

# James S. McDonnell Department of Genetics

Website: <http://genetics.wustl.edu>

## Courses

Visit online course listings to view offerings for M20 Genetics  
(<https://courses.wustl.edu/CourseInfo.aspx?sch=M&dept=M20>).

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### **M20 Genetics 511 Medical Genetics**

Medical genetics is both a science and a clinical area or specialty of medicine, and the boundary between research and clinical application is increasingly blurred. The pace at which genomic and epigenomic tools are being developed is unprecedented. These tools result in continual conceptual advancements, which inevitably affect how we approach the study of disease risk, diagnosis and management in all areas of medicine, not just medical genetics. We are moving into a time when the interpretable data from the examination of individual genomes will be incorporated to all other clinical data to assess individual risks and guide clinical management and decision making. This course is intended as the first step toward life-long training in medical genetics and genomics. The course begins with a number of sessions devoted to basic principles of genetics. Drawing on this foundation, we move on to discuss genomic and epigenomic tools and to learn from leaders in their fields about the big questions in genetics and genomics (i.e., microbiome research, cancer genomics, current clinical uses of exome sequencing, and so) and how the tools are being used to answer these questions. Students are exposed to the use of genetic and genomic databases and information resources, which will allow them to keep up with new information and critically appraise validity and clinical utility. We begin to discuss the implication of this shift to the "genomic era," particularly regarding ethical aspects, regulatory aspects, equal access, healthcare costs and patient education. Clinical geneticists actively participate in the course and use a series of genetic disorders to help students apply their knowledge, focusing mainly on genetic etiology, pattern of inheritance, inheritance risk and molecular diagnostic testing. Frequent patient interviews further enhance the exposure to clinical genetics. Overall, the course aims to enhance genetic and genomic literacy, which is an essential first step in preparing students to participate in the multidisciplinary teams that effectively make cutting-edge genetic and genomic research results accessible to patients. This course is cross listed with L41 Biol 550.  
Credit 34 units.

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### **M20 Genetics 899 Special Study Genetics**

Special study opportunities are available in the Department of Genetics. If interested, please contact the department for further information.

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