Course Syllabus – NEURO 530

Course Information

Course Number: NEURO 530 SP21
Course Name: Neurobiology of Disease
Term: SP 2021
Start Date: 04/06/2021
End Date: 06/25/2021
Credits: 3.0

Meeting Days / Times

Tuesdays and Thursdays, 8:00-9:30am PST / 11:00am-12:30pm EST
(See Calendar in Canvas for the most up-to-date schedule.)

Location

Online via Zoom

Course Managers

Role	Last Name	First Name	Email Address
Instructor	Davis	Ron	rdavis@scripps.edu
Instructor	Xu	Baoji	bxu@scripps.edu
TA	Botero	Valentina	vbotero@scripps.edu
TA	Zolboot	Norjin	norjin@scripps.edu

Course Description

This course will cover some of the important and tractable disorders of the central and peripheral nervous system. It will expose students to the incidence, clinical symptomology, and the pathophysiology of the various disorders. There will be a large focus on the known or suspected mechanisms for the disorders, incorporating biochemical, molecular, cellular, genetic, and circuitry causes and/or susceptibility factors. The course will also include discussions of current pharmacology, emphasizing targets that offer themselves as possible

diagnostics, preventatives, and therapies. The major disorders to be discussed include autism spectrum disorder, epilepsy, schizophrenia, mood disorders, and neurodegenerative diseases.

Program Learning Outcomes

By the end of the program, students will have accomplished these objectives:
PLO1: Original Research – graduate students are expected to develop the skills critical for generating high-quality research output. This would include absorbing, recalling, and contextualizing scientific knowledge, evaluating scientific information and data, creating testable hypotheses and investigating hypotheses, mastering scientific tools and techniques, displaying ethical behavior, and receiving and giving feedback.
PLO2: Communication – graduate students are expected to demonstrate the oral, written, and media skills to effectively communicate the impact of a study or a body of work to the greater scientific community and to the public at large using a number of methods.
PLO3: Critical Thinking – graduate students are expected to develop a self-directed process to analyze information, form opinions or judgments, and use this process to improve the quality of their scientific thoughts, navigate problems, and make informed decisions.
PLO4: Intellectual Curiosity – graduate students are expected to acquire the capacity to build their intellectual curiosity and demonstrate problem solving approaches that serve their professional growth and ability to impact a field.
PLO5: Career and Professional Development – graduate students are expected to develop a variety of transferable skillsets throughout their graduate experience, including management and leadership, inclusiveness, resilience, scientific rigor, collaboration, accountability, time management, teamwork, networking, and career planning.

Course Learning Outcomes

Upon completion of this course students will be able to:
CLO1: Identify the major disorders of the central and peripheral nervous system.
CLO2: Analyze papers in the literature of neurobiology of disease.
CLO3: Have a good appreciation of our current understanding of the etiology of the disorders discussed.
CLO4: Have a good understanding of the current treatments used for the disorders discussed in class.

Background Preparation (Prerequisites)

There are no prerequisites for this course. Students will find it helpful to have a general undergraduate level introduction to neuroscience, genetics, molecular biology, and behavior. However, the necessary background to understand the material will be presented during the course and in the assigned reading material.

Required Course Materials

Lectures will be based primarily on current scientific research and review articles.

Class Format

Each 90 minute of didactic class will consist of a lecture from a faculty member for 75 minutes. The last 15 minutes will be used to discuss questions and sometimes highlight one or more recent research papers that contribute important and recent information to the topic under discussion. Lectures will be accompanied by slide presentations (PowerPoint) assembled by the lecturer. In each of paper class sessions each student should carefully read the assigned paper and be ready to present any part of the paper.

Attendance Statement

Attendance is mandatory for all classes and a portion of the grade is based upon class participation. Failure to participate will result in a reduction in credit for that portion of the course. Students who are unable to attend class must seek permission for an excused absence from the course director or teaching assistant. Unapproved absences or late attendance for three or more classes may result in a lower grade or an "incomplete" for the course.

Scientific and Professional Ethics

The work you do in this course must be your own. Feel free to build on, react to, criticize, and analyze the ideas of others but, when you do, make it known whose ideas you are working with. You must explicitly acknowledge when your work builds on someone else's ideas, including ideas of classmates, professors, and authors you read. If you ever have questions about drawing the line between others' work and your own, ask the course professor who will give you clear guidance. Exams must be completed independently. Any collaboration on answers to exams, unless expressly permitted, may result in an automatic failing grade and possible expulsion from the Graduate Program.

Technology Requirements and Support

For issues related to Canvas, please contact the Graduate Office by email at: gradprgm@scripps.edu or by phone at: 858-784-8469.

Course Grading

Grading is in accordance with the academic policies of the Skaggs Graduate School. The breakdown of grading is as follows:

- Midterm Exam: 45%
- Final Exam: 45%

- Class Participation: 10%

Letter Grade	Percent	GPA	Description
A	93-100	4.00	Outstanding achievement. Student performance demonstrates full command of the course subject matter and evinces a high level of originality and/or creativity that far surpasses course expectations.
A-	90-92	3.67	Excellent achievement. Student performance demonstrates thorough knowledge of the course subject matter and exceeds course expectations by completing all requirements in a superior manner.
B+	87-89	3.33	Very good work. Student performance demonstrates above-average comprehension of the course subject matter and exceeds course expectations on all tasks as defined in the course syllabus. There is notable insight and originality.
B	83-86	3.00	Satisfactory work. Student performance meets designated course expectations and demonstrates understanding of the course subject matter at an acceptable level.
B-	80-82	2.67	Marginal work. Student performance demonstrates incomplete understanding of course subject matter. There is limited perception and originality.
C+	77-79	2.33	Unsatisfactory work. Student performance demonstrates incomplete and inadequate understanding of course subject matter. There is severely limited or no perception or originality. Course will not count toward degree.
C	73-76	2.00	Unsatisfactory work. Student performance demonstrates incomplete and inadequate understanding of course subject matter. There is severely limited or no perception or originality. Course will not count toward degree.
P	73-100	0.00	Satisfactory work. Student performance demonstrated complete and adequate understanding of course subject matter. Course will count toward degree.
F	0-72	0.00	Unacceptable work/Failure. Student performance is unacceptably low level of knowledge and understanding of course subject matter. Course will not count toward degree. Student may continue in program only with permission of the Dean.
I		0.00	Incomplete is assigned when work is of passing quality but is incomplete for a pre-approved reason. Once an incomplete grade is assigned, it remains on student's permanent record until a grade is awarded.

W	0.00	Withdrew from the course with Dean's permission beyond the second week of the term.

- All courses will be recorded and maintained in the student's permanent academic record; only courses that apply towards the degree will appear on the academic transcript. Non-credit or audited courses will not appear on the transcript.
- 4 core courses taken for a letter grade (pass = B- or higher for a core course)
- 2 elective courses taken pass/fail (pass = A, B, C for an elective)

Course Schedule:

Date	Details
Tue Apr 6, 2021	Intellectual Disability (Rumbaugh)
Thu Apr 8, 2021	Neurofibromatosis (Tomchik)
Tue Apr 13, 2021	Sleep Disorders (Ja)
Thu Apr 15, 2021	Sleep Disorders Paper Discussion (Ja)
Tue Apr 20, 2021	Mood Disorders (Xu)
Thu Apr 22, 2021	Mood Disorders Paper Discussion (Xu)
Tue Apr 27, 2021	Schizophrenia and Bipolar Disorder (Davis)
Thu Apr 29, 2021	Human Amnesias (Davis)
Tue May 4, 2021	Autism Spectrum Disorder (Page)
Thu May 6, 2021	Autism Spectrum Disorder Paper Discussion (Page)
Tue May 11, 2021	Midterm Exam
Thu May 13, 2021	Huntington's Disease (Subramaniam)
Tue May 18, 2021	Huntington's Disease Paper Discussion (Subramaniam)
Thu May 20, 2021	Alzheimer's Disease (Puthanveettil)
Tue May 25, 2021	Discovery of AD Drugs (Lipton)
Thu May 27, 2021	Alzheimer's Disease Paper Discussion (Puthanveettil)
Thu Jun 3, 2021	Pain (Hansen)
Tue Jun 8, 2021	Retinal Diseases (Martemynov)
Thu Jun 10, 2021	Retinal Diseases Paper Discussion (Martemynov)
Tue Jun 15, 2021	Parkinson's Disease (Lasmezas)
Thu Jun 17, 2021	Eating Disorders (Xu)
Thu Jun 24, 2021	Final Exam