MEDICAL GENETICS - MD (GEN)

GEN 400 Med Genetics Externship 1-4 cr
To be determined.

GEN 410 Clinical Research 1-4 cr
Research subjects of mutual interest to student-tutor will be selected. Data collection from clinical observation, hospital records, literature review, dermatoglyphics, pedigrees, etc., will be utilized (i.e., childhood neoplasia vs. parental size). Emphasis will be placed on offering the student an opportunity to master, in depth, a selected major human disorder. If warranted, the publication of the results will be encouraged.

GEN 444 Special Elective 1-4 cr
To be prepared by the student in conjunction with the Course Director and approved by the Vice Dean before course can be added to schedule. This course is designed to offer students and faculty/clinical faculty an opportunity to develop electives which are not offered in the Elective Manual. Such an elective may be made permanent and printed in the next edition of the Elective Manual at the request of the Course Director and with the approval of the Curriculum Committee. At the discretion of the Vice Dean, this elective may count as the required "in-house" elective. 1.000 TO 4.000 Credit hours

GEN 450 Clinical Research-Genetics 1-4 cr
Research subjects of mutual interest to student-tutor will be selected. Data collection from clinical observation, hospital records, literature review, dermatoglyphics, pedigrees, etc., will be utilized (i.e., childhood neoplasia vs. parental size). Emphasis will be placed on offering the student an opportunity to master, in depth, a selected major human disorder. If warranted, the publication of the results will be encouraged.

GEN 455 Gen of Dev Dis and Mental Re 1-4 cr
The student will be assigned up to six familites to investigate, review, synthesize, outline anticipatory care and outline genetic counseling contents and strategies.

GEN 456 Explore Your Own Chromosomes 1-4 cr
The student will gain "hands-on" experience with the techniques used in chromosome analysis through the exploration of the student's own karyotype. The student will acquire basic skills in cell culture and harvesting, various banding procedures, flourescence in situ hybridization (FISH), microscopic analysis and karyotype interpretation. The clinical relevance of these techniques and interpretation of results in a clinical context will be stressed.

GEN 457 Design Interactive Med Gen-CAI 1-4 cr
The student will interact with the faculty and a full time staff person specialized in the use of HTML. The student will select a clinical syndrome or topic appropriate for the design of an interactive HTML, PC teaching-learning module. If warranted, this module may be used in the COM curriculum or be placed on the World Wide Web. The student will have access to clinical encounters, patient videotapes, a photographic archive, and a multimedia station. The staff HTML specialist will finalize programming aspects to the extent desired by the student.

GEN 458 Gen Attuned to Clinical Reside 1-4 cr
A curriculum will be designed jointly by the faculty- student to achieve a problem oriented and context specific agenda relevant to an anticipated clinical residency. The agenda will emphasize appropriate disorders where preventive medicine, genetics, teratology, dysmorphology, diagnostic DNA, cytogenetic and biochemical medical genetic laboratory applications are of importance. During mornings, the student will work in clinical settings relevant to the above. In the afternoons, the student will review background and other information needed to define a "genetic point of view" of a clinical disorder. The role of diagnostic, differential diagnosis, anticipatory care, reproductive risks, and genetic counseling will be emphasized. The student will use departmental computer databases and printed materials, as well as those used for genetic counseling. The student will present a weekly clinical review and generate a written report summarizing a clinical disorder, to be of suitable quality as handouts for a COM II class or to be published as a short clinical contribution.

GEN 459 Early Detect-Prevent of Birth 1-4 cr
A Birth Defects Monitoring System is functioning at the USAMC. Pregnancy outcomes (miscarriage, stillbirth, and neonates) are examined systematically to insure early detection, promote anticipatory management, and formulate preventive strategies. The student will work in parallel with genetic nurses interacting with the Intensive Care Nursery and other sites. At the Department of Medical Genetics, students will gain first hand experience with PC computer technology utilized to define and register anomalies encountered. The student will be expected to select an etiologically related group of birth defects and generate a synthesis report based on actual data augmented by a review of recent advances in basic and clinical sciences.

GEN 460 Clinical Molecular Genetics 1-4 cr
This rotation is oriented toward clinical molecular diagnosis and research with opportunities to participate in areas ranging from the study of inherited diseases using new techniques, such as flourescent in situ hybridization (FISH) and recombinant DNA, to research in gene mapping and identification. Students are expected to learn the laboratory procedures necessary for identification of chromosome specific microdeletion syndromes, trisomy, and translocation by FISH analysis, as well as Southern blot and polymerase chain reaction (PCR) techniques for identification of trinucleotide expansions, gene arrangements, and gene mapping, to derive phenotype- genotype correlation of patients and their families.

GEN 480 Gen of Developmental Disab 1-4 cr
The student will be assigned up to six families to investigate, review, synthesize, outline anticipatory care and outline genetic counseling contents and strategies.

GEN 481 Explore Your Own Chromosomes 1-4 cr
The student will gain "hands-on" experience with the techniques used in chromosome analysis through the exploration of the student's own karyotype. The student will acquire basic skills in cell culture and harvesting, various banding procedures, flourescence in situ hybridization (FISH), microscopic analysis and karyotype interpretation. The clinical relevance of these techniques and interpretation of results in a clinical context will be stressed.

GEN 482 Design Interactive Medical Gen 1-4 cr
The student will interact with the faculty and a full time staffperson specialized in the use of HTML. The student will select a clinical syndrome or topic appropriate for the design of an interactive HTML PC teaching-leaming module. Ifwarranted, this module may be used in the COM curriculum or be placed on the World Wide Web. The student will have access to clinical encounters, patient videotapes, a photographic archive and a multimedia station. The staff HTML specialist will finalize programming aspects to the extent desired by the student.

GEN 483 Gen Attuned to Clin Residency 1-4 cr
A curriculum will be designed jointly by the faculty-student to achieve a problem oriented and context specific agenda relevant to an anticipated clinical residency. The agenda will emphasize appropriate disorders where preventive medicine, genetics, teratology, dysmorphology, diagnostic DNA, cytogenetic and biochemical medical genetic laboratory applications are of importance. During mornings, the student will work in clinical settings relevant to the above. In the afternoons, the student will review background and other information needed to define a "genetic point of view" of a clinical disorder. The role of diagnostic, differential diagnosis, anticipatory care, reproductive risks and genetic counseling will be emphasized. The student will use departmental computer databases and printed materials, as well as those used for genetic counseling. The student will present a weekly clinical review and generate a written report summarizing a clinical disorder, to be of suitable quality as handouts for a COM II class or to be published as a short clinical contribution.

GEN 484 Early Det/Prev of Birth Defect 1-4 cr
A Birth Defects Monitoring System is functioning at the USAMC. Pregnancy outcomes (miscarriage, stillbirth and neonates) are examined systematically to insure early detection, promote anticipatory management and formulate preventive strategies. The student will work in parallel with genetic nurses interacting with the Intensive Care Nursery and other sites. At the Department of Medical Genetics, students will gain first hand experience with PC computer technology utilized to define and register the anomalies encountered. The student will be expected to select an etiologically related group of birth defects and generate a synthesis report based on actual data augmented by a review of recent advances in basic and clinical sciences.

GEN 485 Clinical Molecular Genetics 1-4 cr
This rotation is oriented toward clinical molecular diagnosis and research with opportunities to participate in areas ranging from the study of inherited diseases using current molecular techniques, such as automatic DNA sequencing and GeneScan, to research in gene mapping and identification of mutation. Students are expected to learn the laboratory procedures necessary for molecular diagnosis, including Southern Blot, PCR amplification, RFLP, and TTGE. Students will also receive training on linkage analysis of unknown gene and correlation between phenotype and genotype of characterized genetic syndromes.