

PSY-398: Neurobiology of Eating & Eating Disorders

Course Syllabus
Fall 2022



Course Information:

Tuesdays & Thursdays, 2:00PM –3:20PM ET | Discovery Center 3334

Course website: <http://OnCourse.wheatoncollege.edu/>

You will be asked to login using your Wheaton ID number and password (the same password you use for Wheaton email). Once logged in, you should be taken to a page of links for all courses in which you are enrolled that have onCourse sites. It is expected that you check our course website **at least** once per week.

Contact Information:

Instructor: Christina J. Reppucci, PhD

Email: reppucci_christina@wheatoncollege.edu

Physical Office: Mars Science Center Rm 1131

Virtual Office: Zoom Meeting ID: [949 4688 3648](#) | Passcode: brains

Office Hours: Tuesdays 4:00PM – 5:30PM & Wednesdays 2:30PM – 4:00PM. These times are specifically set aside to answer your questions. Please use [this sign-up](#) if you'd like to meet virtually, and you are encouraged to block multiple consecutive time slots if needed. If you'd like to meet in person, sign-ups are not required, feel free to just drop-in. Scheduling conflict? Please email me to request other appointment times. Please note: appointments outside of the posted office hours must be scheduled **at least 24h in advance**.

When emailing me, **please include the course code (PSY-398) in the subject line** so that the email can be easily identified, and **please allow at least 24h for a reply on weekdays or 48h on weekends/holidays**.

This means that if you have questions on material before an exam or assignment deadline, emailing the day/night before may not get you answers in time. If you haven't received a response in a couple days, please feel free to send an email reminder.

IT Support Services: Email: support@wheatoncollege.edu | Submit a Service Request: [ITSS Help Desk](#)

Recommended Textbook: None. This course has been designed with OER. All course materials are available free of charge. Access to readings, videos, PowerPoint lectures, etc. will be made available via OnCourse.

Course Prerequisites: PSY-225 (Brain, Mind & Behavior) or equivalent. It is assumed that all students have a basic knowledge of the nervous system. Please note that this course deals with a lot of the biology underlying how the brain and body influence eating. If you don't like biology much, this may not be the course for you.

Course Description & Objectives:

This course will provide an overview of the **neural mechanisms controlling appetite, eating, and body weight regulation**. The first part of the course will focus on homeostatic regulatory signals, and the neural systems with which they interact. The second part of the course will explore the role of non-homeostatic factors in the control of eating, and the neural systems that allow their integration with homeostatic systems. The final part of the course will cover neuroscience findings pertinent to obesity and eating disorders, and discuss alterations in homeostatic regulatory signals observed in these conditions. Course readings will be drawn from the primary literature, and will cover research conducted in animal models and in humans.

The main objectives of this course are to:

1. Describe the control of food intake, and how it is influenced by internal and external cues.
2. Describe potential causes and/or consequences of obesity and eating disorders, particularly in relation to internal and external cues that control food intake.
3. Learn how to read, critically evaluate, and discuss scientific literature, including primary articles.
4. Learn how to do conduct a literature search and write a scientific literature review in APA format.

The Psychology Department aims for its 300-level courses to be more seminar-based than lecture-based. So, what does that mean for us? A seminar is “a small group of students meeting regularly under the guidance of a professor to exchange information, discuss theories, etc”. **A seminar is a place for active learning and discussion, where participants learn for and from one another.** Learning takes work, and while this course will be a lot of work, I hope it will also be fun! A main objective of this course is for you to become critical readers/thinkers in a specific area of neuroscience. Note that to be critical of an idea or a piece of writing does not only mean to poke holes in it. Instead, when I ask you to be critical, I am asking you to evaluate ideas carefully, to consider the merits as well as the demerits of those ideas or experiments. Ordinarily in a seminar, the instructor does very little speaking. In this particular seminar, however, I will probably do a little more lecturing than usual at times— especially as we learn foundational concepts. However, please always feel free to interrupt me with comments/questions!

RESPECT. A successful learning experience requires mutual respect on behalf of the student and the instructor at every level. We should value one another and be open to diverse perspectives. Students are expected to always show courtesy, civility, and respect for one another and for the instructor. Comments that degrade or ridicule another are unacceptable.

We are a TEAM. I hope that we will work together throughout the semester to learn from each other. I will do my best to provide resources and tailor the course material to fit your interests, but I also ask for you to actively participate in our goal of sharing knowledge! It can be in the form of current news/new discoveries, interesting studies, questions, etc, both in class and via our OnCourse Community and Discussion boards. If I can’t answer your question during class, I promise to do some research and post information on our OnCourse site.

It is expected that you complete assigned readings BEFORE coming to class. Reading before coming to class will 1) strengthen your understanding of the material we will cover when we meet and allow you to identify topics that you may need more explanation on during class, and 2) help facilitate our in-class discussions. Questions and comments during class are greatly appreciated, so do not hesitate to speak up— likely another student has a similar question and/or could benefit from a similar clarification!

Course Workload Expectations: At Wheaton College, students are expected to spend approximately [3 hours of class time and 9 hours of out-of-class academic activity for each course/credit.](#)

Grading & Evaluation:

Grading is non-competitive, and students are encouraged to study & discuss materials together. However, unless explicitly stated otherwise in an assignment, **any work turned in must be yours and yours alone.**

Evaluation	Percentage
Journal Club Presentation & Discussion Leading	15%
Attendance & Participation	20%
Miscellaneous Homework Assignments	10%
Exams	30%
Literature Review Assignments	25%
<i>Total</i>	<i>100%</i>

Course final grades will be assigned on the total percentage earned during the course as follows:

> 98% = A+	87-89% = B+	77-79% = C+	67-69% = D+	< 59% = F
94-97% = A	83-86% = B	73-76% = C	63-66% = D	
90-93% = A-	80-82% = B-	70-72% = C-	60-62% = D-	

What’s in a grade?

- **“A” Work** = Work that is consistently of high standard, and shows distinction in qualities such as organization, accuracy, originality, conciseness, understanding, and insight. **“A” work** also clearly demonstrates an ability to pull from multiple sources and draw connections between different courses.

- **“B” Work** = Work that is consistently above average. **“B”** work demonstrates evidence of attention to detail, organization, creativity, and the ability to transfer principles from this course to other situations.
- **“C” Work** = Work that completes the minimum requirements and is satisfactory. **“C”** work is organized and accurate, but does not go beyond essential facts.
- **“D” Work** = Work that falls below the acceptable standard. **“D”** work shows a lack of attention to detail and organization, inaccuracies, and less than minimum effort.
- **“F” Work** = Work that is unsatisfactory or incomplete.

Journal Club Presentation & Discussion Leading (15%)

A journal club is when a group of scientists meet to discuss a scientific paper. Journal clubs help you learn about research conducted in your field, exercise your critical thinking skills, and improve your presentation and debate skills. Working in groups of 2-3, your group will be responsible for the in-class presentation AND discussion leading for a journal article (~30 min), and for creating a summary infographic of your article. The presentation should outline the important findings in the article, however a main goal is to foster discussions by connecting the article to larger concepts discussed in this course. Each member of the group must then submit a unique exam question about your article (i.e., this portion of the assignment should be completed individually, but you may discuss it with your partner(s)). Your presentation date and paper will be assigned during the first weeks of the semester, and you are encouraged to attend office hours to discuss your presentation and ideas for leading the discussion. Instructions, a rubric, and FAQs will be posted on our OnCourse site.

Attendance & Participation (20%):

I hope that you actively participate in this course-- I have found this to be a great way to engage you in learning the material, and it makes the class more fun! However, not everyone is comfortable consistently speaking up during class and we are still in uncertain times, thus participation will be based on a combination of in-class attendance and participation (including pre-assigned figures/sections during collaborative journal clubs), and online participation via OnCourse discussion forums and Perusall collaborative annotation assignments.

Students who miss a class are responsible for making up any work completed during class. Online participation assignments will be announced in class, but **it is your responsibility to check OnCourse for new assignments, and complete them on time.**

Miscellaneous Homework Assignments (10%):

Periodically throughout the semester you will be asked to complete different kinds of homework assignments (e.g., short writing assignments, worksheets). In addition, each student will be responsible for writing one multiple-choice review question prior to each exam. All homework assignments will be announced in class, but **it is your responsibility to check OnCourse for new assignments and turn the work in on time.**

Exams (10% each):

There will be 3 non-cumulative open-note online exams covering each module of the course. Exams will consist of true/false, multiple choice, fill-in-the-blank, and/or short answer questions covering key concepts from the readings, course lectures, and any assignments or supplemental material covered during the module.

Literature Review Assignments (25%):

Scientific writing is one of the most valuable skills you can develop in college. To that end, you will each write a scientific literature review on a topic of your choosing that relates to, or expands upon, one of the topics we will cover during this course. The final paper should be 6-8 pages long (excluding title and reference pages), and cite ≥10 primary sources (reviews may be cited, but will not count toward this total). At the end of the semester, you will also give a brief (5-8 min) presentation sharing what you've learned about your topic. Complex ideas take time to grow to fruition, so **this assignment will be broken down into multiple smaller assignments due at different points during the semester** and announced during class (i.e., topic selection = 5%, initial database searching = 5%, outline & annotated bibliography = 10%, first draft = 10%, participation in peer review = 10%, in-class presentation = 10%, final paper = 50%), but **it is your responsibility to check OnCourse for submission deadlines.** Instructions, rubric, and FAQs will be posted on the OnCourse site.

Absences: Your presentation partner(s) will serve as your default student buddy for note-sharing during your absence. If they were also absent, please use our Oncourse Community Board to solicit notes from another classmate. Make sure to review OnCourse to stay up-to-date on readings, lecture materials, and assignments posted during your absence. If you have any questions about the material covered during your absence, please come to my office hours or schedule an appointment. **Please contact me as soon as possible if you will be having an extended absence (3+ consecutive class sessions) and/or you will be unable to meet assignment deadlines due to your absence.** To confirm that you have reviewed course materials and are up-to-date following an extended absence (3+ consecutive class sessions), please complete a ~250 write-up summarizing your understanding and main take-aways from the material we covered during your absence. This write-up should be emailed to me once you are able to join us in-person again, and will be factored into your Attendance/Participation grade.

Late/Make-Up Assignments: The goal of work assigned in- and out-side of class is to help you learn the material and develop a deeper appreciation and understanding of the course topics and themes, thus you will receive the greatest learning benefit when work is completed by the given deadlines (as stated in class and/or posted on the OnCourse site). However, **late/make-up will be accepted– no justifications required.**

- Participation and Homework items submitted before the relevant exam can earn up to **90% credit**, and items submitted before 11:59pm on Dec 11th may earn up to **75% credit**.
- Literature Review-related items submitted within 2 weeks (14 days) of their deadline can earn up to **90% credit**, and items submitted before 11:59pm on Dec 11th may earn up to **75% credit**.

These standard late penalties will be waived in the case of **prior notice** of a verifiable and documented emergency, school-sponsored event, or similar, but we may also be able to work something out if you get in touch with me **as soon as possible** if you are in a difficult situation. **Late/make-up work will not be accepted after Dec 11th**, at which time any missing assignments **will be marked as a 0**.

Extra Credit: Extra credit cannot be requested on an individual basis. However, throughout the semester you will be given the option to do an additional short assignment. For example, the assignment may ask you to attend a talk or to do some research and write a brief report on what you heard/discover. These specific assignments will be optional only, and are used as a way to broaden your knowledge and obtain extra credit. These extra credit opportunities will be worth a varying number of points which will be added to your lowest exam grade, and the assignments will be graded as to their thoughtfulness and accuracy. You may complete as many of the opportunities as you like, but they **must be submitted by 11:59pm on Dec 11th**.

All written work should follow APA style:

- <http://www.apastyle.org/> and/or the Publication Manual of the American Psychological Association
- <https://library.wheatoncollege.edu/psy/guide> or <https://library.wheatoncollege.edu/neur/guide>
- <http://www.nature.com/scitable/topicpage/effective-writing-13815989>
- Victoria E. McMillan's: Writing papers in the biological sciences (any edition)

Have questions about finding resources, articles, citation managers, etc?

- Chat with a librarian (M-F, 9:30am-4:30pm): <https://library.wheatoncollege.edu/chat>

Accessibility Statement:

Wheaton is committed to ensuring equitable access to programs and services and to prohibit discrimination in the recruitment, admission, and education of students with disabilities. Individuals with disabilities requiring accommodations or information on accessibility should contact Accessibility Services at the Filene Center for Academic Advising and Career Services at accessibility@wheatoncollege.edu or 508-286-8215.

I am happy to support and accommodate students with disabilities and/or learning differences. However, documentation should be provided as soon as possible and accommodations should be negotiated **no later than the first full week of classes**. The student will also be responsible for reminding me of the required accommodations **at least one week in advance of each exam**.

Honor Code:

As a student at Wheaton College, you are trusted by your professors and fellow students to be honest in your academic undertakings. **Instances of academic dishonesty, including cheating or [plagiarism](#), will be taken seriously.**

As per the faculty resolution in 2003, course work must include the following statement *with a signature*:
"I have abided by the Wheaton College Honor Code in this work."

The full Wheaton College Honor Code is as follows:

As members of the Wheaton community, we commit ourselves to act honestly, responsibly, and above all, with honor and integrity in all areas of campus life. We are accountable for all that we say and write. We are responsible for the academic integrity of our work. We pledge that we will not misrepresent our work nor give or receive unauthorized aid. We commit ourselves to behave in a manner which demonstrates concern for the personal dignity, rights and freedoms of all members of the community. We are respectful of college property and the property of others. We will not tolerate a lack of respect for these values. I accept responsibility to maintain the Honor Code at all times.

Your signature along with the statement indicated in bold italics above states your compliance with the Wheaton Honor Code. **Violations of the Honor Code will not be tolerated.** Materials submitted that are deemed violate the Honor Code will receive a grade of "F" on that assignment. Additional violations could result in a grade of "F" for the course. If you have any doubts about what you are writing and whether or not it constitutes plagiarism, please consult with me **before you turn in that work.**

Wheaton Student Support & Wellness Resources:

Your overall wellness is important and it contributes to your academic success. I want to make sure that you have information regarding resources at your disposal, and I highly encourage you to utilize these resources.

- [The Counseling Center](#) is the confidential and FREE mental health resource on campus for all students and will be offering in person and telehealth care this year. To learn about services, check out the [website](#), or give the office a call at 508-286-3905. Additionally, the *Mental Health Support Line* is available anytime the Counseling Center is not, by calling the front desk 508-286-3905 and following voicemail prompts to be connected to a clinician (24/7, available in languages other than English, and accessible from anywhere you are in the world).
- [The Filene Center](#) strives to support your learning pathway by fostering successful academic, career, and personal development. The academic advising staff will work collaboratively with you, faculty and campus resources to ensure that you have the access and guidance to become a confident and reflective learner at Wheaton and beyond. Contact us at advising@wheatoncollege.edu.
- Many other offices on campus can also help support the holistic wellness of students. For students who identify as low-income, first-gen, LGBTQ+, or have a faith or spiritual practice they adhere to, the [Center for Social Justice and Community Impact](#) and [Center for Religious and Spiritual Life](#) (the Base) are good places for support and engagement. The [Marshall Center for Intercultural Learning](#) supports BIPOC students and those working towards breaking down barriers across differences, and the [Center for Global Education](#) supports international students, and students seeking educational opportunities abroad. The [SMART](#) and [Title IX Office](#) support students through sexual and gender based misconduct, and the [Bias Incident Response Team](#) supports individuals through a wide variety of bias events. We encourage you to reach out to any and all of these offices for support.
- [Health Services](#) through Norton Medical Center is available to support students with a variety of physical health needs including specialty support for GYN and STI care. Contact the office at 508-286-4500 to make an appointment for care. There is no copay for visits and most services are free, with select procedures and labs billed to insurance.

Personal Electronic Devices & Technology in the Classroom:

Please place your phones and any other devices on mute or vibrate before you come to class. There may be opportunities for interactive responses to questions during lectures using your internet-capable devices (smartphone, laptop, or tablet), and you may use laptops or tablets in class to consult readings or to take

notes. However, **any other use of your electronic devices is prohibited** (e.g., checking email or social media, web-surfing, texting, for the purposes of academic dishonesty/violations of the Honor Code, etc.)— it's distracting to your own learning and to the learning of those around you. If you are unable to stay on-task or are otherwise distracted by your smartphone/laptop/tablet, I will ask that you put your device(s) away.

Instructor Recordings of Class Sessions:

The instructor may record any or all portions of class meetings for educational purposes. A recording is defined as any video or audio replication or photographic image recorded on any device that can record images and/or sound. At the discretion of the instructor, the recordings may be shared only with students enrolled in the course and will be deleted at the conclusion of the course. In these circumstances, all students participating in the course as well as any guest speakers will be informed that recording may occur. Students may not reproduce, post, or distribute any recordings provided by the instructor.

Student Recording of Class Sessions:

Students may not record (as defined above) or transmit activities (e.g., lectures, discussions) that occur as part of a classroom session unless Accessibility Services has authorized recording as an academic accommodation for a qualified student with a disability and the student has notified the instructor of that authorization by presenting their accommodation letter. In these circumstances, all students participating in the course as well as any guest speakers will be informed that audio/video recording may occur. If a student is given authorization to record any portion of a classroom session, that student understands and agrees that the recording is for the sole use of the individual student and may not be reproduced, sold, posted on social media/online, or otherwise distributed as this would infringe on the privacy rights of others represented in the recording.

Please note: This syllabus and the semester schedule are subject to change 1) in the event of unforeseen circumstances, 2) according to class interest and time, or 3) as deemed necessary by the instructor. Any changes will be announced in class and posted on the OnCourse site.

COURSE SCHEDULE		
MODULE 1: HOMEOSTATIC FACTORS		
WEEK 1		
DATE	TOPIC(S)	LIT REVIEW ASSIGNMENT DEADLINE(S)
Tues 8/30	Meet & Greet Introduction to Course	[start thinking about your topic]
Thurs 09/01	How do we read and interpret scientific papers?	"
WEEK 2		
Tues 9/06	Homeostasis & the [non]Regulation of Food Intake Collaborative Journal Club: The [non]Regulation of Food Intake	"
Thurs 9/08	Insulin & Leptin Collaborative Journal Club: All About Leptin	"
WEEK 3		
Tues 9/13	Ghrelin & CCK Journal Club: Emond et al., 1999	Submit topic selection by 11:59PM 9/13
Thurs 9/15	Brainstem Control of Food Intake & Energy Expenditure	[none]
WEEK 4		
Tues 9/20	Hypothalamic Neuropeptides Journal Club: Flood & Morley, 1991 & Kristensen et al., 1998	[review topic feedback]
Thurs 9/22	Using Databases to Find Articles **Meet in Mars Science Center Room 3100 (GIS Lab)**	Submit associated worksheet by 11:59pm 9/25

WEEK 5		
Tues 9/27	EXAM 1 (90 minutes, online, open-notes, due no later than 11:59pm, 9/27)	
MODULE 2: NON-HOMESTATIC FACTORS		
Thurs 9/29	Non-Associative Learning Anticipatory Motivation	[work on your outline/annotated bibliography]
WEEK 6		
Tues 10/04	Associative Learning & the Amygdala Journal Club: Holland et al., 2002 & Petrovich et al., 2009	"
Thurs 10/06	Food & Mood	"
WEEK 7		
Tues 10/11	October Break – No Class!	
Thurs 10/13	Effects on Stress on Food Intake Journal Club: Pecoraro et al., 2004 & Peciña et al., 2006	Submit outline/annotated bib by 11:59pm 10/13
WEEK 8		
Tues 10/18	Peripheral Signals & Central Reward Pathways Collaborative Journal Club: Leptin & Reward	[work on first draft(s) of paper]
Thurs 10/20	Hypothalamic Neuropeptides & Central Reward Pathways	"
WEEK 9		
Tues 10/25	EXAM 2 (90 minutes, online, open-notes, due no later than 11:59pm, 10/25)	
MODULE 3: DYSREGUATED EATING		
Thurs 10/27	Intro to Obesity Collaborative Journal Club: Schachter, 1968	"
WEEK 10		
Tues 11/01	What's driving the "obesity epidemic"?	Submit first draft of lit review by 11:59pm 11/1
Thurs 11/03	Can drug addiction help us understand obesity? Collaborative Journal Club: Evidence for Sugar Addiction?	[none]
WEEK 11		
Tues 11/08	Intro to Eating Disorders	[none]
Thurs 11/10	Serotonin & Eating Disorders	[revise draft]
WEEK 12		
Tues 11/15	Classic Hunger & Satiety Signals in Eating Disorders	"
Thurs 11/17	Forebrain Signals in Eating Disorders Journal Club: Uher et al., 2004 & Frederich et al., 2007	"

WEEK 13		
Tues 11/22	EXAM 3 (90 minutes, online, open-notes, due no later than 11:59pm, 11/22)	
Thurs 11/24	Thanksgiving Break – No Class!	
WEEK 14		
Tues 11/29	TBD	Submit draft for peer review by 11:59PM 11/30
Thurs 12/01	In-Class Exercise: Peer Review/Paper Conferencing for Literature Reviews	[prep for presentations & revise draft]
WEEK 15		
Tues 12/06	In-Class Presentations: Literature Reviews	Optional if presenting: Submit slides by noon 12/6
Thurs 12/08	In-Class Presentations: Literature Reviews	Optional if presenting: Submit slides by noon 12/8
FINALS WEEK		
Wed 12/14	SUBMIT FINAL DRAFT OF LITERATURE REVIEW by 11:59PM, 12/14	

A more detailed version of the semester schedule will be maintained on the onCourse class website.

Student-Led Journal Club Discussion Articles (please note that there will be additional required readings for each topic beyond what will be required for these journal clubs).

1. Emond, M., Schwartz, G. J., Ladenheim, E. E., & Moran, T. H. (1999). Central leptin modulates behavioral and neural responsivity to CCK. *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*, 276(5), R1545-R1549.
2. Flood JF, Morley JE. (1991). Increased food intake by neuropeptide Y is due to an increased motivation to eat. *Peptides* 12:1329-1332.
3. Kristensen, P., Judge, M. E., Thim, L., Ribel, U., Christjansen, K. N., Wulff, B. S., ... & Hastrup, S. (1998). Hypothalamic CART is a new anorectic peptide regulated by leptin. *Nature*, 393(6680), 72-76.
4. Holland, P. C., Petrovich, G. D., & Gallagher, M. (2002). The effects of amygdala lesions on conditioned stimulus-potentiated eating in rats. *Physiology & behavior*, 76(1), 117-129.
5. Petrovich, G. D., Ross, C. A., Mody, P., Holland, P. C., & Gallagher, M. (2009). Central, but not basolateral, amygdala is critical for control of feeding by aversive learned cues. *Journal of Neuroscience*, 29(48), 15205-15212.
6. Pecoraro N, Reyes F, Gomez F, Bhargava A, Dallman MF. (2004). Chronic stress promotes palatable feeding, which reduces signs of stress: feedforward and feedback effects of chronic stress. *Endocrinology*. 145:3754-62.
7. Peciña S, Schulkin J, Berridge KC. (2006) Nucleus accumbens corticotropin-releasing factor increases cue-triggered motivation for sucrose reward: paradoxical positive incentive effects in stress? *BMC Biol.* 4:8.
8. Uher, R., Murphy, T., Brammer, M. J., Dalgleish, T., Phillips, M. L., Ng, V. W., ... & Treasure, J. (2004). Medial prefrontal cortex activity associated with symptom provocation in eating disorders. *American Journal of Psychiatry*, 161(7), 1238-1246.
9. Friederich, H. C., Uher, R., Brooks, S., Giampietro, V., Brammer, M., Williams, S. C., ... & Campbell, I. C. (2007). I'm not as slim as that girl: Neural bases of body shape self-comparison to media images. *Neuroimage*, 37(2), 674-681.