Introduction Neurobiology Disease Course Syllabus

Neurobiology of Disease
4:00-5:20 p.m. MW
Course Director: Christopher M. Gomez, MD

This course was conceived and designed for graduate students in the neuroscience training programs interested in learning more about disease-related neuroscience research. It has three goals: 1) It will provide an understanding of the basic clinical presentation of representative neurological diseases or syndromes; 2) It will demonstrate the clinical laboratory studies that help confirm the diagnosis and provide insight to pathogenesis; 3) It will illustrate the scientific background and therapeutic insights resulting from the application of sophisticated molecular, cellular, and electrophysiological methodologies. This course will also be of interest to clinically-oriented and research-oriented medical students and residents. We hope that it will provide clinicians the necessary tools to interpret studies in clinical and basic research on their patients. It may also excite them into future useful interchange with more basic science-oriented disease researchers. It is hoped that this course will seed collaborations that make up the true translational neuroscience pipeline from acquisition of essential clinical questions at the bedside to the generation and development of therapeutic strategies in the laboratory for eventual clinical application.

We have selected the experts in clinical and basic neuroscience from the University community in both the clinically-related and basic science-related fields for these lectures. Because the inclusion of numerous lecturers will also tend to cause a more un-uniform lecture style speakers have been provided with the outline below as a general lecture structure. Please feel free to direct your questions, reading, and inquiries with a view towards the adhering to the outline as completely as possible. Each lecturer has been asked to provide one or two representative papers for their lecture. In addition, you are encouraged to read further according to your own interest and curiosity. The final two days of the course are reserved for student lectures. Each of you will be invited to prepare a fifteen minute lecture following the same model you have just seen during this quarter. This will involve selecting a disease and/or syndrome and prepare a lecture highlighting either clinical or basic disease mechanisms (or both) for this lecture. You may consider partnering with another student to increase the content and time for the lecture. You will have available the clinical and basic scientist faculty, and staff to provide direction for preparation of these lectures. Dr. Tom Kelly may have available in his video archive the clips of disease entities you have chosen to discuss. There will also be a final examination that will be prepared by the course lecturers.
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**Standard Outline for Lectures**

Clinical history and patient (video)
- initial symptoms
- physical findings
- progression of the disease
- related conditions

Imaging studies
- functional/anatomical signs

Laboratory studies (blood spinal fluid, and neurophysiological tests)
- functional/physiological signs [not sure what this means]

Molecular and cellular mechanisms
- metabolic abnormalities
- biochemical, molecular, and cellular pathways involved

Translation into clinical presentation
- how the molecular abnormality leads to the disease

Translation into therapeutic approaches
- how the knowledge of the molecular defect gives insight into
- rational therapeutic approaches and what these approaches are