A comprehensive survey of clinical biochemistry: assessment of normal and pathologic physiology.

421. Hematology Laboratory
Fall, Winter, Spring, 1(0-2) or 2(0-4) MT 420 or concurrently.
Laboratory techniques in hematology. Normal and abnormal blood cell morphology.

430. Immunohematology
Fall, Spring, 3(0-0) MTH 461.
Genetics and immunohematology pertinent to blood group systems, antibody identification, and compatibility testing. Common practices of transfusion centers. Clinical correlations related to transfusion reactions and to hemolytic disease of the newborn.

431. Immunohematology Laboratory
Fall, 1(0-2) or 2(0-4) MT 430 or concurrently.
Techniques relevant to practice of immunohematology. Special emphasis on blood typing, antibody screening and identification, compatibility testing, prenatal and postnatal testing, quality assurance and problem solving.

440. Clinical Microscopy and Hemostasis
Winter, Summer, 2(2-0) PSL 432, BCH 401.
Renal physiology pertinent to the physical, chemical, and microscopic analysis of urine. The coagulation and fibrinolytic mechanisms including inherited and acquired diseases, laboratory testing and anticoagulant therapy.

441. Clinical Microscopy and Hemostasis Laboratory
Winter, 1(0-2) or 2(0-4) MT 440 concurrently.
Routine urinalysis including the physical, chemical and microscopic examination. Semi-automated procedures for routine coagulation testing including prothrombin times, partial thromboplastin times, and factor assays.

451. Senior Seminar I
Fall, 3(3-0) Clinical Laboratory Sciences majors, approval of Medical Technology Program.
Problem oriented learning approach to develop managerial, scientific and educational leadership for the clinical laboratory. Topics to include clinical chemistry, hematology, immunology, microbiology, hemostasis, quality control, instrumentation.

452. Senior Seminar II
Winter, 3(3-0) MT 451.
Continuation of MT 451. Problems of increasing difficulty and based on additional topics in immunohematology and medical mycology.

453. Senior Seminar III
Spring, 3(3-0) MT 452.
Continuation of MT 452. Problems of increasing difficulty and based on additional topics from medical parasitology.

461. Medical Immunology and Microbiology
Winter, 5(5-0) MPH 301, MPH 302.
Students may not receive credit in both MPH 461 and MPH 487. Interdepartmental with and administered by the Department of Microbiology and Public Health.
The immune system, autoantibodies, and coagulation. The immune system, cell-membrane interaction, and in vivo and in vitro reaction, and associated immunopathology. Characterization of infectious agents and their pathogenic processes.

483. Clinical Immunohematology
Fall, Winter, Spring, Summer.
Application of the theory and technical skills of hemostasis in a clinical laboratory.

484. Clinical Microbiology
Fall, Winter, Spring, Summer.
Application of technical and research methodologies in clinical microbiology.

485. Clinical Immunology
Fall, Winter, Spring, Summer.
Application of the theory and technical skills of clinical immunology.

486. Clinical Hemostasis
Fall, Winter, Spring, Summer.
Clinical experience in the area of hemostasis. Structured to achieve proficiency in phlebotomy and hematology. Normal and abnormal blood cell morphology.

487. Clinical Body Fluid Analysis
Fall, Winter, Spring, Summer.
Application of the theory and technical skills used in the analysis of body fluids in a clinical laboratory.

495. Independent Study
Fall, Winter, Spring.
May enroll for a maximum of 10 credits. May enroll for a maximum of 10 credits. In cooperation with the Department of Pathology.
Independent study including assigned reading and reviews of appropriate scientific periodicals.

800. Seminar
Fall Winter, Spring.
1.5-6 Approval of Medical Technology Program.
Current research topics in the clinical laboratory sciences.

810. Preparation for Research in the Clinical Laboratory Sciences
Fall, Winter.
Interdepartmental with and approved by the Department of Pathology.
Directed reading and discussion related to research methodology, proposal presentations and scientific writing and oral, and researchfunding.

820. Advanced Human Hematology
Fall, Winter, Spring.
Selected topics in hematology including the pathogenesis, mechanisms and morphological picture of hematologic diseases in humans.
Evaluation of hemostatic disorders.

Departmental with the Department of Pathology.

MEDICINE MED

College of Human Medicine

Infectious diseases of humans, including biology of the causative microorganism, epidemiology, pathogenesis, host-parasite relationships, clinical and laboratory diagnosis, and clinical management.

590. Special Problems in Medicine
Fall, Winter, Spring, Summer. 1 to 6 credits. May reenroll for a maximum of 12 credits. MED 607.

Office-based experience with a dermatologist to learn clinical skills in dermatology and develop observational and diagnostic skills in skin disease.

Dermatology Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.

Clinical clerkship in which students evaluate inpatient medical problems.

512. Infectious Diseases
Spring. 4(3-3) MPH 511, or approval of department.

Infectious diseases of humans, including biology of the causative microorganism, epidemiology, pathogenesis, host-parasite relationships, clinical and laboratory diagnosis, and clinical management.

Nephrology Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.


Advanced Internal Medicine Clerkship
Fall, Winter, Spring, Summer. 2 to 18 credits. May reenroll for a maximum of 18 credits. MED 608.

Clinical experiences which refine diagnostic and management skills in general internal medicine.

530. Emergency Medicine Clerkship
Fall, Winter, Spring, Summer. 2 to 18 credits. May reenroll for a maximum of 18 credits. MED 608.

Pathophysiology and other basic concepts will be used to explain the development of emergent conditions. Clinical diagnosis and treatment of emergencies seen in community emergency departments will be discussed.

526. Physical Medicine and Rehabilitation Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.

Experience in prescription writing for physical medicine procedures, occupational therapy and rehabilitation skills.

527. Rheumatology Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.

Combined office and hospital consultative clerkship which develops diagnostic skills in areas of rheumatic diseases.

Metallurgy, Mechanics, and Materials Science — Description of Courses

540. Advanced Hemostasis
(PTH 540.) Fall of even-numbered years. 2(2-0) M.S. candidates in Clinical Laboratory Science or approval of department. Interdepartmental with the Department of Pathology. May reenroll for a maximum of 12 credits. MED 608.

Physiology, pathophysiology and laboratory evaluation of hemostatic disorders.

511. Cardiology Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.

Clinical clerkship in which students evaluate in depth patients with cardiac diseases. This includes experiences with special diagnostic procedures including cardiac catheterization, phonocardiography, echocardiography and electrocardiography.

512. Nephrology Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.

Clinical clerkship in which students evaluate inpatient medical problems.

513. Dermatology Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.

Clinical clerkship in which students evaluate inpatient medical problems.

514. Medical Chest Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.

Clinical clerkship in which students evaluate inpatient medical problems.

515. Gastroenterology Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.

Clinical clerkship in which students evaluate inpatient medical problems.

516. Allergy Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.

Clinical clerkship in which students evaluate inpatient medical problems.

517. Neurology Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.

Clinical clerkship in which students evaluate inpatient medical problems.

518. Infectious Disease Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.

Clinical clerkship in which students evaluate inpatient medical problems.

519. Endocrinology and Metabolism Clerkship
Fall, Winter, Spring, Summer. 2 to 12 credits. May reenroll for a maximum of 12 credits. MED 608.

Clinical clerkship in which students evaluate inpatient medical problems.

Metallurgy, Mechanics, and Materials Science — Description of Courses

520. Engineering Communications
Fall, Winter, Spring. 4(3-3) MTH 108 or MTH 111 concurrently.

Engineering graphics, descriptive geometry, freehand sketching, graphical, numerical and computer problem solutions. Written technical reports and oral technical presentations.

201. Introduction to Engineering Mechanics
Fall. 4(4-0) PHY 237.

Laws of mechanics governing the behavior of rigid and deformable bodies emphasizing how these laws influence engineering design. Extensive use of demonstrations.

250. Mechanics of Deformable Solids I
Fall. Winter, Spring. 4(4-0) MTH 215 or concurrently.


211. Mechanics of Deformable Solids I
Fall. Winter, Spring. 4(4-0) MMM 205; MTH 310 concurrently, MMM 215 concurrently.