562. *Ambulatory Nursing Seminar III*

Spring. 3(3-0) 561.

Nursing intervention and caseload management techniques. Development of referral to and utilization of other professionals, community agencies, secondary services. Emphasis on compliance and evaluation, interdisciplinary relationships.

563. *Ambulatory Nursing Seminar IV*

Summer. 3(3-0) 562.

Theory and research development and application in ambulatory care. Patient education, change mechanisms, role identification and financial implications of clinical nursing in various ambulatory settings. Goal setting for complex problems and evaluation.

570. *Research Methods for Nursing*

Winter. 3(3-0) Statistics course and approval of school.

Identification of researchable clinical nursing problems, selection of appropriate methodology, tools, responsibility of the nurse clinician, use of results in clinical practice. Issues, problems and process of theory development, analysis of present state of theory development.

580. *Nursing Clinician Practicum I*

Fall. 3(1-2) Approval of school.

Beginning skill development in physical assessment, interviewing, history taking and health assessment of adult and child. Limited clinical experience with selected patients. Concurrent with and related to 560.

581. *Nursing Clinician Practicum II*

Winter. 3(1-2) 580.

More detailed family nurse clinician assessment of complex patients stressed. Integration of assessment data into therapeutic plan with beginning emphasis on education, compliance and evaluation. Joint planning done with other team members.

582. *Nursing Clinician Practicum III*

Spring. 4(1-3) 581.

Comprehensive management of complex patient caseload. Development of referral patterns, interdisciplinary functioning. Major focus on compliance and evaluation of care and peers. Identification of research and theory related to ambulatory care.

583. *Nursing Clinician Practicum IV*

Summer. 4(1-3) 582.

Comprehensive management of complex patient caseload. Identification and application of research and theory related to ambulatory care. Goal setting and evaluation of effectiveness of therapeutic plan. Delivery of care in variety of ambulatory settings.

590. *Special Problems in Nursing*

Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 12 credits. Approval of school.

Allows exploration of certain areas and issues in nursing in greater depth and/or from different perspective than possible within limits of required courses.

595. *Special Topics in Nursing*

Fall, Winter, Spring. 2 to 6 credits. May re-enroll for a maximum of 6 credits. Approval of school.

Allows exploration of unique issues in nursing and/or one health care system. Topics to be selected from current issues but not repeated more than once.

599. *Research for Thesis*

Fall, Winter, Spring. 1 to 3 credits. May re-enroll for a maximum of 10 credits. Approval of school.

Thesis for completion of the master's degree in nursing. Must have a clinical orientation and must relate directly to the patient's disease process or the delivery of ambulatory care to the patient as it affects the management of the disease process. The research process must apply to nursing and solution of nursing problems and include the development of a theoretical rationale for selection of appropriate methodology.

OBSTETRICS, GYNECOLOGY AND REPRODUCTIVE BIOLOGY OGR

College of Human Medicine

608. *Obstetrics/Gynecology Clerkship*

Fall, Winter, Spring, Summer. 1 to 17 credits. May re-enroll for a maximum of 43 credits. H M 602.

Experience with gynecologic and obstetrical patients, in in-patient and out-patient settings, under the direction of community practitioners and members of the MSU faculty.

OSTEOPATHIC MEDICINE* O M

College of Osteopathic Medicine

501. *Medical Biology I*

Fall. 4(4-0)

Integrated aspects of biology providing a foundation and vocabulary preparatory to studies in osteopathic medicine.

502. *Medical Biology II*

Winter. 3 to 8 credits. Admission to a college of medicine.

Continuation of 501 emphasizing pathology and pharmacology.

530. *Clinical Science I*

Fall. 2(1-3) Admission to a college of medicine.

Fundamental concepts and skills essential to the performance of a clinical history and physical examination.

531. *Clinical Science II*

Winter. 2(2-0)

Techniques, concepts and skills required for competent history taking and physical examination utilizing lectures, laboratory and films for instructional purposes.

532. *Clinical Science III*

Spring. 1(0-3) Admission to a college of medicine

A clinical study program providing an opportunity to learn the skills of history taking and physical examination by actual performance of the involved techniques on patients under physician supervision.

*Established July 1, 1971.

533. *Clinical Science IV*

Summer. 1(0-3) Admission to a college of medicine.

Continuation of 532.

534. *Clinical Science V*

Fall. 1(0-3) Admission to a college of medicine.

A clinic-based program providing additional emphasis on history taking and physical examination as well as developing fundamental abilities in diagnosis and problem solving in the clinic setting.

535. *Clinical Science VI*

Winter. 1(0-3) Admission to a college of medicine.

A continuation of 534.

536. *Clinical Science VII*

Spring. 1(0-3) Admission to a college of medicine.

Continuation of 535.

537. *Clinical Science VIII*

Summer. 1(0-3) Admission to a college of medicine.

Continuation of 536.

600. *Clinical Science Practicum*

Fall, Winter, Spring, Summer. 15 credits. May re-enroll for a maximum of 60 credits.

A clinic oriented course covering the major areas of medical practice including involvement in Family Practice and Community Health Services.

620. *Directed Studies*

Fall, Winter, Spring, Summer. 1 to 6 credits. May re-enroll for a maximum of 24 credits. Approval of department.

Individual or group work on special problems in medicine.

OSTEOPATHIC MEDICINE OST (COLLEGE OF)

500. *Historical and Biological Foundations of Osteopathic Medicine*

Summer. 2(3-0) Admission to a professional medical program.

Historical development of the osteopathic profession. Integration of biological and osteopathic principles in the consideration of health and disease.

520. *Normal Endocrine Structure and Function*

Spring. 2(2-0) Admission to the professional program in a college of medicine.

An integrated basic science course presenting a series of lectures and laboratories related to the normal structure and function of the endocrine organs. Prerequisite for studying endocrine diseases in systems biology.

551. *Systems Biology I*

(O M 550.) Spring. 3 to 12 credits. Admission to a professional medical program.

A multidisciplinary approach to the hematopoietic systems providing a functional integration of basic science and clinical information.

552. *Systems Biology II*

Spring. 3 to 6 credits. Admission to a professional medical program.

A multidisciplinary approach to the integumentary system providing a functional integration of basic science and clinical information.

553. *Systems Biology III*

(O M 551.) Summer. 5 to 15 credits. Admission to a professional medical program.

A multidisciplinary approach to the nervous system providing a functional integration of basic science and clinical information.

554. *Systems Biology IV*

(O M 552.) Fall. 5 to 15 credits. Admission to a professional medical program.

Continuation of 553 with emphasis on multidisciplinary approach to the cardiovascular system.

555. *Systems Biology V*

(O M 553.) Winter. 5 to 10 credits. Admission to a professional medical program.

Continuation of 554 with emphasis on multidisciplinary approach to the respiratory system.

556. *Systems Biology VI*

(O M 553.) Winter. 5 to 10 credits. Admission to a professional medical program.

Continuation of 555. This system will represent a multidisciplinary approach to the urinary system.

557. *Systems Biology VII*

(O M 554.) Spring. 5 to 15 credits. Admission to a professional medical program.

Continuation of 556 with emphasis on multidisciplinary approach to the gastrointestinal system and metabolism.

558. *Systems Biology VIII*

(O M 555.) Summer. 5 to 15 credits. Admission to a professional medical program.

Continuation of 557 with emphasis on multidisciplinary approach of the growth and development within (but not limited to) the field of pediatrics, obstetrics and gynecology.

610. *The Osteopathic Examination I*

(F M 630). Winter. 1(0-4) Admission to medical school and approval of instructor.

Instruction in the osteopathic examination.

611. *The Osteopathic Examination II*

(F M 640.) Spring. 1(0-4) Admission to medical school and approval of instructor.

Continuation of 610.

612. *The Osteopathic Examination III*

(F M 650.) Summer. 1(0-4) Admission to medical school and approval of instructor.

Continuation of 611.

613. *The Osteopathic Examination IV*

(F M 660.) Fall, Winter. 1(0-4) Admission to medical school and approval of instructor.

Continuation of 612.

614. *The Osteopathic Examination V*

(F M 670.) Spring, Summer. 1(0-4) Admission to medical school and approval of instructor.

Continuation of 613.

615. *The Osteopathic Examination VI*

(F M 680.) Spring. 1(0-4) Admission to medical school and approval of instructor.

Continuation of 614.

616. *The Osteopathic Examination VII*

(F M 690.) Summer. 1(0-4) Admission to medical school and approval of instructor.

Continuation of 615.

620. *Systems Biology — Directed Studies*

Fall, Winter, Spring, Summer. 1 to 15 credits. Admission to a professional medical program or approval of coordinator.

A directed study in systems biology for the continuing advanced student or remediation of any systems biology: hemopoietic, integumentary, nervous, cardiovascular, respiratory, urinary, gastrointestinal, growth and development.

PACKAGING PKG

College of Agriculture and Natural Resources

210. *Principles of Packaging*

Fall, Winter, Spring, Summer. 3(3-0)

A general course in packaging principles covering the growth and development of the field, and the technological and motivational problems involved in present day packaging. Consideration will be given to the basic functions of the package and their relation to the needs and wants of our society.

320. *Packaging Materials*

Fall, Spring. 3(3-0)

Common packaging materials including wood, paper, paperboard, plastics, metal foils and sheets, glass, adhesives, cushioning media; their basic properties in relation to performance of package.

330. *Graphics for the Packaging Industry*

Winter. 3(3-0) 320 or approval of school.

Designing graphics for specific types of printing processes and for various packaging materials. Considerations in ink formulation, identification of the various printing processes used, and the advantages and disadvantages of various reproduction methods as used for packaging.

340. *Packaging and the Environment*

Winter. 4(4-0)

Broad study of the effects of packaging on environmental quality, including solid waste, air and water quality, laws, economics, energy considerations and resources conservation.

422. *Packaging Systems*

Fall, Winter. 3(3-0) 320 or approval of school.

Design, use and evaluation of packages and packaging systems. A one-day field trip is required.

423. *Dynamics of Packaging*

Spring. 4(3-3) 422 or approval of school.

A study of the protective function of the packaging systems in relation to their environment and shock and vibration isolation methods. A one-day field trip is required.

424. *Packaging Problems*

Fall, Winter, Spring, Summer. 1 to 3 credits. May re-enroll for a maximum of 9 credits. 422, 2.5 grade-point average and approval of school.

Development of solutions to specific packaging problems.

425. *Packaging Process Analysis*

Winter, Spring. 4(3-3) CPS 110.

The integrated study of the operation structure and control of the packaging and package-making process. A one-day field trip is required.

427. *Packaging Materials and Systems Laboratory*

Fall, Winter, Spring. 3(1-6) 320, 422 or approval of department.

Methods of measuring properties of packaging materials. Design, manufacture and performance testing of complete packages. Techniques for evaluating test results. Value of various test methods.

428. *Packaging Development*

Fall, Spring. 4(3-2) 422 or approval of school

A study of the functions of each area concerned with the development of packages to meet present-day requirements of protection and merchandising.

429. *Packaging Economics*

Winter. 3(3-0) 422, EC 200, AFA 201 or approval of department.

Examination of economic issues in packaging as they relate to policies of the firm and of government. Relationships between economic policy and social issues.

430. *Packaging Machinery*

Spring. 4(3-3) 422 or approval of school.

The components for automated packaging lines, and auxiliary materials handling equipment, including consideration of design, selection, specification and operation of machinery for the package-making and package-filling operations.

463. *Seminar*

Fall. 2(0-4) Must have job experience to enroll.

Detailed report on work performed in practical experience or outside packaging projects.

801. *Package Design*

Fall. 4(3-3)

Advanced work in the development of the graphic and structural design of packages.

834. *Special Investigations in Packaging*

Fall, Winter, Spring, Summer. Variable credit.

899. *Research*

Fall, Winter, Spring, Summer. Variable credit. Approval of school.