

CLPS0120 Syllabus: Class Outline and Policies

Instructor: Mary A. Carskadon, Ph.D.
 Campus Office: Metcalf, Room 349
 Student Hours: Mondays 9:30 to 11:00 am
 Lab Office: Sleep Research Lab,
 Butler Hospital Campus
 Phone: 401-421-9440
 E-Mail: mary_carskadon@brown.edu

Grad TA: Huaiyong Zhao
 E-Mail: huaiyong_zhao@brown.edu

Undergrad TA: Chanliny Lim
 E-Mail: chanliny_lim@brown.edu

TA: Sharon Driscoll
 E-Mail: sharon_driscoll@brown.edu

Undergrad TA: Rahim Makani
 E-Mail: rahim_makani@brown.edu

Undergrad TA: Andrea Montero
 E-Mail: andrea_montero@brown.edu

Classroom: Wilson Hall 102

Class time: Tue/Thu 6:30-7:50 pm (L Hour)

Aims

This course has three primary goals: (1) to provide a basic introduction to the study of sleep and an overview of sleep, including measurement, bioregulation, ontogeny, phylogeny, physiology, psychology, and sleep disorders; (2) to provide a basic introduction to methods of studying behavior using modes of analysis common to experimental psychology; (3) to stretch students' experiences beyond the overview of course material to encourage greater understanding of the interactions of sleep and society as well as sleep disorders through a final project that contains either a sleep disorders and/or 'public service' component. Class meetings are lecture style with discussion; sections provide opportunities for additional depth and content.

Throughout the semester, selected articles from the primary research literature are dissected to facilitate learning by identifying such important components as hypothesis/specific aim, dependent and independent variables, data collection methods and measures, and statistical methods, as well as a critical assessment of conclusions. These exercises are complemented by a laboratory tour to introduce sleep measurement tools and by problem sets that sometimes involve deriving hypotheses or expressing how a specific hypothesis might be tested or may involve gathering and evaluating data on yourself or your classmates or other related activities. Occasional in-class activities complement other features of the course material. Simple data assessment/analysis tools (measures of central tendency and variability, as well as tests to determine whether differences or patterns are meaningful, such as t-test, chi square, scatter plots, and correlation) are introduced.

Students should come with an inherent interest in learning about and willingness to participate in understanding the phenomenology that defines sleep, the biology that regulates sleep, the physiological changes accompanying sleep, and the role sleep plays in mental and physical health and illness. Students who have taken CLPS 0010, CLPS 0020 or NEUR 0010, or who did well in an AP course in psychology or physiology will be better prepared for this class.

Required Readings*

Required readings include *The 24-Hour Mind*, by Rosalind D. Cartwright; the *Basics of Sleep Guide*, of the Sleep Research Society, a brief and dense overview of sleep; and selected readings available online through the course reserves. **Recommended** readings are suggested from *The Promise of Sleep*, by William C. Dement and Christopher Vaughn, which is a lengthy, but easily consumed book.

* A detailed list of required readings is provided on the course Reading List on the course web site.

Sections: An Opportunity, Not an Obligation

Weekly sections (beginning in week 2) are designed for TAs to provide a deeper, focused presentation of material introduced in lecture or readings, for informal review and discussion of course material, including presentations of certain material not provided in class meetings. TAs lead these section meetings. The times and locations of these meetings will be arranged and announced in the second week of class. Study guides, problem sets, and worksheets are reviewed in section meetings, and class material is reviewed as issues arise. Attendance at these sections is monitored, and although section attendance is not mandatory, *one percentage point is added to your final grade for every 2 sections you attend.*

Lab Tour: An Opportunity, Not an Obligation

A tour/open house of Dr. Carskadon's laboratory will be held on September 27. This lab tour is not mandatory. It is recommended, particularly for those students with a limited background and boundless interest. Attendance (although not required) will be monitored and contributes *1 percentage point to the final grade.*

CLPS0120: LECTURE SCHEDULE, 2012**Date Topic**

09/06 Introduction to course structure and pedagogy. **Why sleep?** A brief introduction to the topic.

09/11 **What is sleep?** Introduction to the scientific study of behavior and sleep. Measurement and characteristics of normal human sleep; introduction to the 2-process model of sleep regulation.

09/13 **What does sleep look like?** Fundamentals of normal human sleep. States, stages, measurement, course of events through the night, NREM-REM cycle. Introduction to sleep phenomenology.

09/18 **Who sleeps? Phylogeny 1.** Sleep in other species.

09/20 **Who sleeps? Phylogeny 2.** Sleep in other species.

09/25 **Where is sleep controlled? The sleeping brain 1:** Intro to brain anatomy, chemical signalling.
Guest Presenter: Eliza Van Reen, PhD, member Sleep for Science Research Laboratory

09/27 * * * * * **SPECIAL EVENT: SLEEP LAB TOUR/OPEN HOUSE** * * * * *
* * * * *

YOUR OPPORTUNITY TO SEE HOW SLEEP RESEARCH IS DONE FIRST HAND!

* * **Evening of 27 September 2012. Sign up lists will be posted to canvas on 18 September.** * *

- 10/02 **Where is sleep controlled? The sleeping brain 2:** Brain regulatory regions, circuits, chemistry, S-W homeostasis.
- 10/04 **Where is sleep controlled? The sleeping brain 3:** REM sleep anatomy and chemistry, NREM-REM cycle.
- 10/09 **When sleep—how does the body keep track of time 1?** Circadian Process—neuroanatomy, measurement, regulatory process (phase response curve).
- 10/11 **When sleep—how does the body keep track of time 2?** The temporal regulation of sleeping and waking.
- 10/16 Midterm Exam in Class (no exceptions!).**
- 10/18 **Who sleeps? Ontogeny 1.** Developmental aspects of sleep: infancy and old age.
- 10/23 **Who sleeps? Ontogeny 2.** Developmental aspects of sleep—adolescence.
- 10/25 DUE DATE Decision on final project type by start of class.**
- 10/25 **What happens to your body during sleep? Sleep physiology 1.** Autonomic motor system, hormones, motor activity (RBD).
- 10/30 DUE DATE Outline and reference list for final project. [Due at 6:30 pm in class.]**
- 10/30 **What happens to your body during sleep? Sleep physiology 2.** Temperature regulation, sexual activation.
- 11/01 **What happens to your body during sleep when things go right and when they go wrong? Sleep physiology 3.** Breathing and when sleep and breathing don't mix (sleep apnea syndrome).
Guest Presenter: Katherine M. Sharkey, MD, PhD
- 11/06 **The sleeping mind 1: How does sleep affect learning and memory?** Characteristics of memory formation; sleep-enhancing effects on learning.
- 11/08 **The sleeping mind 2: Introduction to Dreaming—How are dreams made?** Biology of dreaming.
- 11/13 **The sleeping mind 3: Introduction to Dreaming—What are dreams made of?** Dream phenomenology; psychology of dreaming.
- 11/15 **The sleeping mind 4: Introduction to Dreaming—What are dreams made for?** Problem solving, creativity, mood, psychopathology.

11/19 DUE DATE FINAL PROJECT [Due by 11:00 am.]

11/20-11/22 Happy Thanksgiving!

- 11/27 **Sleep and society 1: How alert are you?** Sleepiness/alertness: measurement and regulatory processes.
- 11/29 **Sleep and society 2: Do we need sleep?** Sleep deprivation and extended wakefulness. Recovery from sleep deprivation.
- 12/04 **Sleep and society 3: What happens when sleep goes wrong?** Sleep disorders: what they are? who has them? and general introduction to classification scheme. Focus on narcolepsy and insomnia.
- 12/06 **Sleep and society 4: What happens on the road, rails, seas, skies?** Sleep, fatigue, and transportation.
Guest Presenter: Mark R. Rosekind, PhD, Member, National Transportation Safety Board.
- 12/11 **Sleep and society 5: Why do we sleep?** Theories on the function(s) of sleep.
Peer evaluation of public service announcements. (after class)
- 12/13 **!!! FINAL EXAM/REVIEW SESSION !!!** Location to be announced.
- 12/17 **FINAL EXAMINATION AT 9:00 am. NO EXCEPTIONS!** Location to be announced. Please make sure that you have no conflict.

READING. The reading list is on the COURSE READING LIST posted on the course web page.

CLASSROOM: LAPTOPS, PDAs. Please do not use cell phones, personal electronic equipments, or laptops during class. [For those with a documented disability, please see the professor with your documentation.]

ASSIGNMENTS. Class assignments are of several general types in addition to reading: study guides, problem sets, article worksheets, and the final project. **Study guides** are to be completed by each student *independently* (i.e., by yourself!). Study guides are intended to help keep reading and class attendance on pace and to serve as practice for the midterm and final examinations. **Problem sets** are of several types and may involve collecting data on yourself or responding to questions about your sleep or dreams. I urge you to be as careful, complete, honest, and accurate as you can in doing these assignments in order to garner the greatest benefit from them. Due dates are announced in class and late work is not accepted.

Final Project Option A= Virtual Poster Project: The main option for the final project is to examine a specific sleep disorder and create a “virtual poster” describing the disorder. Students work independently. Guidelines for preparing the virtual poster will be provided later in the semester on the course web page. In broad terms, each student will choose a specific sleep disorder (from a list to be provided), research the history, pathophysiology, symptoms, treatment, and impact on society. The virtual poster will be created as a PowerPoint document according to instructions to be provided. **The outline and references for this project are due on October 25 by 6:30 pm (start of class).** This material will be checked for progress and may be returned to you if the project needs improvement. The final virtual poster cannot exceed the size

guidelines to be provided later in the semester. Final virtual posters will be graded by a joint grading process including grading by your classmates and by the professor. The Final Virtual Poster is due November 29 by noon.

Final Project Option B= PSA: Students may choose to work independently or in pairs to prepare a “public service announcement” presentation. **You must have prior permission from the course instructor to pursue this alternative final project.** The PSA can be either a website, video, or audio presentation or another medium that is suitable to the message you wish to convey. Students may work in partnerships (2 students): all academic criteria of the final project must be met, including a reference list and accuracy of the information. **The outline and references for this project are due on October 25 6:30 pm (start of class).** Each member of the team must specify his/her contribution. Additional instructions will be posted on the course website. The alternative final project is due November 29 by 6:30 pm (start of class).

STUDY BREAK/REVIEW SESSION. A special **optional** review session for the final exam will be held at the regular class time on December 13. [Location to be announced.]

GRADING. Grading is based upon **on-time** completion of assignments and quality of performance on the study guides and problem sets, as well as the midterm and final examinations, and final project. Grade weighting is as follows: **Sections and Lab Tours = 5%, Problem Sets = 10%, Final Project (including draft Final Project) = 20%, Study Guides = 10%, Midterm Exam = 25%, Final Exam = 30%.** A passing grade is determined by a first-level check of the content-based assessments (weighted average of Study Guides, Midterm Exam, Final Exam), which must equal or exceed a grade of 70%. In other words you **cannot pass** the course—even if you have a 70 overall average—unless your weighted average for the Average Study Guide Grade (.10) + Midterm (.25) + Final (.30) = at least 70. When the weighted average of the other assignments is computed, your score must remain at 70 or above to pass. Grade cut-offs (no rounding) are A ≥90%, B ≥80% <90%, C ≥70% <80%, NC <70%. No extra credit is offered; however, ‘Tweak Factors’ can increase your final score if you are on the border between grade levels. The following ‘Tweak Factors’ can add .5% to your final grade if in the border zones: completion of peer review of final projects; participation in 2+ hours of department research participant pool through the system hosted by the CLPS department.

STUDY GUIDES: Study Guides are take-home question sets that are to be worked on by every student independently. The Study Guides are designed as content-based exercises that keep you focused on staying on pace with the class and help give you some experience with the types of items that may be on the midterm and final exams, though the Study Guides have a greater focus on multiple choice and true/false format to enable timely feedback of your performance. Students are encouraged to attempt these exercises after doing assigned reading and reviewing class notes; however, all course resources (except for classmates) are available for you to use in completing these small exercises. Due dates are announced in class and late work is not accepted.

MIDTERM and FINAL EXAMINATIONS. These examinations include a variety of formats: multiple choice, true/false, short answer, and (very) short essay items. The exams draw heavily from lectures and required readings. Students with special exam-taking needs (e.g., extra time) must speak to a teaching assistant at least 2 weeks before the scheduled exam to schedule an early start in a separate room. Please send Professor Carskadon documentation from a dean or the office of disability services about your need for special circumstances for testing. The midterm exam will be held on Tuesday, October 16, at 6:30 pm **without exception**, and the final exam will be held on Monday, December 17, at 9:00 am **without exception**.

PLEASE NOTE: We will **not** be able to accommodate individual students' exam schedule conflicts (including travel conflicts). Therefore, you are advised to **check your exam schedule and travel plans carefully** before enrolling in this course!

REMINDER: To pass the course, acquisition of knowledge about sleep must be demonstrated by achieving a passing grade average (70%) for the Study Guides, Midterm, and Final exam. Thus, regardless of performance on final project and other assignments, **you cannot pass the class unless you get a passing grade (70%) for the 3 types of knowledge-based assessments: Study Guides, Midterm, and Final exam.**