

Attention!

This is a *representative* syllabus.

The syllabus for the course when you enroll may be **different**.

Use the syllabus provided **by your instructor** for the most up-to-date information. Please refer to your instructor for more information for the specific requirements for a given quarter.

Neuro SC or Pharmacol 705 - Neurobiology of Disease (3 credit hours)

Chien-liang Glenn Lin and Andrej Rotter, Course Coordinators

Tuesday 9-10am and Thursday 9-11am

Course description:

Neurobiology of Disease will explore the basis of major disease affecting the nervous system. Experts from throughout the university will provide state of the art overviews on the clinical, neuropathological, physiological and molecular features of diseases. Lecturers will also discuss key areas that hold promise for future research, including the development of rational therapies. Diseases to be discussed will include: neurodegenerative diseases, neurodevelopmental disorders, neurotrauma, brain tumors, mental disorders, seizure disorder, and multiple sclerosis. There will be a paper discussion following the lectures for each subject. Students will be required to write a 5-page research proposal and the proposals will be discussed on the final week of this course.

Grading:

The grade will be based on a research proposal, participation in paper discussion and class attendance.

- Research Proposal 40 points
- Paper discussion 40 points
- Class attendance 20 points

Schedule:

Introduction

Week 1: Alzheimer's disease

- Lecture 1: Clinical and neuropathological features of Alzheimer's disease by Dr. Douglas Scharre
- Lecture 2: Molecular mechanisms and therapeutic approaches of Alzheimer's disease by Dr. Jeff Kuret
- Paper discussion

Week 2: Motor neuron diseases

- Lecture 1: Clinical and neuropathological features of ALS and SMA by Dr. Stephen Kolb
- Lecture 2: Molecular mechanisms and therapeutic approaches of ALS and SMA by Drs. Stephen Kolb and Arthur Burghes
- Paper discussion

Week 3: Expanded repeat diseases

- Lecture 1: Clinical and neuropathological features of Huntington's disease by Dr. Sandra Kostyk
- Lecture 2: Molecular mechanisms and therapeutic approaches of expanded repeat diseases by Dr. Kari Hoyt
- Paper discussion

Week 4: Neurodevelopmental disorders

- Lecture 1: Clinical and neuropathological features of Autism by Dr. Jacqueline Wynn
- Lecture 2: Molecular mechanisms and therapeutic approaches of neurodevelopmental disorders by Dr. Ichiko Nishijima
- Paper discussion

Week 5: Neurotrauma

- Lecture 1: Clinical and neuropathological features of brain and spinal cord trauma by Dr. Jerry Mysiw
- Lecture 2: Molecular features and therapeutic approaches of spinal cord trauma by Dr. Dana McTigue
- Paper discussion

Week 6: Brain tumors

- Lecture 1: Clinical and neuropathological features of brain tumors by Dr. Abhik Ray-Chaudhury
- Lecture 2: Molecular mechanisms and therapeutic approaches of brain tumors by Dr. James Van Brocklyn
- Paper discussion

Week 7: Mental disorders and drug abuse

- Lecture 1: Neurobiological and molecular features of mental disorders by Dr. John Bruno
- Lecture 2: Neurobiological and molecular features of drug abuse by Dr. Howard Gu
- Paper discussion

Week 8: Seizure disorder

- Lecture 1: Clinical and neuropathological features of epilepsy by Dr. James McAuley
- Lecture 2: Molecular mechanisms and therapeutic approaches of epilepsy by Dr. Karl Obrietan
- Paper discussion

Week 9: Multiple sclerosis

- Lecture 1: Clinical and neuropathological features of multiple sclerosis by Dr. Kathleen Hawker
- Lecture 2: Molecular mechanisms and therapeutic approaches of multiple sclerosis by Dr. Amy Lovett-Racke
- Paper discussion

Week 10: proposal discussion

Neuroscience Graduate Studies Program

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