



Chicago Medical School
ACADEMIC CATALOGUE 2006–2007





Chicago Medical School

Academic Catalogue 2006–2007

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 catalogue. 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.

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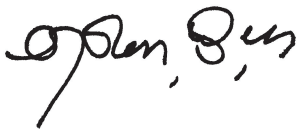
Dear Prospective Student:

Chicago Medical School is proud to have educated physicians, scientists and researchers for 93 years. We are committed to continuing this tradition well into the future and, in doing so, plan to serve our primary mission of providing our students with a comprehensive medical education while preparing them for a career and life of excellence in medicine. Recognizing that our students will be responsible for the health of future generations, we are especially pleased that our School is located within a health sciences University that serves as a national leader in interprofessional education.

Our innovative educational programs, combined with our outstanding facilities and superb faculty, all make for an energized and exciting environment. It should become readily apparent to you why we and others within the University are greatly enjoying our “Life in Discovery!”

Your interest in the Chicago Medical School honors and inspires us. We hope your interest in our program is the start of a fulfilling and successful future.

Sincerely,

A handwritten signature in black ink, appearing to read "Arthur J. Ross, III". The signature is fluid and cursive, with the last name "Ross" being the most prominent part.

Arthur J. Ross, III, MD, MBA

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 four-college University that was built around the Chicago Medical School (CMS), which has been educating physicians and furthering biomedical research for 93 years. Established in 1912, the Chicago Medical School's 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, MSc, 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 (UHS) was established. The University comprised the Chicago Medical School, the School of Related Health Sciences (now College of Health Professions), and the School of Graduate and Postdoctoral Studies (SGPDS). In 1980, the University relocated to its current campus in North Chicago, IL, adjacent to the North Chicago Veterans Affairs Medical Center and Naval Station Great Lakes. In 1993, the institution was renamed Finch University of Health Sciences in honor of its long-time leader and Chair of the Board of Trustees, Mr. Herman M. Finch. Finch 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, which now comprises four colleges.

On January 27, 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 College of Health Professions.

In addition to the name change and the announcement of several new strategic initiatives, the University is currently in the midst of profound physical growth. In October 2002, the University opened its Health Sciences Building, a 140,000-square-foot state-of-the-art 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.

The University's Basic Sciences Building is a 400,000-square-foot facility that houses a 52,000-square-foot 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. Located on the north end of campus is the Heather Margaret Bligh Cancer Research Laboratory, a cancer immunology research and treatment complex.

University enrollment is nearly 1,900, with the bulk of its students enrolled in CMS. The University's total faculty is 675. Major hospital affiliates include: North Chicago Veterans Affairs Medical Center, John H. Stroger, Jr., Hospital of Cook County, Mount Sinai Hospital and Medical Center, and Advocate Lutheran General Hospital. The University's clinical campus consists of the North Chicago Veterans Affairs Medical Center, The Clinics at Rosalind Franklin University, and the Rosalind Franklin University Center for Women's Health.

Dr. Rosalind Franklin, through her pioneering work in the science of life 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 93 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

Chicago Medical School (CMS) at Rosalind Franklin University of Medicine and Science educates physicians and scientists dedicated to providing exemplary, compassionate patient care and excellence in scientific discovery within an interprofessional environment.

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 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 patients.
- II. **Patient Care and Prevention.** Demonstrate patient care that is compassionate, appropriate, and effective for the promotion of health, 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, sensitivity to diverse patient populations, and awareness of one's own interests and vulnerabilities.
- IV. **Practice-Based, Life-Long Learning.** Demonstrate the ability to appraise and assimilate scientific evidence and methods to investigate, evaluate, and improve one's own patient care practices.
- V. **Systems-Based, Interprofessional Practice.** Demonstrate an awareness of and responsiveness to the larger context of health care and the ability 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, and other health professionals.

Vision

The vision of the Chicago Medical School is to be an outstanding community-based medical school with excellence and innovation in medical education, scientific discovery and clinical care.

Purpose

The U.S. Department of Education recognizes the Liaison Committee on Medical Education (LCME) for accreditation of programs of medical education leading to the MD in the United States. 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 also fosters institutional and program improvement. It also 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, color, national origin, sex, sexual orientation, disability, age, religion, or veteran status in its programs and activities including but not limited to recruitment, admissions and employment. Inquiries regarding this policy may be directed to the Executive Director of Student Affairs, 3333 Green Bay Road, North Chicago, IL 60064; 847-578-8351.

Accreditation

Rosalind Franklin University of Medicine and Science receives its degree-granting authority from the Illinois Board of Higher Education and is accredited through the North Central Association of Colleges and Schools. Additionally, CMS is fully accredited by the Liaison Committee on Medical Education (LCME).

North Central Association of Colleges and Schools
Higher Learning Commission
30 North LaSalle Street, Suite 2400
Chicago, IL 60602-2504
800-621-7440
312-263-0456



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 15.

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 on matriculating. 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. Applicants receiving an AMCAS fee waiver automatically receive a waiver of the CMS application fee.

Early Decision Plan

Some applicants may wish to consider Chicago Medical School their primary choice; such candidates should consider the optional Early Decision Plan (EDP). The procedure allows applicants to request and receive a decision from their first-choice medical school by October 1, before seeking acceptance elsewhere. Applicants should notify AMCAS of their intention to participate in the EDP. All supporting credentials must be in the AMCAS office by August 1. If the student is accepted, he or she is committed to attend CMS. If the applicant is not accepted by the October 1 decision date, this person is then free to broaden their application activity to other schools. Ordinarily, students admitted through the EDP possess superior qualifications.

Admissions Policy

The administration, faculty and the members of the Chicago Medical School Student Admissions Committee are committed to excellence and diversity in its student body. Diverse backgrounds, experiences, and perspectives among the student body help to ensure a dynamic, productive and positive learning experience. In seeking to achieve diversity, the admissions committee is instructed to consider a wide range of factors in evaluating applicants for admission, including, but not limited to, the following: demonstrated intellectual capacity, academic achievement, employment history, life experiences (including those related to ethnicity and national origin), motivation, character, personality, commitment to public service, the extent to which the applicant has overcome educational and/or economic obstacles, and other indicators that the applicant can succeed in their medical studies and make a significant contribution to providing improved medical care to the local community and general public. Although the admissions committee neither requires nor recommends that an applicant's college education consist of a major in any specific discipline, it does consider a sound preparatory education in the basic sciences, plus a broad background in the liberal arts to be important factors in considering admission into medical school.

Admissions Requirements

Applicants must complete a minimum of three full years of academic work at an accredited college or university prior to matriculation at CMS; most applicants enter with a baccalaureate degree. CMS does require all entering students to complete at least one academic year in each of the following subjects (including laboratory sections): 1) biology/zoology; 2) inorganic chemistry (including quantitative analysis); 3) organic chemistry; 4) physics. In addition, applicants are encouraged to take courses in mathematics (e.g., calculus, statistics), social sciences, English and the arts, because it is recognized that a physician should have a broad educational background. Also, all applicants must take and post their Medical College Admission Test scores. This test should be taken in the spring or fall of the year preceding anticipated entrance. The rigorous competition for admission into CMS means that applicants are sought whose scholastic performance places them in the upper third of their college class. However, high scholastic standing, per se, does not ensure admission into CMS. Strong emphasis is also placed on applicants' motivation, character, personality, and achievements. Applicants who have not done well in required courses are encouraged to pursue advanced-level courses related to those required courses.

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 faculty members and CMS students. The application process commences when CMS receives the completed AMCAS application form. The applicant is then requested to submit a minimum of three letters of recommendation from professors under whom he or she has studied, 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. The applicant is also encouraged to submit personal comments directly to CMS in addition to the personal comments appearing in his or her AMCAS 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 from time to time, and favorable recommendations made to the Dean until the class is filled. The Dean of CMS has the power to accept or reject any recommendation made by the Committee. Applicants not accepted will be notified in writing by the Dean. 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 position 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 American medical schools and United States 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

The Chicago Medical School 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 Their Measurement

Grading

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. A grade of CR (Credit) is given for the satisfactory completion of a course in which the evaluation of individual student performance is not or cannot be made. All other courses and clerkships are graded on an A, B, C, F system. These grades are defined as follows:

A – Exceptional	(4 quality points)
B – Strong	(3 quality points)
C – Competent	(2 quality points)
F – Incompetent	(0 quality points)

A grade of Incomplete (I) is given when sufficient evaluation data has not yet been acquired and/or when the student has not yet met all of the requirements of the course or clerkship.

Performance Expectations

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. In addition, the CMS student is expected to develop/maintain the 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 grade awarded in a clinically oriented course or clerkship reflects not only cognitive performance but also achievement of the six core competencies of Chicago Medical School. For clinical clerkships, performance on each of these factors 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 junior year clinical clerkships; this must be accomplished within three calendar years from the time of first matriculation. To take a senior clinical elective in a particular field of medicine, a student must first have passed the required junior year clerkships in that field of medicine. All requirements for the junior year must be completed within 4-1/4 calendar 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/maintain acceptable standards of ethical integrity, professional judgment or 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 faculty members recommended by the Academic Assembly and two student members appointed by the Student Council. The Associate Dean for Students in the School of Medicine represents students' interests before this committee.

Recommendations of SEPAC may be appealed if new evidence not available to this committee is to be presented, or if the committee recommends dismissal. An Appeals Board is comprised of five faculty members and two students, none of whom has been previously associated with the issue to be appealed. Recommendations of SEPAC and the Appeals Board are made to the Dean of the medical school for final decision.

Rules Governing Records, Leave, Tuition, Withdrawal and Transfer

Student Records

All documents and records pertaining to a student's admission and academic performance in the University are filed in the Office of the Registrar. The student has the right to inspect and to make copies of items in his or her file in the Registrar's Office on any regular working day. The Dean of the school, and the Associate Deans for Student and Educational Affairs also have access to these files. University faculty, committees, and other administrators may secure access to these files through the Registrar of the School. The University complies with the requirements of the Family Educational Rights and Privacy Act of 1974 as amended. Copies of University policy are available in the Office of the Registrar. The student counselor's records are confidential. No faculty, administrator, or other person may request or receive any information concerning a student from the student counselor. Similarly, records of The Clinics and the financial aid counselor are available only to professionals in those departments.

The Registrar is authorized to supply transcripts of a student's grades earned at the University, but transcripts may be provided only with the permission of the student.

Leave-of-Absence

Students at Chicago Medical School 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. When, for any reason, a student will not be able to participate fully in student activities for fourteen weeks or longer, he or she must petition for a Leave-of-Absence. Petitions are available in the Office for Student Affairs.

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.

An approved Leave-of-Absence will initially be granted for no more than 12 months. Additional time off will be considered only after review of the student's request by SEPAC.

When a student begins an authorized Leave-of-Absence while an academic quarter is underway, the dollar amount of the unused tuition will be applied toward future tuition assessments.

Tuition and Other Educational Expenses

The following table shows the educational expenses for entering students at the Chicago Medical School effective July 1999.

Direct Educational Expenses

Tuition (Annually)	\$36,740.00
Student Council Fee, Freshmen	120.00
Hospitalization Insurance*... <i>The University offers several health insurance plans. Contact the Business Office at 847-578-3279 for details.</i>	
Books & Supplies (Estimated-annual)	1,790.00

Estimated Additional Educational Expenses...*During Academic Year*

National Board Fees, Part I, Sophomores	455.00
National Board Fees, Part II, Seniors	1,430.00

*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 quarter. Beginning on the first day of each quarter, 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 quarter will result in a student not being allowed to register for the subsequent quarter.

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 & 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 Clinics at Rosalind Franklin University.

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 at least 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.

Requirements for the MD Degree

To be awarded the MD degree from Chicago Medical School, a student must accomplish the following:

- Pass courses in Anatomy, Biochemistry, Epidemiology, Embryology, Genetics, Histology, Introduction to Clinical Medicine, Medical Ethics, Molecular and Cell Biology, Neuroscience, and Physiology to complete the first academic year.
- Pass courses in Introduction to Clinical Medicine, Clinical Neuroscience, Microbiology, Pathology, Pharmacology and Preventive Medicine to complete the second academic year. Students must pass the United States Medical Licensure Examination (USMLE) Step 1 to complete the second year of the curriculum.
- Pass clinical clerkships in Emergency Medicine, Family Medicine, Medicine, Neurology, Obstetrics/Gynecology, Pediatrics, Psychiatry and Surgery to complete the third-year required basic clerkships.
- Pass senior requirements including a Medical Sub-Internship and 32 weeks of approved electives to complete the fourth year; also pass the United States Medical Licensure Examination (USMLE) Step 2 to graduate.
- Perform all student functions in a professional and ethical manner.
- Meet the Technical Standards of the University as delineated below.
- Complete all requirements in no more than 5-1/2 years from first matriculation.

Students with Disabilities

It is the intent of Rosalind Franklin University Medicine and Science and Chicago Medical School 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 (ADA) Coordinator in the Office for Student Affairs.

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.

I. 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 Combined MD/MS Degree

The combined degree program leading to the MD/MS degree is designed for select students interested in an in-depth study of one of the basic medical sciences combined with research training. The MS degree may be earned by at least one year of full-time graduate study plus graduate study during unscheduled or elective periods of the Medical School curriculum. In the latter case, the student will spend selected periods of study as a full-time graduate student. This plan may permit receipt of the MS and MD degree at the same time.

The MS degree may be obtained in the disciplines encompassed in the Departments of Biochemistry and Molecular Biology, Cell Biology and Anatomy, Cellular and Molecular Pharmacology, Microbiology and Immunology, Neuroscience, Pathology, and Physiology and Biophysics.

Application for the MD/MS program is made after acceptance into Medical School. While preference for admission to this program will be given to students with a strong background in the natural sciences, applicants with pertinent research experience should not hesitate to express their interests.

During matriculation in the combined program, the student's curriculum is flexible but must meet the academic requirements for both the MD degree and the MS degree. The student's advisory committee designs a program of study to meet the student's interests and requirements. The student's scholastic performance must conform to standards prescribed for the MS and MD degrees and for the combined program.

The following specifications apply particularly to the MD/MS degree program:

1. A student in good standing in the combined program, with the approval of the Associate Dean for Student Affairs of the Medical School, may use credit for 8 units of Graduate School study as credit for 8 units of sophomore or senior elective time in the Medical School, provided competency without reservation has been demonstrated in the third-year required clerkships.

A maximum of 3 units of graduate credits may be used for sophomore electives and a maximum of 9 units of graduate credits may be used for senior electives. For senior electives, 1 unit of graduate credit is equivalent to 1 week of clinical clerkship.

2. The residence requirements for either MD or MS degrees may be satisfied by courses taken in either the Medical School or Graduate School within the University.
3. As part of the didactic course requirements, at least 8–10 units credit in advanced Graduate School courses as determined by the candidate's department are required for the MD/MS program.

Requirements for the Combined MD/PhD Degree

The combined MD/PhD program is designed for selected students who are interested in a research or academic career and whose undergraduate education has placed major emphasis on science. The major purpose of the program is to prepare medical scientists skilled in the study of modern biology as members of clinical and pre-clinical faculties of medicine or as clinical investigators.

The combined degree program requires that the student devote four to five years in a full-time graduate didactic and research program before entering the medical school. The combined program requires a minimum of six years of full-time study for its completion.

The following specifications apply particularly to the MD/PhD degree program:

1. A student in good standing in the combined program, with the approval of the Associate Dean for Student Affairs, can use credit for 8 units of graduate school course credit as equivalent to 8 weeks credit to meet requirements for sophomore or senior electives in the medical school. The student must have performed competently in all required junior clerkships to be eligible for this credit. In addition, 3 units of graduate school course credit may be used for sophomore elective requirements in the medical school. For senior electives, 1 unit of graduate credit is equivalent to 1 week of clinical clerkship.
2. Residency requirements for each of two degrees can be satisfied by courses taken in either the medical school or the graduate school.
3. As part of the didactic course requirements, at least 15–20 units of credit in advanced graduate school courses are required for the MD/PhD program as determined by the candidate's department.

Master of Science Programs in Clinically Oriented Subjects for Medical Students

The Chicago Medical School at Rosalind Franklin University of Medicine and Science offers selected medical students the opportunity to earn the Doctor of Medicine degree and a clinically oriented Master of Science degree. The following programs are offered:

Clinical Immunology

Pathology

The Master of Science course of study is provided during the four year medical school curriculum. There is no additional tuition charge for medical students selected for the MD and clinically oriented MS Program.

Common Features of the Four-Year MD and Clinically Oriented MS Programs

Each of the approved programs offer advanced didactic and clinical training, as well as research experience in their respective areas.

Each program requires 22–24 units of intensive course credit in an area of concentration. At least 12–14 units credit are in advanced graduate school courses not normally taken by medical students and not counted for the MD degree.

All programs require students to undertake a clinical project, to prepare a written report and make an oral presentation in their senior year to the faculty and students.

Students applying are required to have achieved a B average or better in the freshman year. Medical students are selected for entry into the MS programs after the first three terms of the freshman year.

For the clinically oriented MS Degree, an average of B or better must be maintained in both the medical and graduate schools.

Educational Objectives

The objectives of the Chicago Medical School's educational program were redefined in fall of 2004, with all objectives aligned with the six measurable competencies.

- 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. Specifically, the student must demonstrate:
 1. Knowledge of the normal structure and function of the body, from individual organ systems to the integrated whole, to include developmental and aging processes.
 2. Knowledge of the molecular, biochemical, and cellular mechanisms that underlie body function.
 3. Knowledge of genetic, developmental, metabolic, toxic, microbiological, psychological, immunologic, autoimmune, neoplastic, degenerative, and traumatic causes of illness.
 4. Knowledge of the altered structure and function (pathology and pathophysiology) of the body and its major organ systems.
 5. Understanding the scientific method and its application in establishing the cause of disease and the efficacy of traditional and nontraditional therapies.
 6. Knowledge of the economic, psychological, social, environmental, and cultural determinants of health and illness.
 7. Knowledge of the epidemiology of common illnesses within defined populations, the systematic approaches used in reducing the incidence and prevalence, as well as the prevention of those illnesses within cultural and socioeconomic context.
 8. Knowledge of the principles of pharmacology and therapeutic decision-making.
 9. Knowledge of the principles of emerging disciplines (e.g., genomics, proteomics, and bioinformatics).
 10. Knowledge of the scientific principles underlying diagnostic methodologies, clinical, laboratory, pathologic, and imaging, and the ability to use them appropriately.

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. Specifically, students must:

1. Treat patients with respect for their privacy, dignity, individual integrity, and culture.
2. Obtain an accurate and complete medical, social, and occupational history that includes issues specific to age, gender, culture, and socioeconomic status.
3. Perform a complete and symptom-focused examination, as appropriate, including a mental status examination.
4. Perform routine technical procedures.
5. Interpret the results of commonly used diagnostic procedures.
6. Demonstrate appropriate deductive reasoning in solving clinical problems.
7. Construct appropriate diagnostic and therapeutic strategies for patients with common acute and chronic conditions.
8. Demonstrate shared decision-making model of patient care.
9. Demonstrate the ability to use preventive medical strategies in patient care in conjunction with other healthcare professionals.
10. Recognize patients with life-threatening conditions and institute appropriate initial therapy.
11. Recognize and outline an initial course of management for patients with serious conditions requiring critical care.
12. Demonstrate knowledge of the mechanisms and modalities used to relieve pain and suffering.
13. Identify factors that place individuals at risk for disease or injury, select appropriate tests for detecting specific diseases or early stages of disease, and determine strategies for responding appropriately.

III. Professionalism and Self-Awareness. Demonstrate a commitment to professional service, adherence to ethical principles, sensitivity to diverse patient populations, and awareness of one's own interests and vulnerabilities. Specifically, students must:

1. Apply the theories and principles that govern ethical decision-making and address the major ethical dilemmas in medicine, particularly those that arise at the beginning and end of life.
2. Recognize one's own biases in ethical decision-making.
3. Adhere to principles of confidentiality, scientific and academic integrity, and informed consent.
4. Demonstrate respect, compassion, integrity, and altruism in relationships with patients, families, and colleagues.
5. Advocate the interests of one's patients over oneself.

6. Understand the financial, organizational, and other conflicts of interest inherent in the practice of medicine.
7. Recognize and accept limitations to one's knowledge and clinical skills and strive continuously to improve them, and seek appropriate assistance when necessary.
8. Demonstrate a commitment to serve communities and society, and care for members of traditionally underserved populations.
9. Demonstrate sensitivity and responsiveness to the gender, age, culture, religion, sexual orientation, socioeconomic status, beliefs, behaviors, and disabilities of patients and professional colleagues, including awareness of one's own cultural perspective.
10. Demonstrate awareness of one's own personal vulnerabilities, seek help and advice when needed, and develop appropriate coping strategies.
11. Seek and respond appropriately to performance feedback.
12. Maintain effective balance of personal and professional commitments.

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

1. Demonstrate knowledge of the principles and methodologies of continuous learning of relevant scientific and clinical advances, educating oneself and one's patients, and making decisions relevant to the care of individuals and populations.
2. Search for new evidence regarding diagnosis, prognosis, and treatment of specific diseases, and integrate this knowledge into patient care.
3. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness.
4. Use electronic databases and other resources to access, manage, and utilize biomedical information for solving clinical problems.
5. Develop and maintain a willingness to self-assess, learn from error, and use errors to improve processes of care.
6. Apply Evidence-Based Medicine to locate, appraise, and assimilate "best practices" in relation to patients' health problems.

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. Specifically, students must:

1. Cooperate, collaborate, communicate, and work in teams to ensure that care is continuous and reliable; acknowledge and respect the roles of other health professionals in providing needed services to individual patients and communities.
2. Understand the health needs of a community and population and how they are prioritized.
3. Understand the limitations and opportunities inherent in various practice types and delivery systems, including methods of controlling healthcare costs and allocating resources so that the quality of care is not compromised.
4. Understand the importance of evidence-based, cost-benefit analyses for improving the prevention, diagnosis, and management of diseases.
5. Advocate for quality of care and assist individual patients in dealing effectively with complex healthcare systems.
6. Demonstrate knowledge of practice management.
7. Identify and address systematic practices that increase the risk for patients.

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

1. Demonstrate the ability to sustain therapeutic, ethically sound, respectful professional relationships with patients, their families, and colleagues.
2. Use effective listening, questioning, nonverbal, and writing skills to communicate with patients, families, and professional associates, seeking assistance when necessary (e.g., call an interpreter).
3. Maintain comprehensive, timely, and legible medical records.
4. Work effectively with others as a member of a healthcare team or other professional group.
5. Demonstrate techniques of conflict-management.
6. Demonstrate effective communication of scientific and medical information to educate patients and their families, as well as colleagues.
7. Be able to communicate with patients and their families about all aspects of their well-being.

Professional Behavior Policies

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, therefore, 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; irrespective of race, color, creed, ethnic origin, religion, disability, gender, sexual orientation, or socio-economic 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.

Similarly students have a right to work and study in an environment free from racial, sexual, or other form of harassment or abuse. Sexual harassment is defined here to be any deliberate or repeated unsolicited and unwelcome sexual behavior which affects the student's opportunity for academic success or creates an intimidating, hostile, or offensive environment. This includes unwelcome sexual advances, favoritism based upon gender, sexist jokes or slurs, the exchange of rewards for sexual favors, and malicious gossip or rumors. Sexual harassment also encompasses the use of sexist teaching materials, unless this information is presented in the context of a faculty critique (ie., for purposes of criticism). Any faculty, staff member, or student who uses implicit or explicit sexual behavior to control, influence or affect the career or working environment of a student is engaging in sexual harassment.

Similarly, students should expect to be treated with respect as professionals in training, free of harassment or abuse. Harassment based upon color, creed, ethnic group, race, religion, disability, sexual preference or other factors is unacceptable.

University policies on sexual harassment are available in writing from the Office for Student Affairs or on the Rosalind Franklin University Web site (www.rosalindfranklin.edu/policies/shpolicy.cfm). Students with concerns or questions about issues of professional behavior are encouraged to contact the Senior Associate Dean for Student Affairs and Medical Education. In addition, the University, under the auspices of the Committee on Professionalism in the Workplace, has established a group of First Response Intermediaries, specially trained and available to handle issues or complaints about sexual harassment. A list of First Response Intermediaries is available from the Offices for Student Affairs and Educational Affairs and from the Rosalind Franklin University Web site (www.rosalindfranklin.edu/policies/shpolicy.cfm).

Teaching Hospital Affiliations

Advocate Christ Hospital

Christ Hospital, in south suburban Oak Lawn, Illinois, has 841 beds and more than 42,000 patient visits per year. Beginning in the 2000–2001 academic year this hospital is the site of clinical training in emergency medicine, family medicine, medicine, obstetrics/gynecology, pediatrics, neurology, and surgery.

Advocate Illinois Masonic Medical Center

Illinois Masonic Medical Center has been serving the people of Chicago for 70 years. It is licensed for 530 acute care beds at its main location and 330 beds at its skilled nursing facility. The medical staff at Illinois Masonic numbers more than 600 physicians, as well as an additional house staff of 120 doctors taking post-graduate training. Illinois Masonic Medical Center employs more than 2,500 people to serve approximately 15,800 inpatients, 250,000 outpatients and 31,000 emergency patients each year.

Advocate Lutheran General Hospital

Lutheran General Hospital is a teaching hospital whose 4,400 employees serve more than 31,000 people each year on an inpatient basis and registers approximately 158,000 outpatient visits. Special emphasis is placed on services for children, for which LGH is the second largest children's hospital in the state. LGH also is designated by the state of Illinois and the city of Chicago as the highest level trauma center for adults and children.

Edward Hines Veterans Affairs Medical Center

Hines VA is located in Maywood, a western suburb of Chicago. It is a 1,383 bed teaching hospital. The internal medicine unit has 300 beds, admits about 7,500 patients a year and handles 57,000 outpatient visits. There are tertiary care clinical programs in many of the internal medicine subspecialties. The hospital is the site of CMS undergraduate and graduate training programs in internal medicine.

John H. Stroger, Jr., Hospital of Cook County

Stroger Hospital, with 1,418 beds and 100 bassinets, is one of the largest teaching hospitals in the United States. Each year approximately 47,000 patients are admitted to the hospital and more than 340,000 patients are treated in the hospital's outpatient clinics. This facility is a site for undergraduate and graduate programs in medicine, surgery, pediatrics, emergency medicine, obstetrics and neurology.

Mount Sinai Hospital and Medical Center

Mount Sinai is a 469 bed teaching hospital located just west of the Chicago downtown area. Its 340 member medical staff admitted more than 16,000 patients and saw over 24,000 patients in its emergency room last year. It is one of the designated level one trauma centers for the city of Chicago. The Schwab Rehabilitation Center is located adjacent to the hospital. The hospital is the site of undergraduate and graduate training programs in internal medicine, emergency medicine, surgery and its subspecialties, psychiatry, obstetrics and gynecology, pediatrics, neurology, anesthesiology and diagnostic radiology.

North Chicago VA Medical Center

NCVAMC provides integrated, high-quality, comprehensive mental health, extended and primary care services to patients served by the VA Great Lakes Health Care System. The medical center consists of 150 operating hospital beds, 204 nursing home care beds, a 60-bed domiciliary for homeless veterans, and 89 beds for alcohol and drug abuse.

Continuing Medical Education

Continuing medical education 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, the Medical School has sought to participate in this learning endeavor through the Office of Continuing Medical Education. The objectives of this program are to:

1. Provide high-quality educational programs for our alumni as well as physicians of the local, regional or national community based on identified learning needs.
2. Encourage faculty to utilize new program formats to improve teaching techniques and to expand opportunities for learning based on learners' needs.
3. Provide a forum for school and community-based physicians to identify as well as to explore solutions to health problems.
4. Apply the results of research and methodology of critical assessment of new data to the needs of the community-based physician.

Each year, 10–15 symposia on a wide variety of topics are sponsored by the office in conjunction with the school departments. About 3,000 registrants attend these courses annually and receive more than 300 hours of instruction. In addition, each month 30 to 40 conferences, grand rounds and seminars 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 also awarded for various types of state and specialty recertification and relicensure.

Residency Programs

The Chicago Medical School offers accredited residency and fellowship training programs in the major medical and surgical specialties and subspecialties. More information can be obtained from the appropriate department chair or from the Associate Dean for Clinical Affairs.

Financial Assistance

Financial assistance is available to accepted RFUMS students who have demonstrated need and could not otherwise attend the University. Financial assistance is awarded primarily in the form of loans rather than grants. A completed financial aid application, computations from the FAFSA form, and financial aid transcripts are required before an applicant's need can be established.

In addition, the Financial Aid Office manages scholarships, grants, and low-interest loans from federal, state, private, and institutional sources. These funds are limited, and are targeted for students with the greatest demonstrated financial need. The University also participates in the federal and state scholarship programs offered by the United States Armed Forces, National Health Service Corps, and the Illinois Department of Public Health. Students interested in these programs apply directly to the program of choice for scholarship consideration.

A brief description of available aid sources are listed below. Students needing additional information may contact the RFUMS Financial Aid Office, 3333 Green Bay Road, North Chicago, Illinois 60064, 847-578-3217.

Federal Work Study Program

The Federal Work Study Program provides funds for part-time work opportunities within the University or organizations serving the public interest for students (full-time, part-time, independent study and vacation periods) in a variety of employment situations. The students may serve as a tutor, teaching or research assistant, clerk or secretary, library aide, information technology aide, tour guide, or mathematic or reading literacy tutor at the elementary school level, etc.

Notice of available positions are posted and distributed. Students approved for Federal Financial Aid are eligible to be subsidized by the Federal Work Study Program. Employment at non-profit or for-profit organizations serving the public interest may be eligible for subsidy of student employees. Students interested in part-time employment should submit a Job Application to the Federal Work Study Program in the Financial Aid Office. Student wages will range from \$8 to \$20 per hour depending on job classification.

CMS Alumni Scholarships and Trustee Merit Scholarships

The University awards a select number of scholarships for Chicago Medical School students. The Trustee merit and CMS Alumni Scholarships are highly selective and are made possible through the generous support of the University's Board of Trustees and Chicago Medical School alumni. The Jerome R. Share Scholarships are awarded annually to qualified students based on greatest need. Further information on scholarship assistance is available through the Office of Financial Aid.

Federal Stafford Loan

This program includes both the Federal Subsidized Stafford loan and the Federal Unsubsidized Stafford loan program. The interest rate is variable and changes annually, July 1 and is capped at 8.25%. Students may borrow up to \$8,500 per year from the Subsidized Stafford loan program, provided the student meets the need-based eligibility requirements. A Free Application for Federal Student Aid (FAFSA) must be completed to apply and all other school forms. The Subsidized Stafford loan program maximum borrowing limit is \$65,500. During enrollment in school and grace, the government pays the interest on this loan. Once a student enters repayment, interest will begin to accrue.

The Unsubsidized Stafford loan program is provided to assist with the student's borrowing needs. Interest begins to accrue on this loan as disbursements are made. The student may elect to pay the interest as it accrues, or may defer the interest while in school. The loan accrues simple interest while in school and will capitalize upon graduation.

The maximum borrowing limit for the Stafford loan program is \$189,125. An origination fee of 3% is deducted from loan proceeds at disbursement. Repayment extends up to ten years. Consolidation options are available as well as borrower benefits.

Alternative Loan Programs

Private Loan Programs provide medical students with aid beyond the Federal Stafford Loan Program. Students may borrow up to the cost of education less other financial aid provided the student meets the lenders established credit criteria. Interest rates vary quarterly; loans accrue interest during school; residency deferment option available. For additional information, consult www.aamc.org/medloans.

Loan for Disadvantaged Students

The government provides federal funds to eligible medical schools to provide long-term, low-interest loans to students from a disadvantaged background. Full disclosure of financial information from the student's family must be provided.

Federal Perkins Loan

The Perkins Loan is a federal program to provide need-based, low-interest educational loans for those attending graduate and professional school. The interest rate is 5% during repayment and interest does not accrue during deferment. Allocations of the Perkins are based on the availability of funds and are awarded by the institution.

Private CMS Scholarships and Loans

Through the efforts of several CMS benefactors, a limited number of direct gift awards and a restricted amount of loan funds are made available to medical students experiencing extreme financial need. Amounts vary according to 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, 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. Army (414) 476-6622, Navy (847) 688-7100, ext. 165, Air Force (312) 922-2923.

National Health Service Corps 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 NHSC Scholarship, contact the Bureau of Health Professions at 301-594-4410.

Illinois Department of Public Health Medical Student Scholarship

This program provides scholarship funds to Illinois medical students who agree to practice primary care medicine in a physician shortage area in the state of Illinois. The scholarship provides for payment of tuition, mandatory fees, and a monthly living expense stipend. One year of service is required for each year of support. This program is administered by the State of Illinois Department of Public Health. Contact the Department at 217-782-1624.

Student Services

The University provides its students with a full range of services, which include financial aid counseling, academic counseling and tutoring, ambulatory acute health care and personal and family counseling.

Office for Student Affairs

Throughout the student's medical education, the Office for Student Affairs 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 students' academic progress and professional development.

The Office for Medical Curriculum

The Office for Medical Curriculum designs, schedules, and evaluates the CMS curriculum. Working with the Educational Affairs Committee of faculty and students, this office implements the CMS curriculum by scheduling classes, gathering student and faculty evaluations, and analyzing student performance against national standards. The Office for Medical Curriculum places major value on the coordination and integration of all the curricular elements.

Additionally, the Office for Medical Curriculum directly manages several interdisciplinary courses in the CMS curriculum, including first-year courses in Epidemiology and Medical Ethics and several Sophomore and Senior Elective courses.

Sophomore Elective Courses

MCUR 615 Clinical Exposure Program and

MCUR 600 Clinical Exposure Program, Part 2

In this elective, students will be assigned a preceptor in a particular specialty in which they are interested. The student acts as an observer of the activities of the clinical situation in which their preceptor works, whether hospital, clinic, ambulatory or other. This elective provides an experience that focuses on the doctor-patient relationship: how it works, what the physician does to make it work, and what sensitivities must be observed to make for a strong relationship. The preceptor can help students understand the realities of the clinical experience in today's healthcare environment. Students will learn some of the subtleties involved in the doctor-patient relationship as the student observes the day-to-day practice of their preceptor. Students will gain experience interacting with actual patients and their families as well as with other physicians, members of the healthcare team, and the medical office staff.

MCUR 601 Medical Spanish

This course is designed for healthcare personnel who want to learn key words and phrases that will help them communicate effectively with Spanish-speaking patients in specific medical situations. Topics covered include: 1) identification of body parts; 2) inquiring about location and types of pain; 3) giving instructions for medications and treatment; 4) making requests of a patient during a physical examination; 5) identifying useful emergency room words and phrases; 6) inquiring about present and past illnesses; and 7) asking key questions about pregnancy. Students will learn the essential grammar needed to communicate in the aforementioned situations. Pertinent cultural behaviors will be addressed. Previous knowledge of Spanish (two years minimum) required. Not recommended for students who are already fluent in Spanish.

MCUR 603 Medical Teaching and Leadership Elective

The CMS Medical Teaching and Leadership Elective is an intense week-long workshop with the goal of improving students' ability to give effective presentations during their clinical years, as future residents, and as future faculty. The retreat stresses small group sessions and activities to explore seven aspects of adult learning and incorporate these fundamentals into their presentations. During the week, participants will be asked to choose, prepare, and present 2-3 topics to small groups comprised of their M2 and M4 peers. The presentations will be digitally recorded for the purpose of self-evaluation, and each presentation will be followed by feedback sessions moderated by faculty preceptors. The feedback sessions will emphasize the newly introduced fundamentals of adult learning. Two students will be charged with organizing the retreat each year. Participants will have the responsibilities of being present at all sessions and contributing to the learning experiences of their peers. Two participants from a previous year will be given the option to become the student coordinators of future retreats.

MCUR 605 Academic Peer Teaching

This elective will give the peer tutor/teacher the opportunity to help first-year students improve their learning skills. It is intended to provide students with academic assistance from a peer. The tutor will benefit from the experience by gaining a greater conceptual understanding of the material as he or she explains it to others and by learning about methods and principles of education that enhance learning. The student will benefit from the experience of a peer who has done well in the course and can help him or her think about and 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.

Senior Elective Courses

MCUR 800 Online Clinical Ethics

This elective will provide interested medical students with an opportunity to develop a wide range of knowledge related to clinical ethics, including the use of ethical consultants in clinical practice. This elective is offered entirely online. Students will gain a working knowledge of the most commonly used models of ethics consultation in a range of clinical medicine settings. Students will be able to describe the benefits and/or disadvantages of ethics consultation. Students will gain skills in interpreting ethical problems and ethical aspects of clinical cases.

MCUR 806 Medical Teaching and Leadership Elective

See description under MCUR 603 (Sophomore Elective Courses)

MCUR 805 Academic Peer Teaching

See description under MCUR 605 (Sophomore Elective Courses)

MCUR 808 Clinical Skills Course Elective

Fourth-year students will take a primary teaching role in this course. They will be involved in hands-on clinical instruction of students, facilitation of small groups, and reviewing clinical experiences with individual students. Specifically, student responsibilities will include meeting with course directors to establish responsibilities and for training for specific sessions; facilitating small group sessions as the lead facilitator or with faculty; and reviewing individual student performance in the OSCE experience and providing feedback to students. Fourth-year students will be assisting student learning in workshops on SOAP note writing, order writing, presentation skills, suturing skills, reading X-rays, and reading EKGs.

Student participation in facilitating small groups, teaching in the clinical workshops, and giving feedback to students regarding their OSCE performance will allow them to meet the learning objectives.

MCUR 850 ICM Preceptorship

The senior elective in Introduction to Clinical Medicine is an opportunity for the fourth-year student to improve upon their history and physical examination skills by teaching the freshman and sophomore students these same skills. The fourth-year student works directly with the ICM course directors and helps plan and execute the course materials. The student will be responsible for a group of 2-4 second-year students and go over patient examinations with them. The student will supervise and teach at the bedside. The students will have access to all teaching aids and CD-ROMs and may get feedback on their own skills. The rotation may include taking on a group of 10-15 freshman students and teaching them, with a preceptor, the basics of physical diagnosis and history taking. The students will also participate at the EEC standardized patient facility in a supervisory fashion. The student may also help coordinate and participate in special programs, such as introduction to the third-year program, social history awareness, and sensitivity training. The student will do literature searches to identify relevance and impact of physical examination on the practice of medicine. The student will also receive training in teaching in small group settings and learn appropriate methods of evaluation. The student will help to prepare teaching cases and the learning issues about them. The student will help grade quizzes by reviewing the paragraphs the students write. The student will help write exam questions. The student will attend meetings and give input from the student's perspective. It is highly suggested that the student participate in presenting one of the topics. Students will spend 20-40 hours per week on campus. If students spend less than 40 hours per week on campus, they will be given assignments.

MCUR 851 Proposal for an Independent Senior Elective Project

This elective serves as an “umbrella” for numerous potential projects that students might develop. The completed proposal will be reviewed by the primary faculty member, as well as the Associate Dean for Medical Curriculum, for approval.

Personal Advising and Counseling

The University provides a professional counseling service through the Departments of Psychology and Psychiatry to help students deal with personal and family problems. Student needs for this service are met promptly. Outside referral may be required to meet special needs or long-term therapy. All contacts with the counseling service are strictly confidential.

Tutoring and Other Academic Assistance

The Office for Student Affairs, Office of Curriculum and the instructional faculty are interested in helping students maximize their academic performance. Every effort is made to detect potential academic problems as early as possible so that help can be given to correct these problems. Qualified individuals are available to help medical students improve their study skills and to provide tutoring assistance as needed.

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 Office for Student Affairs 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.

Student Organizations

University Student Council

Students in all four schools participate in the University Student Council. This group, organized and run entirely by students, concerns itself with overall policy and direction of the institution as they relate to student concerns. In addition, the Council plans and supports campus social events and student delegation trips to national professional group meetings. It also names student representatives to committees of the various schools 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. The Council meets monthly.

In addition to the University 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 representative 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, Educational Affairs, Faculty-Student Forum and faculty search committees.

Honors, Awards and Prizes

The Chicago Medical School publicly recognizes outstanding scholarship, research accomplishments and community service of individual 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 Chicago Medical School Chapter was chartered in 1965. The aims of this society are the promotion of scholarship and research in medical schools, the encouragement of high standards of character and conduct among students and graduates, and the recognition of high attainment in medical science and practice. Students who have demonstrated leadership and academic promise of future achievement are elected. Membership is elected 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 persons who have distinguished themselves in various areas of medicine, teaching, research and practice.

Awards and Prizes

- The Board of Trustees Scholarship Award
- The Alumni Association Scholastic Achievement Award
- Student Council Award for Outstanding Service to the Graduating Class
- The Clerkship Awards
- The Dean's Award for Service to the School
- The American Medical Women's Association Janet M. Glasgow Memorial Award
- The American Medical Women's Association Janet M. Glasgow Memorial Citation
- The John J. Sheinin Research Award
- The Morris A. Kaplan Research Fellowship
- Outstanding Service to the Community Award
- The Esther and Martin Fenner Award

Community Facilities

Transportation and Parking

The campus is accessible from downtown Chicago by major highways (Edens Expressway and the Tri-State Tollway), and conveniently served by Metra commuter rail service. The school provides shuttle service to and from the train station in Lake Bluff four times daily for student and employee commuters. Most freshman and sophomore medical students choose to live in communities closely located to the campus and, therefore, commute by automobile. Adequate, free parking is available for students.

Housing

Rosalind Franklin University offers on-campus living for students in modern, state-of-the-art apartments. For more information about these one- and two-bedroom apartments, or to learn how the Office of Student Housing can assist you in locating off-campus housing, visit www.rosalindfranklin.edu/housing.

Cultural Activities

The cultural, sports and civic activities of the Chicago metropolitan area rival those of any other large urban area in the United States, plus the added attraction of Lake Michigan. In addition to the world-famous Chicago Symphony Orchestra, opera, and theatre, Chicago enjoys renowned jazz, blues and other music venues, as well as a full range of professional sports. Chicago's fine museums offer a variety of exhibits, and the Art Institute of Chicago displays one of the best impressionist collections in the world. Additionally, the North Shore and inland communities provide an abundance of well-developed cultural activities of their own. The Chicago Symphony's summer-long programs at Ravinia Park (about 10 miles south of the campus) are well-known.

Resources

The Learning Resource Center (LRC)

The Learning Resource Center provides a wide range of services to the students, faculty and staff of RFUMS.

The Boxer University Library

The Boxer University Library collection holds nearly 120,000 volumes and currently receives more than 1,800 subscriptions to the world's leading biomedical journals, as well as access to more than 60 major medical information databases. Library services include reference assistance to identify and locate scientific and health related literature, online database searching, library instruction, interlibrary loans and fax service. Group study rooms, a 24-hour computer lab and network connectivity is available in the library. Orientations are available upon request. The Boxer University Library is open 103 hours each week.

Academic Computing Labs

The Academic Computing Labs are located on both levels of the LRC. Besides the 24-hour computer lab in the library, there are academic computing labs and a dedicated computer classroom on the lower level. Labs have PCs and Macs, printers, scanners and Internet connectivity. The LRC staff provides academic computer instruction.

Audiovisual Services

The Audiovisual Lab located in the LRC houses a collection of non-print media including audiovisual programs in various formats, as well as training models for practice in clinical and diagnostic skills. Study carrels and preview areas, equipped with appropriate hardware, are located in the library. Audiovisual Services records special University events and sets up equipment for lectures and meetings.

Biomedical Photography

The Photography Department offers the full spectrum of photographic services, including specimen and clinical photos, photomacrography, photomicrography, B&W and color copying of research data, printing and slides from computer generation or research materials. In addition, ultraviolet and fluorographic photography as well as public relations and portrait photography are available.

Duplication Services

This service handles more than 5.5 million copies each year. Work order forms and other information about Duplications are available at the Library Circulation Desk.

Digital Design Center (DDC)

The DDC prepares and produces graphics and illustrations for articles, lectures, exhibits and research. Computer graphic slides, designing of curriculum vita, laser printing, laminating and picture framing are just some of the services available to students and staff.

Information Technology

The Information Technology Department provides access to the University's computing, networking, centralized administrative systems and technical support resources to the faculty, students, staff and administration of the University. The department is also responsible for creating and maintaining a technology infrastructure to support computer networks and telecommunication.

Servers

The Information Technology Department is responsible for the installation, testing, maintenance and documentation of operating systems and related software on NT and UNIX platforms, as well as troubleshooting these systems in the event of failure.

Help Desk (End-User Support)

The Help Desk provides the University community with a single point of contact for Information Technology's support services. If a member of the community is experiencing a problem with their computer, telephone, network connection or any other related problem, they must contact the Help Desk in order for a technician to be dispatched.

Network Access

The Information Technology Department is responsible for the oversight of the University's local and wide area network. Administration of the network will aid in maintaining reliable network performance and continued information technology support for all educational, research and administrative objectives.

Database Administration

Database administration provides production support for centrally managed relational databases, including database backup, recovery and reorganization, database performance monitoring and tuning, and support for database-related problems.

First Year

FALL TERM (10 weeks)	WINTER TERM (10 weeks)	SPRING TERM (10 weeks)
Molecular Cell Biology	Embryology	Epidemiology
Histology	Histology	Genetics
Clinical Anatomy	Clinical Anatomy	Medical Ethics
Introduction to Clinical Medicine (5 weeks)		Introduction to Clinical Medicine
Physiology	Physiology	Neuroscience
Interprofessional Course	Biochemistry (5 weeks)	Biochemistry

Second Year

FALL TERM (10 weeks)	WINTER TERM (10 weeks)	SPRING TERM (10 weeks)
Pathology	Pathology	Pathology
Microbiology and Immunology	Microbiology and Immunology	Microbiology and Immunology
Pharmacology	Pharmacology	Pharmacology
Introduction to Clinical Medicine	Introduction to Clinical Medicine	Introduction to Clinical Medicine
Clinical Neuroscience	Clinical Neuroscience	Preventive Medicine
Elective*	Elective*	Elective*

*Each student is required to earn 3 hours of elective credit in the second year.

Third Year

8 weeks	6 weeks	4 weeks	3 weeks
Surgery	Pediatrics	Emergency Medicine	Ambulatory Care
Internal Medicine	Obstetrics/Gynecology	Family Medicine	Neurology
	Psychiatry		Optional Elective**

**A limited number of students may opt to take a 3-week elective in their M3 year, and Ambulatory Care in their M4 year.

Fourth Year

14 weeks	14 weeks	4 weeks
Intramural Electives	Intra/Extramural Electives	Medicine or Pediatrics Sub I

Departmental Information

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.

Students assigned to the third-year surgical clerkship at Mount Sinai Hospital Medical Center can spend two (2) weeks in anesthesia as an elective. Students learn about anesthesia by participating in preoperative patient evaluation, administration of anesthesia by participating in preoperative patient evaluation, and administration of anesthesia and duties to observe emergencies, trauma and obstetric anesthesia.

Sophomore Elective Course

MANE 601 Research in Anesthesia

This course will focus on research topics related to anesthesia or pain management. The student will select and propose a research project to the supervising faculty member. The approved research project will be carried out under the guidance of the supervising faculty member. Successful completion of the course will include completion of the proposed project. This course may be extended over multiple quarters.

Senior Elective Course

MANE 801 Anesthesiology

The student spends either two (2) or four (4) weeks working directly with one of the staff anesthesiologists in the operating room or obstetrical suite at Mount Sinai Hospital Medical Center. The student learns hands-on management of the airway and endotracheal intubation of the patient.

Faculty and Associated Staff

Anesthesiologists:

Henri Havdala, MD, Professor Emeritus
Victor Jordan, MD, Clinical Assistant Professor
Mable Kalathiveetil, MD, Instructor
Matilda Koppera, MD, Assistant Professor
Aurea Luzano, MD, Instructor
Venkatgiri Mady, MD, Assistant Professor
Domingo Osunero, Jr., MD, Instructor
Robert Rogers, MD, Lecturer
John E. Vazquez, MD, Associate Professor and Chair

CRNAs:

Debra Butler, Chief CRNA
Mary Higgins, CRNA
Shannin Leach, CRNA
Ernestine C. Martin, CRNA
Nakia McAdoo, CRNA
Michele J. Neill, CRNA
Sandra M. Patterson, CRNA
Kate Roady, CRNA
Breggetta A. Robinson, Assistant Chief CRNA
Josephine Wu, CRNA
Lordora Wheeler-Robinson, CRNA

Anesthesia Technicians:

Augie Cabezas
Larry Foster
Petrita Navarro
Mary Brown, Administrative Assistant

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 Molecular Cell Biology, Medical Biochemistry and Human Genetics. The courses provide medical students with the necessary biochemical and molecular biological background for the study of normal and abnormal physiological processes and encourages 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 the areas of metabolic regulation, enzymology, protein structure, membrane transport proteins, neuroendocrine and neurotrophic proteins, signal transduction, RNA-protein interactions, and membrane protein structural biology. A number of graduate students are integrated into these programs. Opportunities for medical student participation in research are available during the summer quarter and on a part-time basis throughout the school year. Students with strong research interests are encouraged to investigate the Department's combined degree program (MD/PhD) with the Chair. Students enrolled in medical school can also take a leave to pursue research for an MS or PhD degree.

MBCH 502 Molecular Cell Biology

In this course, the molecular and cellular processes common to all eukaryotic cells are studied and, where appropriate, comparisons to prokaryotic cells are made. The molecular and cellular processes of specific cell types and tissue types are also considered, and related to their morphological appearance. A unique aspect of the course is a self-teaching program that covers certain facts and concepts basic to biochemistry; this is an individual, self-learning, self-evaluation program. Dr. Walters and faculty from the Departments of Biochemistry and Molecular Biology and Cell Biology & Anatomy. Fall quarter. 3 to 5 lecture hours and 1 conference hour per week (5 units).

MBCH 505A & B Medical Biochemistry

The fundamental chemical properties and biological reactions of important compounds in the normally functioning human organism are studied. Emphasis is placed on the regulation and integration of metabolic processes. The course makes use of both lectures and conferences. This course utilizes the self-teaching program to provide the students with an initial foundation of knowledge. Dr. Kaplan and faculty. Winter and Spring quarters. 3 to 6 lecture hours per week (6 units).

MBCH 508 Human Genetics

The course is designed to provide first-year medical students with an understanding of basic genetic principles which are requisite to the practice of modern medicine. Topics discussed include chromosomal abnormalities, pedigree construction, Mendelian inheritance patterns and risk assessment, the role of linkage and restriction fragment length polymorphisms in diagnosis, indications for genetic counseling, and prenatal diagnosis and genetic aspects of cancer. Drs. Neet and McKee. Spring quarter. 15 hours of lecture and 6 hours of conference (3 units).

MBCH 616 Crystallization of Membrane Proteins (Research)

This course will teach the student cutting-edge approaches used in the over-expression and crystallization of membrane proteins. These 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. Fall and Winter quarters. Dr. Ronald Kaplan (3 credits).

Sophomore Elective Courses

MBCH 623 NGF Mutants (Research)

This elective provides students the opportunity to participate in each phase of experimental procedures to make mutants. Cloning, DNA sequencing, restriction mapping, plasmid manipulation, transfection, and cell growth are addressed. Students learn some molecular biology and protein chemistry through hands-on working to prepare new NGF mutants. If time is available, determination of the effects of such mutants in biological assays is addressed. Dr. Neet.

MBCH 630 Enzyme Structure and Mechanism

This is a course of lectures and seminars by outside speakers on aspects of enzymology. The following subjects are covered: protein sequence methodology, chemical and enzyme kinetics including regulatory kinetics, enzyme mechanisms, chemical modification of enzymes, and site-directed mutagenesis. Spring (alternate years). Dr. Marc Glucksman (3 credits).

MBCH 631 NGF Signal Transduction

The student will learn some molecular biology, cell biology, and protein chemistry by hands-on lab work to determine the effects of neurotrophins and their mutants on signal transduction in PC12 or other cells, including P53, NFkB, MAP kinases, etc. Participation in each phase of experimental procedures to study cellular signalling by NGF. Designing and executing experiments, analyzing results, and troubleshooting. Methods – western blotting, enzyme assays, tissue culture. All quarters. Dr. Kenneth Neet (3 credits).

Faculty and Associated Staff

Carl Correll, PhD, Associate Professor
 Marc Glucksman, PhD, Professor
 David Harrison, PhD, Associate Professor
 Jack Henkin, PhD, Assistant Professor
 Ronald Kaplan, PhD, Professor and Chair
 John Keller, PhD, Professor Emeritus
 Robert Kemp, PhD, Professor
 Edward McKee, PhD, Adjunct Associate Professor
 David Mueller, PhD, Professor
 Kenneth Neet, PhD, Professor
 Eric Walters, PhD, Professor
 Sang Woo, PhD, Assistant Professor
 Yuanda Zhang, PhD, Research Assistant Professor
 (Secondary)

Department of Cell Biology and Anatomy

The Department of Cell Biology & Anatomy is responsible for a large portion of the education of medical students in their first year. Required courses offered by the department include Clinical Anatomy, Histology, Embryology, an interdepartmental course and Molecular and Cellular. The department is committed to providing students with a strong education in cell biology. To this end, a wide range of cell biology topics are covered in the various courses taught by the department. The structure and function of cells and their intracellular components are stressed, as are clinical aspects of cell biology. The field of cell biology is rapidly advancing and, thus, recent discoveries related to cell structure and function also are presented in these courses.

The anatomically oriented stress the structural organization of the adult human body in relation to its development and function. This structural organization is presented to the students in the form of lectures, audiovisual demonstrations, laboratory participation (dissections and microscopic study) and individual consultation by a faculty committed to excellence in teaching. Clinical lectures are presented by clinical specialists, such as surgeons and radiologists, who stress certain anatomical principles and their relevance to clinical problems.

Required Classes

MCBA 500A & B Clinical Anatomy

Both gross anatomy and developmental anatomy are studied in this course. Laboratory time is devoted exclusively to the regional dissection of a human cadaver. Supplementary offerings within the course include films, prosected cadavers, and bone sets for individual study. 500-Fall quarter, 3 lectures and 5 laboratory hours per week (5 units). 501-Winter quarter, 4 lectures and 5 laboratory hours per week (6 units). 11 total credit hours.

MCBA 502A & B Histology

The principal educational goal of this course is to convey the relationship between organ structure and organ function, through the detailed study of light microscopic preparations and electron micrographs of cells, tissues, and organs. Autumn quarter (3 units) and Winter quarter (2 units).

MCBA 504 Embryology

The 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 are also discussed (2 units).

Sophomore Elective Courses

MCBA 606 Advanced Topics in Cell Biology

This course focuses on selected topics concerning the structure and function of molecules and organelles within the cytoplasm and extracellular matrices. Emphasis is placed on the use of primary source materials. Two hours per week (2 units). Not offered every year. Prerequisite: MBCH 502.

MCBA 613 Basic Electron Microscopy Technique

This elective introduces the student to the technical aspects of conventional transmission electron microscopy, and combines lectures with laboratory exercises. Students carry out the following laboratory procedures: animal surgery and tissue fixation; epoxy embedding; thick- and thin-sectioning; examination and photography of sections with electron microscope; and photographic processing of micrographs. One lecture and one laboratory session per week (2 units). Prerequisite: consent of the instructor.

MCBA 616 Mononeuropathies and Radiculopathies

Mononeuropathies and radiculopathies are common neurological disorders. This course will focus on what these disorders are and how to diagnose them. The student will learn the proper evaluation of individual muscles, reflexes, and dermatomes in arriving at a diagnosis. The course will cover such syndromes as Carpal Tunnel, Ulnar Neuropathy, Peroneal Neuropathy, Cervical and Lumbar Radiculopathies. Fall quarter. Dr. Robert Hazelrigg (3 credits).

MCBA 625 Role of Cytoskeleton in Axon Regeneration (Research)

Students participate in a research project related to changes in transport of cytoskeletal proteins in regenerating nerves using biochemical immunological methods (1 unit).

Multidisciplinary Courses**MCBA 606 Advanced Topics in Cell Biology**

This course focuses on selected topics concerning the structure and function of molecules and organelles within the cytoplasm and extracellular matrices. Emphasis placed on the use of primary source materials. Two hours per week (2 units). Not offered every year. Prerequisite: MBCH 502.

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. Daily dissection of cadaveric material is required. 4 weeks, March and April only. Dr. David McCandless.

Faculty and Associated Staff

Marc Abel, PhD, Associate Professor
 Christopher Brandon, PhD, Associate Professor
 Joseph DiMario, PhD, Associate Professor
 Karen Dimario, MS, Instructor
 Miroslav Dundr, PhD, Assistant Professor
 William Frost, PhD, Professor and Chair
 Nasrin Haghighat, PhD, Instructor
 David McCandless, PhD, Professor
 John Minarcik, MD, Adjunct Instructor
 Monica Oblinger, PhD, Professor
 Michael Sarras, PhD, Professor
 Greg Skladzien, MD, Adjunct Instructor (Secondary)
 Barbara Vertel, PhD, Professor

Department of Cellular and Molecular Pharmacology

Students learn the basic principles of pharmacology in the Foundations of Medical Pharmacology Course. They have an opportunity to expand and apply this knowledge during their clerkship years. Opportunities for medical student participation in departmental research projects are available during the summer and as research electives in the sophomore year. In addition, the Department offers elective courses covering basic and specialized aspects of Cellular & Molecular Pharmacology.

The Medical Pharmacology course seeks to develop an understanding of the basic principles of drug action and how they apply to the treatment of pathophysiological basis of disease. The course is designed to promote the development of a rational approach to therapeutics, based on sound understanding of basic principles. The faculty reviews the content of courses yearly to update and maintain clinical relevance. The subject matter is organized around drug classes according to their therapeutic effects and mechanisms of action. Clinical conferences and small group work are used to underscore the importance of understanding basic pharmacology and pathophysiology in the treatment of disease states. Teaching is carried out by faculty with a firm commitment to medical school education. 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 Advanced Molecular Biology, Genetic basis for drug addiction, Neuropharmacology, and Principles of Drug Action & Therapeutics, have been developed, as these areas contribute to the advancement of medical sciences.

Department faculty members are engaged in research in the general areas of cellular and molecular pharmacology and molecular biology. Specific research projects include the neurobiology of drug addiction, pre-mRNA splicing, molecular mechanisms of differentiation, and cellular pharmacology of central nervous system dysfunction.

Sophomore Required Course

MCMP 600A, 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, contraindications and side effects, and the toxicology of selected compounds are also presented. Autumn, Winter and Spring quarters (11 units). Dr. Oltmans and faculty.

Sophomore Elective Courses

GCMP 600 & 601 Neuropharmacology I & II

This course focuses on the pharmacology of neurotransmitters and other active neurochemicals in the brain. Current knowledge and theories of the mechanisms by which major classes of drugs act at the cellular and molecular level to influence the biosynthesis, distribution, storage, uptake, release and metabolism of centrally active neurochemicals. Scholarly publications accompany discussion lessons. Winter and Spring quarters (3 units). Faculty.

MCMP 610 Molecular and Biochemical Basis of Neuropsychiatric Disorders

This elective takes a multidisciplinary approach to the study of neurochemical correlates of neuropsychiatric disorders. An initial discussion of the fundamental processes involved in synaptic transmission is followed by an analysis of neurotransmitter-receptor interactions and of the different factors modulating signal transduction at the molecular level. When appropriate, recent advances in genetics and molecular biology are introduced and current concepts in basic neurochemistry, electrophysiology, neuropharmacology and behavior are discussed. The rationale underlying the use of different pharmacotherapy modalities in various neuropsychiatric conditions is explored in some detail. Time to be arranged with instructor. TBA (1 unit). Dr. Mosnaim.

MCMP 613 Principles of Drug Action and Therapeutics

The purpose of this elective is to present a comprehensive and coherent explanation of the science of pharmacology in terms of its basic concepts and principles. The course covers drug absorption, distribution, excretion and biotransformation, as well as dose-response relationships and host factors influencing drug action. TBA (2 units). Dr. Mosnaim and faculty.

MCMP 614 Molecular Genetic Analysis of Pre-mRNA Splicing (Research)

In our studies, we are examining the changes in gene expression that occur upon chronic drug exposure. One prominent alteration that occurs upon chronic cocaine exposure is accumulation in the striatum of very stable isoforms of the transcription factor FosB that is produced by alternative splicing of the FosB transcript. The FosB isoforms may mediate some of the neural and behavioral modifications that occur with drug addiction. We are studying the factors that play a role in the alternative splicing of FosB. Because FosB is also induced by chronic administration of other drugs of abuse, such as amphetamine, nicotine and opiates, the results obtained in these studies will lead to a better understanding of drug addiction. TBA. Dr. Potashkin.

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. TBA. Dr. Steiner.

Faculty and Associated Staff

Charles Barsano, MD, PhD, Professor (Secondary)
 Pastor Couceyro, PhD, Research Assistant Professor
 Seymour Diamond, MD, Adjunct Professor
 Seymour Ehrenpreis, PhD, Professor Emeritus
 Steven Hoff, PhD, Adjunct Associate Professor
 Xiu-Ti Hu, MD, PhD, Research Associate Professor
 Michela Marinelli, PhD, Assistant Professor
 Gloria Meredith, PhD, Professor and Chair
 Velayudhan Nair, PhD, Distinguished
 Professor Emeritus
 Aron Mosnaim, PhD, Professor
 Gary Oltmans, PhD, Associate Professor
 Judith Potashkin, PhD, Associate Professor
 Gorden Pullen, PhD, Assistant Professor (Secondary)
 Barry Roberts, PhD, Adjunct Professor
 Steven Smith, PhD, Adjunct Associate Professor
 Ann Snyder, PhD, Research Associate Professor
 Heinz Steiner, PhD, Associate Professor
 Francis White, PhD, Professor

Department of Emergency Medicine

The Department of Emergency Medicine provides health care of the highest standard at both educational sites, the emergency departments at Mount Sinai Hospital and Stroger Hospital. The Department of Emergency Medicine is dedicated to providing a premier learning environment for all the medical students, podiatry students, and physician assistant students. The Department of Emergency Medicine educates the residents in all related training programs including emergency medicine, medicine, surgery, pediatrics, family medicine, and psychiatry. The Department of Emergency Medicine at both sites engages in a significant amount of clinically based research. Most of this research resulted in publications in premier journals.

Junior Clerkship

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 in the second year in “Introduction to Clinical Skills” are 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. The student is assigned to either John H. Stroger, Jr., Hospital of Cook County or Mount Sinai Hospital for the clinical portion. Lectures are attended by the entire group at Mount Sinai.

Sophomore Elective Courses

MEMG 601 Research in Emergency Medicine — John H. Stroger, Jr. Hospital of Cook County

With the faculty mentor, students will select a topic from the broad areas of clinical or health services research: 1) best practices within the ED: diagnostic test evaluation; biomedical and cost outcomes; 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; rapid diagnostic and treatment protocols in least restrictive environments.

MEMG 602 Research in Emergency Medicine — Mount Sinai Hospital

With the faculty mentor, students will select a topic from the broad areas of clinical or health services research, including violence prevention, ultrasound, asthma, and emergency medicine curriculum. 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 during this 1- to 2-month elective.

Senior Elective Courses

MEMG 824 Emergency Medicine — John H. Stroger, Jr. 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. Four weeks.

MEMG 825 Research in Emergency Medicine — Mount Sinai Hospital

With the faculty mentor, students will select a topic from the broad areas of clinical or health services research, including violence prevention, ultrasound, asthma, emergency medicine curriculum. The student will complete a study curriculum in research design and performance. The student is expected to select, design and substantially complete a research project during this 1- to 2-month elective.

MEMG 894 Emergency Medicine — Mount Sinai Hospital

The student will be scheduled 40 hours weekly 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

Anthony Bekkerman, MD, Clinical Instructor
 Rebecca Bower-Lewis, MD, Lecturer
 Michelle Canham, MD, Lecturer
 Karen Cosby, MD, Lecturer
 Eileen Couture, MD, Lecturer
 Jorge Ferrer, MD, Instructor
 Leon Gussow, MD, Lecturer
 Ross Heller, MD, Associate Professor
 Cheng Hsieh, BS, Clinical Instructor
 Mark Kling, MD, Lecturer
 Paulina Kuchinic, MD, Assistant Professor
 Jerrold Leikin MD, Lecturer (Secondary)
 Anthony Macasaet, MD, Assistant Professor
 Kris Narasimhan, MD, Lecturer
 Isam Nasr, MD, Lecturer
 Mark Olszyk, MD, Clinical Assistant Professor
 Scott Plantz, MD, Clinical Associate Professor
 Rebecca Roberts, MD, Lecturer
 Shari Schabowski, MD, Lecturer
 Jeffrey Schaider, MD, Lecturer
 Scott Sherman, MD, Lecturer
 Louis Shicker, MD, Associate Professor (Secondary)
 Robert Simon, MD, Lecturer
 Amardeep Singh, MD, Instructor
 Amarjit Singh, MD, Assistant Professor
 Michael Slater, MD, Assistant Professor
 Sharon Southe, MD, Lecturer
 Thomas Widell, MD, Assistant Professor
 Leslie Zun, MD, Professor 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 Chicago Medical School.

Freshman Elective Course

MMED 615 Clinical Exposure Program

Selected students spend two half-days per month at a primary site with a mentoring physician. Emphasis is placed on the doctor/patient relationship. All quarters.

Required Courses

MMED 502A, B, 602C, D, E Introduction to Clinical Medicine

First-year medical students as well as second-year students from the Scholl College of Podiatric Medicine participate in this course. The course consists of lectures and student demonstrations of history taking followed by lectures and small group labs focused on the physical examination of the different organ systems. Kurt Kurowski, MD.

MMTD 601 Preventive Medicine

Four-hour lecture and home study course. It contains a module in epidemiology, plus introductory lectures and assignments in the fields of occupational medicine and of environmental medicine. Further, there are lectures and assignments on a sampling of diseases which are common, which constitute public health problems and which are amenable to varying degrees to screening, early diagnosis and subsequent intervention. Spring quarter. David R. Rudy, MD, MPH.

MFPM 700 Family Medicine Clerkship

Students learn about and experience family practice in its unique combination of inpatient and outpatient settings; service to all age groups and both genders; attention to both organic and functional aspects of illness; and the interactions among lifestyle, life stresses and disease. Four weeks. David R. Rudy, MD, MPH.

MFPM 803 Sports Medicine

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 and Niles West High School and North Park University. Additional time may be available at various rehabilitation centers and orthopedic offices in the area. A comprehensive overview of sports medicine is offered under the direct supervision of three family practice physicians who are board certified in sports medicine. The student will be responsible for independent evaluation of athletes in various settings including traditional office settings, high school and collegiate training rooms and athletic events. After evaluating athletes, the student will have an opportunity to discuss differential diagnosis, as well as treatment options, with the supervising attending. The student will also see patients (traditional and sports medicine) in the Resurrection Family Practice Residency Center. This is a Pass/Fail course.

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. Four weeks. This is a Pass/Fail course.

MFPM 830 Care of Adults with Developmental Disorders

In this elective, the medical student develops an understanding of caring for adults with developmental disabilities. The student works with a family physician and a multidisciplinary team to evaluate and treat adults with developmental disabilities (including a social worker, audiologist, and nutritionist). The student will also have opportunities to interact and work with families, care providers, and other social agencies that provide services for the patients or those who are involved in a variety of programs at the center. The experience is primarily outpatient but also includes evaluation of patients from the center who are hospitalized, in nursing homes, and group homes. Advocate Lutheran General Hospital. Dr. Brian Chicoine. A report is due at the end, and is a requirement of the elective. This is a Pass/Fail course.

MFPM 835 Headache Diagnosis and Management

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. This is a Pass/Fail course.

MFPM 885 Sports Medicine

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. This is a Pass/Fail course.

Faculty and Associated Staff

Abdulmassih Abdulmassih, MD, Clinical Assistant Professor

Joseph Atto, MD, Clinical Assistant Professor

Steven Ayre, MD, Clinical Assistant Professor

Ihab Aziz, MD, Clinical Assistant Professor

Walten Baba, MD, PhD, Professor

John Benages, MD, Clinical Instructor

Stephen Bennett, MD, Lecturer

William Briner, MD, Lecturer

George Brodsky, MD, Clinical Assistant Professor

Matthew Brown, MD, Lecturer

Sangili Chandran, MD, Clinical Assistant Professor

Yuri Cherny, MD, Clinical Assistant Professor

Audrey Cheung-O'Carroll, MD, Clinical Instructor

Brian Chicoine, MD, Lecturer

Dimitrios Christoforidis, MD, Clinical Assistant Professor

Richard Clark, MD, Clinical Assistant Professor

Seymour Diamond, MD, Clinical Professor (Secondary)

George Dietz, MD, Clinical Assistant Professor

Lakshmi Dodda, MD, Clinical Instructor

Daniel Dugan, PhD, Adjunct Assistant Professor

Harvey Echols, MD, Clinical Instructor

Fredrick Ellyin, MD, Professor (Secondary)

Ronald Ferguson, MD, Lecturer

Mark Fields, MD, Clinical Assistant Professor

Frederick Freitag, MD, Clinical Assistant Professor

Michael Friedman, MD, Lecturer

Darnella Gist, MD, Clinical Instructor

Stuart Goldman, MD, Lecturer

Max Goldschmidt, MD, Associate Professor

Maryellen Goodell, MD, Clinical Assistant Professor

Arvind Goyal, MD, Clinical Associate Professor

Judith Gravidal, MD, Chair

William Greenfield, MD, Clinical Assistant Professor

Lawrence Hirsch, MD, Professor Emeritus

Michael Jacobs, MD, Clinical Assistant Professor

Carrie Jaworski, MD, Clinical Instructor

Rajiv Kandala, MD, Clinical Assistant Professor

James Kim, MD, Clinical Instructor

Mitchell King, MD, Lecturer

Greg Kirschner, MD, Lecturer

Kurt Kurowski, MD, Associate Professor

Frederic Leary, MD, Clinical Assistant Professor

Herbert Lipschultz, MD, Clinical Assistant Professor

Adolfo Llano, MD, Clinical Assistant Professor

Georgia Lubben, MD, Clinical Instructor

Mohammad Malik, MD, Clinical Assistant Professor

Manfred Man, DO, Clinical Assistant Professor

Jesus Manteca, MD, Clinical Assistant Professor

Jay Mayefsky, MD, Clinical Professor (Secondary)

Dennis McCreary, MD, Clinical Assistant Professor

Timothy McCurry, MD, Lecturer

Garry Melnick, MD, Clinical Assistant Professor

Padmanabhan Mukundan, MD, Assistant Professor (Secondary)

Ruksana Nazeer, MD, Clinical Instructor

Donald Novey, MD, Clinical Instructor (Secondary)

Steven Pearlman, MD, Clinical Assistant Professor

Betsy Pepper, MD, Clinical Assistant Professor

Tamar Perlow, MD, Lecturer

Kenneth Pierini, MD, Clinical Assistant Professor

Michael Plunkett, MD, Assistant Professor

Stuart Richer, OD, PhD, Clinical Associate Professor

Stephen Rittmann, MD, Clinical Assistant Professor

Robert Rozner, MD, Clinical Instructor

David Rudy, MD, MPH, Professor

Lee Sacks, MD, Lecturer

Wallace Salzman, MD, Clinical Assistant Professor

Len Scarpinato, DO, Clinical Associate Professor

Eric Schackow, MD, Lecturer

Alison Sennello-Holloway, MD, Clinical Assistant Professor

Bharat Shah, MD, Lecturer

Jerrold Shapiro, MD, Lecturer

Abha Sharma, MD, Clinical Instructor

Melanie Shuran, PhD, RD, Assistant Professor (Secondary)

Irwin Smith, MD, Clinical Assistant Professor

Gerald Stanton, MD, Clinical Assistant Professor

Sajjini Thomas, MD, Lecturer

Demetrius Trakas, MD, Lecturer

James Valek, MD, Lecturer

Steven Whitman, PhD, Professor (Secondary)

Augustine Wong, MD, Assistant Professor

Syeda Zahedi, MD, Clinical Instructor

Miles Zaremski, JD, Adjunct Assistant Professor

Department of Medicine

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.

The student training programs are allied to the training of residents and clinical fellows in close collaboration with other clinical and basic science teaching and research programs. Critical Care Medicine, for instance, is a division in which the Departments of Medicine and Surgery combine resources and responsibilities. The students are further encouraged to participate actively in both clinical and experimental research projects at the medical school and in the affiliated hospitals.

First-Year Required Course

The first-year Introduction to Clinical Medicine Course provides clinical training in history taking, the physical examination, patient examination and physical diagnosis. The initial lectures and laboratory sessions concentrate on history taking skills and the approach to the patient. The lectures on history taking are held in term one. The physical examination portion of the course, beginning in term three, is didactic and based primarily on audiovisual and live demonstrations. During this time, there is elaboration of the history-taking skills and introduction of the physical examination. These didactic sessions are complemented by workshops in which smaller groups of students are guided by personalized instruction as they develop the skills of history taking and physical examination that they practice on each other. The course provides the students with his or her first clinical learning experiences. The grade is determined by clinical competency/practical examination and a multiple choice final examination. MMED 502A & B (4 units).

Second-Year Required Course

This portion of Introduction to Clinical Medicine builds on the first-year required course of Introduction of Clinical Medicine. The students have lectures throughout the year with a focus on history taking and physical examination working toward developing problem lists, differential diagnosis, and understanding the pathophysiology of disease. These lectures are primarily didactic yet are quite interactive. The physical examination and interviewing techniques are reviewed early in the course. The students are evaluated on their head-to-toe physical examination by standardized patient examination. The students are also involved in actual patient examinations, which allow the students to utilize the history and physical examination to develop a data base which serves as the primary source for identification of patient problems. Upon completion of this course, the students should be skilled and efficient in basic techniques of interviewing, history taking, and physical examination. The student is also introduced to the procedures and laboratory techniques that supplement the clinical examination in preparation for the clinical clerkships. During the year, the student will have performed many written evaluations of patients seen in the hospitals. They will also have experience in oral presentations of the patients they have examined. Near the end of the course, the students are evaluated on focused histories and physicals by standardized patient examinations. The final grade is based on clinical performance and performance on multiple choice examinations. The course is year long. MMED 602C, D, E (11 units).

Required Courses

MMED 700 Medicine Clerkship

The Junior Medicine Clerkship is conducted at one of CMS's seven affiliated hospitals. An eight week rotation is offered at John H. Stroger, Jr., Hospital of Cook County, Christ Hospital, Illinois Masonic Hospital, Mount Sinai Hospital Medical Center, North Chicago Veterans Affairs Medical Center, Norwalk Hospital and Lutheran General Hospital. There are designated faculty clerkship supervisors and teaching faculty at each institution. The objective of the clerkship is to present 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 conferences, clinical-pathological conferences 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 701 Ambulatory Care

As part of this required clerkship, students spend time participating in internal medicine and subspecialty clinics for three weeks. One day a week is spent at Chicago Medical School for educational sessions, including seeing standardized patients in the Education and Evaluation Center. The goal is to become familiar with outpatient internal medicine and learn to function in the office setting. Interactive computer cases will be done by the students to enhance learning about the work-up of various medical problems. Basic life support certification is scheduled and required. This is a Pass/Fail program. Three weeks (4.5 units).

Required Course

MMED 800 Medicine Subinternship

The student Subinternship 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 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 is intended to permit 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 Endocrinology-Metabolism (Research)

This elective is directed at developing and enhancing the 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 or her on an individual basis.

MMED 614 Research in Clinical Diabetes

This elective provides students with the opportunity to review the healthcare outcomes of patients with diabetes in relation to evaluation of current and innovative therapies and complications. The student assists with patient evaluations, data analysis, synthesis and library research.

MMED 622 Medical Informatics (Endocrinology-Metabolism)

Student will review data, analyze and write a report with focus on care of diabetes. Student will gain understanding of the clinical manifestations relationship with pathophysiology of diabetes mellitus through the use of patient computer database; the application of computers in diagnosis and management of patient's clinical problems, and the development of recent computer applications in medical knowledge assessment.

MMED 623 Research in Cardiopulmonary Resuscitation

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. This course 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 up on information learned in Mammalian Physiology, Pathology, Pharmacology, and ICM. In addition, the student's participation will fill a much-needed role in the research project. Winter and Spring quarters. Dr. Raul Gazmuri. (One unit of sophomore elective credit.)

MMED 624 Comparison of Pulmonary Function in Immigrant vs US-born Asian Indians

The student will participate in a clinical research project pertaining to pulmonary function. The student will gain a better understanding of respiratory physiology and will also receive an introduction to the principles of pulmonary medicine. Objective of course: The objective is to assess the cause of the difference in respiratory function between the Caucasian population and the Indian American population. This will be done by assessing the respiratory function of second-generation Indian Americans and comparing it to the respiratory function of the previous generation. Student's overall role in course: The student will be responsible for performing the respiratory function tests, recruiting study members, keeping records and data, and writing a paper detailing the findings that is intended for publication. Method of instruction/methodologies to be learned: The student will gain a better understanding of respiratory physiology, will learn the proper procedures and protocols involved in conducting a clinical study, and how to prepare an article for publication in a scientific journal. Fall quarter. Dr. Ashok Fulambarker. (One unit of sophomore elective credit.)

MMED 625 & 626 Disability Awareness Training A & B

Patients with disabilities are traditionally an underserved population. Physicians in every field of medicine see patients with various disabilities. In this course, the students will receive an overview of taking care of patients with disabilities. The students will learn about issues with taking the medical history and performing the physical examination on patients with disabilities. In addition, the students will visit the Lake County Center for Independent Living, with the goal of increasing the understanding of the students of the services that are available for persons with disabilities. Some students will also be assigned to a person who has a disability. Students will learn from speaking with them and their families. What was learned from these conversations will be shared with all the students at small group discussions. Students will also visit a rehabilitation facility and speak with physicians that care for persons with disabilities. The goal is to teach medical students to be well aware of and comprehend the unique patient care requirements of people with disabilities. Two hours per week during the spring semester (1 unit).

Senior Elective Courses

MMED 805 Cardiovascular Research (North Chicago VA Medical Center)

This course involves hands-on research experience in a cardiovascular research laboratory. The student will work with investigators under the guidance and supervision of the Principal Investigator and Laboratory Director. The level of responsibility will be determined by the level of prior training of the student and his/her initiative and interest. There currently are three separate projects being conducted and the student will be assigned to one project for the duration of the elective.

MMED 809 Bioethics

This course will focus on the specific bioethical concerns, interests, or needs of each individual student. There are three formats of clinical exposure and/or study from which the student may choose.

MMED 813 Cardiology (Mount Sinai Hospital Medical Center)

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 reviewed, plans formulated, etc. Students attend rounds in the CCU and participate in the examination and evaluation of acute care cardiac patients. The students participate in the daily noninvasive testing review sessions with fellows and attendings, and also assist in doing treadmill ECGs. These sessions emphasize clinical correlation. Time permitting, students with special interest in catheterization can observe some procedures and observe open heart surgery, particularly the operation of a patient they are following.

MMED 814 Cardiology (John H. Stroger, Jr., Hospital of Cook County)

This rotation consists of two weeks of CCU and two weeks of inpatient cardiology consults, or four weeks of CCU. Typical hours are 7:00 a.m. – 7:00 p.m. This elective will allow the student to increase his or her knowledge of cardiovascular pathophysiology through involvement in all aspects of clinical cardiology. Participation in daily consult and coronary care rounds will allow exposure to patients with atherosclerotic, hypertensive, valvular and congenital heart disease. Students are encouraged to improve their ECG interpretation skills as well as gain an understanding of echo, stress testing and cardiac catheterization.

MMED 815 Cardiology (North Chicago VA Medical Center)

The student participates in daily patient rounds involving direct clinical patient care and teaching; workup of patients admitted to the cardiology service, both coronary care and active ward service; and teaching sessions and rounds including patient care and interpretation of all noninvasive cardiac testing. The student attends cardiology outpatient clinics for patient follow-up and for instruction in evaluation of cardiology outpatients. Facilities utilized include ward services, cardiac noninvasive laboratories, outpatient clinics, CCU and MICU. Technical and physician staff at the attending and fellow level provides student instruction in cardiologic instrumentation, as well as basic instruction in clinical cardiology with pathophysiologic correlations and interpretations of invasive and noninvasive cardiac data gleaned from patient testing. The student participates in ongoing clinical research projects that involve his or her daily function.

MMED 816 Medicine Critical Care (MICU) (Advocate Illinois Masonic Medical Center)

The student will work closely with interns, residents and fellows in taking care of all patients admitted to medical intensive care units. During the elective, the student should become familiar with the basic principles of diagnosing and treating acutely ill patients. Problems commonly encountered include

- 1) acute respiratory failure, ventilator management;
- 2) myocardial infarction, congestive heart failure, cardiac arrhythmias, hypotension and hypertension;
- 3) acute neurological problems – CVAs, drug overdose, change in mental status;
- 4) diabetic emergencies such as diabetic ketoacidosis;
- 5) uncontrolled upper and lower gastrointestinal bleeding; and
- 6) acute renal failure, peritoneal and hemodialysis.

In addition, students will perform simple invasive procedures such as arterial line insertion, thoracentesis, paracentesis and lumbar puncture. Three to four times per week there is an informal lecture on topics of interest. Students will be expected to participate in preparing these. Emphasis is given to case presentations with discussion of differential diagnosis, approach to diagnostic work-up and treatment rationale.

MMED 817 Medical Critical Care (MICU) (Norwalk Hospital)

This rotation will provide necessary training and exposure to the student, enabling 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. Students will attend daily rounds and daily teaching conferences. Medical Grand Rounds will be attended on Thursdays from 8:00 to 9:00 a.m. A weekly meeting with the student's tutor will be held; notes and orders will be reviewed with the senior resident and tutor. The level of patient responsibility will include approximately three new patients per week (maximum of three patients at one time); official history and physical admission note and subsequent daily progress notes; all orders, which must be countersigned before being taken off; and a discharge summary note.

MMED 818 Cardiovascular Testing (North Chicago VA Medical Center)

The student is involved in the workup of patients being admitted to the cardiology service and participates in teaching sessions and rounds, including interpretation of all noninvasive cardiac testing (EKG, Holter monitoring, treadmill exercise testing, echocardiogram, and pressure curves from bedside monitored patients).

MMED 819 Medical Critical Care (John H. Stroger, Jr. Hospital of Cook County)

The senior student learns basic clinical skills, knowledge and procedures in order to treat patients in the medical intensive care unit. In addition, the student is expected to be an integral part of the unit, taking calls with their assigned team every fourth night, working up one patient each night and following that patient through his course in the ICU. The student's primary relationship is with the assigned intern-resident team, with interaction with the attending during ICU rounds and lectures.

MMED 820 Medical Critical Care (Mount Sinai Hospital Medical Center, North Chicago VA Medical Center)

To enable senior medical students to learn the basic clinical skills, knowledge, and procedures to treat patients in the Medical Intensive Care Unit at NCVAMC. This will be accomplished through a core curriculum of lectures, certification in basic cardiopulmonary resuscitation, hands-on experience with ventilators and monitors, learning indications for the complications of procedures in the ICU, and having the opportunity to do selected procedures under supervision. In addition, students will be expected to be an integral part of the unit, taking calls with their assigned team every fourth night, working up one patient each night and following that patient through this course in the ICU. The student's primary relationship will be with the assigned intern-resident team, with interaction with the attending during ICU rounds and lectures.

MMED 821 Dermatology
(John H. Stroger, Jr. Hospital of Cook County)

The student will work with an attending physician and a faculty member in the Department of Clinical Dermatology, and workup patients as required.

MMED 822 Dermatology

This three-week program offers a comprehensive overview of allergy and clinical immunology problems in adults and children for the third-year medical student in an ambulatory setting. At the end of the rotation, the student will be able to identify what clinical problems may be allergic and what can be done to help these patients, as well as learn diagnostic tools, such as skin testing.

MMED 826 Endocrinology (Mount Sinai Hospital Medical Center)

The Clinical Endocrinology rotation at Mount Sinai Hospital introduces medical students to inpatient and outpatient management of endocrine disease. The student works under the direction of Drs. Butler and Schwarz. Most of the time, there is also a second- or third-year medical resident on the Endocrinology service. The student participates in inpatient consultations and sees patients in the outpatient Endocrinology clinic. The student is responsible for the initial evaluation and follow-up assessment of some of the inpatient consultations.

MMED 827 Endocrinology (North Chicago VA Medical Center/The Clinics at Rosalind Franklin University)

The student examines and follows patients on the inpatient services. The patients are referred for endocrine-metabolic consultation and admitted directly to the metabolic unit. In addition, two weekly outpatient clinics, Endocrine and Diabetes, are attended by the student. The student is under the supervision of an Endocrinology/Metabolism staff member. All evaluations are reviewed by faculty members. The student takes part in weekly clinical conferences, ward rounds, and the Division's journal club. The student may take part in the clinical endocrine laboratory learning the radioimmunoassay (RIA) technique and participate in ongoing clinical and basic research projects related to endocrinology and metabolism disease. The course is offered in all academic quarters.

MMED 828 Research in Endocrinology

This elective is designed for senior students who have previous experience in biomedical research and plan to continue their research interests especially in medical disciplines related to hormones and metabolic research. The student will participate in ongoing clinical or basic research in the fields of diabetes mellitus, thyroid hormones, metabolism, neurotransmitters, mechanism of insulin secretion, metabolic effects of alcoholism, and clinical trials involving drugs. 12 weeks, North Chicago VA Medical Center. Dr. Sant P. Singh.

MMED 829 Clinical Research in Endocrinology

The student will be directly involved in an ongoing study of neuroendocrine regulation of glucose homeostasis in diabetes mellitus. The student will be responsible for the following: 1. Preparation and investigator participation in the studies of normal and diabetic patients. 2. Preparation and assay of the blood specimens for the various hormonal levels. 3. Maintenance of data files and assistance in data analysis. 4. Assistance in library research for pertinent literature to assist in presentation of the data at scientific meetings and for publication of the results. 4 weeks, North Chicago VA Medical Center. Dr. Janice L. Gilden.

MMED 830 Endocrinology (John H. Stroger, Jr. Hospital of Cook County)

The student examines three to five patients weekly on the inpatient endocrine-metabolic service and patients referred for endocrine-metabolic consultation. Additionally, students attend outpatient clinics operated by the Endocrinology/Metabolism Division (E/M). The student is under the supervision of E/M faculty members. Students take part in clinical conferences, ward rounds, and the Division's journal club. A study schedule is provided. Students take part in ongoing research projects related to endocrinology and metabolic diseases. The student learns endocrine-metabolic diagnostic procedures by participating in the endocrine radioimmunoassay laboratory.

**MMED 831 Radioimmunoassays in Endocrinology
(North Chicago VA Medical Center)**

The elective is intended to provide the student an opportunity to enhance his or her fundamental knowledge of radioimmunoassays (RIAs), their actual performance, interpretation, follow-up, and application in clinical medicine. The student gains skills and understands underlying reasons to perform various “stimulation” or “suppression” tests that are used in determining the pathophysiology of endocrine-metabolic disorders. The student is encouraged to participate in clinical activities as well, to enable him or her to apply RIA knowledge in clinical medicine.

**MMED 832 Gastroenterology
(North Chicago VA Medical Center)**

The student improves knowledge and skill in the diagnostic and therapeutic approach to common digestive system diseases. He or she responds to several inpatient consultations and outpatient visits per week and recommends diagnostic procedures and therapy for approval by the attending. The student is exposed to diagnostic x-rays, scans, ultrasounds, histopathology of biopsies, laboratory data, and esophageal manometric traces, and receives instruction on their interpretation. The student observes such procedures as upper endoscopy, sigmoidoscopy, colonoscopy, liver biopsy, and esophageal bouginage, and is instructed regarding the uses of these procedures and interpretation or evaluation of results.

MMED 833 Gastroenterology (John H. Stroger, Jr. Hospital of Cook County)

The senior student participates with attending physicians and a gastroenterology fellow in outpatient visits, and assists in procedures under such supervision appropriate to demonstrated knowledge and skills. The student also participates in an informal seminar on digestive system pathophysiology and selected clinical topics.

MMED 834 Gastroenterology (Advocate Illinois Masonic Medical Center)

The student will be able to perform histories and physicals, diagnose and develop a treatment plan, and accurately report findings.

**MMED 839 Infectious Diseases
(North Chicago VA Medical Center)**

The student is assigned to the Infectious Diseases service. While serving as a member of the consultation service, the student performs at least three histories and physicals per week. There is a daily rounding with the Infectious Diseases attending, which includes seeing and discussing all of the patients on the service, as well as reviewing current x-rays, cultures, and microscopic specimens. The student is responsible for closely following patients, and has an opportunity to observe or assist in diagnostic procedures. The student has a daily general medical lecture series, as well as weekly specialty conferences.

**MMED 840 Infectious Diseases
(Mount Sinai Hospital Medical Center)**

This elective provides students with a basic understanding of the common clinical infectious disease syndromes and knowledge of the appropriate use of antibiotics. They work alongside an attending on a multiplicity of patients with infectious diseases, many of whom are in an intensive care unit. This active service gives the student a very broad clinical exposure. The student is involved in the day-to-day management of the patients assigned to them, under close supervision. The adequate performance and interpretation of a gram stain and the basics of laboratory microbiology are stressed.

MMED 841 Infectious Diseases (John H. Stroger, Jr. Hospital of Cook County)

The senior student is assigned to the Infectious Diseases Service. While serving as a member of the consultation service, the student performs histories and physicals. There is daily rounding with the Infectious Diseases attending, which includes seeing and discussing all of the patients on the service, as well as reviewing current x-rays, cultures, and microscopic specimens. The student is responsible for the close following of his or her patients and has an opportunity to observe or assist in diagnostic procedures. The student has a daily general medical lecture series, as well as weekly specialty conferences at Cook County.

**MMED 842 Medical Critical Care
(Swedish Covenant Hospital)**

Working with an attending faculty member, fellows and residents, the student will become a member of the ICU rounding team. He or she will be responsible for up to three patients at any time. The student will become familiar with the types of illness and treatment interventions that are commonly encountered in the ICU population. Emphasis is placed on thought processes in formulating a differential diagnosis and treatment plan. The student should have little difficulty becoming comfortable with interpreting EKG, arterial blood gas, portable chest x-ray, electrolyte disturbances, respiratory and hemodynamic measurements, as well as means for nutritional support. These skills should be uniformly applicable in most areas of medicine. Timely discussions involving the ethical dilemmas involved in intensive care medicine will add to the student's exposure.

**MMED 843 Medical/Coronary Critical Care
(Mount Sinai Hospital Medical Center)**

The student works closely with interns, residents and fellows in taking care of all patients admitted to both the coronary care and medical intensive care units. During the clerkship, the student becomes familiar with the basic principles of diagnosing and treating acutely ill patients. Three to four times per week, there is an informal lecture on various topics of interest. The student is expected to participate in preparing these. Once a month there is a formal discussion by Chicago Medical School faculty members.

**MMED 845 Nephrology
(Mount Sinai Hospital Medical Center)**

The student works directly under a medical resident assigned to the Nephrology service and has daily contact with the two attending faculty members. Daily floor rounds are made with one of the attendings on all patients, followed by the service—both consultative and primary. These rounds are preceded by a brief morning report with both attendings, the resident, and student; all patients are reviewed and new patients are discussed in greater detail.

**MMED 846 Nephrology (North Chicago VA Medical Center/
John H. Stroger, Jr. Hospital of Cook County)**

The Nephrology Division offers a clinical nephrology elective course to senior students. The course emphasizes clinical evaluation and management of electrolytes and acid-base disturbances. The student works directly with the attending physician. The student is responsible for patient workup (both inpatient and clinic) and is expected to fully participate in patient management under supervision.

**MMED 847 Nephrology
(John H. Stroger, Jr. Hospital of Cook County)**

The course emphasizes clinical evaluation and management of commonly encountered problems in nephrology. The management of acute and chronic renal failure is both conservative and dialytic, necessitating some background nutritional and technical information. The immunopathology of glomerular disease is central to full appreciation of the field but may not be emphasized if appropriate patients are not in-house. Electrolyte disturbances are dealt with practically. The student is responsible for patient workups and is expected to participate in their management under supervision.

MMED 848 Clinical Nuclear Medicine (Hines VA Hospital)

The senior student spends time with the attending physician and residents in Nuclear Medicine. The Hines Nuclear Medicine Facility is one of the largest in the country with four modern, state-of-the-art digital gamma cameras, three of which are equipped to perform single photon emission computed tomography (SPECT).

A wide variety of routine imaging procedures, including cardiac, lung, hepatobiliary and Indium white cell studies, are performed in the department and a total of approximately 20 to 30 scintigraphic examinations are carried out daily. The student is introduced to investigational scintigraphic techniques, such as SPECT metabolic brain imaging and lymphoscintigraphy. The students work closely with attending physicians to assess each patient and determine appropriate imaging techniques to be utilized. Formal image interpretation sessions are held daily with the attending physicians. Conferences with the department consist of interesting case conferences, journal club and current topics in Nuclear Medicine.

**MMED 851 Hematology/Oncology
(Mount Sinai Hospital Medical Center)**

The senior student is exposed to a variety of clinical hematological and oncological problems and is given significant responsibility for diagnostic procedures and management under continuous supervision of the Oncology/Hematology fellows at Mount Sinai Hospital Medical Center. Daily rounds are made with members of the Oncology/Hematology Service and cases are discussed with attending physicians. Students acquire proficiency in the interpretation of blood studies and peripheral anti-cancer drugs. The student is assigned to a fellow-preceptor.

**MMED 855 Pulmonary Medicine
(North Chicago VA Medical Center)**

The student is assigned to a pulmonary fellow who supervises the student's activities. The student evaluates patients in both the intensive care unit setting (including the Respiratory Care Unit), as well as on the general pulmonary consultation service. There are daily attending rounds. The student is responsible for closely following patients and has the opportunity to observe or assist in diagnostic and therapeutic procedures. The student has a daily general medical lecture series, as well as two weekly specialty conferences.

**MMED 856 Pulmonary Medicine
(Mount Sinai Hospital Medical Center)**

The students work closely with the attendings and pulmonary resident during this rotation at Mount Sinai Hospital. Extensive use is made of our pulmonary function laboratory, outpatient clinics and medical intensive care unit. There are brief lectures several times a week on pulmonary and critical care. The student is expected to do reading on assigned topics and participate in other education matters.

**MMED 857 Pulmonary Medicine
(John H. Stroger, Jr. Hospital of Cook County)**

The student functions as a pulmonary consultant, making the first evaluation of selected patients. These are reviewed along with pertinent radiograms daily with the attending physicians. The student reviews each day's pulmonary function test results and formulates an interpretation with procedures as described above and sees patients in the Pulmonary Clinic as a primary

care physician, each visit to be reviewed with the pulmonary fellow or attending physician. The students observe and participate in pulmonary function testing to become familiar with the techniques, their indications and limitations and interpret results as indicated above.

MMED 858 Pulmonary Medicine (Norwalk Hospital)

The students meet with a faculty attending physician a minimum of four hours per week to review pulmonary function testing, to discuss physiology and pathophysiology by such testing, and the technique of such testing and its limitations and implications for patient care. The students work much of the time with the technical staff of the Pulmonary Function Laboratory and with the Pulmonary fellow or resident assigned to the Pulmonary Function Laboratory.

MMED 863 Gastroenterology (Norwalk Hospital)

In this elective, students are assigned to the Gastroenterology consultation service, which includes the teaching attending, fellows, and residents on services. The student sees both inpatients and outpatients and assists in patient assessments, as well as in diagnosis procedures. In addition to the consultations and daily teaching rounds, the student participates in the service's daily pathology and radiology reviews.

MMED 864 Cardiology (Lutheran General Hospital)

This elective allows the student to increase his or her knowledge of cardiovascular pathophysiology through involvement in all aspects of clinical cardiology. Participation in daily consult and coronary care rounds allows exposure to patients with arteriosclerotic, hypertensive, valvular and congenital heart disease. Students are encouraged to improve their ECG interpretation skills as well as gain an understanding of echo, stress testing and cardiac catheterization.

MMED 865 Endocrinology (Lutheran General Hospital)

A four-week rotation designed to expose the student to the common and, at times, the rare endocrine and metabolic disorders through both in-hospital consultations and office practice. Through this clinical exposure, the student is able to expand upon his or her knowledge of the actions of specific hormones and their role in normal body functions and disease states. The student develops the ability to perform a complete endocrinologic evaluation and interpret the results of both physical examination and laboratory findings. In addition, there are endocrinology conferences, nuclear medicine-thyroid conferences and impromptu didactic sessions for the student to attend.

MMED 866 Gastroenterology (Lutheran General Hospital)

Ten to 15 patients with a variety of gastrointestinal and liver diseases are seen in consultation each week. The student is expected to write a complete consultation, learn the indication and contraindication of diagnostic tests and therapeutic procedures, and present the patient to the resident and attending physicians. The student participates in an active endoscopy service. The Nutritional Support Service is part of the Gastroenterology rotation. The student spends two afternoons a week at the Nessel Health Center, where outpatients with a variety of GI diseases are managed. These patients are discussed with the attending physician.

MMED 867 Mature Adult Medicine (Lutheran General Hospital)

The major objective of this rotation is to gain knowledge and skills in the following areas: 1) biology of aging; 2) social and economic issues concerning the elderly in various settings; 3) clinical pharmacology in the aged; 4) the ability to perform a geriatric evaluation including cognitive and gait assessments; 5) evaluation and management of depression and dementia; and 6) management of urinary incontinence. Instructional methods include direct patient care, lectures and seminars. Various sites, consisting of 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.

MMED 868 Hematology/Oncology (Lutheran General Hospital)

Provides a four-week in-patient consultation experience in hematology/oncology. The emphasis is on patient evaluation, pathophysiology of hematologic disorders and oncology, appropriate diagnostic studies and treatment. Students participate in daily consultation rounds with the instructor on an in-patient and out-patient service, didactic teaching, conferences and reading of bone marrows.

MMED 869 Medical Critical Care (Lutheran General Hospital)

This one-month MICU senior student rotation is a closed unit experience. A student is assigned to one of the teams that currently takes care of patients in the MICU. A team consists of one senior resident, two interns and one student. The student sees patients of either intern on his or her team to allow for a greater patient mix. Students are expected to work up approximately four new patients per week and carry no more than eight patients on this service. They are allowed to follow their patients from the MICU to the step down units located on the same floor. They also have a separate didactic teaching session with Dr. Arvey Stone once a week. During this time, students are expected to present cases and be able to discuss management with Dr. Stone. A core of ten lectures has been selected for the students and interns while on the MICU rotation. These lectures include ventilator support, acute renal disease, fluid balance, electrolytes, infectious disease, neurological emergencies, acute GI bleeding, acute cardiac care, acute MI, hemodynamics, arrhythmias, and hematological problems in the MICU.

MMED 870 Infectious Disease (Lutheran General Hospital)

The object of this elective is to provide the student with a broad experience in clinical infectious disease. The student actively participates in the hospital consult service, as well as attending scheduled teaching conferences, the out-patient office, and the weekly ID conference at the University. The student gains experience in common bacterial, viral, fungal and parasitic diseases, as well as nosocomial infections and the appropriate use of antibiotics.

MMED 871 Nephrology (Lutheran General Hospital)

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, as well as acid-chronic renal failure, glomerular and tubulointerstitial diseases, nephrolithiasis, and hypertension, in addition to acid-base, fluid and electrolyte disturbances. The student sees patients both in the hospital and in an ambulatory setting, approximately three hospital consults and three new out-patients per week. Ample opportunity is provided for discussion of patients on daily in-patient rounds, radiology review sessions, and in renal clinics. Didactic sessions, including problem-solving exercises, computer-based tutorials and student-prepared reviews, focus on major topics in nephrology and supplement a monthly renal-urology conference.

MMED 872 Pulmonary Medicine (Lutheran General Hospital)

The student improves skills in the diagnosis and treatment of pulmonary disease and in the interpretation of pulmonary function tests. Students participate in in-patient pulmonary consultation, management of mechanical ventilation and diagnostic techniques, including endotracheal intubation, fiberoptic bronchoscopy and thoracentesis. Outpatient Pulmonary Medicine Clinic meets twice a week. A brief didactic seminar on a pulmonary topic of interest is completed. The student is supervised by two pulmonary physicians.

MMED 873 Rheumatology (Lutheran General Hospital)

The senior rheumatology 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 housestaff member in providing evaluation and care for patients. Inpatient rounds and office hours are made daily with an Attending Rheumatologist. Unique aspects of the rotation include osteoporosis detection and therapy, arthroscopic surgery, joint irrigation and muscle biopsy techniques. Formal teaching conferences complement bedside teaching. Written core curriculum is provided. Clinical research opportunities are also available.

MMED 874 Rheumatology (John H. Stroger, Jr., Hospital of Cook County)

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 rotation include osteoporosis detection and therapy, arthroscopic surgery, joint irrigation, and muscle biopsy techniques. Formal teaching conferences complement bedside teaching. Written core curriculum is provided. Clinical research opportunities are also available.

MMED 886 Nephrology (Advocate Illinois Masonic Medical Center)

The goal of this elective is to provide a perspective on various aspects of renal pathophysiology including acute and chronic renal failure, glomerular and tubulointerstitial diseases, nephrolithiasis, and hypertension as well as acid-base, fluid and electrolyte disturbances. The student will see patients both in the hospital and in an ambulatory care setting, approximately three hospital consults and three new outpatients per week. Ample opportunity will be provided for discussion of patients on daily inpatient rounds, in radiology review sessions and in renal clinics. Didactic sessions including problem-solving exercises, computer-based tutorials and student-prepared reviews will focus on major topics in Nephrology and will supplement a monthly renal-urology conference. Suggested reading: Nephrology Guidebook (paperback).

MMED 887 Nephrology (Christ Hospital)

The student will interview and examine assigned patients on the consultation service and prepare a problem list/differential diagnosis and an initial diagnostic and management plan. During rounds with the attending nephrologist, they will propose, discuss and defend their diagnostic and management plans. Each student will follow on a daily basis the patients who have been assigned to him or her and – with the attending's guidance – will write appropriate progress notes. Students will be expected to review relevant

literature concerning the patients they see, to prepare for and participate in case discussions and in topic lecture-seminars, to review histology slides illustrating renal pathology, and to attend the noontime lectures and Medical Grand Rounds presentations given by the Nephrology Section. 4 weeks, Advocate Christ Hospital and Medical Center. Dr. Demetrios Zikos.

**MMED 888 Clinical Nuclear Medicine
(Lutheran General Hospital)**

The student will be introduced to the clinical application of Nuclear Medicine in a large community hospital. A wide variety of SPECT, cardiac and physiological studies will be seen. There will be several didactic lectures, as well as conferences. Monthly Nuclear Medicine thyroid-path-endocrine correlation conferences, as well as weekly thallium-cardiolite myocardial perfusion conferences, are held. In addition, the student will spend one to two full days at a nearby imaging center. This center has the second clinical PET system and the only free-standing system in the Chicago area.

MMED 889 Hematology/Oncology (Advocate Illinois Masonic Medical Center)

Medical Oncology Portion:

This elective is designed to provide senior students with an exposure to medical oncology in a community cancer center and teaching hospital. The objective is to better understand the modern management of cancer care and the role of clinical research protocols. An active AIDS Malignancy Program is part of this rotation. A review of antineoplastic chemotherapy and other therapeutic modalities and their appropriate use will be a major emphasis. Students will see approximately one new patient consultation per day in a hospital setting. They will also attend five to seven clinics per week, seeing both new and follow-up patients. They will interact with residents and attending physicians.

Hematology Portion:

Student will participate in all activities of this section. The student will be assigned three to four inpatients per week and ten to twelve outpatients, and will also participate in the bone marrow and peripheral blood smear conference and daily teaching rounds.

MMED 890 Hematology (John H. Stroger, Jr., Hospital of Cook County)

This course is designed to train students how to apply the skills of history taking and physical examination. Students will also acquire the skill of morphologic interpretation of blood and bone marrow aspirates to the diagnosis and treatment of hematologic problems. Students will learn to perform histories and physicals, diagnose, and develop a treatment plan.

MMED 891 Clinical Toxicology (John H. Stroger, Jr., Hospital of Cook County)

The student will be expected to attend and participate in lectures and conferences given by toxicology fellows and attendings board certified in medical toxicology. These activities include student lectures in basic toxicology, a core lecture series describing the most commonly encountered poisons. 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.

Multidisciplinary Courses

MMTD 801 Pathophysiologic Basis for Laboratory Investigation (North Chicago VA Medical Center)

Students select up to four clinical areas in which they are interested. A clinical faculty member provides specific clinical problems (either current or retrospective) for the student to study. The student identifies certain laboratory tests as providing key diagnostic information for the particular clinical problem chosen. Under the guidance of a pathology faculty member, the student acquires information in the laboratory about how the tests are conducted, specimens are handled, and the results are transmitted from the analytical laboratory tests in regard to providing the necessary information required for diagnosing and/or monitoring the particular clinical problem. Appropriate basic science and clinical faculty are available to assist the student in their evaluations.

Faculty and Associated Staff

Donald W. Aaronson, MD Clinical Professor
 Leo Ackerman, MD, PhD, Assistant Professor
 Brenda Affinati, MD, Clinical Assistant Professor
 Mario Affinati, MD, Clinical Assistant Professor
 Mohammad Ahmed, MD, Associate Professor
 Abdullah Altayeh, MD, Assistant Professor
 Hugo A. Alvarez, MD, Assistant Professor
 Kris Anand, MD, Clinical Assistant Professor
 David Ansell, MD, MPH, Professor
 Rohit Arora, MD, Professor
 Iyad M. Ayoub, MS, Research Instructor
 John T. Barron, MD, PhD, Professor
 Charles P. Barsano, MD, PhD, Professor
 Cesar F. Bastos, MD, Clinical Instructor
 Peter J. Bell, MD, Instructor
 Jose Benatar, MD, Clinical Assistant Professor
 M. Allan Berk, MD, Assistant Professor
 Yechiel Berkowicz, MD, Clinical Instructor
 Daniel Berland, MD, Associate Professor
 Bruce Bernheim, MD, Clinical Assistant Professor
 Gregory J. Berry, DO, Assistant Professor
 Jacob Bitran, MD, Professor
 Sydney Brandwein, MD, Clinical Professor
 Harold Bregman, MD, Clinical Professor
 Cheryl Brody, DO, Clinical Instructor
 Leslie Brookfield, MD, Clinical Assistant Professor
 Laurie Broutman, MD, Assistant Professor
 Susan Broy, MD, Professor
 David Buchanan, MD, Lecturer
 Gerald Buckman, MD, Clinical Assistant Professor
 Paula Ruth Butler, MD, Associate Professor
 David R. Campbell, MD, Clinical Instructor
 Preston B. Cannady, Jr., MD, Professor
 Antonio Chedid, MD, Professor (Secondary)
 Jen-Chieh Cheng, MD, Professor
 Christopher Chiu, MD, Lecturer
 Serafin Chua, Jr., MD, Assistant Professor
 Joseph P. Cleary, MD, Professor
 Charles Cochran, MD, Clinical Instructor
 Mark E. Cohnen, PhD, Adjunct Associate Professor
 David Cooke, MD, Clinical Associate Professor
 Joel L. Cristol, MD, Clinical Associate Professor

Sidney Cruz, MD, Clinical Assistant Professor
 Anthony Daddono, MD, Lecturer
 Krishna Das, MD, Clinical Instructor
 Maribeth December, MD, Clinical Assistant Professor
 Sandra Dempsey, MD, Assistant Professor
 Marvin Den, MD, Clinical Assistant Professor
 Merle L. Diamond, MD, Clinical Assistant Professor
 Albert Dietz, MD PhD, Clinical Professor
 Lawrence Domont, MD, Clinical Associate Professor
 Barbara Dudczak, MD, Clinical Assistant Professor
 James P. Dunphy, MD, Lecturer
 Timi Edeki, MD, Clinical Professor
 Seymour Ehrenpreis, PhD, Adjunct Professor
 (Secondary)
 Gerald Eisenberg, MD, Clinical Professor
 Frederick M. Ellyin, MD, Professor
 Juan Engel, MD, Professor
 Zachary Fainman, MD, Clinical Assistant Professor
 Jerome D. Fallon, MD, Clinical Assistant Professor
 Michael G. Feinzimer, MD, Clinical Assistant Professor
 Axel G. Feller, MD, Professor
 Ira F. Fenton, D.O., Clinical Instructor
 Jonathon Fine, MD, Lecturer
 Marc Fine, MD, Associate Professor
 Victor H. Fink, MD, Clinical Instructor
 Barry L. Fischer, MD, Lecturer
 Martin H. Floch, MD, Lecturer
 Gerald Frank, MD, Clinical Assistant Professor
 Cory M. Franklin, MD, Professor
 Sandra Frellson, MD, Lecturer
 Abe Friedman, MD, Lecturer
 Yaakov Friedman, MD, Associate Professor
 Ashok M. Fulambarker, MD, Professor
 Eric P. Gall, MD, Professor and Chair
 Serafino Garella, MD, Professor
 Nancy Garn, MS, Assistant Professor
 Raul J. Gazmuri, MD, PhD, Professor
 Phillip Gianfortune, DPM, Professor (Secondary)
 Janice Gilden, MD, Professor
 Nancy Glick, MD, Associate Professor
 Eric H. Gluck, MD, Professor
 Barry Goldberg, MD, Lecturer
 Julie Goldberg, MD, Lecturer
 Daniel Goldstein, MD, Clinical Instructor

Anthony Grande, MD, Clinical Assistant Professor
 Bruce Guay, MD, Lecturer
 Amy Guralnick, MD, Lecturer
 Rami Y. Haddad, MD, Assistant Professor
 Suresh Hathiwal, MBBS, Associate Professor
 David Hinkamp, MD, Assistant Professor (Secondary)
 Michelle Holevar, MD, Professor (Secondary)
 Sam F. Hull, MD, Clinical Instructor
 George Hvostik, MD, Clinical Instructor
 Bruce Hyman, MD, Lecturer
 Elena Iliescu, MD, Assistant Professor
 Harvey Kantor, MD, Clinical Professor
 Naren Kapadia, MD, Lecturer
 Gary Kaufman, MD, Assistant Professor
 Hymie Kavin, MB, BC, Professor
 Walid F. Khayr, MD, Professor
 Sandeep Khosla, MD, Associate Professor
 Ahmed Khraisat, MD, Clinical Assistant Professor
 Gabriel Kibrit, MD, Clinical Associate Professor
 Stuart Kiken, MD, Associate Professor
 Yoon Berm Kim, MD, PhD, Professor (Secondary)
 Daniel Kniaz, MD, Clinical Associate Professor
 Paul Koh, MD, Clinical Assistant Professor
 Mark Kozloff, MD, Lecturer
 Girija Kumar, MD, Clinical Assistant Professor
 Yoginder Kumar, MD, Assistant Professor
 John Kyncl, MD, Clinical Assistant Professor
 Miloslava Kyncl, MD, Clinical Assistant Professor
 Jeffrey Lakier, MD, Professor
 Parde Y. Lalitha, MD, Instructor
 Carl Lang, MD, Clinical Instructor
 Cathy Lazarus, MD, Professor
 Jerrold Leikin, MD, Lecturer
 Janet L. Lerman, JD, Adjunct Assistant Professor
 Mark H. Levin, MD, Associate Professor
 Robert Levin, MD, Associate Professor
 Brian Lipson, MD, Instructor
 David L. Lubell, MD, Associate Professor
 Ajay Madhani, MD, Clinical Assistant Professor
 Edward Magid, MD, Assistant Professor
 Mani Mahdavin, MD, Assistant Professor
 Frank A. Maldonado, MD, Professor
 Sheila V. Maliekel, MD, Assistant Professor
 Michael L. Mangurten, MD, Clinical Instructor

Kenneth Margules, MD, Clinical Assistant Professor
 Deeba Masood, MD, Assistant Professor
 Thomas Mayer, MD, Lecturer
 Nilesh Mehta, MD, Clinical Associate Professor
 Jairo Mejia, MD, Assistant Professor
 Ira Melincoff, MD, Clinical Assistant Professor
 Larry S. Milner, MD, Clinical Instructor
 Barry A. Mizock, MD, Clinical Instructor
 Sunita Mohapatra, MD, Associate Professor
 Janos Molnar, MD, Research Assistant Professor
 James Monahan, MD, Clinical Instructor
 Jeanette Morrison, MD, Clinical Assistant Professor
 Walter Myalls, MD, Clinical Associate Professor
 Nagapradeep Nagajothi, MBBS, Assistant Professor
 Sreedhar Nair, MD, Lecturer
 Kevin Nash, MD, Lecturer
 Madeline Neems, MD, Lecturer
 Han Chung Ng, MD, Instructor
 George Nissan, DO, Clinical Assistant Professor
 Donald W. Novey, MD, Instructor
 Emmanuel Nwaokocha, MD, Assistant Professor
 James J. O'Connell, MD, Lecturer
 Stephan P. O'Mahony, MD, Lecturer
 Kenneth O'Riordan, MD, Clinical Assistant Professor
 Stuart Oserman, MD, Clinical Professor
 Robert Parker, MD, Associate Professor
 Parag Patel, MD, Clinical Assistant Professor
 Martin Perlin, MD, Clinical Instructor
 Lawrence Perlmutter, PhD, Research Professor
 (Secondary)
 Darryl R. Peterson, PhD, Adjunct Professor (Secondary)
 Jack Pinto, MD, Instructor
 Gordon L. Pullen, PhD, Assistant Professor
 Peter Puthenveetil, MBBS, Clinical Assistant Professor
 Gatha Reddy, MBBS, Lecturer
 William Rhoades, DO, Clinical Assistant Professor
 Louise J. Riff, MD, Professor
 Bruce L. Riser, AB, MS, PhD, Adjunct Professor
 (Secondary)
 Susan Rogers, MD, Lecturer
 Louis Rohr, MD, Lecturer
 Joseph K. Rosman, MD, Associate Professor
 Brian Rubenstein, MD, Clinical Assistant Professor
 Lisa Russell, MD, Assistant Professor

Nagui Sabri, MD, Associate Professor
 Franklin Saksena, MD, Instructor
 Eugene Saltzberg, MD, Clinical Assistant Professor
 Renee Schicker, MD, Lecturer
 Patrick Schuette, MD, Lecturer
 Maurice A. Schwartz, MD, Professor
 William Seiden, MD, Lecturer
 Pallavi M. Shah, MD, Assistant Professor
 Jeffrey Shanes, MD, Clinical Associate Professor
 Jerrold E. Shapiro, MD, Lecturer (Secondary)
 Rita Shapiro, MD, Associate Professor
 John Sheagren, MD, Lecturer
 Edward Sherman, MD, Clinical Instructor
 Louis Shicker, MD, Associate Professor
 Gail M. Shiimoto, MD, Assistant Professor
 Lori B. Siegel, MD, Clinical Professor
 Dean Silas, MD, Clinical Associate Professor
 Rajindar Singh, MD, Clinical Professor
 Sant Singh, MD, Professor
 Myra Skluth, MD, PhD, Clinical Instructor
 Earl Smith, MD, Professor
 Ann K. Snyder, PhD, Research Associate Professor
 (Secondary)
 Glen Solomon, MD, Professor
 Otakar Sroubek, MD, Clinical Instructor
 Alexander Starr, MD, Clinical Assistant Professor
 Arvey Stone, MD, Clinical Associate Professor
 Lee Wen Tai, MD, Lecturer
 Manish Tanna, MD, Clinical Assistant Professor
 Marc Tenzer, MD, Clinical Instructor
 Ermias Tilahun, MD, Assistant Professor
 Alfredo Tiu, DO, Clinical Assistant Professor
 Phoung Tran, MD, Clinical Assistant Professor
 Atul Trivedi, MD, Clinical Instructor
 Mark Tucci, MD, Lecturer
 George Urban, MD, Clinical Instructor
 Thomas Vargish, MD, Professor (Secondary)
 Prasanna Vankatesh, MD, Instructor
 Christine H. Veres-Thorner, MD, Associate Professor
 Cynthia Wait, MD, Clinical Instructor
 Max H. Weil, MD, PhD, Distinguished
 Professor Emeritus

Alvin Wells, MD, PhD, Clinical Assistant Professor
 Philip Werner, MD, Clinical Professor
 William N. Werner, MD, MPH, Lecturer
 Maxwell P. Westerman, MD, Professor
 Steven Whitman, PhD, Professor
 Paul B. Wiener, MD, PhD, Clinical Assistant Professor
 Daneen Woodard, MD, Lecturer
 John Xanthopoulos, MD, Instructor
 Phillip Zaret, MD, Associate Professor (Secondary)
 Michael Zdon, MD, Professor (Secondary)
 Poupak Ziaei, MD, Assistant Professor
 Demetrios Zikos, MD, Clinical Associate Professor

Department of Microbiology and Immunology

Infectious diseases continue to 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 three-quarters-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, and protozoan and metazoan parasites, as well as the host-parasite relationships, including immunologic mechanisms in infectious diseases.

Emphasized are the etiology, pathogenesis, epidemiology, prevention and treatment of infectious diseases. Special attention also is given to the immunological principle underlying cellular and humoral immunity, hypersensitivity, autoimmunity, and tolerance and rejection of transplants. 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 of the Department of Microbiology and Immunology largely coincide with the topics encompassed in the course. Through this diverse faculty, students are assured of receiving information that is accurate and current from individuals 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 thrust; therefore, all professors seek to provide efficient and effective means of disseminating information through lectures, laboratory exercises in clinical microbiology and immunology, a study guide book including written syllabi of lecture materials, self-study module, computer-assisted learning program and an open-door policy for those requiring help or information. In addition, sophomore and senior

elective courses are offered throughout the year in selected areas of microbiology and immunology to students who are interested in a deeper understanding of infectious disease processes and immune mechanisms under guidance of individual faculty.

Required Courses

MMIC 600A, B, C Medical Microbiology and Immunology

Focusing on the fundamental molecular biology, genetics, metabolism, immunology and morphology of microorganisms, these courses are also designed to provide practical experience in laboratory diagnosis in microbiology and parasitology. The first quarter is directed toward principles and concepts of microbiology and immunology; the second and third quarters, to infectious disease processes and laboratory diagnostic procedure. Prerequisites: cell biology, biochemistry, or approval of the department chairman. Faculty.

MMIC 600A Medical Microbiology and Immunology

Autumn quarter (6 units).

MMIC 600B Medical Microbiology

Winter quarter (6 units).

MMIC 600C Medical Microbiology

Spring quarter (3 units).

Sophomore Elective Courses

MMIC 641 Selected Topics in Immunology

This elective is designed to give the student a better understanding of the immune response and to have an increased ability to evaluate scientific publications. Prerequisites: MMIC 600A Medical Microbiology and Immunology or Introductory Immunology. Spring quarter (2 contact hours per week). Dr. Baum.

MMIC 643 Advanced Immunology

This course is designed for graduate students, upper-class medical students and postdoctoral fellows seeking an in-depth knowledge of contemporary immunology. Winter. *Offered in alternate years.* Microbiology Faculty (3 credits).

MMIC 644 Advanced Molecular Biology

This course is designed to give the student a sound background in molecular biology and genetics. The course will cover topics such as gene regulation, RNA splicing, DNA structure and topology, chromosome structure and mechanics, recombination and replication with an emphasis on protein-nucleic acid interactions. Both eukaryotes and prokaryotes will be covered. Prerequisites: Introductory Biochemistry and Molecular Cell Biology or related courses. Winter and Spring quarters (5 units). Dr. Fennewald and faculty.

MMIC 652 Parasite Immunology (Research)

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. Prerequisites: MMIC 600A Medical Microbiology and Immunology and Biochemistry. Winter quarter (time to be arranged). Dr. Chang.

MMIC 653 Biology of Intracellular Parasitism (Research)

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. Prerequisites: MMIC 600A Medical Microbiology and Immunology, Molecular and Cell Biology, and Biochemistry. Winter quarter (time to be arranged). Dr. Chang.

MMIC 660 Molecular Biology and Immunochemistry of the Immune System (Research)

In this elective, 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. All quarters. Prerequisite: Biochemistry and Cell Biology. Drs. Beaman and Gilman-Sachs.

MMIC 661 Antibody Dependent Cell-Mediated Cytotoxicity in Host Defense Against HIV (Research)

A student research experience, including protocol design, implementation of lab techniques, evaluation of data and an understanding of the cellular mechanisms involved in host defense against tumor cells and virus-infected cells. All quarters (time to be arranged). Dr. Baum.

MMIC 664 Contemporary Topics in Clinical Immunology

This course covers basic concepts, rationale and principles of clinical immunology assays used in the Clinical Immunology Laboratory for diagnosis and clinical evaluation. Students are expected to be able to describe clinical research as used in the Clinical Immunology Laboratory. All quarters, two hours per week (2 units). Drs. Beaman and Gilman-Sachs.

Senior Elective Courses**MMIC 801 Antibody Dependent Cell-Mediated Cytotoxicity in Host Defense Against HIV (Research)**

Student research experience including protocol design, implementation of lab techniques, evaluation of data and an understanding of the cellular mechanisms involved in host defense against virus-infected cells. All quarters (time to be arranged). Dr. Baum.

MMIC 802 Molecular Biology and Immunochemistry of the Immune System (Research)

In this elective, 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. All quarters. Prerequisite: Biochemistry and Cell Biology. Drs. Beaman and Gilman-Sachs.

MMIC 803 Clinical Applications of Flow Cytometry

Lectures and discussions on the principles and applications of flow cytometry and practical use of a flow cytometer. Topics include immunophenotypes (two- or three-color analysis) or DNA analysis of cells. TBA (1 unit). Six-week elective taken in conjunction with MMIC 806. Contact instructor. Dr. Gilman-Sachs.

MMIC 804 Research in Clinical Immunology

In this course, the student conducts six weeks of full-time research during the summer between the first and second years. Students, early in their course of study, work with a member of the faculty to learn basic procedures of research. Student involvement consists of doing experimental research in the faculty advisor's laboratory. Evaluation of student is based on research accomplishment and knowledge. Student will be required to present a poster at the Summer Research Fellowship Poster Session held in the fall (6 units). Prerequisite: Immunology. Dr. Gilman-Sachs and faculty.

MMIC 806 Clinical Immunology

Lecture, discussion and assigned readings on subjects related to clinical immunology including immunogenetics, immunopathology, and mechanisms of immunologic diseases such as allergy, immunodeficiency, autoimmune and malignant diseases; mechanisms of immunoregulation; therapeutic manipulation of the immune response; and application of immunotherapy. Enrollment required during a six-week senior elective. Evaluation by a final exam (2 units). Prerequisites: MMIC 600A and permission of instructor. TBA. Taken in conjunction with MMIC 803. Drs. Gilman-Sachs, Beaman, and faculty.

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. All quarters (time to be arranged). Dr. Chang.

Faculty and Associated Staff

Richard Albach, PhD, Professor Emeritus
 Kenneth Beaman, PhD, Professor
 Theodore Booden, PhD, Professor Emeritus
 Preston Cannady, MD, Professor (Secondary)
 Bala Chandran, PhD, Professor and Chair
 Kwang-Poo Chang, PhD, Professor
 Michael Fennewald, PhD, Associate Professor
 Eric Gall, MD, Professor (Secondary)
 Alice Gilman-Sachs, PhD, Associate Professor
 Joanne Kwak-Kim, MD, Associate Professor (Secondary)
 Harilaos Mantouvalos, MD, PhD, Adjunct Associate Professor
 Patricio Meneses, PhD, Assistant Professor
 Neelam Sharma-Walia, PhD, Research Assistant Professor

Department of Neurology

The Department of Neurology is involved in four years of undergraduate medical education. In the first year, during the correlated Basic Neuroscience course, clinical material is discussed in conjunction with the basic science substrates. In the second year, the Department of Neurology contributes a notable portion of the Clinical Neuroscience course. Additionally, during the second year, as an integral part of the Introduction to Clinical Medicine course, common neurological symptoms and their causes are presented by departmental faculty. During the third year of medical school, students spend three 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 the achievement of 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 three-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. On the last day of the clerkship, the students perform a lumbar puncture on mannequin simulators.

Students in this clerkship receive their clinical instruction at Christ Hospital, Advocate Lutheran General Hospital, Condell Hospital, John H. Stroger, Jr., Hospital of Cook County, Hines Veterans Administration Medical Center, Mount Sinai Hospital and the North Chicago Veterans Affairs Medical Center. Students interact with patients with a wide variety of neurological conditions on both outpatient and inpatient services under the preceptorship of neurology attendings and residents.

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 Electives

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. John H. Stroger, Jr., Hospital of Cook County. Dr. Serge Pierre-Louis.

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 preceptoring neurologist those patients “worked up” in both an inpatient and outpatient setting. In addition, the student sees selected consultations that are presented to the preceptoring neurologist for discussion. Opportunities are afforded the student to participate in various neurologic diagnostic studies, including electroencephalography, electromyography, nerve conduction, and evoked response neurophysiology. The importance of these diagnostic studies in the neurologic diagnosis is emphasized. Highland Park/Edgewater Hospitals. Dr. Neil Allen.

MNEU 805 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 preceptoring neurologist those patients “worked up” in both an inpatient and outpatient setting. In addition, the student sees selected consultations that are presented to the preceptoring neurologist for discussion. Opportunities are afforded the student to participate in various neurologic diagnostic studies, including electroencephalography, electromyography, nerve conduction, and evoked response neurophysiology. The importance of these diagnostic studies in the neurologic diagnosis is emphasized. Condell Medical Center. Dr. Reuben Weisz.

MNEU 805 Neurology, Clinical Preceptorship

This is an elective course for students desiring to become comfortable taking a neurologic history and examination, and familiar with the management of common neurologic problems, beyond the level achieved during the required core clerkship. Students see and perform histories and physicals, research relevant literature, present to attending and complete discharge summaries on all hospital and ER neurology consults. Students also attend neurology rounds every morning, neurology clinic once a week and seizure clinic once a week. Additional instruction is achieved by reading assigned handouts and watching assigned videotapes. Norwalk Hospital. Dr. Louis Cuzzone.

Faculty and Associated Staff

Neil Allen, MD, Clinical Professor
Nils Anderson, MD, CDR, MC, USN, Clinical Assistant Professor (Affiliate)
Nutan Atre-Vaidya, MD, Associate Professor
Russell Bartt, MD, Lecturer (Affiliate)
Michael Chez, MD, Lecturer
Nancy S. Collins, MD, Associate Professor and Director of Neurology Curriculum
Robert Egel, MD, Lecturer
Mohammed Ghabra, MD, Assistant Professor (Affiliate)
Dillie Grunauer, MD, Lecturer
Sudha Gupta, MD, Lecturer
Tariq Hassan, MD, Associate Professor (Affiliate)
Michael Kelly, MD, Lecturer
Elizabeth Kessler, MD, Associate Professor (Affiliate)
Jose Medina, MD, Clinical Professor
Timothy Mikesell, MD, Associate Professor
Kenneth Neet, PhD, Professor
Santiago Philipps, MD, Lecturer
Serge Pierre-Louis, MD, Lecturer
Nabih Ramadan, MD, Professor and Chair
Marc Reyes, MD, Professor
Rita Shapiro, DO, FACP, Associate Professor of Clinical Neurology
Semyon Shulman, MD, Clinical Assistant Professor
Lafayette Singleton, MD, Assistant Professor (Affiliate)
Eugene Thorner, MD, Clinical Assistant Professor
Donald Waxler, MD, Clinical Associate Professor of Radiology
Reuben Weisz, MD, Clinical Professor
K. Michael Welch, MB, ChB, FRCP, Professor
Francis White, PhD, Professor
Melvin Wichter, MD, Lecturer
Robert Van Boven, MD, Associate 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 (NS501), 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 basal ganglia and the pathogenesis of schizophrenia
- 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 programs are available during the summer of the freshman and sophomore 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 sessions utilizing human cadaver brains and interactive computer-based learning; and 4) clinical neuroscience, including correlations on multiple sclerosis, headache and pain disorders, peripheral neuropathy, Parkinson's and Huntington's diseases, amyotrophic lateral sclerosis,

myasthenia gravis, stroke, brainstem lesions, seizure disorders, sleep disorders, loss of consciousness, schizophrenia affective disorders, and Alzheimer's disease. Coordinated by Dr. Eliot. Prerequisites: Mammalian Physiology. Spring quarter, 8 hours per week (7 units).

Sophomore Elective

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. Coordinated by Drs. Ariano, Peterson, West, Wolf, Marr and Stutzman.

Multidisciplinary Courses

GMTD 510, 511, Brain Frontiers: Advanced Topics 512, 513, 514, 515 in Neuroscience Research I, II, III, IV, V, VI

Neuroscience is a diverse and rapidly expanding field of biomedical research. In this course, students will be introduced to the major topics of neuroscience research currently being conducted at the University. Sessions will focus on research methods, experimental design, and critical reading of the primary literature. Participating faculty will each deliver three lectures in their area of research expertise, with every fourth week devoted to a student-led discussion of the related literature. Fall, Winter, and Spring quarters, 2 hours per week (2 units per quarter). Taught by the Interdepartmental Neuroscience Faculty.

Faculty and Associated Staff

Marjorie Ariano, PhD, Professor
Lise Eliot, PhD, Assistant Professor
Robert Marr, PhD, Assistant Professor
Daniel Peterson, PhD, Associate Professor
Grace Stutzman, PhD, Assistant Professor
Anthony West, PhD, Assistant Professor
Marina Wolf, PhD, Professor and Chair

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 of Obstetrics and Gynecology at Rosalind Franklin University of Medicine and Science 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 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, Christ Hospital, John H. Stroger, Jr., Hospital of Cook County and Lutheran General Hospital, 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 John H. Stroger, Jr., Hospital of Cook County, Mount Sinai Hospital and Lutheran General Hospital 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.

Senior Elective Courses

MOBG 810 Student Internship in Obstetrics and Gynecology

The rotation provides in-depth clinical exposure for the fourth-year medical student. Students have the opportunity to act as the primary physician for patients under the close supervision of the senior resident and attending physician. The student may choose to rotate on either the gynecology service, the complicated obstetrics service, or the labor and delivery ward.

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.

MOBG 830 Urogynecology

This course will emphasize the importance of properly recognizing, understanding, and treating patients with urogenital defects leading to urinary incontinence. The normal female urogenital anatomy, physiology, pharmacology, and pathology will be reviewed and explained. Causes leading to incontinence will be identified.

Methods to establish a proper diagnosis among the several forms of urinary incontinence will be introduced and demonstrated on patients requiring the evaluations.

Finally, physiological, pharmacological, and surgical methods and treatment options will be discussed and, if possible, demonstrated.

MOBG 840 Maternal-Fetal Medicine

The senior elective in Maternal-Fetal Medicine should be at least four weeks for optimal benefit. 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.).

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.

MOBG 870 Obstetrics and Gynecology Research

This elective is part of a clinical research study to examine the incidence of premenstrual syndrome (PMS) among the population of John H. Stroger, Jr., Hospital of Cook County. Despite the large amount of research in the area of PMS, there have been no studies to date looking at the racial mix in this population (primarily African American, lower socioeconomic group) of women. Phase Two examines the association between PMS and domestic violence. Students will be in clinics Monday through Friday, 9:00 a.m. to 5:00 p.m., seeing patients and collecting questionnaires. In addition, the student will attend evening clinics as necessary. Data entry will be done daily. Finally, the student will be responsible for completing a written incidence report on study findings and initiating Phase Two of the study.

Faculty and Associated Staff

Barbara Alif, MS, Clinical Instructor
 Bharathi Bhoopathi, MD, Clinical Assistant Professor
 Josef Blankstein, MD, Professor and Chair
 Joel Brasch, MD, Clinical Assistant Professor
 Paula Cavens, MD, Assistant Professor
 Helen Cejtin, MD, Assistant Professor
 David Czuckerberg, MD, Clinical Assistant Professor
 James Dolan, Jr., MD, Lecturer

Uwe Freese, MD, Professor Emeritus
 Abolhamid Hosseinian, MD, Clinical Professor
 Thomas Ivannucci, MD, Lecturer
 Theodore Jarrett, MD, Assistant Professor
 Ian Jasenof, MD, Lecturer
 Hyung-Shik Kang, MD, PhD, Clinical Professor
 Louis Keith, MD, PhD, Clinical Professor
 James Keller, MD, Lecturer
 Theresa Kepic, MD, Clinical Assistant Professor
 Prakash Khatkhate, MD, Assistant Professor
 Richard Kurzel, MD, PhD, Clinical Professor
 Joanne Kwak-Kim, MD, Associate Professor
 Edward Lampley, MD, Associate Professor
 Brian Locker, MD, Lecturer
 Randee Lopata, MD, Lecturer
 Harilaos Mantouvalos, MD, PhD, Adjunct Associate Professor (Secondary)
 Ligaya Marasigan, MD, Clinical Assistant Professor
 Ellen Mason, MD, Instructor
 Michael Moen, MD, Lecturer
 Matthew Nash, MD, Lecturer
 Michael Noone, MD, Lecturer
 Therese O'Connor, MD, Lecturer
 Godwin Onyema, MD, Clinical Instructor
 Daniel Pesch, MD, Lecturer
 Bruce Piolet, MD, Lecturer
 Linda Powell, MD, Assistant Professor
 Maureen Ruder, MD, Assistant Professor
 Julie Schmidt, MD, Assistant Professor
 Lemuel Shaffer, MD, Clinical Assistant Professor
 Beth Sum, MD, Lecturer
 Eddie Swift, MD, Assistant Professor
 Ahmad Taheri, MD, Associate Professor
 Stephanie Tennery-Lanken, MD, Instructor
 Maria Teresi, MD, Assistant Professor
 Richard Trester, MD, Clinical Assistant Professor
 Megan Tuynman-Hazra, DO, Clinical Assistant Professor
 Brett Vassallo, MD, Lecturer
 Daniel Wu, MD, Clinical Assistant Professor

Department of Ophthalmology

The Department Ophthalmology 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 John H. Stroger, Jr., Hospital of Cook County or Mount Sinai Hospital may take a two-week elective in clinical ophthalmology at John H. Stroger, Jr., Hospital of Cook County. Senior students may take a two- to four-week elective in clinical ophthalmology. Both junior and senior electives are centered in the eye clinic of the Fantus Building at John H. Stroger, Jr., Hospital of Cook County 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 605 Introduction to Clinical Ophthalmology

Students will observe a wide variety of ophthalmic exams performed by residents at Fantus Eye Clinic. Examples of conditions observed are: diabetic retinopathy, hypertensive retinopathy, abnormalities of the optic nerve and oculomotor system, sickle cell disease, corneal abrasions and infections. Student will also observe preoperative evaluations of cataract patients, glaucoma diagnosis and therapy. Student is to arrange scheduled visits that will not conflict with the academic schedule. Dr. Axelrod.

Senior Elective Courses

MOPH 800 Clinical Ophthalmology

This elective presents the concepts and fundamentals of ophthalmology with emphasis placed on the clinical diagnosis and management of ocular disease. Dr. Axelrod. Various sites.

MOPH 805 Clinical Ophthalmology

Students will be working with John H. Stroger, Jr., Hospital of Cook County Ophthalmology housestaff under the direction of Drs. Axelrod, Becker, Dray, and Whelchel. Students will examine and evaluate patients in the Eye Clinic (Fantus 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.

Faculty and Associated Staff

Richard Ahuja, MD, Assistant Professor
 Monique Anawis, MD, Clinical Instructor
 Alan Axelrod, MD, Professor and Chair
 Norbert Becker, MD, Clinical Assistant Professor
 Philip Dray, MD, Assistant Professor
 Joseph Kiernan, MD, Clinical Instructor
 Oksana Mensheha, MD, Lecturer
 Mildred Olivier, MD, Clinical Assistant Professor
 Daniel Ritacca, MD, Clinical Assistant Professor
 William Stiles, MD, Clinical Assistant Professor
 Robert Weiss, MD, Lecturer
 Joan Whelchel, MD, Lecturer

Department of Pathology

The Department of Pathology provides instruction to medical students in a sophomore-level course required of all students, as well as in a set of elective course offerings. Participation in research is also available.

The required course is an introduction to the “study of disease.” The course is based on, and integrated with, the preceding and concurrent basic science presentations of other departments, 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 as a three quarter lecture and laboratory-based set of exercises. The first quarter is required of all students. An elective, partially hospital-based Honors Program, is available to selected students during the second and third quarters.

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

The principal research interests of the full-time faculty include studies on alcoholic liver disease, host reactions to infection, analytic immunochemistry and inherited erythrocyte metabolic disorders. Opportunities for student participation are available during the summer quarters.

The department offers graduate programs leading to the MS and PhD degrees, and medical students are able to enroll in selected graduate courses. In addition, an MS/MD program is conducted concurrently with the regular medical school curriculum and is configured so that the requirements for the MS degree may be satisfied along with those for the MD degree in the regular four-year time span. Students ordinarily enter the program following completion of the third quarter of the first year medical school program. In addition, special programs can be arranged for medical students wishing to pursue concurrent studies in The School of Graduate and Postdoctoral Studies.

Sophomore Required Courses

MPAT 600A 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. Fall quarter. Six lecture hours and two practical session hours per week (6 units). Faculty.

MPAT 600B Systemic Pathology

Continuation of the survey of human disease. Winter quarter. Five lecture hours and two practical session hours per week (6 units). Faculty.

MPAT 600C Systemic Pathology

Completion of the survey of human diseases. Spring quarter. Five lecture hours and two practical session hours per week (7 units). Faculty.

Sophomore Elective Courses

MPAT 622 Special Projects in Pathology

Students participate in a research project or other individualized program under the direction of a faculty member. Prerequisite: Consent of department chair. Hours and credit to be arranged. Faculty.

MPAT 629 Applied Neuropathology

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. Spring quarter, three hours lecture and discussion per week (3 units). Dr. Haberland.

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. Fall, Winter and Spring quarters (3 units). Dr. Szanto and faculty.

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. Spring quarter, three hours lecture and discussion per week (3 units). Dr. Schneider.

Senior Elective Courses**MPAT 800 Pathology Clerkship**

Hospital clerkship experiences taken in four-week modules may be devoted to autopsy pathology, surgical pathology, ultrastructural studies, clinical chemistry, or clinical diagnostic microbiology. Clerkships are individually arranged in order to accommodate a broad range of student interests. Prerequisites: MPAT 600A, B, C. Faculty.

MPAT 835 Forensic Pathology Clerkship

The student is assigned to the Cook County Medical Examiner's Office for a period of four weeks, during which he or she participates in medicolegal autopsies. Students may also participate in toxicologic studies and "crime lab" activities if they choose. Research experiences are also available. Dr. Jones.

Faculty and Associated Staff

Elham Abboud, MD, Clinical Assistant Professor
 Seana Aldabagh, MD, Clinical Assistant Professor
 Saroja Bharati, MD, Clinical Professor
 Moira Breen, PhD, Clinical Associate Professor
 Antonio Chedid, MD, Professor
 Reuben Cuisin, MD, Lecturer
 Dilipkumar Dharkar, MD, Clinical Professor
 Bourke Firfer, MD, Assistant Professor
 Jack Garon, MD, Professor
 Catherine Haberland, MD, Clinical Professor
 (Secondary)
 Terence Harper, MD, Clinical Instructor
 Raul Heredia, MD, Clinical Assistant Professor
 Hee-Sook Jeon, PhD, Research Associate Professor
 Nancy Jones, MD, Professor
 Ning Liu, MD, PhD, Assistant Professor
 Chandrakant Modi, MD, Clinical Assistant Professor
 Maria Munoz, MD, Clinical Assistant Professor
 Marc Reyes, MD, Professor
 Osvaldo Rubinstein, MD, Associate Professor
 Arthur Schneider, MD, Professor and Chair
 Satinder Singh, MD, Clinical Associate Professor
 Philip Szanto, MD, Associate Professor
 William Thomas, MD, Clinical Professor
 Elliot Weisenberg, MD, Associate Professor

Department of Pediatrics

The Department conducts a six-week required clerkship in the junior year, participates in teaching 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 Oncology/Hematology.

The Department of Pediatrics 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.

Members of the department are involved in various research projects at their own hospitals.

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 performance of physicals and elicitation of histories, 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 that is composed of junior and senior residents and attending staff physicians.

The clerkship is currently conducted at Christ Hospital, Cook County Children's Hospital, Mount Sinai Hospital Medical Center, Lutheran General Hospital and St. Anthony Hospital. 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

The four-week rotation in Ambulatory Pediatrics is centered at the pediatric office in the Yacktmann Pavilion of Lutheran General Children's Hospital. 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 Lutheran General 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. Dr. Susan Unfer.

MPED 805 Pediatric Subinternship

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. Dr. Jaye Schreier.

MPED 808 Emergency Care

Students will be working with attending physicians and residents in the emergency room at John H. Stroger, Jr., Hospital of Cook County. The team of ER and clinic staff also consists of nurses, nurse practitioners and other support staff. Students will be given gradually increasing responsibilities of evaluating, assessing and planning management strategies under supervision and guidance of attending physicians and residents. Dr. Thomas Senko.

MPED 812 Pediatric Genetics

Students selecting this elective at Cook County Children's Hospital are expected to become familiar with the principles of human genetics (the cell cycle, mechanisms of chromosomal abnormalities, fundamentals of enzyme chemistry and principles of Mendelian and multifactorial inheritance). Clinical genetic disorders, such as autosomal and sex chromosomal abnormalities and inborn errors of amino acid, sugar mucopolysaccharide, carbohydrate and lipid metabolism, are covered.

Basic laboratory techniques, including karyotyping, tissue cultures and quantitative chemistry, are presented along with the principles of genetic counseling. All quarters, one student at a time, four to eight weeks except by special arrangements, 40 hours per week. Prerequisite: MPED 700. Dr. Susan Echiverri.

MPED 814 Pediatric Oncology/Hematology

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. Both inpatient and outpatient facilities at Cook County Children's Hospital are available for this experience.

The course 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. All quarters, one student at a time, four to eight weeks except by special arrangement. Prerequisite: MPED 700. Dr. Matthew.

MPED 816 Ambulatory Pediatrics

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.

The elective provides experience at John H. Stroger, Jr., Hospital of Cook County in obtaining an accurate, complete pediatric history, as well as in securing data by inspection, palpitation, auscultation, and percussion. All quarters, one or two students maximum, four to six weeks. Prerequisite: MPED 700, and approval of Ambulatory Pediatric chair. Dr. Jay Mayefsky.

MPED 818 Child Abuse and Neglect

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 multi-disciplinary evaluations to children presenting to John H. Stroger, Jr., Hospital of Cook County 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 the multidisciplinary care for high-risk patients and their families. Dr. Michele Lorand.

MPED 820 Adolescent Medicine

This elective will provide 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 physician attending, 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 Preparticipation 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. Dr. Lisa Henry-Reid.

MPED 836 Pediatric Endocrinology

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. Highly outpatient oriented. Dr. Kanika Ghai.

MPED 837 Pediatric Gastroenterology/Nutrition/Hepatology

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. Daily teaching rounds are held on the pediatric and adolescent units, as well as in the NICU and PICU. The student is expected to evaluate all new consultations first, and then present to the attendings for discussion. Formal conferences are held regularly. The students are encouraged to use the library, conduct literature searches, and present formal talks, and attend GI/Nutrition/CF Clinics. Dr. T.S. Gunasekaran.

MPED 838 Pediatric Hematology/Oncology

Intensive multidisciplinary clinical/clinical research elective 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. Drs. Jong Kwon and William Goodell.

MPED 840 Clinical Genetics

This is a busy clinical consultation service with emphasis on prenatal diagnosis, genetic counseling, and dysmorphology and heritable metabolic disease evaluations. The student will also attend multidisciplinary clinics for children with handicapping conditions and craniofacial anomalies, prepare karyotypes in the Cytogenetics Laboratory and present at least one short report at weekly Journal Club sessions. Drs. Carol Booth and Debra Rita.

MPED 841 Pediatric Infectious Disease

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. Drs. Julie Stamos, Ronda Oram, Jean Kim, and Elaine Rosenfeld.

MPED 842 Pediatric Critical Care

The PICU provides definitive intensive therapy and maximum surveillance for the critically ill or injured child. It is supervised by four, full-time, pediatric intensivists who act as consultants to all of the patients and as teachers to the house staff. There is also a pediatric critical care fellowship program. Many of the patients admitted to the unit are transferred from neighboring hospitals. The transport team, led by a senior pediatric resident, is directly responsible for the transfer of patients from the referring hospital to the unit. Drs. S. Havalad, M. Quaid, Enzo Garcia, and Critical Care Fellows.

MPED 843 Pediatric Nephrology Preceptorship

The student will participate in the evaluation and management of inpatient consultations outpatient visits to the Pediatric Nephrology service. Typical problems include electrolyte abnormalities, hypertension, nephrotic syndrome, enuresis, urinary tract infection and acute renal failure. Dr. Richard Kaplan.

MPED 844 Pediatric Cardiology Introduction

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). Detailed goals, objectives and scheduled activities are available upon request. Drs. I. DuBrow, S. Neuberger, and David Thoele.

MPED 845 Neonatology

This program, a rotation through the NICU at Lutheran General Children's Hospital, 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. Drs. D. Sheftel, R. Benawra, J. George, B. Puppala, T. Sheagren, and E. Greenglass.

MPED 847 Pediatric Pulmonology/Cystic Fibrosis

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 attends in the care of a large cystic fibrosis population. A brief oral presentation will be expected at the end of this rotation. Dr. Gabriel Aljadeff.

MPED 848 Neonatology

The division of neonatology at John H. Stroger, Jr., Hospital of Cook County, a Level 3 tertiary care facility, is responsible for 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. Dr. Suma Pyati.

MPED 849 Pediatric Neurology

Senior medical students may spend a one-month elective on the pediatric neurology service. 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. Drs. Nishant Shah and Mohammad Ikramuddin.

MPED 852 Inpatient Pediatric Subinternship

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. Dr. Jaye Schreier.

MPED 854 Pediatric Critical Care

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. There is also a pediatric critical care fellowship program. Drs. Jaimovich, Roy and fellows.

MPED 855 Pediatric Radiology (Available on a limited basis)

The Pediatric Radiology elective takes place in the Pediatric Radiology section of the Yacktmann Children's Pavilion, Lutheran General Hospital. At this site, there are dedicated facilities to provide pediatric fluoroscopy, routine radiography, ultrasound and CT. MR examinations are readily available through the main department. Nuclear medicine is performed in the separate department of nuclear medicine. In addition to the student's rotation through the Pediatric Radiology section, time is provided to rotate through the other imaging areas. The student has a close relationship with faculty on a day-to-day basis with one-to-one teaching in the mornings as studies are read or performed. Afternoon time is left for students to review extensive teaching file material consisting of CD-ROM, videodisc, videotape and slide tape programs. A core curriculum is established using these teaching aids. Afternoons are also utilized for the student to complete an assigned project required for the completion of the rotation. While doing the Pediatric Radiology elective, students are encouraged to attend other pediatric teaching conferences, as well as conferences given or supported by the Department of Radiology. Dr. John McFadden.

MPED 856 Clinical Pediatrics

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. This program will be based at offices in Deerfield and Libertyville, Illinois. The student will see primary care patients individually with attending supervision. There are ample opportunities to learn the role of the multidisciplinary team as the student will attend outpatient clinics that utilize the team approach to patient management. Students are expected to participate in didactic lectures 1–2 hours per week. Dr. Wittert.

MPED 857 Pediatric Pulmonology

During this rotation, the medical student will follow patients, both outpatient and inpatient. The student will become familiar with various procedures, including surgical and office procedures. The student will develop a working knowledge of the specifics of pulmonary medicine involving children. Dr. Akhter.

MPED 858 Pediatrics Hematology/Oncology

During this rotation, the medical student will follow patients, both outpatient and inpatient. The student will become familiar with various procedures, including surgical and office procedures. The student will develop a working knowledge of the specifics of hematology and oncology involving children. Drs. Salvi and Hayani.

MPED 859 Pediatric Development

During this rotation, the medical student will follow patients, both outpatient and inpatient. 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. Dr. Desch.

MPED 860 Pediatric Gastroenterology

During this rotation, the medical student will follow patients, both outpatient and inpatient. 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. Dr. Nagpal.

MPED 861 Pediatric Endocrinology

During this rotation, the medical student will follow patients, both outpatient and inpatient. 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. Dr. Ziai.

MPED 862 Pediatric Emergency Medicine

Student is responsible to take history from child or parent(s) and do a complete examination and make a preliminary working diagnosis with a plan to work up and manage. The student discusses the child's care with attending physician. The student learns Emergency Department procedures, like minor sutures, 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.

Faculty and Associated Staff

Gabriel Aljadeff, MD, Assistant Professor
 Raghbir Benawra, MD, Associate Professor
 Mitchell Blivaiss, MD, Clinical Instructor
 Ira DuBrow, MD, Professor
 Susan Echiverri, MD, Assistant Professor
 Esperanza Garcia-Alvarez, MD, Assistant Professor
 Kanika Ghai, MD, Assistant Professor
 Steven Goldberg, MD, Clinical Assistant Professor
 Barry Goldman, MD, Clinical Assistant Professor
 Mehmet Gulecyuz, MD, Lecturer
 Thirumazhisai Gunasekaran, MD, Clinical Instructor
 Suresh Havalad, MD, Assistant Professor
 Natesan Janakiraman, MD, Professor (Emeritus)
 Daniel Johnson, MD, Associate Professor
 Medha Kamat, MD, Assistant Professor
 Jerome Kraut, MD, Lecturer
 Romeen Lavani, MD, Lecturer
 Michele Lorand, MD, Assistant Professor
 Michael Lotke, MD, Assistant Professor
 Henry Mangurten, MD, Professor and Chair
 Jay Mayefsky, MD, Professor
 Kenneth Miller, MD, Clinical Instructor
 James Moy, MD, Instructor
 Padmanabhan Mukundan, MD, Assistant Professor
 Albert Owusu-Ansah, MD, Instructor

Mita Patel, MD, Assistant Professor
 LaMorris Perry, MD, Assistant Professor
 Antranik Poladian, MD, Assistant Professor
 Bhagya Puppala, MD, Assistant Professor
 Suma Pyati, MD, Professor
 Sripathy Rao, MD, Lecturer
 Arthur Ross III, MD, MBA, Professor (Secondary)
 Larry Roy, MD, Lecturer
 William Rutenberg, MD, Assistant Professor
 David Schaffer, MD, Lecturer
 Jaye Schreier, MD, Assistant Professor
 David Sheftel, MD, Clinical Assistant Professor
 David Soglin, MD, Lecturer
 Gopal Srinivasan, MD, Professor
 Hari Srinivasan, MD, Assistant Professor
 Robert Suskind, MD, Professor
 Venkata Vallury, MD, Instructor
 Howard Weiss, MD, Lecturer
 Shou-Yien Wu, MD, Assistant Professor

Department of Physiology and Biophysics

The goal of the Department of Physiology and Biophysics is to have students develop a thorough understanding of the principles and mechanisms involved in cellular and organ systems physiology. This is accomplished through an intensive course of study including Medical Physiology, Neuroscience and a variety of elective courses of study, as well as research opportunities for medical students. The subject content of the courses presents normal system physiology as well as discussions of pathological conditions that are of clinical relevance. Teaching is done by full-time faculty using different venues, such as large lecture presentations, small group conferences, individual consultation and laboratory demonstration-participation. As the department is committed to medical education, there is considerable one-on-one interaction between students and faculty, as well as individualized feedback on their progress in mastering course material. Students are also presented with numerous opportunities for active participation in laboratory work.

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

Required Courses

MPHY 500A, B 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. Faculty.

MPHY 500A

Fall quarter, five lectures and three hours of laboratory work and conferences per week (7 units). Faculty.

MPHY 500B

Winter quarter, six lectures and two hours of laboratory and conferences per week (7 units). Faculty. 14 units total.

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. Fall quarter, 2 hours per week (2 units). Prerequisite: Medical Physiology (MPHY 500A, B) or its equivalent. Dr. McCormack.

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. Fall quarter, 2 hours per week (2 units). Dr. Peterson.

MPHY 615 Physiology of the Liver

In addition to a discussion of the functions and experimental techniques used in studying the liver, the effects of complete and partial hepatectomy are described, as well as the pathophysiology of the liver. Winter quarter, two lecture hours per week (2 units). Dr. Sukowski.

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. Spring quarter (2 units). Dr. Sukowski.

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. Spring quarter, 2 hours per week (2 units). Prerequisite: Medical Physiology MPHY 500A, B. Dr. McCormack.

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. All quarters. All Physiology research faculty.

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. Drs. Bridges, Ebihara, Garber, Sackin, Urban, Hawkins, D. Kim, Peterson and Rasgado-Flores.

Multidisciplinary Courses**MCBA 606 Advanced Topics in Cell Biology II:
Extracellular Matrix and Cytoskeleton**

This course focuses on selected topics concerning the structure and function of molecules and organelles within the cytoplasm and extracellular matrices. Emphasis placed on the use of primary source materials. 2 hours per week (2 units). Not offered every year. Prerequisite: MBCH 502.

**MCBA 607 Advanced Topics in Cell Biology III:
Growth Regulation**

This course focuses on four aspects of eukaryotic growth regulation. Topics include cell cycle theory and early genes, growth factors, oncogenes and immunology of cancer. Emphasis is placed on human malignancy. Format is lecture and seminar with heavy emphasis on original literature source material. 2 hours per week (2 units). Not offered every year. Prerequisite: MBCH 502 or consent of instructor.

Faculty and Associated Staff

Neil A. Bradbury, PhD, Associate Professor
Robert J. Bridges, PhD, Professor and Chair
Lisa Ebihara, MD, PhD, Associate Professor
Sarah Garber, PhD, Associate Professor (Secondary)
Raul Gazmuri, MD, PhD, Associate Professor (Secondary)
Timothy Hansen, PhD, Professor
Richard Hawkins, PhD, Professor
Donghee Kim, PhD, Professor
Charles McCormack, PhD, Professor
Darryl Peterson, PhD, Professor
Gordon Pullen, PhD, Assistant Professor (Secondary)
Hector Rasgado-Flores, PhD, Associate Professor
Henry Sackin, PhD, Professor
Ernest Sukowski, PhD, Associate Professor
Janice H. Urban, PhD, Associate Professor
Juan Vina-Ribes, MD, PhD, Research Professor
Demetrios Zikos, MD, Clinical Associate Professor (Secondary)

Department of Psychiatry and Behavioral Sciences

Sophomore Required Course

MPSY 601A, B Clinical Neuroscience

This multidisciplinary course focuses on brain structure and function and their clinical manifestations. Faculty includes members of the Departments of Psychiatry and Neurology. Term I covers brain organization strategies for the diagnosis of central nervous system disease. These strategies include the mental status and cognitive assessment examinations, psychological testing, and routine (e.g., blood count) and specialized (e.g., lumbar puncture, magnetic resonance imaging) laboratory testing, normal and abnormal personality. Term II covers disorders of the central nervous system, encompassing psychopathology. For these disorders, prevalence, pathophysiology, clinical manifestations, diagnosis, treatment and prevention are covered. Drs. Sierles, Atre-Vaidya, and faculty. 7 total units.

Sophomore Elective Course

MPSY 629 Research Elective in Psychiatry

With the supervisor, student will select a topic and perform steps of the research procedure under supervision.

Junior Required Course

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. Elgin Mental Health Center, Mount Sinai Hospital and North Chicago Veterans Affairs Medical Center. Six weeks. Dr. Moss and faculty.

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 participate in a clerkship honors program in which they participate in specialized research or clinical experiences during this required clerkship.

Senior Elective Courses

Note: Prerequisites for all senior elective courses: successful completion of the clerkship in Basic Psychiatry and departmental permission.

MPSY 810 Research in Psychiatry

The student participates as a senior or junior author of a research project in general psychiatry. This includes: a) literature search; b) protocol with study design; c) data collection; d) data interpretation; and e) manuscript preparation for publication. Spring quarter only. Eight to 12 weeks. Drs. Atre-Vaidya, Moss, and Sierles.

MPSY 817 Child Psychiatry

The goal of this course is to enable students contemplating a career in pediatrics (or child psychiatry) to gain valuable experience in treating children, adolescents, and their families in an active outpatient setting. Under the supervision of board-certified child psychiatrists, students assume the role of house staff and diagnose and treat a variety of patients. A number of therapeutic models are used, and the student is considered part of the treatment team. All quarters, 40 hours. Dr. Sarma.

MPSY 825 Clinical Elective in Forensic Psychiatry

Student will become familiar with the specialized clinical and medicolegal issues surrounding treatment of patients adjudicated Not Guilty by Reason of Insanity and Unable to Stand Trial.

MPSY 830 Neuropsychiatry Clinical Elective

Students will spend four weeks working closely with attendings at the North Chicago Veterans Affairs Medical Center, Kiley Developmental Center, and The Clinics at Rosalind Franklin University. Students will be assigned to neurobehavioral clinic, neuropsychiatric clinic, the women's psychiatric clinic and developmental disability clinic. Students will evaluate patients with Parkinson's disease, head injury, epilepsy and developmental delay. Dr. Atre-Vaidya.

MPSY 890 Addiction Medicine

Inpatient and outpatient experience, lectures on detox and medical complications, cocaine, hallucinogens, inhalants, smoking, diagnosis and screening; group therapy experience.

Facilities

The Department has affiliations with Mount Sinai Hospital, Elgin Mental Health Center and the North Chicago Veterans Affairs Medical Center, and has ongoing programs in community facilities in DuPage County and in the public schools in the Lake County area, and maintains a section in The Clinics at Rosalind Franklin University.

Faculty and Associated Staff

Yogi Ahluwalia, MD, Associate Professor
 Syed Anwar, MD, Clinical Assistant Professor
 Nutan Atre-Vaidya, MD, Professor and Chair
 John Bair, PhD, Clinical Assistant Professor (Secondary)
 Ronald Baron, MD, Clinical Associate Professor
 David Baron, MD, Clinical Assistant Professor
 Mariam Barouta-Kharzo, MD, Assistant Professor
 Carl Bell, MD, Lecturer
 John Burns, PhD, Adjunct Assistant Professor (Secondary)
 Sung Cheon, MD, Assistant Professor
 Amin Daghestani, MD, Clinical Professor
 Viktoria Erhardt, MD, Assistant Professor
 Roland Erwin, PhD, Associate Professor (Secondary)
 Maria Fisfalen, MD, Assistant Professor
 Arturo Fogata, MD, Clinical Assistant Professor
 David Garfield, MD, Professor
 Medeia Gartel, MD, Instructor
 Alfreda Grosrenaud, MD, Assistant Professor
 Mortimer Gross, MD, Clinical Associate Professor
 Daniel Hardy, MD, Lecturer
 Tariq Hassan, MD, Associate Professor (Secondary)
 Julianne Hish, APRN, Clinical Instructor
 Charles Hillenbrand, MD, Clinical Professor
 Syed Hussain, MD, Clinical Assistant Professor
 Chowdary Jampala, MBBS, Professor
 Hasina Javed, MD, Clinical Assistant Professor
 Patrick Kamm, MD, Clinical Assistant Professor
 Mallikarjuna Kanneganti, MD, Assistant Professor
 Faiza Kareemi, MD, Clinical Assistant Professor
 Elizabeth Kessler, MD, Associate Professor
 Anna Klyachkina, MD, Clinical Assistant Professor
 Leonard Koziol, PsyD, Clinical Assistant Professor
 Jadwiga Kuszynska, MD, Assistant Professor
 Henry Lahmeyer, MD, Clinical Professor
 Steven Lammers, MD, Clinical Assistant Professor
 Phil Lebovitz, MD, Clinical Associate Professor
 Richard Lewis, MD, Assistant Professor
 Rebecca Lutner, JD, Adjunct Instructor
 George Lutz, PhD, Clinical Assistant Professor
 Atul Mahableshwarkar, MD, Clinical Associate Professor

Lynn Malenfant, MD, Assistant Professor
 Allan Markle, PhD, Adjunct Assistant Professor
 (Secondary)
 Alicia Martin, MD, Clinical Assistant Professor
 Mercedes Martinez, MD, Clinical Assistant Professor
 Barbara Meyer, PhD, Adjunct Assistant Professor
 Elizabeth Mirkin, MD, Instructor
 Aron Mosnaim, PhD, Adjunct Professor (Secondary)
 Lori Moss, MD, Assistant Professor
 David Oler, PhD, Clinical Assistant Professor
 Gary Oltmans, PhD, Adjunct Associate Professor
 (Secondary)
 Harvey Parhad, MD, Assistant Professor
 Salwa Parhad, MD, Assistant Professor
 Malini Patel, MD, Clinical Associate Professor
 Margaret Primeau, PhD, Lecturer (Secondary)
 Shahnaz Rahman, MD, Clinical Assistant Professor
 Nabih Ramadan, MD, Professor (Secondary)
 Pradeep Rattan, MD, Assistant Professor
 Aida Rjepaj, MD, Assistant Professor
 Ruth Rosenthal, MD, Assistant Professor
 Lorraine Roth, MD, Assistant Professor
 Ioana Sandu, MD, Assistant Professor
 Balasubramania Sarma, MD, Associate Professor
 Michael Seidenberg, PhD, Associate Professor
 (Secondary)
 Rita Shapiro, DO, Associate Professor (Secondary)
 Sandra Siegel, RN, Adjunct Assistant Professor
 Frederick Sierles, MD, Professor
 Edwin Simon, MD, Assistant Professor
 Mirella Susnjar, MD, Clinical Assistant Professor
 Michael Taylor, MD, Professor Emeritus
 Marian Tolpin, MD, Clinical Professor
 John Tomkowiak, MD, Associate Professor
 Chandragupta Vedak, MD, Clinical Assistant Professor
 Jyoti Warikoo, MS, Assistant Professor
 Amanda Weiss, MD, Assistant Professor
 David Wilson, MSW, Adjunct Assistant Professor
 John Woodard, PhD, Adjunct Associate Professor
 (Secondary)

Department of Radiology

The Department 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 third 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 can 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 Courses

MRAD 600 Diagnostic Radiological Anatomy

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. Requisite: M2 standing. Faculty.

MRAD 601 Radiology Research

This course is designed to provide an introduction and opportunity to conduct and/or publish research on a topic in radiology. Students will participate in a

faculty-directed research project, studying protocol development, subject recruitment, literature review, data acquisition/entry/analysis, publication, presentation at scientific conferences, and/or other aspects of the process as they pertain to the specific project. Students should be willing to dedicate at least 3 hours/week for 10 weeks and have an interest in learning about current topics in radiology. Research focus areas must be 1) innovative and 2) be feasible to complete over a quarter. Fall, Winter, Spring. Dr. Ejaz Rahim (1 credit).

Senior Elective Courses

MRAD 801 and MRAD 804

General Diagnostic Radiology Clerkships

Students work with faculty at the North Chicago Veterans Affairs Medical Center to develop skills in interpreting radiographic anatomy, physiology and pathology. In addition to and within the NCVA rotation, students may be assigned visitation at other hospitals and radiology facilities within the Chicago area to receive instruction from faculty at these various locations, including Jesse Brown Veterans Affairs Medical Center, Gurnee Radiology Center, and Good Shepherd Hospital. Students will learn and understand routine procedures and augment skills in differential diagnosis of radiographic manifestations of common clinical situations. Students will attend scheduled supplemental, didactic lectures and interdisciplinary conferences given by faculty. Students may also be assigned independent work, utilizing the various learning aids in the Departments at CMS and at the NCVAMC. Students are required to complete a paper with images and bibliography. Offered Fall, Winter and Spring in four-week sessions. One to six students per session. Faculty.

MRAD 802 General Diagnostic Radiology Clerkships

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 at Mount Sinai Hospital Medical Center. Offered Fall, Winter and Spring in four-week sessions. One to four students per session. Faculty.

MRAD 806 Introduction to Neuroradiology

This course, held at Lutheran General Hospital, is an introduction to the clinical problems and imaging modalities involved in neuroradiology, including neuro-interventional techniques. Prerequisite: Completion of third-year clerkships. Offered in all quarters of academic year in two-week rotations. Maximum two students per session. Faculty.

MRAD 809 Diagnostic Radiology

This 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. Offered all quarters or as determined by faculty in four-week sessions. Maximum two students per session. Faculty.

MRAD 810 Radiation Therapy

Our faculty is 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 manage-

ment 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. Offered all quarters of academic year in two- or four-week rotations. Maximum two students per session. Faculty.

Faculty and Associated Staff

Thalerng Balachandra, MD, Assistant Professor
 Winston Casis, MD, Instructor
 John Chang, MD, Assistant Professor
 Yong-Kyu Choe, MD, Clinical Assistant Professor
 Stephen Doundoulakis, MD, Clinical Assistant Professor
 Pierre Eilian, MD, Clinical Associate Professor
 Yan-Fu Feng, MD, Assistant Professor
 Brent Greenberg, MD, Clinical Assistant Professor
 Alan Hecht, MD, Assistant Professor
 Nam Kim, MD, Clinical Associate Professor
 John LeVan, PhD, Adjunct Professor (Secondary)
 Joseph Levy, MD, Associate Professor
 Leon Love, MD, Lecturer
 Najma Mirza, MD, Clinical Assistant Professor
 Gregory Moss, MD, Clinical Professor
 Ejaz Rahim, MD, Associate Professor and Chair
 Jeffrey Rosengarten, MD, Clinical Associate Professor
 Pratiba Sansi, MD, Clinical Assistant Professor
 Parkash Talwar, MD, Clinical Professor
 Piyush Vyas, MD, Assistant Professor
 Donald Waxler, MD, Associate Professor
 Edwin Willgress, MD, Clinical Assistant Professor
 Bong-Hyun Yoon, MD, Associate Professor

Department of Rehabilitation Medicine

The Department 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.

Sophomore Elective Courses

MRHM 613 Research Elective in Rehabilitation Medicine

This course is designed to be a comprehensive, experience-based practical exercise in conducting research on pain disorders. Students who choose this elective will be involved in all aspects of pain research to include study protocol development and grant writing, subject recruitment, study execution, data entry/analysis and presentation at scientific conferences. (Other duties are assigned). Students should be willing to dedicate between three and 15 hours per week and have an interest in learning all about aspects of the diagnosis and treatment of pain disorders. Dr. Harden.

Senior Elective Courses

MRHM 801 Rehabilitation Medicine for Primary Physicians

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. All quarters. Multiple sites, and North Chicago VA Medical Center.

MRHM 803 Rehabilitation Medicine for Primary Physicians

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. All quarters. Dr. Reddy. Hines VA Medical Center.

MRHM 804 Clinical Rehabilitation Medicine for Primary Physicians

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. All quarters. Dr. Gittler, Schwab Rehabilitation Hospital. Dr. Elliot Roth, Rehabilitation Institute of Chicago.

MRHM 809 Clinical Adult Inpatient Service

Students will have the responsibility for the initial workup, the prescription of allied health services, and medical coverage of physically and cognitively disabled inpatients. Students will initially attend and later participate in the direction of patient staffings by the allied health team. They will learn to appreciate the contributions of all members of this team. This rotation will also incorporate outpatient clinic exposure (80% inpatient; 20% outpatient). Focus areas include spinal cord injury, head trauma, osteoarthritis, stroke, amputee, and general rehabilitation.

This elective will enhance the student's ability to provide medical and rehabilitative care for disabled patients in a multidisciplinary team approach. It will also provide experience in writing appropriate therapy prescriptions, and in determining long- and short-term rehabilitative goals.

MRHM 811 Individual Studies

Special studies can be designed for students on an individual basis that may include such aspects of PM&R as electrodiagnostic procedures, psychological implications, spinal cord injuries, orthotics, prosthetics, outpatient, etc.

This elective will enhance the student's understanding of a specific area of focus in PM&R: electrodiagnostic medicine, orthotics/prosthetics or performing arts medicine.

MRHM 812 Rehabilitation Research

There are extensive opportunities for research in PM&R. Neurophysiology and neuropsychology research are emphasized. Supervision can be provided for students with original research ideas, or the student may consult with department faculty for research ideas. This elective will be customized on an individual basis to provide maximum learning experiences in clinical research, and to offer insight to the field of PM&R.

MRHM 813 Clinical Pediatric Rehabilitation Service

Students will work directly with family units, do initial history and physical examination on new patients admitted to the pediatric service, and will have the opportunity to participate in the evaluation and care of the patients in a multidisciplinary team approach. Students will also have the opportunity to participate in the Rehabilitation Consult Service at Children's Memorial Hospital and visit other institutions in the metropolitan area that serve disabled children as well as attend outpatients at the Rehabilitation Institute of Chicago.

This elective will provide insight and experience with the direction and coordination of an interdisciplinary rehabilitation team in the care of a child with a disability. Students will gain an understanding of pediatric outpatient care and long-term management of the disabled child.

MRHM 814 Inpatient and Outpatient Rehabilitation

This elective emphasizes evaluation and treatment of physically disabled handicapped patients and patients with a variety of musculoskeletal dysfunctions. The student will have responsibility for the initial patient evaluation and will participate in patient management. The student will attend patient staffings and observe patients in therapy. The student will have an opportunity to perform electrodiagnostic procedures. 50% inpatient, 50% outpatient.

MRHM 815 Clinical Management of Chronic Pain

Students will gain an understanding of principles of diagnosis and treatment of chronic low back and other neurological chronic pain syndromes. They will learn to examine and evaluate the spine. They will attend staffings and will participate in the total management of inpatients with severe chronic pain problems. In addition, they will observe the physical treatment of patients including all therapies. They will observe techniques of biofeedback, relaxation therapy and behavior modification.

This elective will provide understanding of the principles of diagnosis and treatment of chronic pain, competence in its evaluation, and ability to differentiate treatment approaches for chronic versus acute pain.

MRHM 816 Rehabilitation Medicine Clinical Service

This elective emphasizes evaluation and treatment of the physically disabled handicapped patients and patients with a variety of musculoskeletal dysfunctions. The student will have responsibility for the initial patient evaluation and will participate in patient management. The student will attend patient staffings and observe patients in therapy. The student will have an opportunity to perform electrodiagnostic procedures. 50% inpatient, 50% outpatient.

Faculty and Associated Staff

Vijaya Chigurupati, MD, Clinical Instructor
 Matthew Flanagan, MD, Lecturer
 Michelle Gittler, MD, Lecturer
 Mitchell Goldflies, MD, Clinical Assistant Professor
 Melitta Gratzner, MD, Clinical Assistant Professor
 Norman Harden, MD, Lecturer
 David Hinkamp, MD, Clinical Assistant Professor
 Meilute Indreika-Biskis, MD, Lecturer
 Ronald Kaplan, PhD, Adjunct Instructor
 Martin Lanoff, MD, Clinical Assistant Professor
 Oleh Paly, MD, Clinical Assistant Professor
 Barbara Parke, MD, Lecturer
 Nabih Ramadan, MD, Professor (Secondary)
 Suzan Rayner, MD, Lecturer
 Kaswaram Reddy, MD, Clinical Assistant Professor
 Eugene Rogers, MD, Professor Emeritus
 Robert Rogers, MD, Lecturer (Secondary)
 Elliot Roth, MD, Lecturer
 Uma Shah, MD, Assistant Professor
 Sang Suh, MD, Assistant Professor
 Bharathi Swaminathan, MD, Professor (Secondary)
 Stephen Weinberg, DPM, Adjunct Instructor
 Gary Yarkony, MD, Clinical Professor

Department of Surgery

General Information

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. There is a schedule of visiting faculty from institutions in and outside the Chicago area and a full complement of qualified professionals in other medical and allied fields. 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 research in the areas of shock and critical care, surgical nutrition, neurosurgery, and education.

Sophomore Elective Courses

MSUR 600 Electives in Cardiovascular Surgery

The student, under the direction of the cardiovascular surgeon, will observe history, exam, and surgery. Relevant clinical correlations to basic science courses will be evident. Some examples of procedures that will be observed: coronary bypass, valve repair and replacement, implantable devices, anti-arrhythmia and revascularization procedures. The student will arrange scheduled visits to the cardiovascular office in Libertyville, so as not to conflict with his or her academic schedule. Spring quarter, 10 weeks. Dr. Phillip Faraci (1 credit).

MSUR 601 Elective in Orthopedics

The student under the direction of the orthopedic surgeon 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, IL, not to conflict with the academic schedule.

Required Course

MSUR 700 Surgery Clerkship

The Surgical Clerkship Program is an eight-week rotation in one of six affiliated hospitals: Mount Sinai Hospital Medical Center, Illinois Masonic Medical Center, Christ Hospital, John H. Stroger, Jr., Hospital of Cook County, Lutheran General Hospital, and Swedish Covenant Hospital, under the supervision of Internal Coordinators who are faculty members. Six weeks are assigned to general surgery, and two weeks of one of the following electives: anesthesiology, emergency room, metabolic care, orthopedic surgery, trauma, urology and vascular surgery.

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.

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.

Senior Elective Courses

MSUR 800 Acting Internship in General Orthopedics

Fourth-year medical students applying for orthopedic residency programs will be given the opportunity to work one-on-one with a practicing general orthopedic surgeon at the Great Lakes Naval Hospital. Students will be given exposure to clinic, inpatient rounds, and the operating room. The level of responsibility will be equivalent to an intern. Students will be given daily lectures to cover general orthopedic topics with an emphasis on sports medicine and arthritis. Students will be expected to present one topic at the end of the rotation selected from patients seen in clinic and will be evaluated on their presentation skills and content. 4 weeks. Dr. Robert M. Tamurian, Dr. Dominick Paparella, and Dr. William Lutes. United States Navy Hospital, Great Lakes.

MSUR 806 Trauma

The Department of Surgery at Mount Sinai Hospital Medical Center offers a four-week elective on the Trauma Service that allows the fourth-year student an in-depth opportunity to care for the acutely injured patient.

MSUR 808 General Urology

This elective will introduce the student to the principles of urology, basics of urologic disease, diagnostic approaches, and the treatment of urologic problems. Emphasis will be placed on giving the student a working knowledge of urologic problems, i.e., urinary tract infections, obstructive uropathy, urolithiasis, tumors, and congenital defects. The Urology Service at Mt. Sinai Health System of Chicago will be utilized. 2 weeks. Dr. Lynn Blunt, Jr.

MSUR 809 Surgical Critical Care

Offered at Mount Sinai Hospital Medical Center, the clinical clerkship in multidisciplinary critical care provides the senior student an opportunity to serve as an active member of a fellow-student team intimately involved in the critical care of patients in the medical-surgical intensive care units. The clinical experience

exposes the student to a wide variety of medical and surgical problems for which the clerk is responsible for diagnosis and treatment under the direct supervision of the critical care fellow and attending physician. The full teaching program includes daily attending rounds, daily critical care conferences, and weekly medical and surgical grand rounds. The clerkship is intended to permit the student to serve as an “acting intern” as a means of enhancing his or her knowledge, skills and judgment in critical care medicine.

MSUR 820 Surgical Subinternship

The clerkship is designed to continue surgical training as an extension of the Junior clerkship and is offered at Mount Sinai Hospital Medical Center.

The Student Externship provides the senior student an opportunity to serve as an active member of a resident-intern-student team intimately involved in the acute care of patients on the surgical service and care of patients in the outpatient department. The clinical experience exposes the student to a wide variety of problems for which the clerks are responsible for diagnosis and treatment under the direct supervision of the resident and attending physician. The full teaching program includes attending rounds, specialty conferences, morbidity & mortality conferences, journal club, and Surgical Grand Rounds. The clerkship is intended to permit the student to serve as an “acting intern” as a means of enhancing his or her knowledge, skills and judgment in clinical surgery.

MSUR 823 Orthopedics

Students work directly with the attending and resident staff at Mount Sinai Hospital Medical Center. Management of acute injuries, such as fractures, dislocations and tendinous injuries, is the focus. Students are responsible for the pre- and post-operative care of patients, as well as the principles of rehabilitation. They learn the proper techniques of fracture immobilization (casting, traction, internal fixation). They are expected to perform an in-depth examination and evaluation of the extremities and spinal column.

MSUR 824 Trauma and Critical Care Surgery

This is a four-week clinical rotation on an inpatient service at Illinois Masonic Medical Center. 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 825 Otolaryngology

This four-week clinical elective gives the student firm foundation for the recognition and appropriate course of action of problems of otolaryngology head and neck surgery. Students are included in all the clinical activities of the instructor. This includes initial and follow-up office visits of all ENT population as well as observation and assistance in the operating room. Topics of general otolaryngology are assigned to the students. Following their readings on the topics, formal and informal discussions are held.

MSUR 842 General Surgery (Lutheran General Hospital)

The student will participate as a subintern on an academic General Surgery Teaching Service in which a broad spectrum of surgical diseases are encountered. The student will have the opportunity to provide preoperative, intraoperative, and postoperative care for approximately 75 to 80 operative patients per month. The student will be a member of the team providing care in the Surgical Intensive Care Unit, as well as the step down units. The student will be afforded the opportunity to attend daily SICU teaching rounds. The student will participate in weekly surgical grand rounds, M&M conferences, morning presentations of patient case scenarios, and trauma conferences. The student will be a regular contributor to the case presentations, and will be a key member of the academic team.

MSUR 844 Adult Cardiac Surgery (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 (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 (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 two-and-one-half 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 (Lutheran General Hospital)

The student will participate as a subintern 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 (Lutheran General Hospital)

The student will act as a subintern 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 General Surgery and Gynecologic Oncology

The fourth-year elective student would 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 would 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. 4 weeks. Dr. Bruce J. Stoeckl.

Faculty and Associated Staff

Frank Apantaku, MD, Clinical Assistant Professor
 Lecia Apantaku, MD, Professor
 Kathryn Bass, MD, Lecturer
 Richard Caldwell, MD, Lecturer
 Vivek Chaudhry, MD, Lecturer
 Raymond Firfer, MD, Clinical Professor
 Allan Fredland, MD, Associate Professor
 Mitchell Goldflies, MD, Clinical Assistant Professor
 (Secondary)
 Mark Hill, MD, Clinical Professor
 Michele Holevar, MD, Professor
 Nedra Joyner-Triplett, MD, Clinical Assistant Professor
 Orhan Kaymakcalan, MD, Clinical Assistant Professor
 Sung-Tao Ko, MD, Clinical Professor
 Hasmukh Patel, MD, Clinical Assistant Professor
 Jayantibhai Patel, MD, Clinical Instructor
 Prahlad Pyati, MD, Clinical Professor
 Robert Richardson, MD, Clinical Professor
 Arthur Ross, III, MD, MBA, Professor
 Marek Rudnicki, MD, PhD, Lecturer
 Hernando Torres, MD, Clinical Professor
 Thomas Vargish, MD, Professor and Interim Chair
 Stephen Wise, MD, Associate Professor
 Robert Yario, MD, Clinical Associate Professor
 Phillip Zaret, MD, Associate Professor
 Michael Zdon, MD, Professor

Required Multidisciplinary Courses

The faculty has determined that certain subjects are more effectively taught and learned when approached from the body systems or problem-oriented standpoint rather than from the discipline standpoint. Consequently, several required courses have been developed which incorporate these approaches and are included in the curriculum. The courses are developed by faculty assigned to the course by their respective departments and who are specialists in the topics to be taught in these courses.

MMTD 510 Introduction to Medical Ethics

The course introduces the student to the basics of ethical issues in the practice of medicine, as well as to recognize the controversial nature of issues such as patient's rights. Elements of research into the foundations on which positions are taken on medical issues are stressed. Logical approaches for such positions are developed. Inquiry into the historical basis of ethical problems, appreciation for alternative positions on ethical issues and identifying the ethical issues concomitant with the new developments in the practice of medicine are emphasized. Spring quarter, first year. 2 total units.

MMTD 509 Epidemiology

This course acquaints the student with the basic concepts of biostatistics and introductory Epidemiology. Elements of research design are stressed so that the student is able to critically evaluate research literature. Practice in simple statistical skills and analysis is included. Spring quarter, first year. 2 units.

MMTD 601 Preventive Medicine

The course provides a module in epidemiology, introductory lectures in the fields of occupational medicine and environmental medicine plus lectures on a sampling of diseases that are common, constitute public health problems and are amenable to varying degrees to screening, early diagnosis and subsequent intervention. Spring quarter, sophomore year. 2 units.

2006–2007 Academic Calendar

Dates on Registrar's Web Site 2006–2007
Academic Calendars