Spring 2012  
PHRM 432 - Current Topics in Vision Science  
Course Information  
Tuesday and Thursday - 10:00 - 11:30  
VSRC Conference Room (Room 109 - Institute of Pathology)  
Course Director: Paul S.-H. Park, Ph.D. (email - paul.park@case.edu)

Course Description:
Vision research is an exciting and multidisciplinary area that draws on the disciplines of biochemistry, genetics, molecular biology, structural biology, neuroscience, and pathology. This graduate level course will provide the student with broad exposure to the most recent and relevant research currently being conducted in the field. Topics will cover a variety of diseases and fundamental biological processes occurring in the eye. Regions of the eye that will be discussed include the cornea, lens, and retina. Vision disorders discussed include age-related macular degeneration, retinal ciliopathies, diabetic retinopathy, and glaucoma. Instructors in the course are experts in their field and are members of the multidisciplinary visual sciences research community here at Case Western Reserve University. Students will be exposed to the experimental approaches and instrumentation currently being used in the laboratory and in clinical settings. Topics will be covered by traditional lectures, demonstrations in the laboratory and the clinic, and journal club presentations.

Course Philosophy and Structure:
The purpose of this course is to provide the student with a broad overview of some of the current areas of research in vision science. Each basic science lecturer will provide two sessions. The first lecture will provide students with a foundation to understand the basic biology of a chosen ocular tissue or vision disorder. The second session will be either a lecture on a specified topic or demonstration of current techniques used in the laboratory. These sessions will illustrate the current frontiers in knowledge and technology in vision research. Basic science lectures will be supplemented with clinical lectures. In addition, visits will be organized to the eye clinic for demonstrations of clinical instrumentation used to examine patients and an opportunity to shadow a physician during routine eye examinations. The clinical section of the course will provide students an opportunity to experience the human implications of their research. Tasks that students will be graded on are designed to help students gain skills in areas critical for their success in a scientific career. Journal clubs will help students critically assess the literature and to practice presenting scientific work. The research proposal will help students practice putting together a research plan for a small grant application. The course material should not be the end of the conversation, but rather, only the beginning. Students are encouraged to probe deeper into topics that are of special interest to them and to take advantage of any resources that are presented during the course.

Instructors: