

**PSYC/NEUR 477**
**Sleep & Bio Rhythms**
**Winter 2024**

<b>Instructor:</b>	Dr. Michael Antle	<b>Lecture Location:</b>	HNSC 124A
<b>Phone:</b>	403-220-2574	<b>Lecture Days/Time:</b>	TuTh 12:30PM-1:45PM
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<b>Office Hours:</b>	Open door policy (if the door is open, come on in!), or by appointment		

**Course Description**

Behaviours are temporally coordinated and occur in a rhythmic fashion. The most obvious rhythmic behaviour humans engage in is sleeping; we spend 1/3<sup>rd</sup> of our lives asleep. This course will survey the behavioural, physiological, neural and clinical aspects of sleep and rhythms.

**Course Learning Outcomes**

The Department of Psychology is committed to student knowledge and skill development. The table below lists the key learning outcomes for this course, the program-learning outcomes they facilitate (see <https://live-arts.ucalgary.ca/psychology/about#program-learning-outcomes>), and the expected level of achievement.

Course Learning Outcomes	Assessment Methods	PLO(s)	Level(s)
By the end of this course students should be able to:			
1. Differentiate how sleep changes over the night, lifespan and through evolution.	Short answer exams Thought paper 1 Presentation 1	1,4	C,C
2. Outline the neural underpinnings of sleep, wake and circadian rhythms	Short answer exams	1	C
3. Assess various sleep disorders	Short answer exams	1	C
4. Debate the various functions of sleep	Short answer exams, School Start time project	2	C
5. Explain the formal properties of biological rhythms	Short answer exams, School Start time project	1,2	C,C
6. Analyze the primary literature in sleep and circadian fields	School Start time project Thought papers 3+4 Presentation 3+4	2,4,5,7	C,C,C,C
7. Evaluate claims made in the media concerning treatments for sleep complaints	Thought paper 2 Presentation 2	2,4,5	C,C,C

Notes. PLOs = Program-Learning Outcomes: 1 = demonstrate knowledge of psychological sciences, 2 = think critically and solve problems, 3 = conduct research and analyze data, 4 = communicate effectively, 5 = demonstrate information literacy, 6 = understand and implement ethical principles in a diverse world, 7 = apply psychological knowledge and skills, 8 = Demonstrate multicultural competence and awareness of issues related to equity, diversity, and inclusion. Level of PLO achievement facilitated by this course: I = introductory, C = competency, A = advanced.

## Acknowledgments and Respect for Diversity

Our classrooms view diversity of identity as a strength and resource. Your experiences and different perspectives are encouraged and add to a rich learning environment that fosters critical thought through respectful discussion and inclusion. The Department of Psychology would also like to acknowledge the traditional territories of the people of the Treaty 7 region in southern Alberta. The City of Calgary is also home to Métis Nation of Alberta (Districts 5 and 6).

## Course Format

This is an in-person class held on campus.

## Prerequisites

Psychology 300, 301 and 375 and admission to the PSYC major or PSYC or NEUR honours program

## Required Text

None – references to recommended readings will be provided on D2L

## Assessment Methods

<b>1. Exams</b>	<b>60%</b>	
<u>Mid Term</u>	In Class – Tuesday February 27 <sup>th</sup>	<b>30%</b>
	<ul style="list-style-type: none"><li>Includes all material up to Feb 15<sup>th</sup></li></ul>	
<u>Final</u>	During exam period	<b>30%</b>
	<ul style="list-style-type: none"><li>Includes all material covered following the midterm exam (from March 2<sup>nd</sup> onward)</li><li>Will be 2 hours in length</li></ul>	

Exams will mostly be short answer format. Short answer questions will be graded such that part-marks will be given if it is clear that the student knows the general answer but have omitted specific details. Full marks will be given to those that include specific details and employ the correct terminology and concepts. Additionally, clear and effective answers will be focused and succinct. Answers that include extraneous or tangential information will not receive full marks.

Exams will emphasize lecture materials, but may also include limited material from assigned readings

The use of electronic devices, books and notes are not permitted during tests

## 2. Public Outreach Project 22%

1. Prepare an outline for your final paper. (2%)
  - a. Should be no more than one page, and should include at least 4 references on a separate page.
  - b. Submitted through D2L Dropbox by Tuesday **February 6<sup>th</sup>**
2. Research and write a paper where you can explore one aspect of sleep or circadian rhythms. (can be the same area/question as your social media component). (10%)
  - a. This should be about 6-8 pages double spaced, excluding title page and references.
  - b. Submitted through D2L Dropbox by Tuesday **March 19<sup>th</sup>**.
3. Prepare a digital argument to be shared on social media to help educate the public about your selected topic. This can be a podcast, YouTube video, TikTok video or similar media. (10%)
  - a. You may work alone or in pairs.
  - b. Contributions should be about 3-5 minutes in duration, and can include multiple contributions (e.g., one longer YouTube video, or multiple shorter TikTok videos).
  - c. Email the link to your media to the course instructor by the end of day on Tuesday **April 9<sup>th</sup>** at 4pm

### 3. In Class Presentations 15%

Our 3 Presentations days will have 2 components each: a small written paper and an oral presentation

<u>Thought papers</u>	3% each	(9%)
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<u>Presentations</u>	2% each	(6%)
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You will be assigned a topic at a week before the discussion day. In preparing for the discussion, you will be asked to prepare a thought paper about your topic (**limit, one sheet of paper or 2 digital pages**). See D2L for more detailed instructions.

	Date	Topic
Discussion 1 (group)	Thursday, January 25 <sup>th</sup>	Sleep across the lifespan
Discussion 2 (individual)	Thursday, February 8 <sup>th</sup>	Treatments for sleep problems
Discussion 3 (group)	Thursday, March 28 <sup>th</sup>	Melatonin for circadian problems

### 4. Sleep Questionnaires Due on D2L Tuesday, January 30<sup>th</sup> 3%

Students will be required to complete and submit three questionnaires on sleep and circadian habits. Data collected by the instructor from these instruments will only be used for educational purposes within the course and will not be retained afterwards. Completing these questionnaires will provide an experiential learning opportunity that will help students understand the sleep concepts discussed in class and relate them to their own experiences. The questionnaires are:

- |                                    |                                  |
|------------------------------------|----------------------------------|
| 1. Pittsburgh Sleep Quality Index  | <b>please use version on D2L</b> |
| 2. NSF Sleep Diary                 | <b>please use version on D2L</b> |
| 3. Munich Chronotype Questionnaire | <b>please use version on D2L</b> |

**All Late Assignments will lose 10% per day late, including weekends. Late assignments should be emailed directly to the course instructor at the email address listed on the first page. With instructor pre-approval, missed presentations may be made-up by uploading a video of the talk, although parameters of the talk may change to keep assessment fair and equitable.**

Once approved by the course instructor, and at their discretion, alternative arrangements for missed assessments may be considered. <https://www.ucalgary.ca/pubs/calendar/current/g-1-2.html>. Students may be asked for documentation <https://www.ucalgary.ca/pubs/calendar/current/m-1.html>.

**Extra Research Participation Course Credit is Not Offered for this Course.**

## University of Calgary Academic Integrity Policy

Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity.

Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional code of conduct and promote academic integrity in upholding the University of Calgary's reputation of excellence. It is your responsibility to ensure that you have read and are familiar with the student academic misconduct policy:

<https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Academic-Misconduct-Policy.pdf>.

## Department of Psychology Criteria for Letter Grades

Psychology course instructors use the following criteria when assigning letter grades:

**A+ grade: *Exceptional Performance*.** An A+ grade indicates near perfect performance on multiple choice and short answer exams. For research papers/essays/course projects/presentations, an A+ grade is awarded for exceptional work deserving of special recognition and is therefore not a common grade.

**A, A- Range: *Excellent Performance*.** Superior understanding of course material. Written work is very strong in terms of critical and original thinking, content, organization, and the expression of ideas, and demonstrates student's thorough knowledge of subject matter.

**B Range: *Good Performance*.** Above average understanding of course material. Written work shows evidence of critical thinking and attention to organization and editing but could be improved in form and/or content.

**C Range: *Satisfactory Performance*.** Adequate understanding of course material. Knowledge of basic concepts and terminology is demonstrated. Written work is satisfactory and meets essential requirements but could be improved significantly in form and content. Note: All prerequisites for courses offered by the Faculty of Arts must be met with a minimum grade of C-.

**D range: *Marginally meets standards*.** Minimal understanding of subject matter. Written work is marginally acceptable and meets basic requirements but requires substantial improvements in form and content. Student has not mastered course material at a level sufficient for advancement into more senior courses in the same or related subjects.

**F grade: *Course standards not met*.** Inadequate understanding of subject matter. Written work does not meet basic requirements. Student has not demonstrated knowledge of course material at a level sufficient for course credit.

## Grading Scale

A+	96-100%	B+	80-84%	C+	67-71%	D+	54-58%
A	90-95%	B	76-79%	C	63-66%	D	50-53%
A-	85-89%	B-	72-75%	C-	59-62%	F	0-49%

It is at the instructor's discretion to round off either upward or downward to determine a final grade when the average of term work and final examinations is between two letter grades.

To determine final letter grades, final percentage grades will be rounded up or down to the nearest whole percentage (e.g., 89.5% will be rounded up to 90% = A but 89.4% will be rounded down to 89% = A-).

## Tentative Lecture Schedule

Date	Topics	Assignments Due
T Jan 9	Sleep – Intro, terminology, methodology	<i>First day of TR lectures</i>
R Jan 11	Sleep – Methods and development	
T Jan 16	Sleep – Evolution and Neural Control	
R Jan 18	Sleep – Neural Control	<i>Last day to drop a class without financial penalty</i>
F Jan 19		<i>Last day to add or swap a course</i>
T Jan 23	Sleep – Neural Control	
R Jan 25	<i>Sleep Discussion – Lifespan</i>	<b>Presentation #1 and Thought Paper #1</b>
F Jan 26		<i>Fee payment deadline for Winter Term full and half courses.</i>
T Jan 30	Sleep Disorders 1	<b>Sleep Questionnaires</b>
R Feb 1	Sleep Disorders 2	
T Feb 6	Sleep Disorders 3	<b>Term Project Outline</b>
R Feb 8	<i>Sleep Discussions – Sleep aids</i>	<b>Presentation #2 and Thought Paper #2</b>
T Feb 13	Sleep and Learning	
R Feb 15	Sleep and Learning	
Feb 18-24	<b>Term Break, no classes</b>	
T Feb 27	----- <b>Midterm Exam</b> -----	
R Feb 29	Circadian Rhythms 1 – Basics + Properties	
T Mar 5	Circadian Rhythms 2 – Basics + Properties	
R Mar 7	Circadian Rhythms 3 – Daylight Saving Time	
T Mar 12	Circadian Rhythms 4 – Organization	
R Mar 14	Circadian Rhythms 5 – Mammalian	
T Mar 19	Circadian Rhythms 6 – Molecular	<b>Term Project Paper</b>
R Mar 21	Circadian Rhythms 7 – Vision	
T Mar 26	Circadian Rhythms 8 – Non-photic	
R Mar 28	<i>Sleep Discussions 3 – Melatonin</i>	<b>Presentation #3 and Thought Paper #3</b>
T Apr 2	Circadian Rhythms 9 – Human	
R Apr 4	Circadian Rhythms 10 – Human	
T Apr 9	Circadian Rhythms 11 – TBD	<b>Term Project Media</b>
		<i>Last day to withdraw with permission from Term Term half courses.</i>
Apr 12-23	----- <b>Final Exam Period</b> -----	

### **Seating During Exams**

Instructors and exam invigilators are free to ask students to move seats before an exam begins or even during an exam. Students must comply with this request and refusal to do so may warrant a charge of academic misconduct

### **Absence From Test/Exam**

Makeup tests/exams are **NOT** an option without the approval of the instructor

<https://www.ucalgary.ca/pubs/calendar/current/g-1-1.html> At the instructor's discretion, a makeup test/exam may differ significantly (in form and/or content) from a regularly scheduled test/exam. Once approved by the instructor a makeup test/exam must be written within 2 weeks of the missed test/exam on a day/time scheduled by the instructor. If a student cannot write their final exam on the date assigned by the Registrar's Office, they need to apply for a deferred exam

<https://www.ucalgary.ca/registrar/exams/deferred-exams>

### **Travel During Exams**

Consistent with University regulations, students are expected to be available to write scheduled exams at any time during the official December and April examination periods. Requests to write a make-up exam because of conflicting travel plans (e.g., flight bookings) will NOT be considered by the department. Students are advised to wait until the final examination schedule is posted before making any travel arrangements. If a student cannot write their final exam on the date assigned by the Registrar's Office, they need to apply for a deferred exam [Deferred Final Exams | University of Calgary \(ucalgary.ca\)](#) Students with an exceptional extenuating circumstance (e.g., a family emergency) should contact the Department of Psychology [psyugrd@ucalgary.ca](mailto:psyugrd@ucalgary.ca)

**Reappraisal of Graded Term Work** <http://www.ucalgary.ca/pubs/calendar/current/i-2.html>

**Reappraisal of Final Grade** <http://www.ucalgary.ca/pubs/calendar/current/i-3.html>

### **Academic Accommodations**

Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services; SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit [www.ucalgary.ca/access/](http://www.ucalgary.ca/access/). Students who require an accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to their Instructor. The full policy on Student Accommodations is available at <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf>.

### **Academic Misconduct**

For information on academic misconduct and its consequences, please see the University of Calgary Calendar at <http://www.ucalgary.ca/pubs/calendar/current/k.html>

### **Instructor Intellectual Property**

Course materials created by professor(s) (including course outlines, presentations and posted notes, labs, case studies, assignments, and exams) remain the intellectual property of the professor(s). These materials may NOT be reproduced, redistributed, or copied without the explicit consent of the professor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

### **Copyright Legislation**

All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (<https://library.ucalgary.ca/services/copyright>) and requirements of the copyright act (<https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>) to ensure they are aware of the consequences of unauthorized sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy.

### **Freedom of Information and Protection of Privacy**

Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary

### **Student Support and Resources**

<https://www.ucalgary.ca/registrar/registration/course-outlines>

### **Important Dates**

The last day to drop this course with no "W" notation and **still receive a tuition fee refund** is **Thursday, January 18<sup>th</sup>, 2024**. Last day add/swap a course is **Friday, January 19<sup>th</sup>, 2024**. The last day to withdraw from this course is **Tuesday, April 9<sup>th</sup>, 2024**.