

# Pediatrics Genetics (PED GEN)

---

## Courses

### **PED GEN 200A. Introduction to Medical Genetics and Genomics. 4 Units.**

Covers current concepts regarding mitosis, meiosis, the cell cycle, and chromosome ultrastructure and function. Clinical disorders caused by chromosomal aneuploidy, duplication, and deletion, and principles of Mendelian, chromosomal, and multifactorial and nontraditional inheritance are presented and illustrated.

Restriction: Graduate students only.

### **PED GEN 200B. Genetic Screening, Prenatal Development, and Human Teratology. 4 Units.**

Principles and techniques of prenatal, neonatal, and carrier screening. Infertility, pregnancy, and delivery. Normal and abnormal prenatal growth and development. Reproductive and fetal effects of drugs, radiation, infections, and other environmental factors.

Prerequisite: PED GEN 200A. PED GEN 200A with a grade of B- or better

Restriction: Genetic Counseling Majors only. Medical students only.

### **PED GEN 200C. Human Genetic Disorders. 4 Units.**

Inheritance, diagnosis, natural history, management, and counseling considerations for commonly encountered genetic diseases, birth defects, and dysmorphic syndromes.

Prerequisite: PED GEN 200B. PED GEN 200B with a grade of B- or better

Restriction: Genetic Counseling Majors only. Medical students only.

### **PED GEN 200D. Disorders due to Inborn Errors of Metabolism. 4 Units.**

Aspects of biochemistry and metabolism are reviewed with special emphasis on genetic abnormalities which lead to inborn errors of metabolism. Diagnostic procedures, heterozygote detection, treatment, counseling issues, and prenatal diagnosis are reviewed.

Prerequisite: PED GEN 200A. PED GEN 200A with a grade of B- or better

### **PED GEN 200E. Molecular Genetics, Gene Mapping, and Genetic Linkage. 4 Units.**

Derivation of different types of DNA probes and DNA libraries, restriction endonuclease polymorphisms, assignment of genes to chromosomes, and genetic linkage. Emphasis on the use of recombinant DNA technologies and genetic analysis for diagnosis of human genetic disease.

Prerequisite: PED GEN 200A and PED GEN 200D. PED GEN 200A with a grade of B- or better. PED GEN 200D with a grade of B- or better

### **PED GEN 200F. Quantitative Genetics. 2 Units.**

Quantitative aspects of human genetics, including population studies, segregation analysis, linkage, mapping, and genetic risk determination.

Prerequisite or corequisite: PED GEN 200A. PED GEN 200A with a grade of B- or better

Overlaps with PED GEN 200B.

### **PED GEN 200G. Hereditary Cancer Counseling. 4 Units.**

Issues in genetic counseling for cancer. Cancer biology; genetic mechanisms and environmental influences in carcinogenesis; tumor pathology; cancer gene mapping; epidemiology. Features natural history, diagnosis, prevention, surveillance, and management of heredity cancers. Psychosocial, ethical, legal aspects of cancer risk assessment.

Prerequisite: PED GEN 200B. PED GEN 200B with a grade of B- or better

Restriction: Genetic Counseling Majors only. Medical students only.

### **PED GEN 200H. Genetic Counselin Research Design. 4 Units.**

Quantitative and qualitative methods for genetic counseling research. Reference management; statistics: sample size, power, and data analysis; reliability and validity; surveys, questionnaires, interviews, focus groups; quality of life and genetic epidemiology research; designing a research protocol; IRB issues; grant writing.

**PED GEN 200L. Cytogenetics Laboratory. 4 Units.**

Practicum introducing methods of specimen collection, short-term lymphocyte and bone marrow culture, long-term fibroblast and amniocyte culture, harvesting and slide preparation, chromosome staining, microphotography, and darkroom techniques. Microscopic chromosome analysis, photographic karyotyping, and appropriate use of cytogenetic nomenclature are emphasized.

Restriction: Graduate students only.

**PED GEN 200M. Embryology for Medical Genetics. 2 Units.**

Introduction to normal and abnormal prenatal growth and development of the major systems of the body from an embryological point of view. Intended for first-year genetic counseling students in preparation for clinical rotations.

Restriction: Graduate students only.

**PED GEN 201A. Introduction to Genetic Counseling. 4 Units.**

Through directed readings, observing patient evaluations, role-playing, and conducting intake interviews, students are introduced to the process of diagnosis, management, and counseling for genetic disease. Psychosocial issues, interviewing techniques, pedigree construction, clinical photography, and various other skills are addressed.

Restriction: Medical students only. Genetic Counseling Majors only.

**PED GEN 201B. Clinical Rotation I. 4 Units.**

Provides extensive supervised experience in history taking, interviewing, and psychosocial assessment in the clinical genetics setting. Students independently perform telephone, office, and home-visit intake interviews, participate in counseling, and present cases at patient management conferences.

Restriction: Medical students only. Genetic Counseling Majors only.

**PED GEN 201C. Clinical Rotation II. 4 Units.**

Provides further supervised experience in genetic counseling, case management, clinic administration and organization, and the use of community resources. Emphasis is on sharpening counseling skills and on developing a professional identity and code of ethics.

Restriction: Medical students only. Genetic Counseling Majors only.

**PED GEN 202A. Counseling in Human Genetics: Theory and Methods. 3 Units.**

Theoretical approaches, counseling models and methods, and bio-psychosocial assessment strategies are examined in the context of genetic counseling. Contract-setting, working alliance, the use of self and evaluation methods. Beginning counseling and peer supervision skills are practiced in class.

Restriction: Medical students only. Genetic Counseling Majors only.

**PED GEN 202B. Community Resources. 1-2 Units.**

Lectures, guest speakers, and community visits acquaint genetic counselors with public and private health care and funding agencies, parent support and advocacy groups, and other resources to assist individuals and families confronted with genetic disorders, developmental disabilities, and birth defects.

Repeatability: May be taken for credit 2 times.

Restriction: Medical students only. Genetic Counseling Majors only.

**PED GEN 202C. Ethical Issues in Human Genetics. 1-2 Units.**

Explores major social, legal, and ethical issues in genetic counseling including those arising in genetic screening, prenatal diagnosis, informed consent, privacy and confidentiality, rights of the disabled, new genetic and reproductive technologies, treatment, and access to services.

Repeatability: May be taken for credit 2 times.

Restriction: Medical students only. Genetic Counseling Majors only.

**PED GEN 203A. Counseling in Human Genetics: Putting Thought to Practice. 4 Units.**

Builds upon the skills learned in previous courses emphasizing advanced counseling methods such as listening, empathy, and collaboration. The counselor's own self-awareness, ethical behaviors, and limits are explored. Individual, team, and group exercises are performed.

Prerequisite: PED GEN 202A. PED GEN 202A with a grade of B- or better

Restriction: Genetic Counseling Majors only. Medical students only.

**PED GEN 204. Professional Skills Development. 4-8 Units.**

Hones and augments existing competencies in genetic counseling through ongoing clinical experiences. Develops skills using computers for genetics applications, provision of community and professional education, and clinic administration. Further experience in genetics laboratories or specialty clinics may be elected.

Repeatability: May be taken for credit 4 times.

Restriction: Graduate students only.

**PED GEN 295. Master's Thesis and Research Writing. 4-8 Units.**

Under the supervision of one or more faculty members, the student designs and conducts a research project or completes a case report. A problem in the cytogenetics, biochemical, clinical, psychosocial, or behavioral areas of medical genetics may be investigated.

Grading Option: Satisfactory/unsatisfactory only.

Repeatability: May be taken for credit 3 times.

Restriction: Graduate students only.