590. Special Problems in Pediatrics
Fall, Winter, Spring. Summer. 1 to 8 credits. Approval of department.
Each student will work under direction of a faculty member on an experimental, theoretical, or applied problem.

600. Pediatrics Clerkship
(O M 582) Fall, Winter, Spring, Summer. 8 credits. Grade P in all courses offered in terms 1 through 8 of approval of department.
Practical clinical exposure in the area of pediatrics. Program developed to achieve proficiency in motor skills and aptitudes, comprehension of concepts and principles, patient evaluation, diagnosis, management and therapy.

620. Directed Studies
Fall, Winter, Spring, Summer. 2 to 24 credits. PED 600 or approval of department.
Study in general or specialty pediatrics.

PEDIATRICS AND HUMAN DEVELOPMENT PHD

(Effective January 3, 1979)

College of Human Medicine

520. Genetics Clinic
Fall, Winter, Spring. Summer. 1 to 3 credits. My reenroll for a maximum of 9 credits.
Students will interview and examine patients with inheritable disorders, perform related laboratory diagnostic procedures, and participate in genetic counseling conferences and discussions.

531. Medical Genetics
Spring. 1(1-0) ANT 544 or approval of department.
Basic genetic principles and their application to clinical medicine, prenatal genetic diagnosis, exercises in genetic counseling and the importance of relevant laboratory tests.

532. Phenomena of Development
Fall. 3(3-0) PHD 531 or approval of department.
Normal psychological and physical development of the human including intellectual, social, emotional and endocrinological growth from infancy through adolescence. Clinical examples highlight deviations from the normal course of development.

590. Special Problems in Human Development
Fall, Winter, Spring. Summer. 1 to 6 credits. May reenroll for a maximum of 12 credits. Human Medicine students or approval of department.
Each student will work under direction of a faculty member on an experimental, theoretical or applied problem.

591. Research Problems
Fall, Winter, Spring. Summer. 1 to 17 credits. May reenroll for a maximum of 34 credits. H M 602: primary clerkship.
Clinical experience with pediatric patients under the direction of members of the faculty of the Department of Human Development and community pediatricians. Fall, Saginaw, Winter, Lansing, Spring, Grand Rapids. Summer, Flint.

609. Human Development and Pediatric Sub-Specialties
Fall, Winter, Spring. Summer. 1 to 17 credits. May reenroll for a maximum of 34 credits. H M 602.
Elected experiences in selected clinical and basic sciences related to pediatrics and human development.

PHARMACOLOGY AND TOXICOLOGY PHM

(Effective July 1, 1978. Formerly Department of Pharmacology)

College of Human Medicine
College of Osteopathic Medicine
College of Veterinary Medicine

350. Introductory Human Pharmacology
Spring. 3(3-0) PSL 422 or PSL 241 or concurrently, or approval of department.
General principles; central nervous system, autonomic nervous system, cardiovascular and renal drugs; chemotherapy, and other selected basic topics.

430. Drug Abuse
Fall of odd-numbered years. 4(4-0)
Juniors or approval of department. Biology and chemistry recommended.
Actions, mechanism of action, toxicity and uses of drugs of abuse. Sociological and psychological aspects of drug abuse and the legal aspects of the sale and distribution of drugs are considered.

450. Special Problems
Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 9 credits. Approval of department.
Limited amounts of individual work on selected research problems for undergraduate students.

520A. Principles of Pharmacology
Fall. 4(4-0) PSL 506B, PSL 506C.
Drug absorption, distribution, biotransformation, elimination, receptor theory and pharmacogenetics; chemical toxicity; autonomic nervous system, cardiovascular and renal pharmacology.

520B. Principles of Pharmacology
Winter. 4(4-0) PSL 500A; BCH 501.
Drug absorption, distribution, biotransformation, elimination, antagonism, receptor theory and pharmacogenetics. Chemotherapy: antineoplastic, antiviral and antimicrobial agents. Toxicology and emergency therapies. Pharmacology related to the autonomic nervous system.

521A. Pharmacodynamics
Winter. 5(4-2) PHM 520A. Primarily for students of Veterinary Medicine.
Endocrine, autacoid and central nervous system pharmacology; chemotherapy: antimicrobials, antihelmintics, antineoplastics.

812. Advanced Principles of Toxicology
Fall. 3(2-0) PHM 521A or PHM 521B and approval of department.
Advanced concepts and current topics in renal and autacoid pharmacology.

813. Cardiovascular Pharmacology
Winter of even-numbered years. 4(4-0)
PHM 520A, PSM 521A or PSM 520B, PSM 521B, PSL 501, PSL 502, PSL 503, and approval of department.
Effects of drugs on normal physiological and biochemical processes in cardiac cells are studied. Emphasis is placed on mechanisms of drug action.

814. Advanced Principles of Toxicology
Spring of even-numbered years. 4(4-0)
PHM 512A.
Current biochemical and physiological mechanisms of toxicity on major organs systems. Mechanisms of mutagenicity, carcinogenicity and teratology.

580. Problems
Fall, Winter, Spring, Summer. 2 to 4 credits. May reenroll for a maximum of 12 credits. Approval of department.
Limited amounts of individual work on selected research problems for first year graduate students in the Department of Pharmacology and Toxicology.

899. Master's Thesis Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.
Individual work on research problems for the master's degree in pharmacology.

910. Seminar
Fall, Winter, Spring. 1(1-0) May reenroll for a maximum of 3 credits. Approval of department.
Discussion of recent topics on pharmacology by departmental or outside speakers, or reporting of research efforts by graduate students of the Department of Pharmacology and Toxicology.