

**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  
semester.

Feel free to contact the Psychology Advising  
Office for any questions regarding psychology  
courses either by email  
([psychadvising@osu.edu](mailto:psychadvising@osu.edu)) or phone  
(614.292.5750).

Thank you!

# Psychology 4501



## Advanced Behavioral Neuroscience

The Ohio State University  
Autumn 2021

Additional course content available on  
[carmen.osu.edu](https://carmen.osu.edu)

# Face-to-Face Information

## In-Person Delivery

This instruction mode for this course is In Person



This course will follow all applicable safety & health policies of The Ohio State University.



## Attendance and Face Mask Policies

Please, do NOT come to class if you are sick!

If you need to miss class because of illness then I will work with you to make sure you have any missed information.

If you miss a day with group work, you should contact your group ASAP and try to find a way to contribute from a distance (assuming you are well enough to do so). You could also work virtually with your group through Zoom or Microsoft Teams.

**All students are required to wear a mask over their nose and mouth during the entire class period.** If you forget your mask, you will need to get one before walking into class. Students who refuse to wear a mask will be asked to leave.

# Course Specifics

**Course Description:** Advanced discussion of contemporary issues in behavioral neuroscience, including: synaptic pharmacology, drugs, and behavior, neurodegenerative diseases and the biological bases of psychopathology.

**Prerequisites:** A grade of C- or above in 2200 and 2300, and a grade of B or above in 3313; or a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major. Not open to students with credit for 501.

## Theme of the Course

This semester, I have chosen to organize this course around the broad topic of the brain and sleep processes. We will use this lens to explore behavioral neuroscience in-depth.

- Personally relevant to all students as a matter of health and wellness
- Applicable to every sub-field of behavioral neuroscience
- Requires rigorous scientific investigation
- Many myths currently in public discourse
- Substantial implications for future work in research or clinical settings

## Active Learning Environment Values

- I value students becoming active consumers and producers of the course material and do not rely on only passive strategies (e.g. note taking)
- I value students evenly distributing their effort across the term, rather than in high-stress peaks and valleys.
- I value students practicing doing transferable skills if they wish to be successful in future academic or professional endeavors.
- I value scientific literacy and communication to specialized and general audiences.

Therefore, We will use small-group, large-group, and individual activities to achieve the active learning outcomes. We may use hallways or common spaces to allow for spreading out. [https://en.wikipedia.org/wiki/Active\\_learning](https://en.wikipedia.org/wiki/Active_learning)





# Goals and Learning Outcomes

## Goal A: Understand how neuroscience and sleep/wake behavior are interconnected

**A1:** Differentiate states of consciousness and scientific tools to study them

**A2:** Compare sleep across species and over the human lifespan

**A3:** Identify neural pathways and chemicals that contribute to normal and disordered sleep

**A4:** Explain how internal and external factors can influence sleep/wake behaviors

## Goal B: Use the processes of scientific inquiry and critical thinking

**B1:** Operationally define variables and concepts related to sleep/wake behavior or neural states

**B2:** Apply the scientific method to phenomena related to behavioral neuroscience

**B3:** Locate and select appropriate original research and review articles relevant to course topics

**B4:** Evaluate methodology, results, and conclusions of published scientific articles

## Goal C: Communicate scientific information

**C1:** Summarize and integrate course topics

**C2:** Create media, documents, and instructional materials adapted to different audiences

**C3:** Use scientific evidence as support for persuading others towards social or policy changes

**C4:** Deliver scholarly presentation on specialized topics

## Goal D: Think critically about ethical issues and social responsibility in a diverse world

**D1:** Be certified in ethical research practices involving both human and animal subjects

**D2:** Identify ethical standards in psychological, neuroscientific, and medical research

**D3:** Demonstrate responsible scholarship practices including avoidance of plagiarism

**D4:** Communicate with people of diverse abilities, backgrounds and cultural perspectives

## Goal E: Develop Professional Skills

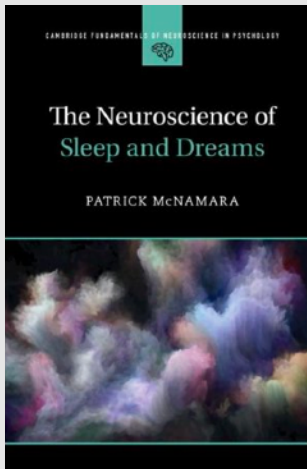
**E1:** Demonstrate flexibility, inclusiveness, and collaboration skills

**E2:** Demonstrate self-regulation skills, such as time management, self-assessment, and responsiveness to feedback

**E3:** Facilitate the growth and development of others by providing constructive feedback

**E4:** Implement personal career-focused marketing strategies

# Readings and Programs



There is NOT a required textbook for this course.

A very useful supplement to many in-class activities is “The Neuroscience of Sleep and Dreams” by Patrick McNamara.

Another highly recommended supplement is “Why We Sleep: Unlocking the Power of Sleep and Dreams” By Matthew Walker. (Audiobook also available)

Any recent behavioral neuroscience textbook should provide foundational information necessary for success this course.

**carmen**  
COURSES

Class materials are available through an online course management system, **Carmen** (canvas).

You will need to use BuckeyePass ([buckeyepass.osu.edu](https://buckeyepass.osu.edu)) duo multi-factor authentication to access your course materials in Carmen.

All assignments will be submitted through Carmen.



## Perusall

Most required readings will be pulled from the scientific literature and will be posted on <https://www.perusall.com/>. This is a free website for students to use.

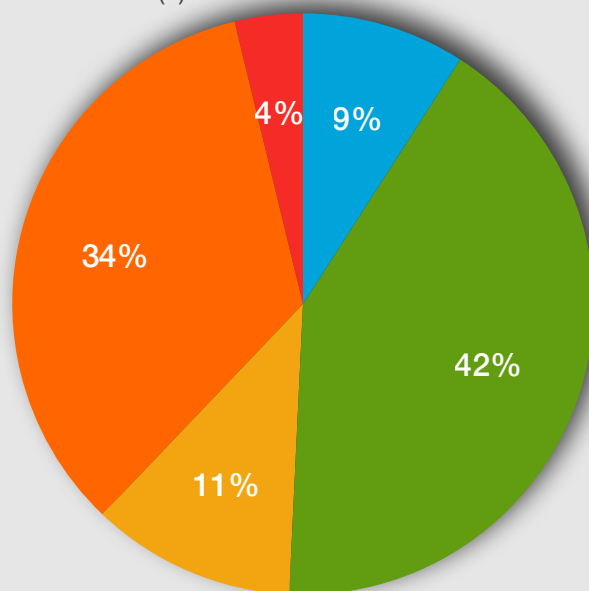
You will be broken into small groups and allowed to collaboratively annotate and discuss the articles. You can also use this to save and annotate articles for your own library.



**CBT-i Coach** is a free smart phone app developed by the clinicians with the U.S. Department of Veterans affairs. It features principles of cognitive behavioral therapy, education on sleep, and sleep tracking features. It will be used for some in-class and out-of-class activities.

# Ways to Earn Points

- Perusall (13)
- Skills Assignments (6)
- Peer Review (4)
- Knowledge Recaps (11)
- Papers (3)



Category	Available	points each	total
Perusall Comments	14 (13 required)	2	26
Knowledge Recaps	11	10	110
Assignment: Bio sketch video		5	5
Peer review of Bio sketch video		2.5	2.5
Group Project: Analysis of a Yawn		30	30
Peer review of Yawn project		2.5	2.5
Assignment: Documentation of CITI training		5	5
Assignment: Documentation of animal ethics training		5	5
Assignment: Sleep goals tracking part 1		5	5
Peer review on persuasive letter		2.5	2.5
Group Project: Persuasive Letter		30	30
Assignment: Sleep goals tracking part 2		5	5
Assignment: Data set practice		5	5
Group Project: Sleep Disorder Podcast		30	30
Peer review on sleep podcast		2.5	2.5
			266

# Ways to Earn Points

## **Knowledge Recaps:**

11 available, 10 points each, 110 total points.

Will include mix of short-answer essays, multiple choice, true/false. Questions will be based on material covered in class videos and synchronous zoom meetings.

Recaps will be completed electronically through Carmen.

## **Perusall Comments**

14 available, 13 required (lowest dropped). 2 points each, 26 total points.

You will be divided into small groups to collaboratively annotate and discuss assigned readings collected from scientific journal articles. Interaction and replies are encouraged. You will be graded on the number and quality of comments.

## **Peer Review and Reflections:** (10 total)

Several assignments throughout semester

Brief written opportunities to provide peer review on classmate's work before or after submission, to respond to peer review that you receive, or to reflect on class activities or personal growth.

## **Group Papers Projects**

3 available, 30 points each.

Small group of approximately 5 people, all will receive same grade. Groups can be self-selected and then randomly filled. Groups can be same or different across projects.

## **Behavioral analysis:**

You will collect and use scientific evidence to write a brief descriptive analysis of a specific behavior and known neuroscientific mechanisms. You will propose (hypothetical) future experiments.

## **Persuasive Letter:**

You will collect and use scientific evidence to write a brief persuasive paper toward a specific audience. You will be evaluated on quality of evidence, use of credible citations, clarity of thought, and strength of argument.

## **Skills Assignments** (30 total)

Several out-of-class assignments throughout the semester, 5 points each

Brief written submissions emphasizing transferable professional skills or things you can add to a personal resume, CV, or portfolio.

## **Sleep Disorder Script:**

You will collect and use data and clinical reports to fully describe the symptoms, etiology, neuroscientific mechanisms, and treatments of a specific sleep or circadian rhythm disorder. You will be evaluated on depth of information, written presentation skills, and quality of instructional media.

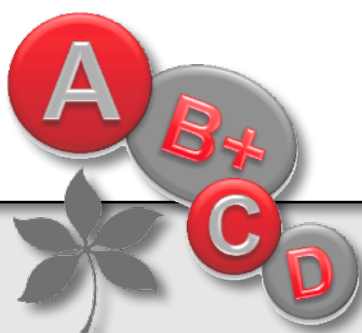


# Grading Policy

Ask for all of the help/support you need throughout the semester, but please (for your own sake) do not do this at the very end.

There will be no "personalized rounding schemes" or "extra assignments" or "discussions/negotiations" about how to boost your grade once the class is over, and that is for a few reasons. Once grades are submitted to the registrar, according to university policy, they can only be changed in the event of a documentable error.

Entertaining these kinds of requests would mean preferential treatment to some students (i.e. those with the type of privilege they feel that this is something they can ask for) and not others, and that is not an equitable teaching practice.



Grades do **NOT** determine your self worth.

You have talents and interests, and you are a human being, not a letter grade or GPA.



I repeat, grades do **NOT** determine your self worth.

chibird

Name:	Range:	
A	100 %	to 93.0%
A-	< 93.0 %	to 90.0%
B+	< 90.0 %	to 87.0%
B	< 87.0 %	to 83.0%
B-	< 83.0 %	to 80.0%
C+	< 80.0 %	to 77.0%
C	< 77.0 %	to 73.0%
C-	< 73.0 %	to 70.0%
D+	< 70.0 %	to 67.0%
D	< 67.0 %	to 60.0%
E	< 60.0 %	to 0.0%

# Early and Late Policies

## Deadline Timings

Although Carmen generally defaults to have deadlines at 11:59 PM and this is what you may be accustomed to, all deadlines for this class will be at 7:00 PM, EST. If we're going to explore the behavioral neuroscience of sleep processes, it is important to have deadlines that are consistent with evidence-based healthy sleep practices.

## Late Submissions

Due dates are important and you should do your best to keep up with the target due dates in order to have the best chance for success. **Whenever possible, all graded items should be completed on time.** However, sometimes life happens and things get missed or reprioritized.

There will be two virtual "oops" cards that you can use on any individual graded submission (assignment, quiz, etc.) for an extension up to two days. (For example, a graded item due on a Friday would need to be made up by the following Wednesday). I called them "oops" because I want to normalize the idea that small mistakes can be ok.

**In order to use an "Oops Card," access the "Oops tracking" assignment towards the top of the Carmen module page and submit the name on the assignment you would like more time on. When you submit the assignment, comment if you are using an "oops" card.** No further explanation or documentation is needed to use an oops.

After the oops is used, late submissions will not be accepted unless you can explain or document exceptional circumstances. You are NOT required to provide details of your health or mental health status or specific diagnoses.

## Incomplete Grades

A student and the instructor may agree that an incomplete is appropriate if there is a serious and documentable event that prevents the student from completing work at the end of the semester. In order to be eligible for an incomplete, a student must have completed 75% of class work and currently be receiving a passing grade. It will be the student's responsibility to schedule completion of coursework with the instructor.

# Schedule

## Schedule Notes

This course will follow any schedule or policy changes instituted by The Ohio State University and the state of Ohio as the semester is in progress. All schedule items are subject to change, and will be announced on Carmen. Any questions about the withdrawal process should be directed to student's academic advisor.

## Health and Safety

All students, faculty and staff are required to comply with and stay up to date on all university safety and health guidance (<https://safeandhealthy.osu.edu>) , which includes wearing a face mask in any indoor space and maintaining a safe physical distance at all times. Non-compliance will result in a warning first, and disciplinary actions will be taken for repeated offenses.

If you choose to gather for any collaboration related to this course, please make sure all safety guidelines are followed.



Yellow highlight = synchronous zoom meeting  
Gray highlight = OSU closed  
Green text (right column) = perusall article discussion due  
Black text (right column) = assignment due  
Blue text (right column) = peer review due  
Purple text (right column) = knowledge recap quiz due  
Red text (right column) = major group project due



# Schedule Autumn 2021

Week 1	Wednesday, August 25	Class introduction, validity of self-report behavior inventories, operationally defining behaviors	Assignment: Survey
	Friday, August 27		Perusall Syllabus comments due (Not for grade)
Week 2	Monday, August 30	Methodology and validity of researching sleep. EEG, fMRI, Hypnograms, Actigraphy, and Actigrams	Perusall article annotations due
	Wednesday, September 1		Assignment: Biosketch Video
	Friday, September 3		Knowledge Recap Quiz, Peer Review after biosketch
Week 3	Monday, September 6	Behavioral neuroscience of a yawn	
	Wednesday, September 8		
	Friday, September 10		
Week 4	Monday, September 13	Group differences and disparities in behavioral neuroscience research and related healthcare	Perusall article annotations due
	Wednesday, September 15		
	Friday, September 17		Knowledge Recap Quiz, Peer review after Yawn project
Week 5	Monday, September 20	NREM sleep: anatomical circuits, electrophysiology, and pharmacology	Perusall article annotations due
	Wednesday, September 22		Group Project due: Analysis of a Yawn
	Friday, September 24		Knowledge Recap Quiz
Week 6	Monday, September 27	REM sleep: Anatomical circuits, electrophysiology, and pharmacology	Perusall article annotations due
	Wednesday, September 29		Assignment: Documentation of CITI Ethics Training
	Friday, October 1		Knowledge Recap Quiz
Week 7	Monday, October 4	Comparative analysis of sleep in different species; sleep changes over the human lifespan	Perusall article annotations due
	Wednesday, October 6		Assignment: Documentation of Animal Subjects Ethics Training
	Friday, October 8		Knowledge Recap Quiz
Week 8	Monday, October 11	Wakefulness and the Default Mode Network	Perusall article annotations due
	Wednesday, October 13		Assignment: Sleep goals, data tracking and reflection Part One
	Friday, October 15		
Week 9	Monday, October 18	Circadian rhythms and roles of light, retinohypothalamic pathways, and the suprachiasmatic nucleus	Perusall article annotations due
	Wednesday, October 20		Assignment: Data set practice
	Friday, October 22		Knowledge Recap Quiz
Week 10	Monday, October 25	Sleep, memory consolidation, and cognitive processes	Perusall article annotations due
	Wednesday, October 27		
	Friday, October 29		Knowledge Recap Quiz
Week 11	Monday, November 1	Pharmacological and hormonal influences on consciousness	Perusall article annotations due
	Wednesday, November 3		Assignment: Draft of Group Project (Persuasive Letter) Due
	Friday, November 5		Knowledge Recap Quiz, Peer review before persuasive letter
Week 12	Monday, November 8	Cerebrospinal fluid, astrocytes, and the glymphatic clearance system	Perusall article annotations due
	Wednesday, November 10		Group Project due: Persuasive Letter
	Friday, November 12		Knowledge Recap Quiz
Week 13	Monday, November 15	Dementia, Degeneration and sleep's connections to neurological health	Perusall article annotations due
	Wednesday, November 17		Assignment: Sleep goals, data tracking and reflection Part Two
	Friday, November 19		Knowledge Recap Quiz
Week 14	Monday, November 22	Dreaming and Lucid dreaming	Perusall article annotations due
	Wednesday, November 24		
	Friday, November 26		
Week 15	Monday, November 29	Depression and sleep's connections to psychological health	Perusall article annotations due
	Wednesday, December 1		
	Friday, December 3		Knowledge Recap Quiz
Week 16	Monday, December 6	Behavioral Neuroscience analysis of dysomnias and parasomnias	Perusall article annotations due
	Wednesday, December 8		
Finals Week	Monday, December 13		Group Project due: Sleep Disorder Podcast
	Tuesday, December 14		Peer review after sleep disorder project

# University-Wide Policies and Resources

## Academic Integrity Policies for this course

- **Knowledge Recaps:** You must complete all knowledge recap quizzes yourself, without any external help or communication. You may not collaborate or discuss questions with others. Notes and assigned readings may be used. Scientific literature may be used if cited appropriately.
- **Written assignments:** Your written assignments, including discussion posts, should be your own original work. In formal assignments, you should follow APA style to cite the ideas and words of your research sources.
- **Reusing past work:** In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you've explored in previous courses, please discuss the situation with the instructor.
- **Collaboration and informal peer-review:** The course includes many opportunities for formal collaboration with your classmates. While study groups and peer-review of major written projects is encouraged, remember that comparing answers on a quiz or assignment is not permitted. If you're unsure about a particular situation, please feel free just to ask the instructor ahead of time.

## Ohio State's academic integrity policy

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

## Copyright disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

## Statement on Title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at [titleix@osu.edu](mailto:titleix@osu.edu)



# More University-Wide Policies and Resources

## **Accessibility accommodations for students with disabilities**

Students with disabilities (including mental health, chronic or temporary medical conditions) that have been certified by the Office of Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall, 113 W. 12th Avenue; telephone 614- 292-3307, [slds@osu.edu](mailto:slds@osu.edu); [slds.osu.edu](http://slds.osu.edu).

## **Campus resources for success and self-care**

This link has an overview and contact information for the academic services offered on the OSU Columbus campus: <http://advising.osu.edu/welcome.shtml>

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting [ccs.osu.edu](http://ccs.osu.edu) or calling 614- 292-5766. CCS is located on the 4th Floor of the Younkun Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273- TALK or at [suicidepreventionlifeline.org](http://suicidepreventionlifeline.org). Also, the Psychological Services Center (PSC) in the Psychology Building provides free psychotherapy for students, staff, and community members. Drop in, or call (614) 292-2059 for more information.

The Dennis Learning Center (<https://dennislearningcenter.osu.edu/>), located within the Younkun success center, has many online and in-person resources available for improving study skills or dealing with test anxiety.

The Student Advocacy Center is an office on campus that works with students who have been significantly ill or experienced other traumatic personal issues to minimize the impact these circumstances may have on their academics. They can provide you with resources to cope with your situation and they can also contact instructors to provide documentation on your behalf. Phone: 614-292-1111, web address: <http://advocacy.osu.edu/>.