

# The Science of Sleep: Syllabus

## Department of Psychology & Neuroscience

### PSYO/NESC 3264: Winter 2024

*Dalhousie University acknowledges that we are in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People and pays respect to the Indigenous knowledges held by the Mi'kmaq People, and to the wisdom of their Elders past and present. The Mi'kmaq People signed Peace and Friendship Treaties with the Crown, and section 35 of the Constitution Act, 1982 recognizes and affirms Aboriginal and Treaty rights. We are all Treaty people.*

*Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.*

<b>Course Instructor</b>	Dr. Jasmyn Cunningham	Jasmyn.cunningham@dal.ca	Office hours by appointment
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### Course Description

This course reviews the history, methods and results of the scientific study of sleep. Topics include: circadian and homeostatic regulation; developmental and cultural impacts; normal and abnormal function of neural and other control mechanisms; effects of sleep loss on performance and health; theories of the functions of sleep.

*Course Prerequisites:* PSYO 2000.03 or NESC 2000.03 and NESC 2470.03/PSYO 2470.03 or BIOL 2020.03.

*Course Exclusions:* Cross-listed with PSYO 3264.

### Learning Objectives

After completing this course, students should be able to:

1. Explain and use sleep and circadian research methods to measure their own and others' sleep.
2. Recall important facts about the history of sleep and circadian rhythms research.
3. Identify and compare differences in sleep across the human lifespan.
4. Interpret and explain the impact of various cultural and environmental factors on sleep and circadian rhythms.
5. Compare sleep in other species to each other and to human sleep; examine how this may relate to biological, psychological, and social factors.
6. Appraise evidence relating to the links between sleep and human health.

7. Recall facts relating to the links between sleep, circadian rhythms, and human health. Use this information to assess and formulate new hypotheses about these topics, as well as explain the importance of these topics to others.
8. Explain the links between important topics and facts more broadly in sleep and circadian rhythms research.
9. Conduct scientific inquiry, create effective and concise written communication regarding same, and generally appraise others' scientific work.
10. Organize their learning in a self-directed manner to complete a largely self-driven, flipped classroom online course.

### Course Content

**Brightspace:** Lecture recordings, quizzes, and exams are delivered asynchronously through Brightspace, and announcements are posted regularly. Links to optional synchronous Check-In sessions with instructor/TAs are posted on Brightspace (see below).

**Quiz “Post-mortems:”** A review of common tricky questions is available as a recorded video after each quiz (posted within the few days following the quiz due date). Reviewing individual submissions as a “self post-mortem” is encouraged; some quiz questions are recycled for exams. Because questions are available after each quiz ends, it isn't possible to offer make-ups (in the interests of academic integrity).

**Check-in Sessions** (*optional but recommended*): Synchronous Check-in sessions are optionally scheduled for each lesson, they focus on developing study strategies to prepare for challenging exam questions. Activity format varies but could include creating summary tables, evaluating neuroanatomical images, interpreting data from graphs, and designing flowcharts of research studies. Check-ins are recorded for those who cannot attend live sessions. See Brightspace for check-in schedule and sign-up.

Week	Date	Lesson Topic(s)	Assessment
1	Jan 8-12	Intro to Sleep Research	Quiz 1, Discussion Post
2	Jan 15-19	Methods for Sleep Research	Quiz 2, Discussion Post
3	Jan 22-26	History/Methods for Circadian Rhythm Research	Quiz 3, Discussion Post
4	Jan 29-Feb 2	Sleep Across the Human Lifespan	
5	Feb 5-9	Sleep Across the Human Lifespan Continued Homeostatic and Circadian Regulation of Sleep	Quiz 4, Discussion Post

6	Feb 12-16	Homeostatic and Circadian Regulation of Sleep Continued	Quiz 5, Discussion Post
	February 15	Midterm Exam	Exam 1
	Feb 19-23	Winter Break	
7	Feb 26-Mar 1	Cultural and Environmental Effects on Sleep	
8	Mar 4-8	Cultural and Environmental Effects on Sleep Continued Sleep in Other Species	Quiz 6, Discussion Post
9	Mar 11-15	Sleep in Other Species Continued Sleep and Human Health	Quiz 7, Discussion Post
10	Mar 18-22	Sleep and Human Health Continued	Quiz 8, Discussion Post
11	Mar 25-29	Sleep and Human Health Continued	Quiz 9, Discussion Post
12	Apr 1-5	Pulling it All Together	
13	Apr 8-9	Pulling it All Together Continued	Quiz 10, Discussion Post
	April 8	Assignment Due	Assignment
	Final Exam Period, TBD	Final Exam	Exam 2

### Course Structure and Materials

- This course will be delivered online, asynchronously, with optional synchronous online active learning sessions which will also be recorded and posted.
- This course will be delivered primarily through the Brightspace online learning management system. Some aspects will be delivered using Microsoft Teams. Students must monitor both Brightspace and their Dalhousie email accounts regularly.
- There are no aspects of this course that require on-campus attendance
- If students are connecting to any course resources from outside of Canada, they are responsible for ensuring awareness and compliance with any applicable laws in the country from which they are connecting. Please also be aware that not all software is available and functional in all countries, and that this may impede course progression. Students are responsible for ensuring they have ongoing access to required course resources.
- All required readings will be provided; students are not required to purchase a textbook for this course. Please refrain from sharing textbook chapter PDFs with others outside of the course. Course readings are from *Rusak, B. (2021). The Science of Sleep.*

## Assessment

Assessment	Weight (% of final grade)	Date
Exam 1 (online, open book)	35 %	One hour exam on February 15, 2024
Exam 2 (online, open book)	35 %	One hour exam TBD (final exam period)
Best 8 of 10 Quizzes (online, open book)	16 % (2 % each)	Approx. once weekly
Best 4 Discussion Posts	2 % (0.5 % each)	Approx. once weekly
Assignment	12 %	Due April 8, 2024

### Notes:

- For final exams, students will have a 12-hour window on the date of the exam within which to complete and submit their examination online, in order to accommodate potential conflicts with other courses or other life responsibilities.
- The lowest 2 quiz marks will be dropped, including missed quizzes. The best 8 of 10 scores will be used to calculate the final grade. Consequently, there will be no make-ups for missed quizzes.
- Students must complete the syllabus quiz in order to have access to the remainder of the course materials (unlimited attempts, score not included in final grade). Completing the syllabus quiz late may result in students missing deadlines for other course assignments – no make-ups for these assignments will be provided in this case.

Conversion of numerical grades to final letter grades follows the

[Dalhousie Grade Scale](#)

A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (0-49)
A- (80-84)	B- (70-72)	C- (55-59)	

## Course Policies on Missed or Late Academic Requirements

Student Declaration of Absence: Missed exams due to unusual circumstances must be communicated immediately. An alternative make-up and/or reweighting of the other exam will be considered with a DECLARATION OF ABSENCE, uploaded to the folder on Brightspace within 24 hours of the assessment in question. This may be used once per semester (i.e. for one, but not both exams).

There are no make-ups for missed quizzes or discussion posts. If a student requires an extension on the assignment, please email the course instructor – these will be considered on a

case-by-case basis. In no cases will extensions for any assignment or exam make-up be allowed to extend past the end of the semester / course completion dates.

A grade of 'zero' will be applied for any exam or assignment not completed, where no SDA was submitted and the student did not discuss lack of submission with the course instructor.

### **Course Policies related to Academic Integrity**

Students are expected to complete exams, quizzes, and assignments independently. Should there be a question of academic integrity with respect to completion of exams, quizzes, and/or assignments, students may receive a zero grade on the evaluation in question and/or be subject to Dalhousie academic integrity proceedings.

### **Student Resources**

#### **Course Resources**

Office hours are available by appointment with either the course instructor or TA – please email to schedule a time at least one week in advance of your desired appointment time.

#### **University Policies and Programs**

Important Dates in the Academic Year (including add/drop dates):

[http://www.dal.ca/academics/important\\_dates.html](http://www.dal.ca/academics/important_dates.html)

Classroom Recording Protocol:

[https://www.dal.ca/dept/university\\_secretariat/policies/academic/classroom-recording-protocol.html](https://www.dal.ca/dept/university_secretariat/policies/academic/classroom-recording-protocol.html)

Dalhousie Grading Practices Policies:

[https://www.dal.ca/dept/university\\_secretariat/policies/academic/grading-practices-policy.html](https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html)

Grade Appeal Process: [https://www.dal.ca/campus\\_life/academic-support/grades-and-student-records/appealing-a-grade.html](https://www.dal.ca/campus_life/academic-support/grades-and-student-records/appealing-a-grade.html)

Sexualized Violence Policy: [https://www.dal.ca/dept/university\\_secretariat/policies/health-and-safety/sexualized-violence-policy.html](https://www.dal.ca/dept/university_secretariat/policies/health-and-safety/sexualized-violence-policy.html)

Scent-Free Program: <https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>

#### **Learning and Support Resources**

General Academic Support – Advising (Halifax): [https://www.dal.ca/campus\\_life/academic-support/advising.html](https://www.dal.ca/campus_life/academic-support/advising.html)

General Academic Support – Advising (Truro): <https://www.dal.ca/about-dal/agricultural-campus/ssc/academic-support/advising.html>

Student Health & Wellness Centre: [https://www.dal.ca/campus\\_life/health-and-wellness.html](https://www.dal.ca/campus_life/health-and-wellness.html)

On Track (helps you transition into university, and supports you through your first year at Dalhousie and beyond): [https://www.dal.ca/campus\\_life/academic-support/On-track.html](https://www.dal.ca/campus_life/academic-support/On-track.html)

Indigenous Student Centre: [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

Indigenous Connection: <https://www.dal.ca/about-dal/indigenous-connection.html>

Elders-in-Residence (The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit the office in the Indigenous Student Centre or contact the program at [elders@dal.ca](mailto:elders@dal.ca) or 902-494-6803:

<https://cdn.dal.ca/content/dam/dalhousie/pdf/academics/UG/indigenous-studies/Elder-Protocol-July2018.pdf>

Black Student Advising Centre: [https://www.dal.ca/campus\\_life/communities/black-student-advising.html](https://www.dal.ca/campus_life/communities/black-student-advising.html)

International Centre: [https://www.dal.ca/campus\\_life/international-centre.html](https://www.dal.ca/campus_life/international-centre.html)

South House Sexual and Gender Resource Centre: <https://southhousehalifax.ca/about/>

LGBTQ2SIA+ Collaborative: <https://www.dal.ca/dept/vpei/edia/education/community-specific-spaces/LGBTQ2SIA-collaborative.html>

Dalhousie Libraries: <http://libraries.dal.ca/>

Copyright Office: <https://libraries.dal.ca/services/copyright-office.html>

Dalhousie Student Advocacy Services: <https://www.dsu.ca/dsas?rq=student%20advocacy>

Dalhousie Ombudsperson: [https://www.dal.ca/campus\\_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html](https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html)

Human Rights and Equity Services: <https://www.dal.ca/dept/hres.html>

Writing Centre: [https://www.dal.ca/campus\\_life/academic-support/writing-and-study-skills.html](https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html)

Study Skills/Tutoring: [http://www.dal.ca/campus\\_life/academic-support/study-skills-and-tutoring.html](http://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html)

Faculty of Science Advising Support: <https://www.dal.ca/faculty/science/current-students/undergrad-students/degree-planning.html>

## Safety

Biosafety: <http://www.dal.ca/dept/safety/programs-services/biosafety.html>

Chemical Safety: <https://www.dal.ca/dept/safety/programs-services/chemical-safety.html>

Radiation Safety: <http://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

Laser Safety: <https://www.dal.ca/dept/safety/programs-services/radiation-safety/laser-safety.html>

## University Policies and Statements

### Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit or e-mail the Indigenous Student Centre at 1321 Edward St or [elders@dal.ca](mailto:elders@dal.ca). Additional information regarding the Indigenous Student Centre can be found at: [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

### Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: <https://www.dal.ca/about-dal/internationalization.html>

### Academic Integrity

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Additional academic integrity information can be found at: [https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](https://www.dal.ca/dept/university_secretariat/academic-integrity.html)

### Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre ([https://www.dal.ca/campus\\_life/academic-support/accessibility.html](https://www.dal.ca/campus_life/academic-support/accessibility.html)) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (<https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html>)

### Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

### **Diversity and Inclusion – Culture of Respect**

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: <http://www.dal.ca/cultureofrespect.html>

### **Student Code of Conduct**

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner - perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution. The full Code of Student Conduct can be found at:

[https://www.dal.ca/dept/university\\_secretariat/policies/student-life/code-of-student-conduct.html](https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html)

### **Fair Dealing Policy**

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at: [https://www.dal.ca/dept/university\\_secretariat/policies/academic/fair-dealing-policy-.html](https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html)

### **Originality Checking Software**

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at:

[https://www.dal.ca/dept/university\\_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html](https://www.dal.ca/dept/university_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html)



## **Student Use of Course Materials**

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.