

NEU 233: Circadian Rhythms and Health

Course and Faculty Information

Course Description: Provides a foundation on circadian rhythms mechanisms and regulation and their impact in human health; including an overview of experimental methods applied in circadian biology research.

Credits: 1

Prerequisites:

Completion of first year Medicine or active student at the Neuroscience/BMS or Pharm.D Graduate Programs.

Director: Dr. Paula Desplats

Contact Info: pdesplat@health.ucsd.edu

Co-director: Dr. Dorothy Sears

Contact Info: dsears@health.ucsd.edu

Office Hours: Dr. Desplats will be available for Office Hours via Zoom video conferencing online on Mondays from 2-3 pm. Meeting requests must be submitted by email to Dr. Desplats 48 hours in advance of the appointment time. Dr. Desplats will confirm and send the Zoom hyperlink to you.

Course Learning Outcomes

At the completion of this course, students will be able to:

1. Describe the general principles of circadian clocks and biological rhythms
2. Describe the mechanisms through which human circadian clocks are regulated
3. Describe how circadian rhythmicity influences behavior, physiology and medicine
4. Describe clinical presentations of disruption or shifting of circadian rhythms
5. Discuss strategies that might be employed to treat or minimize symptoms in patients with circadian rhythm disruption.
6. Discuss the role of circadian biology in pharmacokinetics.
7. Describe the human pathologies, employment types, and lifestyle risk factors associated with disturbed circadian rhythm

Learning modules, material and respective assignments can be viewed at the course site in Canvas. Class content is summarized below:

- Module 1: Introduction to Circadian clocks
- Module 2: Psychiatric mood disorders
- Module 3: Food intake timing
- Module 4: Neurodegeneration
- Module 5: Sleep
- Module 6: Pulmonary/sleep apnea
- Module 7: Microbiome
- Module 8: Shift-work and disease
- Module 9: Pharmacokinetics
- Module 10: Reproduction/ fertility

Course Access

This course can be access at UCSD Canvas:

Student Success

To be successful:

- check the course weekly
- read announcements
- read and respond to course email messages as needed
- complete assignments by the due dates specified
- communicate regularly with your instructor and peers
- create a study and/or assignment schedule to stay on track

Grading

Passing Requirements

- Attendance to 90% lectures (1 absence allowed)
- Completion of required reading and oral presentation of 1 scientific article
- Satisfactory performance/demonstration of learning objectives by active participation in discussion at the end of each lecture.

Attendance will be registered 5 minutes after class starting time (2:00 PM) based on log-in to the zoom meeting.

If unable to attend to a session, students will be able to request a link to the recorded lecture and will have to take a quiz about the topic covered in the lecture and discussed in the paper assigned for the module. Satisfactory completion of these activities will be

counted towards attendance. Deadline for these assignments is set at 11:59 pm of the Monday following the class.

Work-Load & Assignments

Schedule of required student activities

Class will meet via zoom on Tuesdays 2-4 pm during 10 consecutive weeks. Each course meeting will include a faculty lecture (45 minutes) introducing a circadian rhythms and health-related topic followed by post-presentation discussion. Students will then present one or two primary research papers on the day's topic.

Students will be assigned to a particular topic and will have to prepare a presentation of relevant research articles.

Weekly Time Commitment by Students

45 min seminar + 15 min questions

1 h journal club presented by students/ material selected by instructor. 2 papers per class

1 h preparation outside class

Notify the director **BEFORE** an assignment is due if an **urgent situation** arises and you are unable to present.

Questions & Communicating with the Instructor Community Forum

Prior to emailing a question, please **check the syllabus**, announcements, and existing materials.

Email questions of a personal nature to the course instructor. You can expect a response within 2 work-days. Your instructor will check emails between 8am and 5pm on weekdays and will not check emails on weekends. Responses to emails outside these times are not guaranteed.

If you have a question about an assignment that is not answered by the syllabus or course announcements, you **MUST** email the instructor at least 48 hours prior to the time it is due. Responses are not guaranteed if questions are sent to the instructor less than 48 hours prior to due date time. Zoom office hour appointments can also be flexible if required 48-hour in advance.