocrine proteins and peptides, signal transduction, RNA-protein interactions, drug target elucidation and membrane protein structural biology. Graduate students are integrated into these research programs. Opportunities for medical student participation in research are available and encouraged during the summer and on a part-time basis throughout the school year. Students with strong research interests are encouraged to investigate the combined degree program (MD/PhD) with the department chair. Medical students may pursue the MD with Distinction in Research in the department.

Required Courses
MBCH 502 Clinical Molecular Cell Biology
The molecular and cellular processes common to all eukaryotic cells are studied. Nucleic acid and protein structure and function, gene expression, and cell cycle regulation are examined. Clinical aspects are integrated through small group problem-based learning sessions and clinical vignettes. A unique aspect of the course is the individual, self-teaching program that covers basic facts and concepts.

MBCH 505 A & B Medical Biochemistry
The fundamental bases of biological reactions of important compounds in the normal and disease states of the human organism are studied. Emphasis is placed on the regulation and integration of metabolic processes as it relates to medicine. The course makes use of lectures, small groups and clinical conferences. This course utilizes an individual, self-teaching program to provide the students with an initial foundation of required knowledge.

MBCH 508 Clinical Genetics
Clinical Genetics uses lectures and small group learning to gain expertise in pedigree analysis including inheritance patterns, occurrence and recurrence risk determination, population genetics including Hardy-Weinberg law, founder effects, mutation-selection equilibrium, principles of gene therapy, genetic testing, counseling and ethics and genetic mechanisms.

Elective Courses

MBCH 616 Crystallization of Membrane Proteins
This course will teach the student cutting-edge approaches used in the over-expression and crystallization of clinically relevant membrane proteins. Techniques include vapor diffusion approaches, lipid cubic phase methodology, crystal manipulation, and manipulation and monitoring of detergent levels. The student will be actively involved in experimental design, execution, and data analysis.

MBCH 630 Protein Structure and Mechanism
This is a course of lectures, student presentations, and seminars by outside speakers on aspects of medically relevant proteins and enzymes. The following subjects are covered: protein sequence methodology, disease states and drug design considerations, X-ray crystallography, computer graphic modeling, chemical and enzyme kinetics including regulatory kinetics, enzyme mechanisms, and chemical modification of enzymes.

Faculty and Associated Staff:
Jun-yong Choe, PhD, Assistant Professor
Carl Correll, PhD, Associate Professor
Marc Glucksman, PhD, Professor and Chair
Adrian Gross, MD, Associate Professor
Ronald Kaplan, PhD, Professor, Executive Vice President for Research (RFUMS), and Vice Dean for Research (CMS)
Min Lu, PhD, Assistant Professor
David Mueller, PhD, Professor
Kenneth Neet, PhD, Professor Emeritus
Kyoung Joon Oh, PhD, Assistant Professor
Henry Symersky, PhD, Research Assistant Professor
Xinli Yang, PhD, Research Assistant Professor
DEPARTMENT OF CELL BIOLOGY AND ANATOMY

The Department of Cell Biology and Anatomy is committed to medical education and research centered on structural organization in relation to development, function and disease. The department contributes a substantial portion of the first year curriculum through required courses that include Clinical Anatomy, Histology, Embryology and part of the Clinical Molecular Cell Biology course. The anatomically oriented courses focus on the structural organization of the adult human body. The material is presented as lectures, audiovisual demonstrations, laboratory participation (dissections and microscopic study) and individual consultations by faculty committed to excellence in teaching. Clinical lectures presented by clinical specialists, such as surgeons and radiologists, emphasize anatomical principles and their relevance to clinical problems.

The faculty is dedicated to providing students with a strong education in cell biology. To this end, a wide range of cell biology topics is covered in the various courses. The structure, function and regulation of cells and their intracellular components are stressed, as are clinical aspects of cell biology.

Active research programs of the faculty address similar themes. Specific areas of research include: neuronal mechanisms of learning and memory; the cell/molecular basis of muscle differentiation and development; pathogenic mechanisms of neurological and neuromuscular diseases; diseases based on aberrant RNAs, altered pre-mRNA splicing, and expressed small non-coding regulatory microRNAs; organization of gene expression; and intracellular trafficking.

Research opportunities for medical students are available in the department as electives throughout the academic year. Further research options may be available through the MD with Distinction in Research or combined MD/PhD programs.

Required Courses

MCBA 500 A, B, C Clinical Anatomy
Both gross anatomy and developmental anatomy are studied in this course. Laboratory time is devoted exclusively to the regional dissection of human cadavers. Supplementary offerings within the course include films, prosected cadavers, and bone sets for individual study.

MCBA 502 A, B, C Histology
The principal educational goal of this course is to convey the relationship between cell, tissue, and organ structure and organ function, through the detailed study of light microscopic preparations and electron micrographs of cells, tissues, and organs.

MCBA 504 Embryology
This course presents the normal and abnormal development of the human embryo and fetus. The course includes descriptive presentations of developing structures. Conceptual and mechanistic consideration of developmental processes drawn from non-human embryological events is also discussed.

Senior Elective Course

MCBA 802 Dissection-Based Anatomy
This course is designed to enable students pursuing surgical careers to review anatomy in a regional area of their choice. The elective will be available Winter and Spring quarters. Students must submit a
Faculty and Associated Staff:
Christopher Brandon, PhD, Associate Professor
Joseph DiMario, PhD, Professor and Dean, School of Graduate and Postdoctoral Studies
Karen DiMario, MS, Instructor
Miroslav Dundr, PhD, Assistant Professor
William Frost, PhD, Professor and Chair
Nasrin Haghighat, PhD, Instructor
Michelle Hastings, PhD, Associate Professor
M.R. Jayasanker, MD, Lecturer
Kaiwen Kam, PhD, Assistant Professor
Hongkyun Kim, PhD, Assistant Professor
Monica Oblinger, PhD, Professor
Garud Raj, MBBS, Lecturer
Michael Sarras, PhD, Professor
Barbara Vertel, PhD, Professor

DEPARTMENT OF CELLULAR AND MOLECULAR PHARMACOLOGY
Faculty are dedicated to teaching the basic principles of pharmacology and performing research in the discipline. Opportunities for medical student participation in departmental research projects are available during the summer and as research electives in the sophomore year. Elective courses are offered that cover basic and specialized aspects of cellular and molecular pharmacology.

The Foundations of Medical Pharmacology course seeks to develop an understanding of the basic principles of drug action and their application in treatments of the pathophysiological basis of disease. The course promotes the development of a rational approach to therapeutics based on sound understanding of basic principles. The course is organized by drug classes according to their therapeutic effects and mechanisms of action. Clinical conferences and small group sessions are used to underscore the basic pharmacology and pathophysiology in the treatment of disease. Faculty members teach and participate in all aspects of the course, including lectures and individual consultation. In addition to elective courses in Pharmacology, specific topics, such as gene expression, analysis of pre-mRNA splicing, neuropharmacology, and principles of drug action and therapeutics have been developed.

Specific areas of research of departmental faculty include drug addiction, neurodegeneration and Parkinson's disease, Schizophrenia, the neurobiology of learning, emotion, and behavior, neuronal plasticity, morphology, ultrastructure, synaptic plasticity and integration, basal ganglia structure and function, gene expression and regulation of alternative splicing.

Sophomore Required Course

MCMP 600 A, B, C Foundations of Medical Pharmacology
The subject matter is covered in lectures, conferences and tutorials. The mechanism of actions of drugs at molecular, cellular and biochemical levels, and factors affecting drug absorption, distribution, metabolism and excretion are discussed. Pharmacogenetics, gene therapy, drug interactions, therapeutic uses, contra-indications and side effects, and the toxicology of selected compounds are presented.
Sophomore Elective Courses

MCMP 610 Molecular and Biochemical Bases of Neuropsychiatric Disorders
This course takes a multidisciplinary approach to present various neurochemical correlates of normal and abnormal behavior. Current biochemical theories of different neuropsychiatric disorders are presented in some detail; the rationale underlying use of different classes for the treatment is presented. Discussion of addiction-causing drugs and relationship to their suggested mechanism of action is presented.

MCMP 612 Neuropharmacology
This course focuses on the biochemistry of neurotransmitters in the CNS and factors regulating their activity. Chemical structure-pharmacological activity relationships of psychotropic drugs and the rationale behind their chemical modification that guide drug design are presented.

MCMP 613 Principles of Drug Action and Therapeutics
The purpose of this course is to present a comprehensive and coherent explanation of the science of pharmacology in terms of its basic concepts and principles. It will cover various ethics, moral and legal aspects of drug development. It will follow the path of various classes of drugs from their administration to their absorption, distribution, biotransformation and elimination. Dose-response relationship and host factors influencing drug reactions and interactions will be discussed.

MCMP 615 Regulation of Gene Expression by Drugs of Abuse
Drugs of abuse, such as cocaine, cause altered expression of genes in neurons of brain systems that are involved in the generation of motivated behavior. Such changes in gene regulation are part of the neuronal basis for drug addiction and dependence. Our research focuses on the effects of drugs of abuse on gene regulation in the basal ganglia and related forebrain systems. We mainly investigate how psychostimulant drugs affect the expression of genes that encode peptide neurotransmitters, transmitter-related enzymes, receptors, ion channels and transcription factors and how such neuronal changes alter basal ganglia output and behavior. These studies contribute to our understanding of the molecular and cellular changes underlying drug addiction. The offered course is part of this research.

MCMP 618 Anatomy and Function of Brain Reward Circuits (Research)
This research course will focus on the anatomy and function of brain reward circuits. Anatomical studies will be performed in rodent models whose brain activity will have been previously established using neurophysiological techniques. Students will learn a variety of skills, such as histological techniques, bright-field and fluorescent microscopy, and statistical and data analysis. Students will attend weekly lab meetings where they will interact with other lab members, present data and familiarize themselves with research methods in health-related sciences. Students will develop an understanding and appreciation for neuroanatomy and neurophysiology, as well as for the links between them.

Faculty and Associated Staff:
Charles P. Barsano, MD, PhD, Professor
Joanna Dabrowska, PhD, PharmD, Assistant Professor
Seymour Diamond, MD, Adjunct Professor
Seymour Ehrenpreis, PhD, Professor Emeritus
Patricia Loomis, PhD, Research Assistant Professor
Aron David Mosnaim, PhD, Professor
Velayudha Nair, Distinguished Professor Emeritus
Judith Potashkin, PhD, Professor
J. Amiel Rosenkranz, PhD, Associate Professor
Ann Snyder, PhD, Associate Professor
Heinz Steiner, PhD, Professor and Chair
Kuei Tseng, MD, PhD, Associate Professor

DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

Infectious diseases pose the most significant threat to the health of peoples of the world and a substantial threat to the peoples of this nation. To prepare physicians to meet these problems, the Department of Microbiology and Immunology offers a year-long course in Medical Microbiology and Immunology in the second year of medical school. This provides a foundation for understanding the physiological and pathological processes of microbes, including viruses, bacteria, fungi, protozoan and metazoan parasites, as well as the host-parasite relationships, including immunologic mechanisms in infectious diseases. The etiology, pathogenesis, epidemiology, prevention and treatment of infectious diseases are emphasized. Special attention is given to the immunological principles underlying cellular and humoral immunity, hypersensitivity, autoimmunity, immunodeficiencies and transplantation. These topics are presented to help the student understand the mechanisms by which humans, naturally or with medical assistance, are capable of combating infectious diseases.

The training and research interests of the faculty members coincide with the topics encompassed in the course. Students are assured of receiving information that is accurate and current from faculty who are knowledgeable and enthusiastic about the content and significance of the material they present. The faculty considers the education of students to be a major responsibility and seek to provide efficient and effective means of disseminating information through lectures, case studies, a study guide book, written notes of lecture materials, POPS (Patient-Oriented Problem Solving) sessions and an open-door policy for those requiring help or information. Sophomore and senior electives are offered throughout the year in selected areas of microbiology and immunology to students interested in a deeper understanding of infectious disease processes and immune mechanisms.

Required Courses

MMIC 600 A, B, C Medical Microbiology and Immunology
This course focuses on the fundamental molecular biology, genetics, metabolism, immunology and morphology of microorganisms. The first quarter is directed toward principles and concepts of microbiology and immunology; the second and third quarters, to infectious disease processes with an emphasis on clinical presentation, diagnosis, and treatment.

Sophomore Elective Courses

MMIC 630 Research in Microbiology: Role of KSHV in Oncogenes-Microbiology and Immunology Laboratory Settings
The student will be learning important basic science research techniques that are in high demand in the laboratory settings. Some of the techniques include, but are not limited to, real time reverse transcription polymerase chain reaction, Western Blots, Immunofluorescence Assays, etc. Most importantly, however, the student will be applying these techniques to address a particular scientific hypothesis on a particular aspect of the biology behind Kaposi Sarcoma-Associated Herpes Virus and the host cell.
MMIC 643 Advanced Immunology
This elective is designed for students seeking an in-depth knowledge of contemporary immunology.

MMIC 652 Parasite Immunology
This course trains students to become familiar with aspects of molecular biology and immunology of medically important parasites with particular reference to leishmaniasis. Emphasis will be placed on the mechanisms of host-parasite interactions in vitro and evasion of host immunity.

MMIC 653 Biology of Intracellular Parasitism
This elective familiarizes students with mechanisms and regulation of infection with particular reference to intracellular parasites. The course teaches students to evaluate literature and research reports, plan and conduct laboratory research in molecular parasitology, utilize some biochemical and molecular biology techniques in a research program, and analyze and report lab data in a style consistent with journal publication.

MMIC 660 Molecular Biology and Immunochemistry of the Immune System
Students learn research methodologies, perform experiments, write up results and participate in discussions. Cell culture, isolation of nucleic acids, mapping and manipulating of cloned genes, SDS-PAGE of proteins, radioimmunoassays, and ELISA and flow cytometry are included. Students have actual laboratory research experience in studies in molecular biology of the immune system.

Senior Elective Course

MMIC 808 Drug Resistance in Leishmania
Students develop research experience in establishing cultures of Leishmania, develop drug resistance and attempt to initially correlate molecular mechanisms of drug resistance.

Faculty and Associated Staff:
Kenneth Beaman, PhD, Professor
Bala Chandran, PhD, Professor and Chair
Kwang-Poo Chang, PhD, Professor
David Everly, PhD, Assistant Professor
Michael Fennwald, PhD, Associate Professor
Alice Gilman-Sachs, PhD, Associate Professor
Fabio Re, PhD, Associate Professor
Joseph Reynolds, PhD, Assistant Professor
Neelam Sharma-Walia, PhD, Assistant Professor
Gulam Waris, PhD, Assistant Professor

DEPARTMENT OF NEUROSCIENCE
The mission of the Department of Neuroscience is to conduct high-quality research and scholarship, and to educate medical and graduate students about the molecular, cellular, anatomical, and clinical aspects of central nervous system function. Medical students are introduced to these concepts in the Medical Neuroscience Course, taken during the Spring Quarter of their first year.

Primary research interests of the faculty in the Department of Neuroscience include:
• Neuronal plasticity involved in drug addiction
• Roles of dopamine and glutamate in animal models of Parkinson's and Huntington's diseases
• Electrophysiological and neurochemical studies of the basal ganglia and the pathogenesis of schizophrenia
• Cellular and molecular analysis of Alzheimer's disease pathogenesis
• Factors regulating neurogenesis, neural differentiation, neuronal survival and therapeutic gene delivery, from development through senescence

Opportunities for medical students to participate in these departmental research projects are available during the summer and as electives during the sophomore and senior years.

Required Course

MNSC 501 Medical Neuroscience
An interdisciplinary introduction to the structure and function of the nervous system, team-taught by all faculty members in the Department of Neuroscience plus several guest clinicians. This course provides a broad overview of modern neuroscience, emphasizing: 1) cellular and molecular neuroscience, including transmitter neurochemistry, neural plasticity, and the biology of neural stem cells; 2) systems neuroscience, focusing on sensory, motor, limbic and higher cognitive systems; 3) neuroanatomy taught in small-group, case-based sessions utilizing human cadaver brains and interactive computer-based learning; and 4) clinical neuroscience, including correlations on CNS infections, multiple sclerosis, peripheral neuropathy, Parkinson's and Huntington's diseases, stroke, brainstem and spinal cord lesions, schizophrenia, affective disorders, and Alzheimer's disease.

Sophomore Elective Courses

MNSC 603 Research in Neuroscience
The Department of Neuroscience offers student research training opportunities in a number of disciplines, to be arranged by the faculty advisors.

MNSC 605 Human Brain Dissection
Advanced dissection of human brain specimens to reveal the major gray matter structures and white matter pathways involved in reward, language, emotion, learning, and other higher cognitive functions, with an emphasis on structures involved in neurologic and psychiatric disorders.

Faculty and Associated Staff:
Marjorie Ariano, PhD, Professor Emeritus
Lise Eliot, PhD, Associate Professor
Robert Marr, PhD, Assistant Professor
Daniel Peterson, PhD, Professor
Grace Stutzmann, PhD, Associate Professor
Anthony West, PhD, Associate Professor
Marina Wolf, PhD, Professor and Chair

DEPARTMENT OF PHYSIOLOGY AND BIOPHYSICS
The mission of the Department of Physiology and Biophysics is to educate students in the principles and mechanisms involved in cellular and organ systems physiology. This is accomplished through an intensive course of study including Medical Physiology and a variety of elective courses of study,
including research opportunities for medical students. Normal system physiology is presented as well as discussions of clinically relevant pathological conditions. Teaching methods use different venues, such as large lecture presentations, small group conferences, individual consultation and laboratory demonstration-participation. There is considerable one-on-one interaction between students and faculty and individualized feedback on progress in mastering course material.

Faculty are engaged in research on cellular physiology, cardiovascular function, brain metabolism, endocrinology, solute transport, muscle contraction, neuroscience, and renal function. A number of students in the department are pursuing advanced degrees in physiology.

**Required Course**

MPHY 500 A, B, C Medical Physiology
The course offers the basic principles of organ system physiology. Through lectures, demonstrations, conferences, and laboratory work, students receive a quantitative and integrated concept of subcellular, cellular and organ system function.

**Sophomore Elective Courses**

MPHY 609 Cardiovascular Pathophysiology
Clinical aspects of cardiovascular function are emphasized, e.g., heart sounds and murmurs, electrocardiogram, monitoring of central venous pressure, and cardiac function curves.

MPHY 610 Renal Cell Biology
Students are taught fundamental processes of renal physiology and pathophysiology at a cellular level. An examination of recent literature and student presentations are emphasized.

MPHY 615 Physiology of the Liver
The normal functions of the liver are discussed as well as the experimental techniques used in the study of the liver. Various pathologies of the liver are presented and related to the disturbances of the normal physiology.

MPHY 620 Integrative Physiology
Students increase their capabilities to think through complex, integrative-type, physiological clinical situations, improve performance on data interpretation problems and better understand the physiological rationale for appropriate corrective measures, as well as the pathophysiology involved in many disease states.

MPHY 624 Pulmonary Pathophysiology
The biophysics of pulmonary mechanics and gas transport are presented as a basis for evaluating pulmonary function. Modern pulmonary function testing equipment is utilized in the laboratory, and an emphasis is placed on recognizing abnormal lung volumes and airflows.

MPHY 626 Research in Physiology
Students are given the opportunity to become involved in significant physiological research. In doing so, the student gains experience in: designing experiments; operating modern research equipment; gathering meaningful data; evaluating experimental results; and preparing the results for publication.
Senior Elective Course

MPHY 801 Research in Physiology
This elective provides students with an opportunity to become involved in significant physiological research. In doing so, the student gains experience in designing experiments, operating modern research equipment, gathering meaningful data, evaluating experimental results, and preparing the results for publication. The student selects an area of interest and a mentor. The student discusses with the mentor the nature, feasibility and specific objectives of the research project.

Faculty and Associated Staff:
Dmitri Y. Boudko, PhD, Assistant Professor
Neil A. Bradbury, PhD, Professor
Robert J. Bridges, PhD, Professor
Eugene L. Dimitrov, MD, PhD, Assistant Professor
Lisa Ebihara, MD, PhD, Associate Professor
Richard Hawkins, PhD, Professor
Donghee Kim, PhD, Professor
Charles McCormack, PhD, Professor
Mikheil Nanazashvili, PhD, Assistant Professor
Darryl Peterson, PhD, Professor
Gordon Pullen, PhD, Assistant Professor
Hector Rasgado-Flores, PhD, Associate Professor
Henry Sackin, PhD, Professor and Vice Chair
Ernest Sukowski, PhD, Associate Professor
Janice H. Urban-McCrea, PhD, Professor and Chair
Juan Vina-Ribes, MD, PhD, Research Professor
Carl White, PhD, Assistant Professor

GLOBAL HEALTH

Sophomore Elective Courses

MCUR 607 Clinical Experiences in a Developing Country
This sophomore elective facilitates the development of the qualities and abilities necessary to work globally as a physician. This elective is offered in the summer between the first and second year of medical school. A patient log, an essay and a presentation are required.

MDGH 601 Clinical Experience in Low Resource Communities within High Resource Countries
This clinical sophomore elective facilitates the development of the qualities and abilities necessary to work globally in low resource settings as a physician. Elective activities occur in the summer between the first and second year of medical school. A patient log, an essay and a presentation are required. Students have an option of doing 60 clinical hours or 40 clinical hours plus 20 hours of learning a language or medically relevant education or development work. Students will work in a low resource area of a high resource country. Students will have to provide evidence that the clinical situation in which they will be working is low resource. This elective is an alternative to the second year elective in a low resource country.
MDGH 600 Clinical Experience in Low Resource Local Communities
Students will work in a local clinical setting to gain exposure to clinical and cultural practices in underserved populations. Under the direction of healthcare professionals, students will take and observe the history and physical exam, provide healthcare screening including hypertension, diabetes, and vision. Students will provide health education including nutrition and exercise. Students will attend a minimum of 5 clinics for 15 hours. Clinics will include Outreach for Healthreach, the Health Care Project PADS clinic, the Salud Ofrecida A Latinos health fair, and the Interprofessional Community Clinic. Students will write an essay and prepare a PowerPoint presentation of their experiences. This will contribute to their development into well-rounded, 'complete' physicians, capable of caring effectively for the diverse patient population they will inevitably encounter. This course cannot be taken for ECR 2 clinical preceptor credit.

Senior Elective Courses

MDGH 800 Global Health Elective
This elective facilitates development of qualities and abilities necessary to work globally as a physician. Students have the opportunity to refine and develop educational, professional and personal goals and objectives that will support 1) pursuit of their vision in global health and 2) acquisition of the abilities necessary to address the health needs of the people of the world, especially the poor, with compassion, integrity, high ethical standards and a high level of competence. Students may arrange any combination of clinical, development or research experience for one to twelve weeks outside the borders of the US and Canada under the direction of the course director.

MDGH 801 Clinical Experience in Low Resource Local Communities
This senior elective facilitates the development of the qualities and abilities necessary to work in low resource settings as a physician. Through this elective students are provided with opportunities to refine and develop educational, professional and personal goals and objectives which will support 1) pursuit of their vision in serving underserved communities 2) acquisition of the abilities necessary to address the health needs of underserved populations, with compassion, integrity, high ethical standards and a high level of competence. Students identify and develop a clinical, research or program/project development experience for a medically underserved area or population in the United States.

MPED806 International Clinical Experience/China
This elective provides an opportunity for students to participate in clinical care at a pediatric hospital in China. Students experience the health system and social determinants of health in China.

Innsbruck Austria Exchange
The Chicago Medical School and the Innsbruck Medical University, Austria, have an exchange program where fourth year CMS students can spend up to four weeks at the Innsbruck Medical University. Students choose from internal medicine and surgical sub-specialties to develop a two to four week clinical experience at this university, tertiary care hospital.

Faculty and Associated Staff:
Elizabeth Rosiles, MA, Program Manager

OFFICE OF UNDERGRADUATE STUDIES
This Office of Undergraduate Studies has oversight for the clinical courses taken in the preclinical years of the educational program. Many of these courses are shared across schools/colleges at RFUMS and
thus provide students an interprofessional learning environment that develops clinical reasoning and clinical skills.

**Required Courses**

ECR is an interprofessional course that serves as the entry point to the student’s clinical experience. Within the context of this course, students will be expected to develop proficiency in history taking, communication, and clinical exam skills. Developing the language and understanding the format of effective and professional medical communication will be emphasized while also learning the art of history taking. Students will be expected to participate in various learning venues including: lecture, lab sessions, small-group discussions, and independent projects. Proficiency and development will be assessed through written, oral, and performance-based evaluations as well as an ongoing assessment of professional behavior. Working with and evaluating actual and also standardized patients are mandatory components in this course. Throughout the two years, students will be introduced to, and start gaining confidence in the knowledge and logic necessary to think critically as a clinician.

The first year of the course will focus on appreciating and understanding the patient through effective communication and clinical examination techniques. The normal clinical exam as well as learning the components necessary for thorough history taking and reliable communication will be emphasized.

As students transition to the second year of the course, the content will build upon the foundation learned in the first year. However, the emphasis will become more oriented toward understanding pathology and disease states. The focus will turn to more symptoms-based learning and refining history taking and physical exam skills needed to evaluate and assess the abnormal. Learning to develop a differential diagnosis and acquiring finesse in communication are important skills to gain in this dimension of clinical development. This course ultimately serves as the foundation of the development of the effective clinician.

**MMTD 510 Introduction to Bioethics and Health Law**
Ethical issues that arise in the practice of medicine and recognition of the controversial nature of topics such as patient’s rights are presented in the Socratic Method. Inquiry into the historical basis of ethical problems, appreciation for alternative positions and identifying the ethics associated with new developments in the practice of medicine are discussed.

**MMTD 509 Clinical Epidemiology**
Basic concepts of biostatistics and introductory Clinical Epidemiology are presented using small group sessions, in a team-based learning environment. Elements of basic and clinical research design are stressed so that the student is able to critically evaluate research literature and formulate PICO questions (Patient or Population/Intervention/Comparison of Interventions/Outcomes). Students orally present on PICO questions and translational research as a component of the class. Practice in simple statistical skills and population analysis is included.

**MMTD 601 Patient Safety**
The Patient Safety course includes lectures, reading assignments, and the Clinical Informatics (Isabel) Project. The three main themes to the course are 1) Laws Physicians Need to Know/Drug Companies and Relationships with Physicians and Students; 2) Prevention and Screening; and 3) Patient Safety.
MCUR 606 Clinical Skills
The Clinical Skills Course is a one-week required experience at the end of the M2 year. It is designed to help the transition to the M3 year and the first clinical rotations. The course has four central themes: 1) General knowledge focused on core concepts (imaging, EKG, medical documentation), 2) Clinical Case Studies (virtual, mannequin-based simulation, standardized patients) emphasizing clinical reasoning, medical documentation, patient communication and case presentation to superiors, 3) Evidence Based Medicine presentations using controversial clinical questions and the application of evidence-based management guidelines, and 4) Clinical Procedures including suturing and wound management, splinting and casting, phlebotomy, IV, arterial blood gas, scrubbing and sterile technique, urethral catheterization and nasogastric tube insertion. The course uses problem-based learning, online learning, active learning and peer teaching by M4 students. This is a must-pass course for students to begin their clinical rotations.

MCUR 703 Basic Sciences Revisited
The course provides an opportunity to review underlying basic science principles commonly observed in the clinical setting during M3 rotations. Three venues are used to review a specific system and students rotate in groups between each venue. As an example, a musculoskeletal session reviews the focused clinical assessment of shoulder, hip, knee and ankle joints. Session two provides observations of the cadavers previously dissected to demonstrate those same joints. Students inspect and review the underlying anatomy of each of the joints with faculty present to answer questions and review the structures. Session three is an interactive case-based session on the underlying pathology and clinical features of lower back pain. This is a must-pass course for students to complete the M3 year.

MCUR 705 Clinical Skills Exam
This mandatory exam assesses M3 students’ clinical skills in the Education and Evaluation Center. Five different cases are presented, and students must take a history and physical, then write their findings, determine a differential diagnosis and generate a patient management plan. Students must pass this OSCE in order to graduate.

Sophomore Elective Courses

MCUR 605 Academic Peer Teaching
This elective is intended to provide M1 students with academic assistance from a peer (M4). The tutor gains a better conceptual understanding of the material as they explain it to others and learns about methods and principles of education that enhance learning. M1 benefits from the experience of a peer who has done well in the course and can help integrate concepts in a useful way. The peer tutoring process is a powerful strategy for promoting the development of higher-level thinking. Peers are less threatening, cognitive development and socialization are similar, and identification with the peer leads to acceptance and imitation of effective learning strategies modeled by the peer tutor. After the training session, students will either be assigned to work one-on-one or in small group review sessions held at pre-determined times for specific first-year course material. The peer tutor’s primary role will be to engage the student in active inquiry about the subject matter being reviewed. The first session will involve training and discussion about the appropriate facilitation skills, how to effectively communicate the material, when to stop and listen, and how to enhance learning. Additional sessions will involve discussion and preparation of tutoring material and how to maximize its usefulness. Specific skills to be acquired include learning how to ask higher-order questions, teaching group learning skills, and practicing helping behaviors.
MCUR 608 Sophomore Independent Project
Second year medical students wanting to do an independent project as an elective must complete a proposal form which includes the signature of the responsible supervisor. Students can be creative and select topics of interest to pursue through this elective.

MCUR 610 Cultural Diversity and the Management of Healthcare Services
This elective introduces the importance of providing culturally appropriate healthcare services for the diverse ethnic populations encountered in the U.S. The significance of family traditions, cultural heritage, health and healing traditions on the patient’s interactions with the healthcare delivery system and providers will be explored. Students will develop interventions that managers of healthcare facilities and providers can use to diminish the conflict patients and staff may experience when traditions related to the patient’s cultural heritage are at odds with the norms in the American healthcare delivery system.

MCUR 611 Practice Management
Practice Management offers the essential elements and support for a successful private practice concentrating on facility management and organizational skills. Topics will include the organizational management landscape and management functions such as planning and decision-making, organizing, staffing, and budgeting. This course addresses practical concerns such as committees and teams and human resource management considerations such as training and development, retention and recruitment, and communication.

MCUR 612 Training in Cultural Awareness in Health Care
This course provides the tools necessary for providing culturally sensitive care within the hospital/clinic setting. Through the utilization of small group discussions, case studies, videos, and interprofessional/team activities, students will acquire a clearer understanding of their expectations and biases as they pertain to their approach of individuals from different cultures and ethnicities. Activities will use both the traditional classroom setting and online forums. By encouraging the exploration of culturally appropriate behaviors, this course will ensure more positive treatment outcomes and assist healthcare professionals in their pursuit to treat patients both holistically and on an individual basis.

MCUR 615 Clinical Exposure Program
Students are assigned a preceptor in a specialty of interest to them. The student observes the activities of the clinical specialty in which their preceptor works (hospital, clinic, and ambulatory). This experience focuses on the doctor-patient relationship and how it works, what the physician does to make it work, and what sensitivities must be observed to establish a strong relationship. Students learn some of the subtleties involved in the doctor-patient relationship as the student observes the day-to-day practice of their preceptor. Students gain experience interacting with patients and their families, other physicians, members of the healthcare team, and the medical office staff. A minimum of 28 documented hours spent with clinicians is required.

MCUR 617 Managing Cardiopulmonary Emergencies: The First 5 Minutes
This elective is designed to help students improve their knowledge and skills related to managing cardiopulmonary emergencies. The course will introduce basic ECG rhythm interpretation, airway management, pharmacologic interventions and teamwork principles and will build upon BLS competencies. Students will be able to recognize common arrhythmias important to the initial management of a patient with cardiopulmonary pathology (PEA/Asystole, Pulseless Ventricular Fibrillation/Tachycardia, Unstable Bradycardia, Unstable Tachycardia). Students will learn to gather clinical data (history, physical exam, non-invasive monitoring) to determine patient stability and
formulate initial stabilization and treatment options; demonstrate airway management skill (oral/nasal airway, ET tube insertion, use of bag valve mask) during part task and full mannequin-based simulation; formulate appropriate treatment (pharmacologic, defibrillation, pacing, BLS protocol) for presenting arrhythmias and implement these treatments during mannequin-based simulation; participate in small group case studies and decision-making regarding cardiopulmonary emergencies; and function as a useful member of a healthcare team dealing with a cardiopulmonary emergency during a series of mannequin-based stimulated training cases.

MCUR 618 Summer Research Credit
Student identifies the research opportunity that may be conducted on-site (CMS/RFUMS) or off-site. A research proposal is written describing the project with the help of the Principal Investigator/Mentor. The proposal is approved by the Course Director. Deadline June 1 of each year. Student will sign the appropriate paperwork stating compliance with all research oversight regulations, i.e. IRB, use of radiochemicals, animals, etc. Student spends at least 8 weeks in the summer on the project. No stipend is allowed since academic credit is being obtained. Student writes 1-2 page summary of research efforts for Course Director by deadline of Sept. 1 each year. Student presents a poster in the CMS summer research poster session in October. Credit obtained for Fall Term.

MMTD 600 Introduction to Bioethics and Health Law Facilitation
M2 students enrolled in this elective will monitor online discussion postings of a small (8 to 10) group of M1 and P1 students. M2 students will read all discussion postings for their assigned groups, providing guidance to the group and assuring compliance and completion of posting assignments by the M1 and P1 students. They will further assure that the postings present a substantive and robust, but civil discussion of ethical principles and ethical scenarios. Student facilitators will recommend grade assignments for the discussion postings according to published rubrics to the course directors who will make final grade assignments.

GPSC 600 Psychosocial Issues in Blood Pressure Regulation and Cognition
This elective is designed to enhance the student’s understanding of the role of psychological issues in medicine. The student will read journal articles in behavioral medicine. In addition, the student will perform data analysis. To enable the student to develop proficiency in evaluating journal articles from a methodological perspective. The student will learn to utilize the SPSS software package to develop data files and to perform analyses with precision. The student will also learn to strengthen his/her writing skills with respect to the analysis and presentation of research data from this laboratory.

Senior Elective Courses

MCUR 805 Academic Peer Teaching
See description under MCUR 605 (Sophomore Elective Courses)

MCUR 808 Clinical Skills Course Elective
Clinical instruction of M2 students, facilitation of small groups, and review of clinical experiences with individual students occur in this elective. M4 students review M2 performance in the OSCE experience, assist in writing SOAP notes, writing orders, presenting patients, suturing, and reading X-rays and EKG. This elective is offered only during June for two weeks.

MCUR 850 Senior Elective in Essentials of Clinical Reasoning
This is an opportunity for the fourth year student to improve upon his/her history, physical examination, and clinical reasoning skills by teaching and mentoring the freshman and sophomore medical and podiatry students these same skills. Senior students will receive training to teach in small group settings, learn appropriate evaluation methods, contribute to curriculum development, and learn to write exam questions. This elective will foster peer to peer communication and learning and prepare students for their teaching role as residents and faculty.

MCUR 851 Proposal for an Independent (non-clinical) Senior Elective project
MCUR 852 Proposal for an Independent (clinical) Senior Elective project
These serve as “umbrella” electives for numerous potential projects that students develop. The completed proposal is reviewed and approved by the supervising faculty member.

MCUR 896 Literature in Medicine Online Elective
Small student groups select two books to read (one about being/becoming a doctor, and one about the experience of being a patient) from a suggested reading list. M4 participate in online discussions about the reading and submit a reflective paper about each book. Each student submits a one page “autobiography” during the first week and a critical incident report during the second week. Each group has a faculty facilitator. Students reflect on their own evolving identities as physicians and discover the role that literature plays in shaping one’s professional identity as a physician and connecting to the patients’ experience.

MCUR 898 Transition to Internship – Lovell FHCC Simulation Center & RFUMS Campus.
This elective will provide M4 students the opportunity to learn and practice many of the skills necessary to transition from M4 student to intern. While most of the activities will be pertinent to all students, regardless of specialty choice, there will resources and time available to learn and practice specialty-specific skills as well. At the end of this elective, through using high-fidelity simulation, role play and interactive small group discussion, the M4 student will demonstrate competent performance of the essential skills of all day-one interns.

MCUR 899 Health Policy in the Chicago Public School System – Office of Student Health & Wellness/Chief Health Officer for CPS
This elective provides students with the opportunity to observe the policy and business aspects of leading a large, complex school district and managing health initiatives for the more than 400,000 children enrolled in the 665 CPS schools. Students will discuss the various stakeholders and methods involved in implementing health initiatives for a population; discuss sources of funding for health initiatives in a large organization; discuss how to lead others, form/sustain professional relationships, and advocate for a patient population; and reflect on how to be a community leader through your own practice of medicine.

HHCM 800 Teaching Healthcare Administration and Management
M4 students facilitate M2 students in HHCM 801. Topics include various healthcare delivery systems, healthcare law, risk and quality management, and leadership and management. Competency in communication, leadership, healthcare management, business knowledge and knowledge of the healthcare environment are discussed. M4s have earned a Masters in Healthcare Administration and Management from RFUMS College of Health Professions. If students with a Master’s degree are not
available, students who hold a Certificate in Healthcare Administration and Management will be eligible to assist in moderating the course.

HHCM 801 Healthcare Administration and Management
Students are introduced to the fundamentals of the healthcare business industry. Topics include various healthcare delivery systems, healthcare law, risk and quality management, and leadership and management. Competency in communication, leadership, healthcare management, business knowledge and knowledge of the healthcare environment are discussed. Students collaboratively submit assignments in the first half of the week and respond to/discuss the work of other students in the second half of the week. At the end of the second week, students submit an individual paper to demonstrate competency in all topics and how this new knowledge will be implemented in their future medical practice. The course is facilitated by faculty and M4 students.

HNUT 801 Fundamentals of Clinical Nutrition (Online)
Provides an in-depth overview of human clinical nutrition including the components and measurement techniques of a nutritional assessment. The etiology and medical nutrition therapy of various disease conditions such as obesity, cardiovascular disease, hypertension, osteoporosis, diabetes mellitus, gastrointestinal, renal, neurological, pulmonary diseases, anemia, sepsis, trauma, cancer, and other metabolic diseases are discussed. Students will be able to discuss medical nutrition therapies for various medical conditions with other members of the healthcare team and to implement the appropriate medical nutrition therapy for their patients and clients.

HNUT 802 Fundamentals of Human Nutrition (Online)
This course provides an in-depth overview of human clinical nutrition including the components and measurement techniques of a nutritional assessment as well as the etiology and medical nutrition therapy of various disease conditions such as obesity; cardiovascular disease; hypertension; osteoporosis; diabetes mellitus; gastrointestinal; renal; neurological; pulmonary diseases; anemia; sepsis, trauma; cancer; and other metabolic diseases. Students will gain a nutritional perspective of the macronutrients (carbohydrates, proteins, and fats) and micronutrients (vitamins and minerals), to understand the physiological and psychosocial factors associated with obtaining and maintaining a healthy weight, and to identify and implement the components of a healthy diet.

Faculty and Associated Staff:
Christina Belmonte, DO, Assistant Professor of Psychiatry and Behavioral Sciences
Laurie Broutman, MD, Associate Professor of Medicine
Katelyn Clark, BS, Evaluation Specialist
Mary Ann Clemens, EdD, FACHE, Assistant Dean for Curriculum Development
Sheryl Juliano, MA, Assistant Dean, Educational Best Practices
Jeanette Morrison, MD, Associate Professor of Medicine, Associate Dean, Medical Education and Innovation
Amy Pabst, MD, Assistant Professor of Family and Preventive Medicine
Gordon Pullen, PhD, Assistant Professor of Physiology, Assistant Dean, Basic Science Education
Sally Venus, Manager of Operations, Undergraduate Studies and Essentials of Clinical Reasoning

Lori Wasion, Curriculum Coordinator

INTERPROFESSIONAL HEALTH CARE STUDIES

Required Course
HMTD 515 A, B Foundations for Interprofessional Practice
This is an experiential learning opportunity for students to interact in interprofessional healthcare teams which extends through the fall and winter of the first year. This interactive course is intended to help prepare the healthcare professional student to provide effective patient-centered health care through small group discussion and problem solving activities. Topics include: team interaction, communication, service learning, information literacy, quality improvement, healthcare professions, diversity in society, the impact of culture, ethnicity and religion on communication and the provision of services, disparities in the healthcare delivery system, and awareness of the impact of a provider’s own wellness and illness beliefs on the decisions he/she makes for patients. Interprofessional teams of students develop and participate in significant community based service learning projects.

Senior Elective Course

HMTD 800 Teaching Culture in Health Care
M4 students participate as group leaders in standardized volunteer teaching sessions for the first year Culture in Health Care course (HMTD 515 B). M4 students review the teaching case, participate in the training session for the volunteers, lead small group sessions for the interprofessional groups, and evaluate the effectiveness of the sessions.

CLINICAL SCIENCE DEPARTMENTS

DEPARTMENT OF ANESTHESIOLOGY
The Department of Anesthesiology offers medical students an introduction to clinical anesthesia. Students learn the management of the airway and evaluate patients for the risk of anesthesia. They also learn about the interaction between patient pathology, medications the patient is receiving and the various anesthetic agents and multitude of drugs that are used in present day anesthesia.

Faculty and Associated Staff:
Xuan Au-Trong, MD, Clinical Assistant Professor
Mary Kay Bissing, DO, Clinical Assistant Professor and Chair
Eva Buch, MD, Assistant Professor
Henri Havdala, MD, Professor Emeritus
Divyang Joshi, MD, Clinical Assistant Professor
Kenneth Justesen, DO, Lecturer
Matilda Koppera, MD, Assistant Professor
Rama Kuchipudi, MD, Clinical Assistant Professor
Aurea Luzano, MD, Instructor
Venkatgiri Mady, MD, Assistant Professor
Domingo Osunero Jr., MD, Instructor
Alpa Raval, MD, Assistant Professor
Robert Rogers, MD, Clinical Associate Professor
Marc Sloane, MD, Lecturer
Thomas Valente, MD, Clinical Assistant Professor
John E. Vazquez, MD, Associate Professor

DEPARTMENT OF EMERGENCY MEDICINE
The Department of Emergency Medicine provides health care of the highest standard at Mount Sinai Hospital, Holy Cross Hospital, John H. Stroger Hospital, and Advocate Condell Medical Center and is dedicated to providing a premier learning environment for all medical students and physician assistant students. The Department of Emergency Medicine educates residents, at John H. Stroger and Mount Sinai Hospitals, in all related training programs that may include emergency medicine, medicine, surgery, pediatrics, family medicine, and psychiatry. The department engages in a significant amount of clinically-based research at John H. Stroger Hospital and Mount Sinai Hospital. Most of this research results in publications in premier journals.

**Required Course**

**MEMG 702 Emergency Medicine**
This is a required four-week rotation during the third year. The student learns the principles of prioritization of potentially life- or limb-threatening conditions and how to approach the acutely ill or injured patient with a focused history and physical exam. Procedures taught within the second year are introduced and performed in the Emergency Department setting with attention to universal precautions and personal safety. A series of lecture/discussion group sessions are conducted by the faculty from Emergency Medicine addressing the major presenting complaints.

**Sophomore Elective Courses**

**MEMG 601 Research in Emergency Medicine Stroger Hospital of Cook County**
With the faculty or staff mentor, students will select a topic from the broad areas of clinical or health services research: 1) best practices within the emergency department: diagnostic test evaluation; biomedical and cost outcomes; and patient-centered outcomes, e.g., quality of life and patient satisfaction; 2) best practices between the ED and the community: epidemiology; clinical prevention; primary care; EMS; and outreach/ follow-up studies; and 3) best practices between the ED and the hospital: ambulatory sensitive conditions, e.g., diabetes, asthma, cellulitis, chest pain, DKA, infectious disease; patient outcomes in observation units, e.g., biomedical, cost, and patient centered; and rapid diagnostic and treatment protocols in least restrictive environments.

**MEMG 602 Research in Emergency Medicine Mount Sinai Hospital**
With the faculty or staff mentor, students will select a topic from the broad areas of clinical or health services research, such as pain management, psychiatric care, asthma, and violence prevention. The student will complete a self-study curriculum in research design and performance. The student is expected to select, design and collect data for a research project.

**Senior Elective Courses**

**MEMG 800 Emergency Medicine Sub-Internship Holy Cross Hospital**
Under direct faculty supervision, fourth year students should be given primary responsibility for patient care and begin to act independently during the fourth year EM rotation. Primary responsibility for patient care will help foster the students’ ability to think critically, assess their knowledge and skills, and allow them to make clinical decisions affecting patient care. The student will be scheduled to work 40 hours weekly (including overnight shifts and weekends), within the Emergency Department at Holy Cross Hospital.

**MEMG 800 Emergency Medicine Elective Holy Cross Hospital**
The student will be scheduled 40 hours to work, weekly (including overnight shifts and weekend), in the Emergency Department. During these hours, the student will see patients under the direct supervision of the attending physician. It is expected that the student will participate in the management of critically ill and injured patients.

MEMG 824 Emergency Medicine Stroger Hospital of Cook County
The fourth-year student is given the opportunity for increased responsibility in initially independently evaluating patients with urgent or emergent problems. Cases are presented directly to the attending faculty and one-on-one teaching occurs. The experience is divided among the asthma/sickle cell, gynecologic/obstetric, fast track and general acute treatment areas. An emphasis is placed on acquiring skills in prioritizing, rapid assessment, formulating a working differential diagnosis, cost/quality effective decision making in the work-up, management and disposition of acutely ill and injured patients. The student acquires the ability to manage multiple patients simultaneously during the rotation.

MEMG 825 Research in Emergency Medicine Mount Sinai Hospital
With the faculty or staff mentor, students will select a topic from the broad areas of clinical or health services research, such as pain management, psychiatric care, asthma, and violence prevention. The student will complete a self-study curriculum in research design and performance. The student is expected to select, design and substantially complete a research project.

MEMG 829 Simulation in Health Care Cook County Hospital Simulation Laboratory
The student will have the opportunity to work in the simulation lab and to help facilitate the labs for the various medical groups. There is a heavy emphasis on teaching and applying resuscitation skills. There will be an opportunity to develop a case, to incorporate it into a medical education curriculum, and to apply debriefing skills to access the population of students.

MEMG 894 Emergency Medicine Mount Sinai Hospital
The student will be scheduled 40 hours to work, weekly, (including overnight shifts and weekend) in the Emergency Department. During these hours, the student will see patients under the direct supervision of the attending physician. It is expected that the student will observe and participate in the management of critically ill and injured patients. This elective should be especially valuable for students considering a residency in Emergency Medicine.

Faculty and Associated Staff:
Steven Aks, DO, Lecturer
Syed Anvery, MD, Clinical Instructor
John Bailitz, MD, Lecturer
Steven Bowman, MD, Lecturer
Sean Bryant, MD, Lecturer
Austen-Kum Chai, MD, Lecturer
Cameron Colvig, MD, Clinical Instructor
Karen Cosby, MD, Lecturer
KellyAnn Cullen, DO, Clinical Instructor
Dirk DeHaas, MD, Clinical Assistant Professor
Jonathan DeWees, MD, Clinical Instructor
Maura Dickinson, DO, Clinical Instructor
Richard Doyle, MD, Clinical Instructor
Jeffrey Dubnow, MD, Clinical Instructor
Tobin Efferen, MD, Clinical Instructor
Stephanie Eugene, MD, Instructor
Robert Feldman, MD, Lecturer
Erika Ferguson, MD, Clinical Instructor
Jorge Ferrer, MD, Instructor
Kenyatta Frazier, MD, Clinical Instructor
Lana Goldman, MD, Clinical Instructor
Pilar Guerrero, MD, Lecturer
Tarlan Hedayati, MD, Lecturer
Fabienne Herman, DO, Clinical Instructor
Basem Khishfe, MD, Clinical Instructor
Tina Kholsa, MD, Clinical Instructor
Deborah Kimball, MD, Clinical Instructor
Mark Kling, MD, Lecturer
Jonathan Koehler, MD, Clinical Instructor
Paul Krivickas, MD, Clinical Instructor
Paulina Kuchinic, MD, Assistant Professor
Rashid Kysia, MD, Lecturer
William Lauth, MD, Clinical Professor
Moses Lee, MD, Lecturer
Trevor Lewis, MD, Lecturer
Holly Loud, MD, Clinical Instructor
Harvey Louzon, MD, Clinical Instructor
Jenny Lu, MD, Lecturer
Ellen Magas, DO, Clinical Instructor
William Maloney, MD, Lecturer
Jordon Moskoff, MD, Lecturer
Mark Mycyk, MD, Lecturer
Kris Narashimhan, MD, Lecturer
Isam Nasr, MD, Lecturer
Erik Nordquist, MD, Assistant Professor
Charles Nozicka, DO, Clinical Professor
Jon Olsen, MD, Lecturer
Fernando Orellana, MD, Assistant Professor
Lisa Palivos, MD, Lecturer
Michael Pearlman, MD, Clinical Instructor
John Piotrowski, MD, Lecturer
Monika Pitzele, MD, PhD, Assistant Professor
Clifton Poma, MD, Clinical Instructor
Douglas Propp, MD, Professor and Chair
Rebecca Roberts, MD, Lecturer
Christopher Ross, MD, Lecturer
Eugene Saltzberg, MD, Assistant Professor
Nathan Sandalow, MD, Clinical Instructor
Shari Schabowski, MD, Lecturer
Jeffrey Schaider, MD, Lecturer
Michael Schindlbeck, MD, Lecturer
Valerie Schmidt, DO, Clinical Instructor
Michelle Sergel, MD, Lecturer
Scott Sherman, MD, Lecturer
Suzanne Siegel, MD, Lecturer
Amardeep Singh, MD, Assistant Professor
Amarjit Singh, MD, Assistant Professor
Michael Slater, MD, Assistant Professor
David Slobodkin, MD, Clinical Assistant Professor
Lauren Smith, MD, Lecturer
Helen Straus, MD, Lecturer
Mark Vaselakos, DO, Lecturer
Brett Walters, MD, Clinical Instructor
Joseph Weber, MD, Lecturer
Thomas Widell, MD, Assistant Professor
Olga Zavelsky, MD, Clinical Instructor
Leslie Zun, MD, Professor, Clerkship Director and Chair

DEPARTMENT OF FAMILY AND PREVENTIVE MEDICINE
The Department of Family and Preventive Medicine provides training for medical students throughout their four years at CMS.

Required Course

MFPM 700 Family Medicine Clerkship
The M3 student masters cognitive information presented in the didactic conferences. Lectures cover 12 topics common to primary care and family practice experiences. Students will become familiar with presentations of symptoms and signs of different diagnoses through their clinical experiences. Many of these disease processes will be illuminated in the conferences. There are 40 online cases (fmCases) that cover the spectrum of family medicine. The final examination is derived from the fmCases. The fmCases were developed by The Society of Family Medicine for use in medical school clerkships. Students are graded based on national mean and standard deviation exam scores. Students log 18 different types of patient encounters. They learn to seek out needed information using online sources. The experience is ambulatory in nature.

Optional Sub Internship

MFPM 800 Family Medicine Sub Internship (Inpatient Only) Advocate Lutheran General Hospital
This sub internship focuses on inpatient care of adult family medicine patients. Students present and document comprehensive histories and physical examinations, manage patients according to standard clinical practices, develop differential diagnoses, and initiate orders for testing and treatment of patients.

Sophomore Elective Course

MFPM 600 Lesbian, Gay, Bisexual, Transgender, Queer and Intersex Health Care
This course covers Lesbian, Gay, Bisexual, Transgender, Queer and Intersex (LGBTQI) healthcare disparities and clinical strategies to address those disparities in order to promote better care for LGBTQI people. Beginning with terminology, demographics and discrimination against LGBTQI patients in healthcare, topics include LGBTQI healthcare disparities in youth, adults, and older people and issues unique to
the transgender community. We will discuss how to get to know your patient’s orientation and gender identity, how to provide a safe and welcoming environment, and strategies to address LGBTQI disparities and promote health in LGBTQI people and their families. The course will employ faculty lectures, student discussion, case studies and student presentations.

Senior Elective Courses

MFPM 803 Sports Medicine Resurrection Family Practice Center
This course consists of a combination of a Sports Injury Clinic and traditional family practice at Resurrection Family Practice Center as well as training room clinics at Loyola Academy, New Trier High School, Niles West High School and North Park University. Additional time may be available at various rehabilitation centers and orthopedic offices in the area.

MFPM 808 Adult Down Syndrome/Family Medicine Ambulatory Elective
The student will spend 2, 3 or 4 weeks in the Adult Down Syndrome Clinic (ADSC). This is an outpatient experience. The student will see patients with attending physicians and present patient cases to the preceptor for feedback and to maintain high quality care. The student will learn a team-based approach that may include a psychologist, physician, nutritionist, and social worker; gain an understanding of the common maladies affecting the Down Syndrome population; learn a diagnostic and therapeutic approach to behavioral symptom management; identify diagnoses that cause behavioral symptoms in ADS patients and identify treatment for each of the causes; and gain an awareness of the types of settings in which Down Syndrome patients live and what support is required to maintain the patients in those settings.

MFPM 810 Family Medicine Preceptorship
The student works full time with a family physician in one of many settings at various sites. This is organized along the lines of the junior clerkship but with a greater effort to have students examine patients independently and form a differential diagnosis.

MFPM 812 Preventive Medicine and Wellness Northwest Community Hospital, Arlington Heights, IL
The student will have further exposure to Family Medicine in a private office, with an emphasis on preventive care, addiction medicine, musculoskeletal pathology, wellness evaluations, exposure to exercise/kinesiology treatments and chronic disease management towards minimizing long-term morbidity.

MFPM 815 Sports Medicine Advocate Christ Hospital
Students will be under the supervision of primary care physicians with a sports medicine interest as well as orthopedic surgeons and trainers. Students will evaluate patients independently and present their differential diagnoses and treatment plans to their supervising physicians. Students will also see patients (traditional family practice and sports medicine) at the ACH Family Practice Center. There will be one hour per week of formal lecture on sports medicine topics at Advocate Christ Hospital. Clinics at the ACH Family Practice Center will be a mixture of sports medicine and traditional family practice. Clinics will also be in the Parkview Orthopedics Clinic in Palos Heights and Orland Park, IL, as well as game time and site visits at high schools in Chicago’s south side and southern suburbs.
MFPM 835 Headache Diagnosis and Management Diamond Headache Clinic/Columbus Hospital

Students will work under the direct supervision of physicians specializing in headache as well as working with ancillary staff for methods of assessment of headache via history and physical examination and in the use of alternative medicine techniques, such as biofeedback, for headache management. Students will spend additional time with a clinical pharmacologist to further learn the role of drug therapies in headache management. Satisfactory progression of the student in the program will include demonstration of the ability to assess headache patients and develop treatment plans that will be reviewed and discussed with one of the physicians responsible for the program. The educational program will be conducted primarily at the Diamond Headache Clinic with additional time spent at the Diamond Headache Inpatient Treatment Unit at Columbus Hospital.

MFPM 885 Sports Medicine Advocate Lutheran General Hospital

This sports medicine elective introduces the student to concepts important to the health of athletes. Common injuries and their rehabilitation will be emphasized. The student will develop proficiency in the musculoskeletal history and physical. The team approach to sports medicine will be emphasized. Students will become comfortable with the musculoskeletal exam, especially ankle, knee and shoulder. Students will learn the important basic historical questions to ask regarding musculoskeletal injuries and become familiar with medical issues related to exercise.

Faculty and Associated Staff:
Abdulmassih Abdulmassih, MD, Clinical Assistant Professor
Alby Antoo, MD, Lecturer
Ihab Aziz, MD, Clinical Assistant Professor
Nader Aziz, MD, Clinical Instructor
Walten I. Baba, MD, PhD, Professor
Radha Balagani, MBBS, Lecturer
Peggy Bandy, MD, Lecturer
John Benages, MD, Clinical Instructor
Stephen Bennett, MD, Lecturer
David Berdy, MD, Lecturer
William Brander, MD, Clinical Instructor
Gail Bryant, MD, Clinical Assistant Professor
Sangili Chandran, MD, Clinical Associate Professor
Brian Chicoine, MD, Lecturer
Jim Christoforidis, MD, Clinical Assistant Professor
Carlos da Fonseca, MD, Clinical Assistant Professor
Beata Danek, MD, Clinical Assistant Professor
Lakshmi Dodda, MD, Clinical Assistant Professor
Erin Dominiak, MD, Lecturer
Frederic Ettner, MD, Lecturer
Matthew Frazier, DO, Clinical Instructor
Frederick G. Freitag, DO, Clinical Assistant Professor
Michael H. Friedman, MD, Lecturer
Anastasia Gianakakos, MD, Lecturer
Lisa Glosson, MD, Assistant Professor
Stuart L. Goldman, MD, Associate Professor and Chair, Associate Dean for Clinical Affairs
Arvind Goyal, MD, MPH, Clinical Associate Professor
Dianna Grant, MD, Lecturer
Judith Gravdal, MD, Professor
Carmen Griza, MD, Lecturer
Kate Gunnell, MD, MPH, Assistant Professor
Inna Gutman, MD, Lecturer
Lawrence Hirsch, MD, Professor Emeritus
Haidang Hoang, MD, Clinical Instructor
Kaira Kaplinsky, MD, Lecturer
James Kim, MD, Clinical Instructor
Greg K. Kirschner, MD, Clinical Assistant Professor
Kevin Koo, MD, Assistant Professor
Steven Kriss, DO, Assistant Professor
James Lang, MD, Lecturer
Clare Legursky, MD, Lecturer
Stuart Lesser, MD, Lecturer
Georgina Lubben, MD, Clinical Instructor
Debra Lupeika, MD, Clinical Assistant Professor
Mohammad Malik, MD, Clinical Assistant Professor
Manfred Man, DO, Clinical Assistant Professor
William Martinez, MD, Clinical Instructor
Dennis McCreary, MD, Clinical Assistant Professor
Michael Melnick, MD, Lecturer
Socorro Milan-Flanigan, MD, Lecturer
Russell Miller, MD, Instructor
Mariola Mjaltaj, MD, Lecturer
William Moran, DO, Lecturer
Elias Murciano, MD, Clinical Instructor
Stacey Nickoloff, DO, Assistant Professor
Reji Ninan, MD, Lecturer
Albert Olorvida, MD, Clinical Instructor
Amy Pabst, MD, Assistant Professor
Angela Papassavas, MD, Lecturer
Naomi Parella, MD, Assistant Professor and Clerkship Director
Bruce Perlow, MD, Lecturer
Tamar Perlow, MD, Assistant Professor
Lauren Pham, MD, Lecturer
Patrick Piper, MD, Lecturer
Michael Plunkett, MD, Assistant Professor
Tracy Quinn, MD, Clinical Instructor
Ronald Rembert Jr., MD, Lecturer
Fred Richardson, MD, Associate Professor
Stuart Richer, OD, PhD, Clinical Associate Professor
Stephen Rittman, MD, Clinical Assistant Professor
Robert Rozner, MD, Clinical Instructor
James Santarelli, MD, Clinical Instructor
T. Eric Schackow, MD, Lecturer
Roy Scheck, MD, Lecturer
Roxanne Smith, MD, Lecturer
The Department of Medicine provides students with training in clinical medicine, including physical diagnosis, bedside training in general internal medicine and orientation to the major medical subspecialties. The clinical experiences are complemented by didactic teaching sessions and in-depth reference to current medical literature.

**Required Courses**

**MMED 700 Medicine Clerkship**

The M3 Medicine Clerkship is conducted at one of CMS’s ten affiliated hospitals. This eight-week rotation is offered at John H. Stroger, Jr. Hospital of Cook County (CCH), Advocate Christ Hospital (ACH), Advocate Illinois Masonic Medical Center (AIMMC), Advocate Lutheran General Hospital (ALGH), Centegra Hospital, Advocate Good Shepherd Hospital (GSH), Vista Health Systems, Little Company of Mary (LCOM), Weiss Memorial Hospital and the Captain James A. Lovell Federal Health Care Center (FHCC). There are designated faculty clerkship supervisors and teaching faculty at each institution. The clerkship presents the student with a basic core of information in internal medicine. The student is provided with practical experience at the bedside, and formal work and teaching rounds. Techniques of clinical diagnosis and management, including diagnostic and therapeutic medical procedures, are demonstrated and, in appropriate instances, performed by the clinical clerks with faculty guidance.

Subspecialty rounds, clinical conference, clinical-pathological conference and medical grand rounds complement the clerkship experience. Case seminar series provide a core curriculum supplemented by specific assignments, reference to current medical literature and supplementary sources of written and audiovisual instruction.

**MMED 800 Medicine Sub-internship**

The student Sub-internship in Internal Medicine provides an opportunity to serve as an active member of a resident-intern-student team, intimately involved in the acute care of patients on the medical service. The sub-internship is conducted at one of five of CMS’s affiliated hospitals. This four-week rotation is offered at CCH, ACH, AIMMC, ALGH and the FHCC. The clinical experience exposes the student to a wide variety of medical problems for which the clerk is responsible for diagnosis and treatment under the direct supervision of the medical resident and attending physician. The full teaching program includes attending rounds, subspecialty conferences and weekly medical grand rounds. The clerkship permits the student to serve as an “acting intern” as a means of improving his or
her understanding of the pathophysiology of disease, clinical skills, physical and laboratory examinations, and knowledge and judgment in clinical medicine.

Sophomore Elective Courses

MMED 608 Endocrine-Metabolic Research Lovell FHCC
This elective is aimed to develop and enhance student's understanding of the pathophysiology of endocrine-metabolic diseases. A wide variety of opportunities exist both in basic and clinical research so the student can pursue specific goals of interest to him/her on an individual basis. Students will be able to evaluate intermediary metabolism in brain and liver in alcohol-fed rats; evaluate insulin receptors of hepatocytes; perform insulin and glucagon radioimmunoassays; and evaluate glucose transporter expression in various tissues, e.g. brain, liver, muscle. This elective will acquaint the student with overall methodologies used in endocrine-metabolic research. Students will gain an understanding of derangements in carbohydrate in association with alcoholism; glucose transporters gene expression; and, hormone radioimmunoassays.

MMED 614 Research in Clinical Diabetes (Dr. Janice Gilden)
This elective addresses healthcare outcomes of patients with diabetes in relation to evaluation of current and innovative therapies and complications.

MMED 622 Medical Informatics Lovell FHCC
Students will interact with patients, review medical records, synthesize specific clinical information relevant to the elective objectives. Students will use the diabetes database to study diabetes complications prevalence, clinical manifestation and management outcome. This elective provides students the opportunity to modify and develop computer program for application to patient care.

MMED 623 Research in Cardiopulmonary Resuscitation Lovell FHCC
This elective is designed to expose the student to scientific and clinical research techniques and laboratory procedures. By the very nature of the topic covered, exploration of this topic will draw upon information learned in Mammalian Physiology, Pathology, Pharmacology, and ECR. Student will perform treatment-blind neurological assessment of porcine subjects at 24 and 48 hours after experimental procedures completed. Student will learn to perform neurological assessments utilizing pre-determined and accepted behavior criteria. Student will then have opportunity to utilize these skills as part of a clinical research effort with a range of outcome possibilities. In addition, the student's participation will fill a much-needed role in the research project. This elective will expose the student to scientific and clinical research techniques; present research as a system-and organism-wide topic, not just at the cellular or intracellular level; teach the student to perform neurological assessments using a variety of fixed criteria; fulfill a much-needed role in the research protocols; and enable the student to be a part of potentially lifesaving research that "may represent a novel and highly effective form of treatment for resuscitation from ventricular fibrillation".

MMED 627 Research in Cardiovascular Disease Lovell FHCC
This course is intended to introduce the student to the process of clinical research, including the scientific method, the formulation of hypothesis, data acquisition by use of publication database (i.e. PubMed), statistical analysis, reporting of data for poster or oral presentation at national scientific conferences and ultimately preparation of scientific manuscripts for journal submission. Specifically, the student will participate in the formulation of a Meta-Analysis dealing with the efficacy of statins (HMG-CoA reductase inhibitors) in patients with Coronary Artery Disease and Renal Insufficiency.
MMED 699 Critical Care Medicine: Physiology at the Bedside Lovell FHCC
This elective is based on structured presentations/discussions of specific critical care topics in a conference area followed by bedside discussion of a critical care topic based on the ICU patient mix. Topics covered will include: 1) Initial Contact with the Critically Ill; 2) Assessment of Gas Exchange; 3) Understanding Respiratory Muscle Physiology and Work of Breathing; 4) Ventilator Management – What to do after Intubation; 5) Body Water Distribution – Assessment and its Clinical Relevance; 6) Acid-Base and Electrolyte Abnormalities – A Simple Approach to a Complex Problem; 7) CPR – Basic Life Support; 8) CPR – Advanced Life Support; 9) Heart Failure – Understanding How the Pump Works and How to Develop a Treatment Plan; 10) Hemodynamic Crises – When Tissues Suffer Diminished Blood Supply (Part I Basics); 11) Hemodynamic Crises – When Tissues Suffer Diminished Blood Supply (Part II Clinical); 12) Putting it all Together.

Senior Elective Courses

Ambulatory Care
MMED 808 – ALGH
MMED 892 – AIMMC
The student will learn to diagnose and care for acute and chronic medical problems in an ambulatory setting. Students will become familiar with screening guidelines based on a patient’s age and gender. Students will begin to implement primary prevention during most patient encounters. They will become familiar with the policies and protocols of managed care. They should be able to perform a MEDLINE search efficiently and apply the information to the practice.

Cardiology
MMED 814 – CCH
MMED 864 – ALGH
The student is involved in all activities under the supervision of attendings, fellows and/or residents. These activities include clinical consultation with the cardiology residents and, when appropriate independently. The case is presented to an attending, and details are reviewed and plans formulated. Students attend rounds in the CCU and participate in the examination and evaluations of care cardiac patients. The students participate in the daily noninvasive testing review sessions with fellows, and/or attendings, and also assist in doing treadmill ECG. These sessions emphasize clinical correlation.

Clinical Toxicology
MMED 891 – CCH
The student will attend and participate in lectures and conferences given by toxicology fellows and attendings board certified in medical toxicology. The student will participate in clinical inpatient rounds and discuss the management of about 25 patients per week. Some afternoons will be spent at the Illinois Poison Control Center, where the student will respond to routine calls. The student will present a formal lecture at the end of the rotation on a toxicology topic approved by the fellows.

Dermatology
MMED 821 – CCH
MMED 838 – FHCC
The student will work with an attending physician and a faculty member in the Department of Clinical Dermatology.
Endocrinology
MMED 807 – ACH
MMED 826 – MSH
MMED 827 – FHCC
MMED 830 – CCH
MMED 865 – ALGH
The student will examine and follow patients in inpatient and outpatient settings. Through this clinical exposure, the student is able to expand upon their knowledge of the actions of specific hormones and their role in normal body functions and disease states. The student will be responsible for the initial evaluation and follow-up assessment of some of the inpatient consultations. The students will be under the supervision of Endocrinology/Metabolism staff members. Students will take part in clinical conferences, ward rounds and journal club.

Gastroenterology
MMED 801 – ACH
MMED 832 – FHCC
MMED 833 – CCH
MMED 834 – AIMMC
MMED 866 – ALGH
The student will improve their knowledge and skill in the diagnostic and therapeutic approach to common digestive system diseases. The student will get experience with diagnostic X-rays, scans, ultrasounds, histopathology of biopsies, laboratory data, and esophageal manometric traces and receive instruction on their interpretation. The student may observe such procedures as upper endoscopy, sigmoidoscopy, colonoscopy, and liver biopsy and are instructed regarding the uses of these procedures and interpretations or evaluation of results.

Hematology/Oncology
MMED 851 – MSH
MMED 852 – Outpatient at clinics in Gurnee & Lindenhurst; Inpatient at Vista Medical Center
MMED 868 – ALGH
MMED 890 – CCH
MMED 898 – ACH
The student will be exposed to a variety of clinical hematological and oncological problems and given significant responsibility for diagnostic procedures and management under continuous supervision of the Oncology/Hematology fellows and/or attending physicians. Emphasis is on patient evaluation, appropriate diagnostic studies and treatment.

HIV/AIDS
MMED 880 – CCH
Students will learn about HIV primary care including HIV counseling and testing; prevention, diagnosis, and treatment of opportunistic infections; and antiretroviral therapy. Experiences include adult and adolescent HIV clinics, and brief exposure to a walk-in sexually transmitted disease clinic, and specialists in HIV eye, cancer and hematology specialty care, as well as mental health, social work, and chemical dependency support services.

Infectious Disease
MMED 806 – ACH
MMED 839 – FHCC
MMED 841 – CCH  
MMED 870 – ALGH  
MMED 893 – AIMMC  
The student will comprehend a basic understanding of the common clinical infectious disease syndromes and knowledge of the appropriate use of antibiotics. They will work alongside attending and/or fellow physicians on patients with infectious diseases, many of who are in intensive care units. The student will perform histories and physicals daily, as well as review current X-rays, cultures, and microscopic specimens. The student will have daily general medical lectures as well as weekly specialty conferences.

Mature Adult Medicine  
MMED 867 – ALGH  
The objective of this rotation is to gain knowledge and skills in the following areas: biology of aging, social and economic issues concerning the elderly in various settings, clinical pharmacology in the aged, the ability to perform a geriatric evaluation, management of depression and dementia, and management of urinary incontinence. Instructional methods include direct patient care, lectures and seminars. Various sites, including the ambulatory office, acute care-general medical unit, geriatric psychiatry, and geriatric rehab wards, and long-term care, will be utilized. The student will see approximately five new patients per week.

Medical Critical Care Unit  
MMED 816 – AIMMMC  
MMED 819 – CCH  
MMED 820 – FHCC  
MMED 843 – MSH (Cardiac Care)  
MMED 869 – ALGH  
The student will gain the necessary training and exposure to enable them to organize thinking about complex medical patients. Students will develop comfort in interpreting data and be able to initiate appropriate management. Students will increase their awareness of ethical and family issues commonly seen in ICU and CCU patients. Problems commonly encountered in this elective can be: acute respiratory failure-ventilator management, myocardial infarction, congestive heart failure, cardiac arrhythmias, hypo and hypertension, acute neurological problems (cerebrovascular accidents, drug overdose, change in mental status), diabetic emergencies such as diabetic ketoacidosis, uncontrolled upper and lower gastrointestinal bleeding and acute renal failure. Student will also perform simple invasive procedures such as arterial line insertion, thoracentesis, paracentesis and lumbar puncture. Student will also attend formal lectures on topics of interest, daily rounds and teaching conferences.

Nephrology  
MMED 845 – MSH  
MMED 846 – FHCC  
MMED 847 – CCH  
MMED 871 – ALGH  
The goal of this elective is to provide a perspective into various aspects of renal pathophysiology including acute and chronic renal failure, glomerular and tubulointerstitial diseases, nephrolithiasis and hypertension, in addition to acid-base, fluid and electrolyte disturbances. The student will work with Nephrology attendings and/or fellows. The student is responsible for patient workup (both inpatient and clinic) and is expected to fully participate in patient management under supervision. Daily floor rounds are made on all patients followed by the service – both consultative and primary.
Palliative Care
MMED 802 – CCH
Students will primarily participate in the inpatient consultation service. They may also see patients in clinic and do home visits with team staff, as schedule permits.

Pulmonary
MMED 855 – FHCC
MMED 856 – MSH
MMED 857 – CCH
MMED 859 – ACH
MMED 872 – ALGH
The student will be assigned to an attending and/or fellow physician. The student will function as a pulmonary consultant, making the first evaluation of selected patients. Students will review and discuss the physiology and pathophysiology of the pulmonary function testing, techniques of such testing, and its limitations and implications for patient care. Students will have access to pulmonary function labs, outpatient clinics, and medical intensive care units. Students participate in the management of mechanical ventilation and diagnostic techniques, including endotracheal intubation, fiber optic bronchoscopy and thoracocentesis.

Physical Medicine and Rehabilitation
MMED 895 – ALGH
The student will rotate in PM&R with admission and follow-up inpatients on Rehab Unit. A variety of patients, including those with strokes, brain injuries, amputations, etc. will be seen. There will be an opportunity to be involved in consults, lymphedema clinic, and pain clinic. Student will become familiar with main diagnoses on inpatient rehab unit and gain experience with team conferences and treatment plan. Lectures will be tailored to student's areas of interest.

Rheumatology
MMED 873 – ALGH
MMED 874 – CCH
This elective emphasizes direct patient contact, extending the lessons learned from patient evaluation into the pathophysiology and treatment of rheumatic diseases. Students function at the level of a house staff member in providing evaluation and care for patients. Inpatient rounds and office hours are made daily with an attending rheumatologist. Unique aspects of the rotations include osteoporosis detection and therapy, arthroscopic surgery, joint irrigation and muscle biopsy techniques. Formal teaching conferences complement bedside teaching.

Faculty and Associated Staff:
Donald Aaronson, MD, Clinical Professor
Christine Acob, MD, Assistant Professor
Brenda Affinati, MD, Associate Professor
Mario Affinati, MD, Clinical Associate Professor
Gaurav Agarwal, MD, Assistant Professor
Bharat Agrawal, MD, Associate Professor
Mohammed Ahmed, MD, Associate Professor
Wasay Ahmed, MD, Clinical Assistant Professor
Adil Alavi, MD, Clinical Assistant Professor
Linda Alic, MD, Lecturer
Irene Aulen-Metzner, MD, Assistant Professor
Kris Anand, MD, Clinical Assistant Professor
John Anderson, DO, Assistant Professor
Kent Armbruster, MD, Lecturer
Mohit Arora, MD, Clinical Instructor
Rohit Arora, MD, Professor
Bashar Attar, MD, PhD, Lecturer
John Avramidis, MD, Assistant Professor
Iyad Ayoub, MS, Research Instructor
Shaji Baig, MD, Clinical Instructor
Izelfal Bangash, MD, Clinical Instructor
Joshua Baru, MD, Assistant Professor
Charles Barsano, MD, PhD, Clinical Professor
Martin Beerman, MD, Lecturer
Jose-Daniel Benatar, MD, Clinical Assistant Professor
Maureen Benjamins, PhD, Adjunct Assistant Professor
Mark Berk, MD, Assistant Professor
Charles Berkelhammer, MD, Lecturer
Jared Bernard, MD, Assistant Professor
Hope Bilyk, MS, RD, LDN, Assistant Professor
Jacob Bitran, MD, Professor
Corey Black, MD, Assistant Professor
Shane Borkowsky, MD, Assistant Professor
Manish Brambhatt, MD, Instructor
Sydney Brandwein, MD, Clinical Professor
Harold Bregman, MD, Clinical Professor
Bonnie Bremer, MD, Lecturer
Joy Bressler, MD, Instructor
Robert Bridges, PhD, Professor
Robert Brizzolara, MD, Lecturer
Leslie Brookfield, MD, Clinical Assistant Professor
Laurie Broutman, MD, Assistant Professor
Susan Broy, MD, Professor
Terrence Bugno, MD, Clinical Instructor
Barbara Burrell, MD, Clinical Instructor
Paula Butler, MD, Associate Professor
Franco Campanella, DO, Lecturer
Preston Cannady, MD, Professor
Laura Carothers, DO, Assistant Professor
Sharada Chaitra, MD, Associate Professor
Siresha Chaluvadi, MD, Assistant Professor
Kerwin Chan, MD, Lecturer
Melissa Chen, MD, Lecturer
Jen-Chieh Cheng, MD, Professor
Maguy Chiha, MD, Assistant Professor
Serafin Chua, MD, Assistant Professor
Dennis Citrin, MB, ChB, Associate Professor
Joseph Cleary, MD, Professor
Mary Ann Clemens, EdD, Clinical Assistant Professor, Assistant Dean, Medical Education
Charles Cochran, MD, Clinical Instructor
Marc Conte-Russian, DO, Clinical Assistant Professor
Ahmet Copur, MD, Associate Professor
Natalie Correia, DO, Lecturer
William Cotter, MD, Lecturer
Kevin Cronin, DO, Assistant Professor
Krishna Das, MD, Clinical Instructor
Michael Davidovich, MD, Instructor
Erin Davis, MD, Clinical Instructor
Humberto De Leon, MD, Instructor
Maribeth December, MD, Clinical Assistant Professor
Sandra Dempsey, MD, Assistant Professor
Muhyaldeen Dia, MD, Lecturer
Merle Diamond, MD, Clinical Assistant Professor
Ninad Dixit, MD, Assistant Professor
Kimberly Dixon, MD, Assistant Professor
Mary Anhthu Do, DO, Lecturer
Lawrence Domont, MD, Clinical Associate Professor
James Dunphy, MD, Lecturer
Melinda Einfalt, MD, Lecturer
Fredrick Ellyin, MD, Professor
Chukwudzie Ezeokoli, MD, Instructor
Axel Feller, MD, Professor
Ira Fenton, DO, Clinical Instructor
Marek Filipiuk, MD, Assistant Professor
Jonathan Fine, MD, Lecturer
Marc Fine, MD, Associate Professor
Martin Floch, MD, Lecturer
Ricardo Franco-Sadud, MD, Assistant Professor
Abe Friedman, MD, Lecturer
Yaakov Friedman, MD, Associate Professor
Ashok Fulambarker, MD, Professor
Eric Gall, MD, Professor Emeritus
George Gancayco, MD, Clinical Instructor
Jamie Gancayco, MD, Clinical Instructor
Monica Gavran, MD, Clinical Instructor
Raul Gazmuri, MD, PhD, Professor
Reena Ghode, MD, Clinical Assistant Professor
Philip Gianfortune, DPM, Professor
Todd Giese, MD, Lecturer
Janice Gilden, MD, Professor
Harry Ginsberg, MD, Associate Professor
Darren Gitelman, MD, Professor
Nancy Glick, MD, Associate Professor
Neal Gold, MD, Clinical Assistant Professor
Barry Goldberg, MD, Lecturer
Daniel Goldstein, MD, MBA, Clinical Instructor
Melanie Gordon, MD, Assistant Professor
Margaret Grano, MD, Associate Professor
Kelly Guglielmi, MD, Lecturer
Ibrahim Habib, MD, Clinical Instructor
Rami Haddad, MBBS, Associate Professor
Muhammad Hamadeh, MD, Lecturer
Ioana Haratau, MD, Instructor
James Harley, MD, Instructor
Max Harris, MD, Lecturer
Farah Hasan, MD, Lecturer
Suress Hathiwala, MBBS, Associate Professor
Arthur Hoffman, MD, Associate Professor
Marcel Hoffman, MD, Assistant Professor
Michele Holevar, MD, Professor
George Hvostic, MD, Clinical Instructor
Bruce Hyman, MD, Lecturer
Maria Iliescu, MD, Assistant Professor
Bruce Irwin, MD, Lecturer
Arthur Itkin, MD, Lecturer
Nestor Ivkov, MD, Lecturer
Umair Jabbar, MD, Instructor
Evyan Jawad, MD, Assistant Professor
Shilpa Joglekar, MD, Instructor
Karen Judy, MD, Lecturer
Kenneth Justesen, DO, Lecturer
Alan Jung, MD, Assistant Professor
Harvey Kantor, MD, Clinical Professor
Naren Kapadia, MD, Lecturer
John Kapoor, MD, PhD, Associate Professor
Lisa Kasalajtis, MD, Lecturer
Mohammed Kassem, MD, Assistant Professor
Ariel Katz, MD, Assistant Professor
Gary Kaufman, MD, Assistant Professor
Hymie Kavin, MB, BC, Professor
Sabah Khan, MBBS, Lecturer
Walid Khayr, MD, Professor
Paramjeet Kholsa, MD, Associate Professor
Sandeep Kholsa, MD, Professor
Stuart Kiken, MD, Associate Professor and Clerkship Director
Mohammad Kizilbash, MD, Assistant Professor
Daniel Kniaz, MD, Clinical Associate Professor
Vamsi Kodumuri, MD, Assistant Professor
Hemantha Koduri, MD, Clinical Assistant Professor
Paul Koh, MD, Clinical Assistant Professor
Daniela Kovacs, MD, Associate Professor
Panduranga Koya, MD, Clinical Assistant Professor
Mark Kozloff, MD, Lecturer
Jeffry Kreamer, MD, Assistant Professor
Padma Kudaravalli, MD, Clinical Instructor
Rudolf Kumapley, MB, ChB, Assistant Professor
Girija Kumar, MD, Associate Professor
John Kyncl, MD, Clinical Assistant Professor
Miloslava Kyncl, MD, Clinical Assistant Professor
John Landers, MD, Lecturer
Timothy Laurie, DO, Assistant Professor
Sorin Lazar, MD, Assistant Professor
Kristin Lee, MD, Assistant Professor
May Lee, MD, Assistant Professor
Norman Lee, MD, Associate Professor
Heather Leeper, MD, MSc, Assistant Professor
Jerrold Leikin, MD, Lecturer
Terrence Li, MD, Assistant Professor
Sherry Licht, MD, Instructor
Brian Lipson, MD, Instructor
Elaine Liu, MD, MBBS, Instructor
Zbigniew Lorenc, MD, Associate Professor
David Lubell, MD, Associate Professor
Orlinda Mackie, MD, Instructor
Ajay Madhani, MD, Clinical Assistant Professor
Sreedhar Madireddy, MBBS, Instructor
Edward Magid, MD, Associate Professor
Frank Maldonado, MD, Professor
Kenneth Margules, MD, Clinical Assistant Professor
Ayeshas Masood, MD, Clinical Instructor
Deeba Masood, MD, Assistant Professor
Michael McKenna, MD, Lecturer
Nilesh Mehta, MD, Professor
Ira Melnicoff, DO, Clinical Assistant Professor
Sunita Mohapatra, MD, Associate Professor
Muhammed Mohiuddin, MBBS, Assistant Professor
Janos Molnar, MD, Research Assistant Professor
Marile Monje, MD, Clinical Instructor
Clint Moore, MDiv, MA, Clinical Instructor
Paul Morgan, MD, Assistant Professor
Jeanette Morrison, MD, Associate Professor, Associate Dean for Medical Education and Innovation
Ronald Myint, MD, Clinical Assistant Professor
Amin-Ur-Rehman Nadeem, MBBS, Assistant Professor
Rashid Nadeem, MBBS, Associate Professor
Sreedhar Nair, MD, Lecturer
Bela Nand, MD, Lecturer
Madeleine Neems, MD, Lecturer
Emmanuel Njoku, MBBS, Assistant Professor
Frances Norlock, DO, Assistant Professor
Emmanuel Nwaokocha, MD, Assistant Professor
James O'Connell, MD, Lecturer
Michelle Olson, DO, Assistant Professor
Steven O'Mahoney, MD, Lecturer
Karen O'Mara, DO, Associate Professor
Renata Osadnik, MD, Clinical Instructor
Stuart Oserman, MD, Professor
Jennifer Ota, MD, Assistant Professor
Marc Ovadia, MD, Lecturer
Joseph Oyama, MD, Lecturer
Xavier Parreno, MD, Instructor
Chirag Patel, MD, Lecturer
Parag Patel, DO, Clinical Assistant Professor
Sanjay Patel, MD, Assistant Professor
Jill Patton, DO, Clinical Assistant Professor
Larissa Pavone, MD, Assistant Professor
Malaika Peart, MD, Instructor
Lawrence Perlmuter, PhD, Professor
Amar Peruri, MD, Lecturer
Darryl Peterson, PhD, Professor
Krzysztof Pierko, MD, Assistant Professor
Caroline Poku, MD, Instructor
Elina Polyakova, MD, PhD, Assistant Professor
James Prahl, MD, Assistant Professor
Peter Puthenveetil, MBBS, Clinical Assistant Professor
Vidya Puthenveetil, MBBS, Assistant Professor
Baseer Qazi, MD, Assistant Professor
Jeejabai Radhakrishnan, PhD, Research Assistant Professor
Abdul Rahimyar, MD, Clinical Assistant Professor
Anil Ramesh, MD, Assistant Professor
Alfred Ratinam, MD, Instructor
Mamata Ravipati, MBBS, Assistant Professor
Antanas Razma, MD, Lecturer
Geetha Reddy, MBBS, Lecturer
Douglas Reifler, MD, Professor
Frederick Renold, MD, Clinical Assistant Professor
William Rhoades, DO, Associate Professor and Chair
Bruce Riser, PhD, Adjunct Professor
Susan Rogers, MD, Assistant Professor
Louis Rohr, MD, Assistant Professor
David Ronin, MD, Assistant Professor
Joseph Rosman, MD, Associate Professor
Daniel Rowan, DO, Clinical Assistant Professor
Brian Rubenstein, MD, Clinical Assistant Professor
Lisa Russell, MD, Assistant Professor
Nagui Sabri, MD, Associate Professor
Mohammad Saleh, MD, Assistant Professor
Eugene Saltzberg, MD, Assistant Professor
Thomas Salvi, MD, Lecturer
Patrick Schuette, MD, Lecturer
Maurice Schwartz, MD, Professor
Jane Scribner, MD, Lecturer
Andres Serrano, MD, Assistant Professor
Nisha Shah, MD, Lecturer
Pallavi Shah, MD, Assistant Professor
Prabodh Shah, MD, Clinical Assistant Professor
Sapna Shah, MD, Assistant Professor
Jeffrey Shanes, MD, Clinical Associate Professor
Ruhi Shariff, MD, Assistant Professor
Maryna Shayuk, MD, Assistant Professor
Rehmat Sheikh, MD, Instructor
Steven Shelden, DO, Assistant Professor
Edward Sherman, MD, Clinical Instructor
Kyungran Shim, MD, Instructor
Lori Siegel, MD, Clinical Professor
Dean Silas, MD, Clinical Associate Professor
Marc Silver, MD, Lecturer
Edwin Simon, MD, Assistant Professor
Mukesh Singh, MBBS, MCRP, Instructor
Param Singh, MD, Instructor
Sant Singh, MD, Professor
Sivashankar Sivaraman, MBBS, Lecturer
Alexis Smith, DO, Clinical Instructor
Earl Smith, MD, Professor
Wiley Smith, MD, Assistant Professor
Lauren Snower, MD, Instructor
Ann Snyder, PhD, Associate Professor
Stephen Sokalski, DO, Lecturer
Alexander Starr, MD, Clinical Assistant Professor
Robert Stein, MD, Lecturer
Rom Stevens, MD, Professor
Janine Stoll, BSN, Lecturer
Arvey Stone, MD, Clinical Associate Professor
Suj Sundararaj, MD, Clinical Assistant Professor
Lee Tai, MD, Lecturer
Manish Tanna, MD, Clinical Assistant Professor
Sonia Tanwar, MD, Instructor
Boby Theckedath, MD, Associate Professor
Isaac Thomas, MD, Clinical Instructor
Kenneth Tomchik, MD, Lecturer
Phuong Tran, MD, Clinical Assistant Professor
Adam Treitman, MD, Lecturer
Mark Trelka, MD, Assistant Professor
William Trick, MD, Instructor
Joshua Trob, MD, Lecturer
Rosemary Trotta, MS, Lecturer
Mark Tucci, MD, Assistant Professor
George Urban, MD, Lecturer
DEPARTMENT OF NEUROLOGY

The Department of Neurology is involved in four years of undergraduate medical education. In the first year, during the Medical Neuroscience course, clinical material is discussed in conjunction with the basic science substrates. In the second year, the department contributes a notable portion of the Clinical Neuroscience course. Additionally, during the second year, as an integral part of the Essentials of Clinical Reasoning course, common neurological symptoms and their causes are presented by departmental faculty.

During the third year of medical school, students spend four weeks on the Neurology Clerkship. The clerkship emphasizes learning to recognize and manage patients with neurologic conditions, demonstration of the ability to perform a complete and reliable neurologic history, neurologic examination, and incorporation of competencies that society and the medical school expect of a physician. During the fourth year, students have the opportunity to take electives in outpatient and inpatient neurologic practice settings.

Required Course

MNEU 700 Neurology Clerkship
This four-week required clerkship prepares students to recognize and begin the management of patients with neurologic conditions, to demonstrate the ability to perform a complete and reliable neurologic history and examination, and to continue their progress toward achieving the school’s educational competencies. The student is provided with practical experience at the bedside, clinics, and teaching rounds, as well as varied learning environments including online quizzes, essay assignments, and simulated patient experiences.

The clerkship begins with a half-day orientation and includes an introduction to neuroradiology, neurological disorders review, and a neurologic exam practicum. On the final day, students will take the NBME Clinical Neurology Subject Examination to successfully complete their neurology clerkship.

Students in this clerkship receive their clinical instruction at James A. Lovell Federal Health Care Center, Advocate Christ Medical Center, Advocate Lutheran General Hospital, Advocate Condell Medical Center, Advocate Illinois Masonic Medical Center and John H. Stroger, Jr., Hospital of Cook County. Students
Students’ participation in small and large group discussions, didactic presentations, workshops, and conferences is required, facilitated, and supervised by preceptors at specific training sites. These activities ensure continued learning and application of the principles and practice of neuroscience and clinical neurology, and ensure that students’ learning experience in neurology is an integral contribution to progress in becoming competent physicians.

**Senior Elective Courses**

**MNEU 801 Advanced Clinical Neurology**
Clinical neurology is an elective course for students desiring experience in neurology beyond that received during the required core clerkship. Students attend clinics three mornings each week, examining patients and discussing the findings and treatment plan with supervising faculty. The remaining mornings will be spent in the neurophysiology laboratory, where students will participate in the performance of electroencephalography, electromyography, and other electrodiagnostic studies. The student seeking additional clinical experience may spend the afternoons in rounds with the patient care services. Students seeking research experience may spend the afternoons on a project of limited scope that is agreed upon in discussion with the Chair. A written summary of the project is required at the end of the course. The student is expected to attend division conferences. The elective occurs at CCH.

**MNEU 803 Clinical Neurology Preceptorship**
Clinical neurology is a fourth-year course in which the medical student expands upon earlier training in the required clerkship in the diagnosis and management of patients with neurologic disease. The student presents to the precepting neurologist those patients “worked up” in both an inpatient and outpatient setting. In addition, the student sees selected consultations that are presented to the precepting neurologist for discussion. Opportunities are afforded the student to participate in various neurologic diagnostic studies, including electroencephalography, electromyography, nerve conduction, and evoked response neuro-physiology. The importance of these diagnostic studies in the neurologic diagnosis is emphasized. The elective occurs in private practice and at Highland Park Hospital.

**MNEU 860 Neurology Advocate Christ Medical Center – Oak Lawn, IL & Neurological Associates – Palos Heights, IL**
The student will closely observe, in inpatient and outpatient care, a senior professor of neurology with 40 years of practice experience. The student will be using all of the tools available for diagnostic and therapeutic modalities including current neurologic serum antibody testing, advanced CT/CTA imaging, lumbar punctures, and advanced MRI techniques and evaluating neuro-interventional studies (coiling, stenting, gluing, etc.).

**Faculty and Associated Staff:**
Neil Allen, MD, Clinical Professor
Nils Anderson, MD, Clinical Assistant Professor and Acting Clerkship Director
Russell Bartt, MD, Lecturer
Mark Borsody, MD, Clinical Assistant Professor
Franco Campanella, DO, Lecturer
Siresha Chaluvadi, MD, Assistant Professor
Hien Dang, MD, Assistant Professor
MaryAnhthu Do, DO, Lecturer
James Dorman, MD, Assistant Professor
Robert Egel, MD, Lecturer
Reena Ghode, MD, Clinical Assistant Professor
Tariq Hassan, MD, Associate Professor
Arthur Itkin, MD, Lecturer
Nestor Ivkov, MD, Lecturer
Michael Kelly, MD, Lecturer
Heather Leeper, MD, Assistant Professor
Terrence Li, MD, Assistant Professor
Timothy Mikesell, DO, Clinical Assistant Professor
Serge Pierre-Louis, MD, Lecturer
William Rhoades, DO, Chair
Michael Schwartz, MD, Lecturer
Semyon Shulman, MD, Assistant Professor
Lafayette Singleton, MD, Assistant Professor
Hilliard Slavick, MD, Clinical Associate Professor
Mark Trelka, MD, Assistant Professor
Jonathan Vogel, MD, Clinical Instructor
Lakshmi Warrior, MD, Assistant Professor
Reuben Weisz, MD, Professor
K. Michael Welch, MB, Professor, President and CEO, RFUMS
Melvin Wichter, MD, Lecturer

DEPARTMENT OF OBSTETRICS AND GYNECOLOGY
The Department of Obstetrics and Gynecology is a field of clinical medicine providing primary and secondary health care for women. The department provides didactic and clinical teaching for students and residents with direct exposure to patients and hands-on experience. Students are provided a core of information and taught clinical skills pertinent to the female reproductive system. Subspecialty exposure within the fields of obstetrics and gynecology is also provided in an organized fashion.

Affiliation with Mount Sinai Hospital Medical Center of Chicago as the primary site of student education has provided educational and clinical dimensions to the Department of Obstetrics and Gynecology. Mount Sinai, St. Joseph, Mercy, St. Anthony and ALGH with their large, active Obstetrics and Gynecology services, can offer broad, in-depth clinical training for both students and residents.

There is ongoing research by faculty members in a number of fields in the discipline, including applications of ultrasonography, gynecologic oncology, reproductive endocrinology, urogynecology, and maternal-fetal medicine.

Required Course

MOBG 700 Obstetrics/Gynecology Clerkship
This six-week required clerkship at Mount Sinai Hospital, St. Joseph Hospital, Mercy Hospital, St. Anthony Hospital, and ALGH provides the student with experience in all aspects of obstetrics and gynecology. This includes general obstetrics and gynecology and the subspecialties of endocrinology, oncology and perinatology.
Students are assigned to resident teams in each area and are expected to function as members of those teams. In addition to the department’s regular conference schedule and rounds, there are specific didactic sessions for students. These sessions include a daily lecture series covering the core curriculum. Student/faculty interaction is enhanced through small preceptor group meetings.

**Sophomore Elective Course**

MRIM 601 Reproductive Medicine RFU Health System  
The Reproductive Medicine elective course is designed for the second year student who wants to study clinical and laboratory research in reproductive medicine. The student will perform duties in the reproductive medicine clinic and the clinical immunology laboratory. Students will be asked to learn basic elements and concepts of pregnancy and immunology, immunological treatment for recurrent pregnancy losses and infertility and basic infertility work-ups. Students will be involved in an ongoing study or may participate in setting up a clinical or laboratory study. In the latter case, the student will be actively involved in writing the study proposal and conducting the actual study. At the end of their elective, an abstract can be generated. If a manuscript is generated, the student will be involved in the actual manuscript preparation. Although the elective is 10 weeks in length, this may not be sufficient time to complete the study. If the student is willing to continue, he/she will be allowed to continue their study for a maximum one-year period.

**Senior Elective Courses**

MOBG 820 Urogynecology  
This elective offers an introduction to diagnosis and treatment of incontinence and pelvic organ prolapse. The student will be involved in the office evaluation of patients and participate in surgical procedures. Observation of urodynamic testing is also included. This elective occurs at ALGH.

MOBG 840 Maternal-Fetal Medicine  
In the inpatient area, the student will follow cases of antepartum patients with pregnancy complications with the supervision of a senior resident and perinatologist. There are daily teaching rounds on these patients. The student will also be involved with delivery of high-risk patients. In the outpatient perinatal center, the student will be able to work with a senior resident and attending. They will be exposed to ultrasound studies, NST and outpatient management of high-risk conditions (diabetes, hypertension, congenital anomalies, etc). This elective occurs at ALGH.

MOBG 850 Gynecologic Oncology  
This is a senior elective that focuses on the diagnosis, treatment and follow-up of gynecologic malignancies. Participation in surgery is required. Experience in benign breast disease is included. This elective occurs at ALGH.

**Faculty and Associated Staff:**  
Seetal Adhikari, MD, Assistant Professor  
Michelle Albovias, MD, Lecturer  
Barbara Alif-Doran, MS, Clinical Instructor
Sarika Arora, MD, Assistant Professor
Josef Blankstein, MD, Professor and Chair
Leo Boler, MD, Lecturer
Maura Brennan, MD, Lecturer
Paula Cavens, MD, Assistant Professor
Aarathi Cholkeri-Singh, MD, Lecturer
David Czukerberg, MD, Clinical Assistant Professor
Dalia Davood, MD, Lecturer
April DeWhite, MD, Lecturer
James Dolan Jr., MD, Lecturer
Leonard Feinkind, MD, Lecturer
Luis Garcia, MD, Lecturer
Fred Grabiner, MD, Assistant Professor
Natasha Gupta, MD, Assistant Professor
Barbara Gardner Haas, MD, Lecturer
Sharon Handelsman, MD, PhD, Assistant Professor
Carlos Sandoval Herrera, MD, Assistant Professor
Abolhamid Hosseiniian, MD, Clinical Professor
Thomas Iannucci, MD, Associate Professor
Laurence Jacobs, MD, Assistant Professor
Sogol Jahedi, MD, Lecturer
Ian Jasenof, MD, Assistant Professor
Monique Jones, MD, Assistant Professor
James Keller, MD, Associate Professor
Theresa Kepic, MD, Clinical Assistant Professor
Dae Kwak, MD, Clinical Assistant Professor
Joanne Kwak-Kim, MD, Professor
E. Charles Lampley, MD, Associate Professor
Brian Locker, MD, Clinical Assistant Professor
Randee Lopata, MD, Lecturer
Ligaya Marasigan, MD, Clinical Assistant Professor
Phillip Markowitz, DO, Lecturer
Brian McCulloch, MD, Clinical Assistant Professor
Michael Moen, MD, Professor
Sylvia Moscoso, MD, Lecturer
Matthew Nash, MD, Lecturer
Tuan Nguyen, MD, Clinical Associate Professor
Michael Noone, MD, Lecturer
Therese O’Connor, MD, Lecturer
Godwin Onyema, MD, Clinical Instructor
Barbara Parilla, MD, Lecturer
Mukesh Patel, MD, Lecturer
John E. Patterson III, MD, Lecturer
John Perch, DO, Lecturer
John Picken, MD, Lecturer
Bruce Pielet, MD, Lecturer
Dana Russo, DO, Lecturer
Kristen Sasaki, MD, Lecturer
DEPARTMENT OF PATHOLOGY
The Department of Pathology provides instruction in a sophomore-level course and offers a series of elective courses. The required course is an introduction to the “study of disease.” The course is based on, and integrated with preceding and concurrent basic science topics, and serves as a bridge to the clinical disciplines that follow. Disease processes are initially viewed as manifestations of a common set of mechanisms of injury, thus providing a basic foundation for the course. This is followed by a survey of the principal disorders of each organ system. The course is conducted in three quarters as lectures and practicum set of exercises. A hospital-based honors option is available to selected students during the second and third quarters.

Senior elective clerkships are offered in anatomic pathology, laboratory medicine, and forensic pathology. Clerkships are conducted at Mount Sinai Hospital Medical Center and at the office of the Medical Examiner of Cook County.

Sophomore Required Course

MPAT 600 A, B, C General and Systemic Pathology
The biologic bases and mechanisms of disease, including inflammation and repair, and cell injury by infectious, immunologic, vascular, genetic, physical, chemical, and neoplastic mechanisms, followed by a beginning survey of disease with emphasis on clinical pathologic correlations.

Sophomore Elective Courses

MPAT 601 Honors Pathology
This course is offered by invitation to a limited number of students who are enrolled in the M2 pathology course. Invitations are extended to students who are “high achievers” in the first several segments of the regular course and to other students at the option of the course director as availability of preceptors allows. The objectives of this elective are: 1) apply basic principles learned in the sophomore pathology course in evaluating patient specimens submitted to a pathology department, 2) provide more detailed histopathological analytical experience, 3) gain understanding of the work-up of surgical pathology and autopsy specimens, and 4) better understand a pathologist’s role in clinical diagnosis and patient care.

MPAT 605 Molecular Basis of Cancer
In addition to a thorough analysis of cytogenetic and molecular diagnostic markers currently utilized for the clinical identification and monitoring of malignant neoplasia, the course will focus on newer approaches to diagnosis, prophylaxis, therapy, and monitoring of therapeutic efficacy. Molecular
pathways with established as well as potential relevance to clinical practice and basic cancer biology will be discussed. The subjects covered are elaborations of topics concomitantly presented during the sophomore pathology course.

MPAT 622 Special Projects in Pathology
Students participate in a research project or other individualized program under the direction of faculty.

MPAT 629 Applied Neuropathology
Each session will include a faculty-student discussion based on material of the prior sessions and on outside reading assignments. Also, there will be a series of student discussions of diagnostic case studies emphasizing approaches to neurologic diagnosis. In addition, each student will prepare a report from a series of suggested topics, and the report will be submitted to the entire group. This course will be an in-depth presentation of nervous system disorders with special emphasis on anatomy, pathology and clinical pathological correlation. The topics covered are elaborations of topics previously introduced during the sophomore pathology course for medical students. The course should be of special interest to students planning careers in pathology, neurology, and psychiatry.

MPAT 630 Pathology Literature Review
The student prepares a formal paper based on library research or on a laboratory or clinical research project conducted by the student. Credit for this course depends on both acceptance of the written paper and an oral presentation to the department.

MPAT 631 Advanced Hematology
This elective is an in-depth consideration of diseases of the hematopoietic and lymphoid systems and of hemorrhagic disorders, with considerable emphasis on etiology, pathogenesis and clinical diagnostic approaches. The subjects covered are elaborations of topics previously introduced during the sophomore pathology course for medical students.

Faculty and Associated Staff:
Elham Abboud, MD, Clinical Assistant Professor
Adriana Acurio, MD, Assistant Professor
Seana Aldabagh, MD, Clinical Assistant Professor
Imad Almanaseer, MD, Lecturer
Kristin Escobar Alvarenga, MD, Clinical Instructor
Carey August, MD, Lecturer
Saroja Bharati, MD, Clinical Professor
Kristina Borgen, MD, Clinical Instructor
Moira Breen, PhD, Clinical Associate Professor
Henry Brown, MD, PhD, Lecturer
Antonio Chedid, MD, Professor Emeritus
Bourke Firfer, MD, Assistant Professor
Marisa Galicia, MD, Lecturer
Jack Garon, MD, Professor
Miguel Gudelio Gonzalez, MD, Clinical Instructor
Terence Harper, MD, Clinical Instructor
William Janes, MD, Lecturer
Nancy Jones, MD, Professor  
Patricia Kampmeier, MD, Clinical Instructor  
Noreen Kelly, MD, Clinical Assistant Professor  
Gary Kirshenbaum, MD, Lecturer  
Ning Liu, MD, PhD, Assistant Professor  
Adaora Okonkwo, MD, Clinical Instructor  
Michael Pins, MD, Professor and Chair  
Marc Reyes, MD, Professor  
Osvaldo Rubinstein, MD, Associate Professor  
Arthur Schneider, MD, Professor  
Anjali Shinde, MD, Assistant Professor  
Satinder Singh, MD, Clinical Associate Professor  
Kimiko Suzue, MD, PhD, Associate Professor  
Philip Szanto, MD, Clinical Associate Professor  
Elliot Weisenberg, MD, Associate Professor  
Shan-Ching Ying, MD, Assistant Professor  

DEPARTMENT OF PEDIATRICS
The Department of Pediatrics conducts a six-week required clerkship in the junior year, participates in teaching newborn history and physical, nutrition and certain other subjects in the first two years of medical school, and offers senior electives in such subjects as Adolescent Medicine, Child Abuse & Neglect, Ambulatory Pediatrics, Genetics, Neurology and Hematology/Oncology.

The department is dedicated to presenting the practice of pediatrics in a caring, empathic manner, thus providing a role model for future physicians. The pediatric junior clerkship is designed and implemented in such a manner as to facilitate each student's learning of the principles of pediatric medicine and how those principles relate to individuals from birth to the end of adolescence. Emphasis is placed upon patient care at all stages of the clerkship.

Students engaged in the Junior Year Pediatric Clerkship at CMS find that close, personal interaction between faculty, staff and students is encouraged and nurtured. Faculty members are available for individual instruction and performance evaluation. CMS students are able to interact with a wide range of clinical patients as a result of the diverse clinical facilities used for teaching purposes.

Required Course

MPED 700 Pediatrics Clerkship
This clerkship emphasizes close faculty supervision by full-time CMS faculty as well as full-time attending staff physicians from the clerkship site hospital. This includes personal attention to the elicitation of histories, performance of physicals, patient write-ups, chart notes, and invasive and noninvasive technical procedures. Students are assigned to a service at one of the hospitals and serve as full-functioning members of the healthcare team composed of junior and senior residents and attending staff physicians.

Students rotate through ambulatory and inpatient pediatric units, neonatology and the emergency room. Didactic teaching is presented in the form of lectures, seminars, individual presentations, ward rounds and student bedside rounds.
Senior Elective Courses

MPED 803 Ambulatory Pediatrics Advocate’s Children’s Hospital (Park Ridge)
The four-week rotation in Ambulatory Pediatrics is centered at the pediatric clinic in the Yacktman Pavilion. The student will have the opportunity to see patients from infancy through adolescence under the supervision of precepting hospital-based pediatricians. Patients present with a broad range of acute and chronic pediatric problems, as well as for health maintenance and preventive medicine visits. Additional time can be spent visiting various multidisciplinary clinics, as interest allows, in order to better understand the role of various members of the healthcare team. One morning per week will be spent at the ALGH Children’s Day Care Center, where the student will have an opportunity to see the developmental patterns of healthy children as well as to explore the mechanisms for disease transmission in group care settings. Appropriate readings will be assigned from the recent pediatric literature and attendance at the various noontime departmental conferences is recommended.

MPED 805 Pediatric Subinternship Advocate Children’s Hospital (Oak Lawn and Park Ridge)
The Pediatric Subinternship provides the senior medical student an opportunity to function, with supervision, as the primary caretaker of inpatients on pediatric and adolescent units. During the rotation, the student will be expected to improve clinical skills by performing history and physical examinations, developing problem lists of differential diagnoses, forming final physiological assessments, and outlining appropriate diagnostic and therapeutic plans. The student is expected to function in much the same manner as a first-year pediatric resident. The student will write daily notes and orders, which will be countersigned by the supervising residents. The student will have the opportunity to perform routine diagnostic procedures on assigned patients. The student will be expected to share night-call under the supervision of the residents every fourth night. The student will also be expected to participate in morning report, sign-out rounds, attending rounds and other teaching conferences. The student is expected to read about each patient’s disorder, thereby improving medical knowledge and contributing positively to the patient’s care. The student will learn an appreciation for a multidisciplinary approach to the patient with complex and chronic medical conditions, and work hand-in-hand with therapists and other paramedical personnel in planning extended care needs for these patients. The student will be involved in the important issue of acute and chronic pain management of the hospitalized child. The student will gain experience in serving as a member of an inpatient care team.

MPED 814 Pediatric Hematology/Oncology Stroger Hospital of Cook County
This elective offers the student the opportunity to elicit histories and perform physicals on patients with oncologic and hematologic problems and to follow through with the appropriate laboratory investigations. This elective covers exposure to pediatric hematologic problems and malignancies. Emphasis is placed on the development of insight into the general management of and respect for the general needs of the patient and family.

MPED 816 Ambulatory Pediatrics Stroger Hospital of Cook County
This elective provides students with exposure to a wide range of problems encountered in the delivery of medical care to children in an ambulatory setting. The student is assigned to pediatric acute care and emergency services where crisis-oriented care is provided. Assignment to a selected pediatric subspecialty is also available. This elective provides experience at CCH in obtaining an accurate, complete pediatric history, as well as in securing physical examination data.

MPED 818 Child Abuse and Neglect Stroger Hospital of Cook County
This elective is designed for students with an interest in child advocacy who are planning a career in pediatrics, family practice, pediatrics/medicine or emergency medicine. Students will have the unique opportunity to spend four weeks working with the Division of Child Protective Services at Cook County Children’s Hospital. Child Protective Services provides coordinated multidisciplinary evaluations to children presenting to CCH who are suspected of being abused and/or neglected.

Students doing this elective will work one-on-one with the attending physicians in the division and will actively participate in the work-up, management and follow-up care of children suspected of being mistreated, and can expect to learn medical aspects of physical abuse, sexual abuse and neglect (including failure to thrive). In addition to participating in the medical work-up, the student will have the opportunity to observe and participate in the developmental evaluations of patients and in the psychosocial evaluations of patients and their families. The students will also attend and provide care in the weekly comprehensive follow-up clinic for abused and neglected children. The student will learn about the role of the physician as advocate for the child within the Child Welfare and legal systems and will learn about the physician’s role in coordinating multidisciplinary care for high-risk patients and their families.

MPED 820 Adolescent Medicine Stroger Hospital of Cook County
This elective gives students the opportunity to work with adolescents and young adults aged 13 to 25 years in a variety of clinical settings using a multidisciplinary approach to care. The student will work directly with attending physicians, psychologists, social workers, mid-level practitioners, an adolescent medicine fellow and residents. All patient encounters will be conducted under the supervision of an attending physician.

Lecture topics include pubertal growth and development, menstrual disorders, issues of sexuality (adolescent pregnancy, sexually transmissible infections and contraception), chronic illness, and the sports pre-participation exam.

Residents in Adolescent Medicine are required to conduct a research project during their rotation. Students will have the option to join the resident(s) in their project or develop their own. The projects are supervised by the Divisional attending staff and a formal presentation of the project is held on the last day of the rotation.

MPED 836 Pediatric Endocrinology Advocate Children’s Hospital (Park Ridge)
This elective will introduce the student to the endocrinology of infants, children and adolescents. The application of basic endocrine physiology in the diagnosis and treatment of these disorders will be emphasized. There will also be exposure to comprehensive diabetes management.

MPED 837 Pediatric Gastroenterology/Nutrition/Hepatology Advocate Children’s Hospital (Park Ridge)
This elective will familiarize the student with the evaluation, diagnosis, and treatment of pediatric gastrointestinal, hepatic, and nutritional disorders. Special emphasis will be placed on methodology of history taking, problem list formation, use of laboratory investigations, and interpretation of radiographs. Adequate exposure to GI procedures will be provided.

MPED 838 Pediatric Hematology/Oncology Advocate Children’s Hospital (Park Ridge)
This elective provides intensive multidisciplinary clinical/clinical research in pediatric hematology-oncology that will involve students in daily inpatient rounds and ongoing care, conferences, outpatient clinic sessions, and inpatient consultations. Students will have the opportunity to follow patients in-
depth, be involved in procedures and be exposed to peripheral blood and bone marrow morphology in-depth, and be exposed to ongoing clinical research in pediatric hematology-oncology. There are regular didactic teaching conferences covering a broad spectrum of pediatric hematology-oncology topics. The students are required to review textbook and pertinent review journal articles in pediatric hematology-oncology.

MPED 841 Pediatric Infectious Disease Advocate Children’s Hospital (Park Ridge)
The student on service evaluates approximately seven new inpatients and five new outpatients per week, in addition to assessing hospitalized patients once daily on rounds. Rounds are always with the attending who has a minimum of four hours daily contact with the student. Outpatient clinic is held three half-days per week. The student is expected to spend a minimum of two hours daily reading and researching cases in the library or using the attending physicians’ personal library.

MPED 842 Pediatric Critical Care Advocate Children’s Hospital (Park Ridge)
The Advocate Children’s Hospital (Park Ridge) PICU is the nucleus of a certified Level-1 pediatric trauma center, the Midwest Pediatric Brain Tumor Center, and a congenital cardiac surgical program. Patients are very high acuity, ranging in age from 1 day to 19 years, and usually requiring sophisticated monitoring and interventions. We care for children with multisystem trauma, severe traumatic brain injury, seizures, respiratory failure, congenital heart disease and cardiac failure, cancer, septic shock and other overwhelming infections, renal failure, and more. As part of the PICU team, the student will gain experience with invasive hemodynamic monitoring, resuscitation and management of shock, conventional and high-frequency mechanical ventilation, the use of nitric oxide for pulmonary hypertension, renal replacement therapies, intracranial pressure monitoring and management, extracorporeal membrane oxygenation, procedural sedation, and care of the postoperative cardiac patient. The majority of teaching, which is substantial, happens at the bedside. The PICU is staffed by two second-year pediatric residents and a pediatric critical care fellow, and supervised by four full-time pediatric intensivists with additional expertise in neonatology, cardiac intensive care, pulmonology, and complementary medicine. The PICU also has an established pediatric critical care medicine fellowship program and a pediatric critical care transport team.

MPED 843 Pediatric Nephrology Advocate Children’s Hospital (Park Ridge)
The student will participate in the evaluation and management of inpatient consultations and outpatient visits to the Pediatric Nephrology service. Typical problems include electrolyte abnormalities, hypertension, nephrotic syndrome, enuresis, urinary tract infection and acute renal failure.

MPED 844 Pediatric Cardiology Advocate Children’s Hospital (Park Ridge and Oak Lawn)
The major goal of this elective is to help the student develop problem-solving skills in pediatric cardiology, based on clinical pathologic and physiologic principles. The student will actively participate in daily care of inpatients (ward, ICUs, pre/post-op, consultations) and outpatients; interpretation of exercise testing and cardiac catheterization; review of pathology specimens; and formal teaching sessions (didactic and Socratic).

MPED 845 Neonatology Advocate Children’s Hospital (Park Ridge)
This program, a rotation through the NICU, is intended to acquaint the student with the current management of the high-risk newborn during the immediate perinatal period, including the delivery room and the Neonatal ICU. This is a clinical experience, which will expose the student to the diagnosis and management of a broad spectrum of neonatal disorders.
MPED 847 Pediatric Pulmonology/Cystic Fibrosis Advocate Children’s Hospital (Park Ridge)
This elective will provide the student with an understanding of the pathophysiology, differential diagnosis, management and prognosis of acute and chronic respiratory disorders in infants, children and adolescents. This includes the appropriateness and risks of various diagnostic and therapeutic procedures, interpretation of test results, and assessment of response to therapy. The student will spend time in the pediatric pulmonary function lab, radiology, and may observe other laboratory tests or procedures such as bronchoscopy. Daily teaching rounds are held in the pediatric and adolescent units. The student will be expected to evaluate all new consultations first, then present to the attending physician for discussion and management. The student will attend outpatient pulmonology clinics three times a week and the cystic fibrosis center clinic once a week, where a multidisciplinary team participates in the care of a large cystic fibrosis population. A brief oral presentation will be expected at the end of this rotation.

MPED 848 Neonatology Stroger Hospital of Cook County
In this elective, M4 will participate in care of patients in the NICU, normal nursery, newborn resuscitations, the high-risk infant follow-up program, and early intervention programs. Newborn infants with a wide spectrum of problems are admitted to the unit from the nurseries in the hospital and from several Level 2 hospitals in the community. The student will spend four weeks in the NICU; a week-long rotation through the normal nursery can be arranged if requested by the student. The student will be assigned to work with one of the senior pediatric residents rotating through the Unit. Approximately two to three patients will be assigned to the care of the student after orientation is completed. The student and resident will work under the close supervision of a fellow and an attending neonatologist.

MPED 849 Pediatric Neurology Advocate Children’s Hospital (Park Ridge)
Senior medical students may spend a one-month elective on the pediatric neurology service at ALGH. The curriculum for the pediatric neurology elective includes such topics as epilepsy, cerebral palsy, developmental disorders, learning disabilities, attention deficit disorder, infectious diseases of the central nervous system, and neuromuscular disorders.

MPED 852 Inpatient Pediatric Subinternship Advocate Children’s Hospital (Park Ridge)
This elective will allow the student to function, with supervision, as the primary caretaker of inpatients on the general pediatric service. The student is expected to be the primary coordinator of care for the patients assigned. The student will write daily notes and orders that will be countersigned by the supervising residents. The student will have the opportunity to perform routine ward procedures, such as venipuncture, insertion of intravenous catheters, and lumbar puncture. The student will be expected to participate in morning report, sign-out rounds, attending rounds, and other teaching conferences as scheduled. The student is expected to read about each patient’s disorder, thereby improving medical knowledge and data base.

MPED 854 Pediatric Critical Care Advocate Children’s Hospital (Oak Lawn)
The PICU provides definitive intensive therapy and maximum surveillance for the critically ill or injured child. It is supervised by full-time pediatric intensivists who act as consultants to all of the patients and as teachers to the house staff. During this rotation, the medical student will follow only inpatient cases. The student will become familiar with common critical care procedures, such as intubation and line placement. The student will develop a working knowledge base, understanding of differential diagnoses, management, and treatment of common conditions involving critically ill newborns/children.

MPED 856 Clinical Pediatrics Private Offices in Deerfield and Libertyville, IL
This clerkship is designed to provide a broad-based experience in primary care pediatrics with an emphasis on comprehensive healthcare planning, preventive medicine, and continuity of care. The student will see primary care patients individually with attending supervision. Students are expected to participate in didactic lectures 1–2 hours per week.

**MPED 857 Pediatric Pulmonology Advocate Children’s Hospital (Oak Lawn)**
During this rotation, the medical student will follow patients, both inpatient and outpatient. The student will become familiar with various procedures, including surgical and office procedures. The student will develop a working knowledge base, understanding the differential diagnoses, management, and treatment plans of the specifics of pulmonary medicine involving children.

**MPED 858 Pediatric Hematology/Oncology Advocate Children’s Hospital (Oak Lawn)**
During this rotation, the medical student will follow patients, both inpatient and outpatient. The student will become familiar with various procedures, including surgical and office procedures. The student will develop a working knowledge base, understanding the differential diagnoses, management, and treatment plans of the specifics of Hematology/Oncology involving children. This rotation takes place at one of the busiest children's hospital in the Chicagoland area.

**MPED 859 Pediatric Development Advocate Children's Hospital (Oak Lawn)**
During this rotation, the medical student will follow patients, both inpatient and outpatient. The student will become familiar with various procedures, including surgical and office procedures. The student will develop a working knowledge of the specifics of developmental issues involving children, including understanding of differential diagnoses, management, and treatment plans.

**MPED 860 Pediatric Gastroenterology Advocate Children's Hospital (Oak Lawn)**
During this rotation, the medical student will follow patients, both inpatient and outpatient. The student will become familiar with various procedures, including surgical and office procedures. The student will develop a working knowledge of the specifics of GI and nutrition involving children.

**MPED 861 Pediatric Endocrinology Advocate Children's Hospital (Oak Lawn)**
During this rotation the medical student will follow patients, both inpatient and outpatient. The student will become familiar with various procedures, including surgical and office procedures. The student will develop a working knowledge of the specifics of endocrinology involving children.

**MPED 862 Pediatric Emergency Medicine Advocate Children’s Hospital (Park Ridge)**
The student will be responsible for taking history from child or parent(s), doing a complete examination, and making a preliminary working diagnosis with a plan to work up and manage. The student will discuss the child's care with attending physician. The student learns Emergency Department procedures, minor suturing, I&D, splinting, etc., under the attending physician's supervision. The student is closely supervised by the attending physician and has a very close working relationship.

**MPED 863 Outpatient Pediatrics Mount Sinai Hospital affiliated clinic**
The elective provides the M4 year student the experience to learn what a practicing pediatrician does in an outpatient setting. The student will participate in outpatient care of children and newborns and gain an appreciation of normal versus abnormal findings. Pediatric literature will supplement the elective for further understanding of the abnormalities encountered. Day-to-day observation and critique of patient care will be provided as well as final evaluation.
MPED 864 Pediatric Otolaryngology Advocate Children’s Hospital (Park Ridge)
This elective will expose the medical student to Pediatric Otolaryngology clinically. This elective also serves to augment the medical student’s foundation in Pediatric and Surgical medicine. The student will participate with the instructor on a one-on-one basis and experience all clinical activities such as inpatient and outpatient procedures, office visits, case presentations and consultations. Throughout the course, topics in Pediatric Otolaryngology will be assigned and discussed.

MPED 866 Pediatric Emergency Medicine Advocate Children’s Hospital (Oak Lawn)
During this rotation, the medical student will learn to work-up, generate differential diagnoses and treatment plan for children of all ages in the pediatric emergency room setting. The student will become familiar with various procedures, including lumbar punctures and incision/drainages. The student will develop a working knowledge of the specifics of pediatric emergency medicine involving all children from neonates to adolescents.

MPED 868 Cardiology Advocate Children’s Hospital (Oak Lawn)
During this rotation, the medical student will follow inpatient and outpatient cardiology patients. The student will have the opportunity to become familiar with pediatric EKG interpretation, evaluation of common pediatric cardiologic conditions such as Chest Pain, HTN, Syncope, Complex Congenital Heart Disease, Electrophysiology, and Arrthymias. The student will develop a working knowledge of Pediatric Cardiology, current diagnostic and therapeutic modalities for several conditions including CHF, Infective Endocarditis, Myocarditis, Transposition of the Great Vessels, Hypoplastic Left Heart Syndrome, Tetralogy of Fallot, Triscuspid Atresia, AV Canal, PDA, VSD, ASD, and rhythm issues such as SVT, Prolonged QT, and WPW.

MPED 870 Neonatology Advocate Children’s Hospital (Oak Lawn)
During this rotation, the medical student will follow critically ill newborn patients. The student will become familiar with various procedures, including central lines and intubations. The student will develop a working knowledge of the specifics of critical care involving neonates.

MPED 891 Pediatric Endocrinology – Advocate Children’s Hospital (Oak Lawn)
During this rotation, the medical student will follow patients, both inpatient and outpatient. The student will become familiar with various procedures, including surgical and office procedures. The student will develop a working knowledge of the specifics of endocrinology involving children.

Faculty and Associated Staff:
Javeed Akhter, MD, Clinical Professor
Mohammed Alattar, MD, Lecturer
Gabriel Aljadeff, MD, Associate Professor
Hassan Alzein, MD, Assistant Professor
Hayani Ammar, MD, Lecturer
Rosibell Arcia-Diaz, MD, Lecturer
Thankappa Balaji, MBBS, Lecturer
Felipe Barrios, MD, Assistant Professor
John Beckerman, MD, Lecturer
Jonathan Belgrad, MD, Clinical Assistant Professor
Margo Bell, MD, Lecturer
Frank Belmonte, DO, Assistant Professor
Raghbir Benawra, MD, Associate Professor
James Berman, MD, Lecturer
Laura Bianconi, MD, Lecturer
Paul Bolton, MD, Clinical Instructor
Diana Bottari, DO, Lecturer
Judith Brown, MD, Assistant Professor
Laura Buthod, MD, Lecturer
Mark Butterfly, MD, Lecturer
Manju Chatterji, MD, Lecturer
Lisa Cheng, MD, Clinical Assistant Professor
Michele Cho, MD, Lecturer
Darryl Colen, DO, Clinical Instructor
Susan Crawford, MD, Clinical Instructor
Bettina Cuneo, MD, Professor
Denise Cunill, MD, Lecturer
Suzanne Dakil, MD, Clinical Assistant Professor
Ousama Dallal, MD, Lecturer
Vanessa Davis, MBBS, Lecturer
Larry Desch, MD, Clinical Associate Professor
Kimberley Dilley, MD, Associate Professor
Patrick Dolan, MD, Lecturer
Ira DuBrow, MD, Professor
Heather Dyer, MD, Lecturer
Susan Echiverri, MD, Assistant Professor
Patrick Esposito, MD, Lecturer
Corrie Fletcher, DO, Lecturer
Brett Galley, MD, Lecturer
Esperanza Garcia-Alvarez, MD, Assistant Professor
Lisa Gelman, MD, Instructor
Victoria Marie Geraldo, MD, Lecturer
Kanika Ghai, MD, Assistant Professor
Varsha Gharpure, MD, MBBS, Clinical Assistant Professor
Lisa Giordano, MD, Lecturer
Taly Glaubach, MD, Clinical Assistant Professor
Steven Goldberg, MD, Clinical Assistant Professor
Barry Goldman, MD, Clinical Assistant Professor
Prasad Gourineni, MD, Lecturer
Michael Gronberg, MD, Lecturer
Mehmet Gulecyuz, MD, Lecturer
Thirumazhisai Gunasekaran, MD, Instructor
David Halstead, MD, Assistant Professor
Akanksha Hanna, MD, Assistant Professor
Dana Hartwigsen, DO, Lecturer
Suresh Havalad, MD, Associate Professor
Lisa Henry-Reid, MD, Associate Professor
Gonzalo Hernandez, MD, Lecturer
Sarah Herron, DO, Lecturer
Imelda Huerta-Galvez, MD, Lecturer
Tarek Husayni, MD, Lecturer
Jeannette Israel, MD, Lecturer
Norman Jacobs, MD, Lecturer
Deepak Jajoo, MD, Assistant Professor
Christopher Jamerson, MD, Assistant Professor
Lydia Jazmines, MD, Lecturer
Stephanie Jennings, MD, Lecturer
Anmita John, MD, Assistant Professor
Nathan Kakish, MD, Clinical Instructor
Deepika Kakkera, MD, Lecturer
Jordan Kalcheim, MD, Lecturer
Medha Kamat, MD, Associate Professor
Richard Kaplan, MD, Clinical Instructor
Jonathan Kaufman, MD, Lecturer
Ola Kawadry, DO, Lecturer
Bennett Kaye, MD, Lecturer
Tania Kelly, MD, Lecturer
Farha Khan, MD, Lecturer
Priya Khanna, MD, Lecturer
Jean Kim, MD, Clinical Assistant Professor
Serguei Kishkurno, MD, Lecturer
Joanne Knapik, MD, Lecturer
Douglas Koltun, MD, Lecturer
Liborka Kos, MD, Assistant Professor
Jerome Kraut, MD, Lecturer
Laura Larkner, DO, Lecturer
Romeen Lavani, MD, Lecturer
Joanna Lewis, MD, Assistant Professor, Interim Clerkship Director
Michele Lorand, MD, Assistant Professor
Jeanne Lovett, MD, Lecturer
Marietta Luayon, MD, Lecturer
Henry Mangurten, MD, Professor
Jaime Martinez, MD, Lecturer
Jay Mayefsky, MD, MPH, Professor
Celina Miller, MD, Lecturer
Kenneth Miller, MD, Clinical Instructor
Brian Money, DO, Clinical Instructor
James Moy, MD, Instructor
Thomas Myers, MD, Lecturer
Rajeev Nagpal, MD, Lecturer
Melissa Nater, MD, Lecturer
Kent Nelson, MD, Clinical Assistant Professor
Patricia Nofzinger, MD, Lecturer
Patricia Notario, MD, Lecturer
Scott O’Donnell, MD, Lecturer
Rosanne Oggoian, DO, Instructor
Dhaval Patel, MD, Lecturer
Mita Patel, MD, Assistant Professor
Rinku Patel, DO, Lecturer
Sonali Patel, MD, Clinical Assistant Professor
Richard Pervos, MD, Clinical Assistant Professor
Rosita Pildes, MD, Professor
Antranik Poladian, MD, Assistant Professor
Bhagya Puppala, MD, Assistant Professor
Suma Pyati, MD, Professor
Anita Raghavan, MD, Clinical Instructor
Suha Ramadan, MD, Lecturer
Sripathy Rao, MD, Lecturer
Joselito Reyes, MD, Lecturer
David Roberson, MD, Associate Professor
Norell Rosado, MD, Lecturer
Mark Rothschild, MD, Lecturer
Larry Roy, MD, Lecturer
William Rutenberg, MD, Assistant Professor
Mario Sanchez, MD, Lecturer
Carly Senescu, MD, MPH, Clinical Instructor
J. Thomas Senko, DO, Lecturer
Nishant Shah, MD, MBBS, Assistant Professor
David Sheftel, MD, Clinical Assistant Professor
Emily Siffermann, MD, Lecturer
Christopher Smith, MD, Lecturer
David Soglin, MD, Lecturer
Barry Sommerfeld, MD, Clinical Instructor
Demetra Soter, MD, Lecturer
Gopal Srinivasan, MD, Professor
Hari Srinivasan, MD, Associate Professor
Margaret Stefani, DO, Clinical Instructor
Rabi Sulayman, MD, Professor and Chair
Prashant Sura, MD, Assistant Professor
Eileen Tengco, DO, Clinical Instructor
Bradley Tinkle, MD, PhD, Lecturer
Susan Unfer, MD, Lecturer
Faheem Uraizee, MD, Lecturer
Corne Van der Walt, MD, Lecturer
Linda Vassmer, MD, Clinical Instructor
Dennis Vickers, MD, Lecturer
Vidhya Viswanathan, MD, Lecturer
Howard Weiss, MD, Lecturer
Stephanie Whyte, MD, Clinical Assistant Professor
Nikita Williamson, MD, Lecturer
Shou-Yien Wu, MD, Associate Professor
Byung Yu, MD, Lecturer

DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION
The Department of Physical Medicine and Rehabilitation provides didactic and clinical educational opportunities to students and postgraduate physicians in the medical care of the ever-increasing
number of patients with sequelae of trauma, disease, congenital and degenerative abnormalities. Elective courses in rehabilitation medicine, physical fitness and sports medicine, electrodiagnosis and electrotherapy, and research in rehabilitation medicine are offered to second-year students. Senior students may take a clinical elective in electromyography, rehabilitation medicine, sports and spine rehabilitation, clinical pediatric rehabilitation, clinical management of chronic pain and rehabilitation research at any of several hospitals.

In its clinical course work, faculty of the department seek to:

- Improve students’ abilities to evaluate the clinical entity, quality of life and total functional capacities and needs of patients as living, functioning individuals, and as members of families and communities.
- Develop skills in establishing short- and long-range goals for prophylaxis, health maintenance, diagnosis, treatment, patient education restoring functions and quality of life.
- Sensitize students to basic principles of comprehensive patient care in prevention of disease, complete evaluation of clinical entity and quality of life. Treat cost effectively and educate patients to the contributions of allied health personnel and community resources in maximizing patient functioning and improving the quality of life.

The department is affiliated with many medical centers. These facilities, together with a large and diversified faculty, expose the student to a considerable variety of methodologies, healthcare approaches to various patients, and clinical entities. Postgraduate clinical conferences are held for physicians. Research within the department focuses upon the use of electromyography to investigate variations in conduction of peroneal and tibial nerve components in sciatic nerve pathology, the effect of electric currents on inflamed joints, variations in pain threshold, myofascial pain syndromes and systemic and seasonal vascular pathologies in patients with diagnosis of strokes, peripheral vascular disease and coronary artery diseases.

**Senior Elective Courses**

MRHM 801 Rehabilitation Medicine for Primary Physicians Lovell FHCC
Students work under the direct supervision of the instructional staff at various affiliated hospitals to obtain an overview of rehabilitation. Techniques include evaluation, goal setting, discharge planning, team approach, therapeutic procedures for inpatients and outpatients. Opportunities to pursue special interest in neurologic diseases, spinal cord injury, geriatrics, electrodiagnosis, surgical, cardiac or other conditions are available. A term paper on a related subject of interest is suggested.

MRHM 803 Rehabilitation Medicine for Primary Physicians Hines FHCC
In this elective, the student works directly with the instructors and under their direct supervision, the student is expected to take responsibility for a limited number of patients, review the medical problem with the instructor and define rehabilitation goals after listing the problems at hand, and follow patients at various therapies. Special laboratory training includes electrodiagnosis of neuromuscular diseases, including EMG, exercise electrocardiography and exercises for cardiac patients, basic psychological testing and administration of tests including the interpretation.

MRHM 804 Clinical Rehabilitation Medicine for Primary Physicians Schwab Rehabilitation Hospital
In this elective, students are expected to participate in medical and rehabilitation care provided to inpatients and outpatients. They perform history and physical examinations and monitor patients' progress through the rehabilitation program. Students document this progress in clinical record. All of these activities are under the supervision of the Physical Medicine and Rehabilitation residents and the attending staff.

MRHM 817 Physical Medicine and Rehabilitation Private Practice
This elective exposes students to private practice outpatient musculoskeletal/pain medicine. Spinal injections, joint injections and electromyography included. Student will be exposed to the field of PM&R and observe musculoskeletal history and physical exams and observe spinal injection procedures. Student will understand and become proficient at a musculoskeletal history and, especially, a musculoskeletal physical exam.

Faculty and Associated Staff:
Norman Aliga, MD, Associate Professor
Dolly Devara, MD, Assistant Professor
Matthew Flanagan, MD, Lecturer
Shanti Ganesh, MD, Assistant Professor
Norman Harden, MD, Lecturer
Dennis Keane, MD, Assistant Professor
Martin Lanoff, MD, Clinical Assistant Professor
Susan Lis, MD, Clinical Assistant Professor
Jeffrey Oken, MD, Associate Professor
Oleh Paly, MD, Clinical Assistant Professor
Barbara Parke, MD, Lecturer
Larissa Pavone, MD, Assistant Professor
Noel Rao, MD, Professor and Chair
Suzan Rayner, MD, Lecturer
Kaswaram Reddy, MD, Clinical Assistant Professor
Robert Rogers, MD, Lecturer
Elliot Roth, MD, Lecturer
Anjum Sayyad, MD, Assistant Professor
Ricardo Senno, MD, Assistant Professor
Uma Shah, MD, Assistant Professor
Padma Srigiriraju, MD, Assistant Professor
Aaron Stachowiak, MD, Assistant Professor
Bharathi Swaminathan, MD, Associate Professor
Stephen Weinberg, DPM, Adjunct Instructor

Chicago Medical School 2015-2016 Academic Catalog
DEPARTMENT OF PSYCHIATRY AND BEHAVIORAL SCIENCES

Required Courses

MPSY 601 Clinical Neuroscience
This multidisciplinary course focuses on brain structure and function and their clinical manifestations of disease. This course covers: (1) brain organization strategies for the diagnosis of central nervous system disease, including the mental status and cognitive assessment examinations, psychological testing, and routine (blood count) and specialized (lumbar puncture, magnetic resonance imaging) laboratory testing, normal and abnormal personality; (2) disorders of the CNS encompassing psychopathology. For these disorders, prevalence, pathophysiology, clinical manifestations, diagnosis, treatment and prevention are covered; (3) traditional behavioral science topics such as psychological testing and healthcare delivery.

MPSY 700 Psychiatry Clerkship
This is an intensive, full-time experience in the medical specialty of psychiatry. Under faculty supervision, clerks perform the duties of house staff. Clerks participate in interviews and history taking, charting, triage and referral decisions, treatment and care of psychiatric inpatients and significant experience in consultation/liaison psychiatry and outpatient psychiatry. The classroom work consists of seminars on psychiatric emergencies, psychotherapy, behavior modification, liaison/consultation psychiatry, pediatric psychiatry, forensic and ethical psychiatry. Case conferences, grand rounds, and professor rounds are held regularly. Clerks on inpatient services are assigned a personal caseload of two new patients per week; there are different responsibilities on the other services. Students who have received PhD degrees in the RFUMS MD/PhD program, or who have otherwise demonstrated outstanding performance by certain standards prior to the clerkship, are eligible to take part in a clerkship honors program in which they participate in specialized research or clinical experiences during this required clerkship.

Sophomore Elective Course

MPSY 699 Evaluating a Patient from a Different Culture through Cinema
The elective helps students understand how culture facilitates and hinders medical care, and learn the skills which enable them to interview patients from various cultures through the use of film. This course discusses topics from a medical student’s perspective and also focuses on cross culture communication patterns and their impact on clinical care.

Senior Elective Courses

MPSY 815 Sleep Medicine Lovell FHCC
The goal of this elective is to understand the clinical features of sleep disorders and the modalities used for their diagnosis and treatment; to understand the physiological substrates involved in normal and pathological sleep; and to develop sufficient familiarity with the Polysomnogram (PSG) and Multiple Sleep Latency Test (MSLT) to allow basic recognition of sleep stages and fundamental sleep disorders.

MPSY 819 Child Psychiatry Rosalind Franklin University Health System – Vernon Hills, IL
This is an intensive two-week experience focused on diagnosis and treatment of common and uncommon syndromes with onset before 10 years of age. Students will gain knowledge in the following
areas: psychiatric evaluation of children from a neuropsychiatric perspective; the criteria for diagnosis of common and uncommon syndromes seen in children under 16 years of age; ability to articulate the differential diagnoses and treatment options for common and uncommon syndromes; and basic knowledge of levels of care in Child Psychiatry.

MPSY 891 Psychotherapy Elective Offered at FHCC and the Behavioral Health Center in Vernon Hills, IL

This elective will expose senior medical students to the basics of psychotherapy theory and practice, through required readings and patient care in inpatient and outpatient settings.

Faculty and Associated Staff:
William Agbor-Baiyee, PhD, Associate Professor
Delia Aldridge, MD, Clinical Assistant Professor
Carolyn Andrews, PhD, Clinical Instructor
Syed Anwar, MD, Clinical Assistant Professor
Daniel Anzia, MD, Associate Professor
Nutan Atre-Vaidya, MD, Professor and Clerkship Co-Director, Senior Associate Dean for Faculty Talent Recognition and Enhancement
John Bair, PhD, Assistant Professor
Sharyl Balkin, MD, Clinical Assistant Professor
David Baron, MD, Clinical Assistant Professor
Mariam Barouta-Kharzo, MD, Assistant Professor
Marc Bear, MD, Lecturer
Carl Bell, MD, Lecturer
Christina Belmonte, DO, Assistant Professor
Corinne Belsky, MD, Assistant Professor
Zafeer Berki, MD, Assistant Professor
Paul Berkowitz, MD, Assistant Professor
Shalini Chawla, MD, Clinical Assistant Professor
Jang-June Chen, MD, Assistant Professor
Sung Cheon, MD, Assistant Professor
Vincent Colbert, PhD, Clinical Assistant Professor
Biljana Cvejin, PsyD, Clinical Instructor
Amin Daghestani, MD, Clinical Professor
Majed Dalloul, MD, Instructor
Brenda Danielson, PsyD, Clinical Instructor
Sylvia Dennison, MD, Clinical Associate Professor
Jacinto Dizon, MD, Clinical Assistant Professor
Carmen Dobrescu, MD, Assistant Professor
Ozlem Dubauskas, MD, Clinical Assistant Professor
Arturo Fogata, MD, Clinical Assistant Professor
Rhonda Franger, PsyD, Instructor
David Garfield, MD, Professor
Alyssa Gibbons, LCSW, Clinical Instructor
Brandon Gimbel, MD, Clinical Assistant Professor
Tara Goshorn, LCSW, Clinical Instructor
Eshwar Gumidyala, MD, Clinical Instructor
Daniel Hardy, MD, Lecturer
Emmeline Hazaray, MD, Assistant Professor
Charles Hillenbrand, MD, Clinical Professor
Paul Hung, MD, Assistant Professor
Zulima Hurtado, MD, Clinical Assistant Professor
Syed Hussain, MD, Clinical Assistant Professor
Chowdary Jampala, MB, MS, Professor
Hasina Javed, MD, Clinical Assistant Professor
Jada Johnson, MD, Clinical Assistant Professor
Patrick Kamm, MD, Clinical Assistant Professor
Malikarjun Kanneganti, MD, Assistant Professor
Faiza Kareemi, MD, Clinical Assistant Professor
Elizabeth Kessler, MD, Associate Professor
Ibrahim Khaja, MD, Clinical Instructor
Biana Kotlyar, MD, Clinical Instructor
Michael Kuna, MD, Clinical Assistant Professor
Jadwiga Kuszynska, MD, Assistant Professor
Henry Lahmeyer, MD, Clinical Professor
Phil Lebovitz, MD, Clinical Associate Professor
Marcia Leikin, MD, Clinical Assistant Professor
Paige Lessy, MSW, Instructor
Geoffrey Levin, MD, Assistant Professor
Lin Lu, MD, PhD, Assistant Professor and Clerkship Co-Director
Charles Ludmer, MD, PhD, Assistant Professor
George Lutz, PhD, Assistant Professor
Thakshakamani Madamala, MD, Clinical Assistant Professor
Lynn Malanfant, MD, Assistant Professor
Allan Markle, PhD, Adjunct Assistant Professor
Elaine May, PhD, Adjunct Assistant Professor
Bret Moberg, JD, LLM, Assistant Professor
Daven Morrison, MD, Clinical Assistant Professor
Aron Mosnaim, PhD, Adjunct Professor
Lori Moss, MD, Associate Professor
Mary Nash-Powell, MSW, LCSW, Clinical Instructor
Rajeev Panguluri, MD, Clinical Assistant Professor
Malini Patel, MD, Clinical Professor
Stephen Penepacker, MD, Clinical Assistant Professor
Sheilah Perrin, PsyD, Clinical Instructor
Anthony Peterson, PsyD, Clinical Assistant Professor
Anatoliy Pyslar, MD, Clinical Assistant Professor
Shahnaz Rahman, MD, Clinical Assistant Professor
Maya Ramic, MD, PhD, Assistant Professor
Jyoti Randhawa, MD, Assistant Professor
Navtej Randhawa, MD, Assistant Professor
Daram Reddy, MD, Clinical Assistant Professor
Smita Reddy, MD, Instructor
Karla Renhofer, PhD, Clinical Assistant Professor
Ioana Sandu, MD, Assistant Professor
Balasubramania Sarma, MD, Associate Professor
John Schaut, PsyD, Clinical Instructor
DEPARTMENT OF RADIOLOGY

The Department of Radiology offers medical students an introduction to all of the various branches and diagnostic modalities of radiology, including computerized tomography, ultrasound, nuclear medicine, radiation/health physics, and magnetic resonance imaging. The department offers an elective course in radiology in the second year, participates with other departments in teaching the basic radiologic anatomical correlation in the first year and the clinical application of radiology in the second year, and offers six intramural radiology clerkships in the senior year. In each of these activities, the faculty seeks to inculcate sound decision making and systematic implementation of different radiologic modalities, and to develop a thorough understanding of proper indications and contraindications in radiological procedures in patient care. Teaching evaluations and other educational research methods are utilized extensively to further improve learning opportunities.

The Department of Radiology is able to call upon faculty and clinical resources located in all of the hospitals in the Chicago metropolitan area that are associated with the Chicago Medical School.

Sophomore Elective Course

MRAD 600 Diagnostic Radiological Imaging

This elective helps students develop skills in understanding the radiographic appearance of normal anatomical structures, variations of the normal and the contrast with common abnormalities encountered in clinical conditions. The course also deals with augmentation of the student's skills in physical diagnosis and patient examination, demonstrating visually the normal and abnormal findings in simulated physical examination situations. Teaching is done in semi-formal lecture format with radiographs selected from the teaching files of the department. Students will be given an exam and be required to turn in a course evaluation at the end of the course.
Senior Elective Courses

MRAD 801 General Diagnostic Radiology Lovell FHCC
This is a four-week course. Students work with faculty at the FHCC to develop skills in interpreting radiographic anatomy, physiology and pathology. Students will learn and understand routine procedures and augment skills in differential diagnosis of radiographic manifestations of common clinical situations. Students attend scheduled supplemental, didactic lectures and interdisciplinary conferences given by faculty. Students may also be assigned independent work and are required to complete a paper with images and bibliography on which they will give an oral presentation by the end of rotation.

MRAD 802 General Diagnostic Radiology Mount Sinai Hospital
This is a four-week course. This elective helps the student develop skills in interpreting radiographic anatomy, physiology and pathology. The student learns and understands routine procedures and augments skills in differential diagnosis of radiographic manifestations of common clinical situations. Students work one-on-one with an attending radiologist.

MRAD 806 Introduction to Neuroradiology Advocate Lutheran General Hospital
This course, a two week specialty rotation, is an introduction to the clinical problems and imaging modalities involved in neuroradiology, including neuro-interventional techniques.

MRAD 809 General Diagnostic Radiology Advocate Illinois Masonic Medical Center
This four-week course is designed to introduce students to diagnostic radiology in the community hospital, including: 1) basic radiographic interpretation, i.e., general radiology; 2) cross-sectional imaging, i.e., general radiology; 3) neuroradiology, special procedures and interventional radiology; and 4) utilization of imaging and the role of the radiologist as a consultant. Requirements include an oral clinically oriented presentation at the end of the rotation. Students are expected to participate in all conferences, both radiology teaching conferences and interdisciplinary conferences.

MRAD 810 Radiation Therapy Advocate Lutheran General Hospital
The faculty in this four-week specialty elective are committed to training medical students to be more aware of the oncologic aspects of human medicine. The medical students will be better versed in areas of clinical symptoms as they relate to oncology along with the diagnosis and workup of malignancies. Our faculty will instruct the student physician on our unique specialty with special attention to the indications and details regarding brachytherapy and external beam therapy with three-dimensional or intensity-modulated treatment planning. We will also educate the medical students in all aspects of oncology treatment, not only in radiation therapy, but also in chemotherapy and surgery. We will also train these future physicians in the realms of post-radiation patient care and follow up for malignancies. Responsibilities will include: 1) performing history and physicals on selected new patient consults, both in the ambulatory and inpatient settings; 2) participate in the decision making for patient workup and management in collaboration with the attending physician; 3) assigned to a physician to follow on a daily basis; and 4) attend oncology conferences. Four hours per week will be spent in tumor conferences, and one hour of formal lecture will be given per week.

MRAD 812 Introduction to Interventional Radiology Advocate Good Shepherd Hospital Barrington, IL
This two week specialty rotation will help students develop an awareness of the indication of the various interventional procedures, how the procedure will benefit the patient, the risks and complications of the procedure and procedure outcomes. Students will function under the supervision of an interventional
radiologist, either shadowing or one-on-one, perform pre and post interventional examinations, assist with procedures, and discuss findings and treatment plans with the supervising interventional radiologist. Students will prepare material for an oral presentation to be given at the end of rotation.

MRAD 817 Radiation Oncology Midwestern Regional Medical Center – Zion, IL
This two-week clinical rotation will help students develop an understanding of the role of radiation oncology for the care of cancer patients and gain an understanding of therapeutic radiation.

Faculty and Associated Staff:
John Anastos, DO, Assistant Professor and Chair
Scott Asselmeier, MD, Clinical Instructor
Jonathan W. Berlin, MD, Lecturer
Winston Casis, MD, Instructor
John Chang, MD, Assistant Professor
Mark Conneely, MD, Associate Professor
Sandra Fallico, MD, Assistant Professor
Yan-Fu Feng, MD, Assistant Professor
Kathleen Hanson, MD, Lecturer
Donald Hebel, MD, Lecturer
 Alan Hecht, MD, Assistant Professor
Joseph Imperato, MD, Associate Professor
Richard Jenkins, MD, Lecturer
Leonard Kaufman, MD, Assistant Professor
Kevin Kirshenbaum, MD, Lecturer
Joseph Levy, MD, Associate Professor
Alexander Michael, MD, Assistant Professor
Ari Mintz, MD, Lecturer
Gregory Moss, MD, Clinical Professor
Mariusz Olszewski, MD, Lecturer
Kamal Patel, MD, MS, Clinical Assistant Professor
Ejaz Rahim, MD, Associate Professor
Kuntal Rana, MD, Clinical Instructor
Jeffrey Rosengarten, MD, Clinical Associate Professor
Michael Siegfried, MD, Instructor
Parkash Talwar, MD, Clinical Professor
Piyush Vyas, MD, Assistant Professor
Donald Waxler, MD, Associate Professor
Edwin Willgress, MD, Clinical Assistant Professor

DEPARTMENT OF SURGERY
Junior surgical clerks and seniors taking surgical electives are given maximum responsibility and opportunity to participate, consistent with safety and high standards, in the care of patients. Patients at the affiliated hospitals present challenging problems in the management of all states of surgical care.

Faculty in the department are currently engaged in scholarly activity in the areas of shock and critical care, surgical nutrition, neurosurgery, and education.

Required Course
MSUR 700 Surgery Clerkship
The Surgical Clerkship Program is an eight-week rotation in one of twelve affiliated hospitals: Centegra Hospital, Advocate Illinois Masonic Medical Center, Stroger, Advocate Lutheran General Hospital, Advocate Condell Medical Center, Presence St. Mary’s of Nazareth Hospital, Vista East Medical Center, Cancer Treatment Centers of America, Little Company of Mary Hospital, Weiss Memorial Hospital, Elmhurst Hospital and Edwards Hospital, under the supervision of Internal Coordinators who are faculty members.

As an integral part of the surgical team, the clerks gain clinical experience by participating in clinics, rounds, operative procedures, and on-call duties. They attend the following regularly scheduled surgical conferences: radiology, pathology, tumor, morbidity and mortality, grand rounds, surgical GI conference, vascular, journal club, critical care, surgical indications, basic science, cardiothoracic, orthopedic, surgical nutrition and trauma.

Junior students taking their surgical clerkship at Stroger may take a two-week elective in clinical ophthalmology. Senior students may take a two-week elective in clinical ophthalmology (see Department of Ophthalmology for more information).

The main didactic aspect of the Surgical Clerkship, the weekly Core Lecture Series, correlates with the Core Curriculum and is required by all clerks. The Core Lecture Series is supplemented by tutorials at each hospital. At these sessions, small groups of students meet with an instructor to discuss and correlate clinical and basic science aspects of the current lecture.

Sophomore Elective Course

MSUR 601 Elective in Orthopedics Private Practice
The student, under the direction of the orthopedic surgeon in private practice, will observe history, exam and surgery. Fractured bones, osteoarthritis, rheumatoid arthritis, strains, low back discomfort, and carpal tunnel syndrome are examples of some of the conditions that will be observed. Relevant clinical correlations to basic science courses will be evident. The student will arrange scheduled visits to the orthopedic office in Long Grove, Illinois, not to conflict with the academic schedule.

Senior Elective Courses

MSUR 803 Anesthesiology Lovell FHCC
Students will follow an attending anesthesiologist during the course of the elective and learn the basis of anesthesia, its purpose, the fundamentals, some basic and clinical pharmacology, physiology, and anatomy. Students also will have some exposure to pain management.

MSUR 805 Main Operating Room Anesthesiology Advocate Illinois Masonic Medical Center
Visiting students rotate through the Department of Anesthesiology for a period of 4 weeks. During this time they are given a general introduction to what an anesthesiologist does professionally. Their rotations cover a wide variety of subspecialties including ENT, ophthalmology, general surgery, gynecology, orthopedics and urology. In addition, depending upon the student's interest, they may spend a day in labor and delivery.

MSUR 807 Pain Management-Outpatient Pain Clinic Advocate Illinois Masonic Medical Center
The student will be exposed to a multi-disciplinary pain management clinic and see patients from hospital services in acute and chronic pain environments. At the completion of this rotation, students should be able to perform a neurologic exam, lumbar epidural steroid injections, lumbar facet joint injections, and trigger point injections. They should also be able to create a differential diagnosis for back pain, and be able to read and evaluate radiographic studies to diagnose the source of back pain.

MSUR 824 Trauma and Critical Care Surgery Advocate Illinois Masonic Medical Center
This is a four-week clinical rotation on an inpatient service. The exposure is to the acutely traumatized patient and the critical care, follow-up, and management of these patients. The student functions at an extern level with close observation by the attending staff. Two full-time trauma faculty make rounds seven days a week. Conferences and lectures are primarily clinically based on topics relating to the patient load.

MSUR 844 Vascular/Thoracic Advocate Lutheran General Hospital
The student will experience full exposure to the general cardiologic surgery disease processes. He or she will encounter inpatient and outpatient care of patients with congenital and adult heart disease, to include valvular and coronary artery disease. The student will function as a subintern on the Academic Cardiac Surgery Service, and will be exposed to the outpatient evaluation and decision-making process regarding pre-operative assessment and surgical recommendations following cardiac catheterization, angioplasty, etc. The student will be in the outpatient cardiac surgery office approximately two one-half days per week. There will be no in-hospital call.

MSUR 845 Orthopedic Surgery Advocate Lutheran General Hospital
A senior elective in Orthopedic Surgery includes exposure to an active Emergency Room and patients with variable degrees of orthopedic trauma, preoperative patient evaluation, and intense postoperative care experiences in patients following orthopedic trauma and reconstructive surgery. Two formal teaching conferences are held weekly, and some exposure to orthopedics in an office setting is also included. The student will work closely with an orthopedic resident staff under the guidance of an active faculty of attending orthopedists. Appropriate readings and references will be suggested.

MSUR 847 General Plastic and Reconstructive Surgery Advocate Lutheran General Hospital
The student will be exposed to the full spectrum of General Plastic Surgery in the Outpatient Ambulatory Surgery Center. The spectrum of disease will include congenital, reconstructive, and cosmetic. The student will see patients in the plastic surgeon's offices (adjacent to the hospital), and will be involved in diagnostic and therapeutic decisions prior to surgical intervention. The student will see patients in the plastic surgeon's offices post-operatively. The office hours will be approximately two to three days per week with the faculty plastic surgeon in the operating room. Occasional inpatient reconstructive surgical problems will be included. There will be no night call.

MSUR 848 Trauma/Critical Care Advocate Lutheran General Hospital
The student will participate as a sub-intern on the Trauma Service, and will be responsible for the implementation of diagnostic and therapeutic decisions regarding seriously ill trauma victims, to include those requiring ventilatory support, nutritional therapy, and optimization of hemodynamic parameters. The student will participate in daily morning conferences, weekly trauma conferences, grand rounds, and M&M conferences as they relate to trauma patients and critically ill surgical patients. The student
will provide formal presentations of patients to the Trauma academic group on a frequent and regular basis. Student will attend daily SICU rounds.

MSUR 849 Neurosurgery Advocate Lutheran General Hospital
The student will act as a sub-intern on the academic Neurosurgery Service. The student will be exposed to a broad spectrum of general neurologic diseases involving surgical intervention as a therapeutic modality. The spectrum of patients includes those with neurotrauma, neuro-oncology, congenital neurologic disease, and disease of the spine and peripheral nerves. The student will focus on neuroanatomy, neurophysiology, preoperative and operative decision-making, and the management of neurologic patients pre- and post-operatively.

MSUR 850 Breast Disease and Gynecologic Oncology Advocate Lutheran General Hospital
The fourth-year elective student will report and have a relationship with the general surgery attendings who participate in clinical sessions at the Caldwell Breast Cancer Center, Monday through Friday mornings. The student would also interact with Dr. J. Dolan, Director of the Breast Center on Monday afternoons. The fourth-year student will be actively involved in all clinical activities regarding the Breast Center. The student would be expected to attend morning surgical rounds, all 7:00 a.m. surgical conferences, all breast conferences, as well as the Gynecology-Oncology Tumor Conference. The student would also view the diagnostic work-ups for patients who are being seen and evaluated in the Caldwell Breast Center with the attending surgeon, resident staff, and attending radiologists. The student would also participate in assisting at breast as well as Gynecology-Oncology surgical procedures in the main operating room as well as observing the minimally invasive biopsy techniques that are undertaken in the Caldwell Breast Center. All of the activities would take place at Advocate Lutheran General Hospital.

MSUR 851 Breast Health Stroger Hospital of Cook County
This elective teaches students to assess breast health and become expert on breast examination through screening clinics, oncology consultations, mammograms, ultrasounds and breast surgery. Students will learn the subtleties of identifying both pathologic and benign breast lesions through physical examinations and explore where breast health fits into the larger topic of Women's Health.

MSUR 852 General Surgery (Thoracic-Vascular) Advocate Illinois Masonic Medical Center
The student will participate in all aspects of patient care, including pre-op patient evaluation in outpatient setting, planning for surgeries, surgeries, and post-operative follow-up. The student will have the opportunity to learn basic laparoscopic skills in the Surgical Skills Lab on simulators.

MSUR 858 Aesthetic Plastic Surgery Private Office
The student will be exposed to the full spectrum of General Plastic Surgery in Outpatient and Inpatient services. The spectrum of disease will include both reconstructive and cosmetic. However, there will be an emphasis in cosmetic procedures (surgical and non-surgical). The student will see patients in the Plastic Surgeon's office, and will be involved in diagnostic and therapeutic decisions prior to surgical intervention. The student will also see patients in the Plastic Surgeon's office post-operatively. The office hours will be arranged with the attending physician.

MSUR 862 Otolaryngology, Head and Neck Surgery Research – Advocate Illinois Masonic Medical Center
The student will be a member of the otolaryngology research team. The student will learn the principles of Evidence Based Medicine (EBM) and clinical research, including critical review of scientific papers. The student will learn how to design a clinical research study, will participate in data collection, and will learn the essentials of writing a research paper and preparing and giving a scientific presentation. The
student will have the opportunity to observe and/or participate in surgical procedures related to research projects. The student should attend weekly research meetings (taking place on Sundays at 8 a.m.), as well as meeting daily during the week with Research Fellow/s.

MSUR 865 CV Thoracic Surgery & Anesthesia Combined Centegra Hospital – McHenry
This elective offers a two-week exposure to intraoperative repair of cardiac maladies and pulmonary abnormalities, as well as two weeks of anesthesiology experience. Students will study appropriate patient preparation and anesthesia administration with special attention to CV-Thoracic procedures.

MSUR 868 Otolaryngology – Lovell FHCC
Under the supervision of a practicing otolaryngologist, the student will perform examinations on otolaryngology patients and discuss findings and treatment plans with the supervising physician.

Faculty and Associated Staff (Ophthalmology faculty members are indicated by italics):
Michael Zdon, MD, Professor, Interim Chair, Associate Dean for CME and GME
Shabirhusain Abadin, MD, Clinical Instructor
Aijaz Alvi, MD, Lecturer
Frank Apantaku, MD, Clinical Assistant Professor
Marco Ayala, MD, Lecturer
Harpreet Basran, MD, Lecturer
Kathryn Bass, MD, Lecturer
Charles Brown, MD, Clinical Instructor
Arkadiush Byskosh, MD, Lecturer
Richard Caldwell, MD, Instructor
Hsin-Yi Chang, MD, Lecturer
Vivek Chaudhry, MD, Lecturer
Jonathan Citow, MD, Clinical Assistant Professor
Mabelle Cohen, MD, Lecturer
Gia Compagno, MD, Lecturer
William Cox, MD, Lecturer
Nikolaos Dallas, MD, Assistant Professor
John Daniels, MD, Lecturer
Philip Dray, MD, Associate Professor
Hatem El Halabi, MD, Clinical Instructor
Raymond Firfer, MD, Clinical Professor
Allan Fredland, MD, Associate Professor
Ira Garoon, MD, Assistant Professor
Grant Geissler, MD, Assistant Professor
Justin Gent, MD, Lecturer
Roberta Glick, MD, Lecturer
Gordon Gluckman, MD, Assistant Professor
Mitchell Goldflies, MD, Clinical Assistant Professor
Timothy Havenhill, MD, Lecturer
Timothy Heilizer, MD, Instructor
Amir Heydari, MD, Lecturer
Mark Hill, MD, Clinical Professor
Thomas Hinkamp, MD, Clinical Instructor
Michele Holevar, MD, Professor
Kelly Holtkamp, MD, Lecturer
Harold Huss, MD, Clinical Instructor
Rolando Izquierdo, MD, Lecturer
Warren Jablonsky, MD, Lecturer
Axel Joob, MD, Associate Professor
Bruce Kaplan, MD, Associate Professor
Anna Katz, MD, Clinical Instructor
Orhan Kaymakcalan, MD, Clinical Assistant Professor
Joseph Kiernan, MD, Clinical Instructor
Kenneth Kingdon, MD, Lecturer
Robert Kipferl, DPM, Lecturer
Robert Kummerer, MD, Clinical Assistant Professor
Eugene Lee, MD, Lecturer
Daniel Liesen, MD, Clinical Instructor
Richard Lind, MD, Assistant Professor
Daniel Liu, MD, Assistant Professor
Scott Magnes, MD, Lecturer
Mansour Makhlouf, MD, Lecturer
Slawomir Mareck, MD, Associate Professor
Marin Marinov, MD, Clinical Assistant Professor
Malek Massad, MD, Lecturer
Heidi Memmel, MD, Lecturer
Scott Miller, MD, Clinical Instructor
Leo Morton, MD, Assistant Professor
Samer Najjar, MD, Assistant Professor
Narendra Narepalem, MD, Assistant Professor
Mark Neault, MD, Clinical Assistant Professor
Sanja Nikolich, MD, Assistant Professor
Robert Nixon, MD, Lecturer
Mildred M.G. Olivier, MD, Professor
David Ondrula, MD, Lecturer
Thomas Painter, MD, Assistant Professor
Dominick Paparella, MD, Lecturer
Anjali Parekh, MD, Assistant Professor
Amit Parikh, DO, Clinical Instructor
John Park, MD, Associate Professor
Hasmukh Patel, MD, Clinical Assistant Professor
Nishitkuma Patel, MD, Clinical Assistant Professor
Priyesh Patel, MD, Lecturer
Lucio Pavone, MD, Clinical Assistant Professor
Scott Peckler, MD, Lecturer
Leela Prasad, MD, Lecturer
Daniel Resnick, MD, Lecturer
Paul Roach, MD, Lecturer
Steven Rochell, MD, Lecturer
Barry Rosen, MD, Lecturer
Anthony Rousou, MD, Clinical Assistant Professor
Marek Rudnicki, MD, PhD, Lecturer
Lecia Slabaugh, MD, Associate Professor, Assistant Dean for Faculty Talent Recognition and Enhancement
John Saletta, MD, Lecturer
Matthew Samuelson, MD, Lecturer
Juan Sanabria, MD, Clinical Instructor
Allen Saxon, MD, Assistant Professor
Loren Schechter, MD, Associate Professor
Michael Scheer, MD, Clinical Instructor
Aaron Schwaab, MD, Lecturer
Iris Seitz, MD, PhD, Assistant Professor
Manoj Shah, MD, Associate Professor
Sam Speron, MD, Assistant Professor
William Stiles, MD, Clinical Assistant Professor
Robert Sulkowski, MD, Assistant Professor and Clerkship Director
Aras Tijunelis, MD, Clinical Instructor
Farhad Vossoughi, MD, Clinical Instructor
Robert Weisman, MD, Lecturer
John White, MD, Lecturer
Kenya Williams, MD, Assistant Professor
Stephen Wise, MD, Associate Professor
Susanne Woloson, MD, PhD, Assistant Professor
Daniel Wool, MD, Lecturer
Myron Yencha, MD, Clinical Assistant Professor
Phillip Zaret, MD, Associate Professor

DIVISION OF OPHTHALMOLOGY

The ophthalmology course of study is a division within the Department of Surgery. This division provides to medical students the skills that are needed by all physicians in order to evaluate the eye and visual system. Through a series of didactic sessions, students are taught to measure and record visual acuity, detect abnormal pupillary responses, characterize ocular deviations (strabismus) and abnormal eye movements, detect abnormalities of the optic disc and posterior pole by direct ophthalmoscopy, and how and when to initiate management and/or physician referral for ocular and visual system abnormalities.

Junior students taking their surgical clerkship at CCH or Mount Sinai Hospital may take a two-week elective in clinical ophthalmology at CCH. Senior students may take a two-week elective in clinical ophthalmology. Both junior and senior electives are centered in the eye clinic at CCH and afford students the opportunity to examine patients and formulate differential diagnoses and treatment plans under the supervision of an ophthalmology resident or attending ophthalmologist.

Sophomore Elective Course

MOPH 608 Clinical Ophthalmology Lecture Series at CMS
Clinically based lectures on Ophthalmology will focus on glaucoma, retina, cataracts, corneal nerve, refractive surgery and oculoplastics.

Senior Elective Courses
MOPH 805 Clinical Ophthalmology
Students will be working with CCH Ophthalmology housestaff under the direction of Drs. Ahuja, Becker, Dray, Dwarakanathan, Olivier and Whelchel. Students will examine and evaluate patients in the Eye Clinic. Students may write their findings in the chart. Only residents and attendings will have “sign-off” authority for disposition. Students will be expected to attend regular lectures and conferences and may be asked to give a brief (20 minute) presentation on a clinical topic. Students may elect to spend an additional four weeks doing a “mini” research project.

MOPH 808 Clinical Ophthalmology – various sites
Clinical rotations in various areas of Ophthalmology. The student will actively participate in the clinical setting (general, glaucoma, retina, cornea, plastics). The student will be expected to examine patients and formulate a diagnosis and treatment plan.

Faculty and Associated Staff:
See listing under Department of Surgery (above). Ophthalmology faculty members are indicated by italics.