# Table of Contents

Course Information ................................................. 2
Instructor and Contact Information .................................. 2
Communicating with the Instructor .................................... 2
Course Requirements .................................................. 3
  Online Course ......................................................... 3
  Computer Requirements ............................................... 3
Course Description / Goals ........................................... 3
Learning Objectives ..................................................... 3
  Course Learning Outcomes ............................................ 3
Course Materials ...................................................... 5
  Required Texts ......................................................... 6
  Required Materials .................................................... 6
Course Schedule .......................................................... 6
Course Grading, Methods of Evaluation, & Grading Policies .......... 8
  Methods of Evaluation .................................................. 8
  On Respondus Lock Down Browser and Monitor ..................... 8
  Grades and Grading Scale ............................................. 9
  Summary of Assignments ............................................. 9
  Rubrics and Evaluation Criteria .................................... 11
  Midterm Grades ....................................................... 12
  Final Exams ............................................................ 12
  Grievance Procedures ................................................ 12
Course Policies .......................................................... 12
  Attendance Policy ....................................................... 12
  Policy for Missed or Late Work ..................................... 12
  Campus Network or Blackboard Outage ............................ 13
  Preview Policy ........................................................ 13
  Student Courtesy Policy ............................................. 13
  Academic Integrity Policy ............................................ 13
  Privacy Policies ....................................................... 13
  Religious Holidays .................................................... 13
  Academic Deadlines .................................................. 13
  Disability Accommodation ........................................... 14
  Accessibility Policies ............................................... 14

# Course Information
Course Title: PSCH 363 Neuroscience of Behavior  
CRNs: 42727  
Credit Hours: 3 Credit Hours  
Prerequisites: PSCH 343 and credit or concurrent registration in PSCH 262 or BIOS 286. For psychology majors or students in the neuroscience degree program only.

Semester: Fall 2021

Instructor and Contact Information

Instructor name: Dr. Stephen Logan  
E-mail address: slogan@uic.edu  
Office hours: My drop in hours will be held online via Blackboard Collaborate by appointment; please feel free to email me at slogan@uic.edu and we’ll set up a time to chat.  
Preferred method of communication: E-mail me; you should expect an answer to your emails within 24 hours. If you do not hear back within that time, please resend it, as I do not want to let your message fall through the cracks.

Teaching Assistant: Vaibhav Konanur  
E-mail addresses: vkonan2@uic.edu

Communicating with the Instructor and Teaching Assistants

When questions arise during the course of this class, please remember to check these three sources for an answer:

1. Course syllabus  
2. Announcements in Blackboard  
3. Your email Inbox (I usually forward the announcements in Blackboard to your email address)

I realize that there will no doubt be a group chat set up by your peers for the course. While this is great for some things and I encourage you to use this as a supplemental resource, sometimes, confusion occurs about dates for submission or the assignment itself. Before panicking, please check the above resources (the syllabus and announcements) and feel free to write to me directly so that I can straighten out any concern you may have directly; I am here to help.

Check Ins: I will be setting up a few check in sessions with you individually to see how things are going for you in the course throughout the semester. These check in sessions will be about 10-15min but well worth the time.

If you have questions of a personal nature such as relating a personal emergency, questioning a grade on an assignment, or something else that needs to be communicated privately, please contact me via email. I will usually respond to email within 24 hours but weekends might take me a bit longer.

Course Requirements
In Person Course

At long last, this course is once again being offered face-to-face (or, mask to mask, as it were) We will meet every Monday (excluding Labor Day, September 6th) from 2-5:50PM. All of our sessions together will be held in 3069 SEL. I expect you to be present in person and participating in all of our sessions though I will also record our sessions for your benefit. Links to access our class sessions will be provided on the Announcements page and elsewhere on our Blackboard site.

Computer Requirements

This course requires that you have access to a computer that can access the internet. You will need to have access to, and be able to use, the following software packages:
COVID Related Information

Classroom Expectations

- Everyone is required to wear masks indoors, including in the classrooms, hallways, offices, conference rooms, etc.
- At this point, there is no social distancing requirement in classrooms, but this may change if infection rates increase or as public health guidance dictates. Note the “sit here” and capacity signage for six-foot spacing has been left in place or newly applied in classrooms in the event we need to reinstate social distancing at any time during the semester.
- Even in situations where no social distancing is required, some students may wish to stay physically distant from others and this will be honored when feasible.
- UIC will monitor vaccination status with regular Healthcheck reports to the Dean of Students who is responsible for taking the appropriate disciplinary actions.

Face Masks: Masks covering both the mouth and nose must be worn at all times by all students, faculty, and staff while on campus and inside any building regardless of vaccination status. If you do not wear a mask, you will be asked to leave the classroom and will not be allowed back in class unless or until you wear a mask. If you have forgotten your mask, you may pick one up from one of the student information desks on campus during the first two weeks of campus. Students who do not comply with the mask-wearing policy will be reported to the Dean of Students. Eating and drinking are not allowed in classrooms.

- If a student comes to class without a mask, he/she/they will be asked to go to one of the student center information desks which will be handing out face masks only for the first two weeks of the fall semester.
- If a student refuses to wear a mask, he/she/they will be asked to leave the classroom, and will be reported to the Dean of Students. In addition, a COVID-19 Non-Compliance Report will be filed.

Sanitizing: Hand sanitizer will be available outside the entrance to the lab; students are expected to use it before entering the space. In addition, Clorox wipes will be available in the classroom as well as 70% ethanol spray bottles in order to clean common areas and equipment before and after use.

Course Description / Goals

The goal of this laboratory course is to provide you with both an understanding of the structure and function of the brain as it relates to (and interacts with) the world around us as well as an understanding of how we arrive at the “facts” that fill our textbooks in Behavioral Neuroscience. We often perceive science as a collection of facts to be learned by rote; the reality is that science is a process of dynamic modeling that is used to describe and understand natural phenomena. The conclusions neuroscientists have reached about how the brain and nervous system generate behavior are based on empirical data collected from experiments conducted in laboratory settings. Presumed facts in science should always be examined critically by carefully considering the foundations on which they are based. To this end, you will learn about neuroanatomical, neurophysiological, and neurobiological contributions to behavior through a hands-on experience and experimentation as well as through review of primary neuroscience literature. The hope is that, by the end of the class, you’ll gain a strong appreciation for the scientific process in general.

Learning Objectives: By the end of the course, you will be able to demonstrate:
1. A broad knowledge of neuroscience through lectures, laboratory exercises, and readings.
2. Skills in reading and critically evaluating primary neuroscience literature.
3. An understanding of neuroscience hypothesis generation, research design and methods, techniques, statistical data analysis, drawing conclusions and insights.
4. Communication skills for presenting neuroscience research.
5. Cultivate an appreciation and enjoyment of neuroscience (the brain is cool!)

Overview of Course Content

The course will begin with lectures that provide a critical understanding of both the cellular level information about individual brain cells (neurons and glia) and their place within the nervous system. We will then expand this view of neural circuits to place them within the functional neuroanatomy of the brain and cover how neurons communicate with one another within the brain. At this point, you will have been introduced to the basics of neural structure and function.

As the brain does not operate in isolation, the next section will focus on processing of incoming sensory information, the internal state of the body, as well as generation of movement and motor behavior. As key examples of the many sensory modalities, we will cover basic processing of somatosensory information. With an understanding of how the brain processes incoming sensory information, we will cover movement, as the generation and coordination of motor behavior is one of the most fundamental roles of the brain, allowing for interaction with the rest of the world.

After covering neural structure and function, we will discuss the “behavioral basics” – i.e., some principal neural drivers of behavior – starting with an investigation of how the brain regulates body fluid homeostasis, a critical physiological need that influences all other behaviors. We will then delve into the neural substrates of learning and memory, the process by which previous experience can drive future behavior. We will focus on drugs of abuse and the neural systems mediating reward and pleasure, a circuitry that influences behavior as much as any other. To finish the course, we will focus on neurobiological substrates of human behavior disorders with an emphasis on Autism Spectrum Disorder.

Each class will begin with ~60 minutes of lecture/discussion. Slides, made available on Blackboard, will be used to introduce the day’s lab exercise. This material will often serve to help you craft assigned written work (see below). A goal to success, then, will be to listen carefully, take notes, and ask questions if you do not understand the material being presented. In addition, you will read original, peer-reviewed research articles related to experiments conducted in the lab course. Make sure to complete the readings before the class date for which they are assigned.

My hope, along with Vaibhav, your TA, is that each of you will learn the material and succeed. If at any point you are struggling with the material, do not hesitate to talk with me and/or Vaibhav; we are here to help! Also, please do not be afraid to raise questions you have in class. Chances are that if you are struggling with something, others are wrestling with the same problem. By speaking up, you will help everyone learn and improve the class!

Modules & Topics

Module 1/Week 1: Understanding the Nervous System

a. Introduction to the course
b. Different approaches to understanding nervous system structure and organization
Module 2/Weeks 2-5: Neuroanatomy
   a. Neuroanatomy; structure and function of key brain regions and systems

Module 3/Weeks 6-8: Fundamental Basics of Neurotransmission
   a. Communication along a neuron; conduction velocity
   b. Communication between neurons; spike coding
   c. Communication between neurons: mechanosensation

Module 4/Week 9: LIN Annual Christopher Comer Seminar Series
   a. DATE TO BE ANNOUNCED (May require reordering of our modules)
   b. Analyzing and responding to scientific talks and papers
   c. Background research (TBD)

Module 5/Weeks 10-11: Neural Mechanisms of Homeostasis
   a. Neural mechanisms of homeostasis; sodium and water regulation.
   b. Neural mechanisms of homeostasis; literature review

Module 6/Weeks 12-13: Fear Conditioning
   a. Conditioned Taste Aversion

Module 7/Weeks 14-15: Neuromodulation
   a. Autism Spectrum Disorder
   b. Drugs of Abuse

Required Texts
There is no required text for the course; all readings including book chapters and original research articles will be supplied.

Course Schedule
All assignments are due at 11:59 PM Central Standard Time (Chicago Time) on the designated day unless otherwise noted.

<table>
<thead>
<tr>
<th>Class Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note: all readings &amp; assignments will need to be completed prior to the class day listed below</strong></td>
</tr>
<tr>
<td>Module</td>
</tr>
<tr>
<td>---------------------------------------------</td>
</tr>
<tr>
<td><strong>Mod 1: Understanding the Nervous System</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Mod 2: Neuroanatomy</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Mod 3: Fundamental Basics of Neurotransmission</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Mod 4: Christopher Comer Seminar</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Mod 5: Neural Mechanisms of Homeostasis</td>
</tr>
<tr>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Mod 6: Fear Conditioning</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Mod 7: Neuromodulation</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Dec 13th</td>
</tr>
</tbody>
</table>
Course Grading, Methods of Evaluation, & Grading Policies

Methods of Evaluation

<table>
<thead>
<tr>
<th>Components</th>
<th>Total Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly Quizzes (best of 6)</td>
<td>60 points</td>
</tr>
<tr>
<td>Lab Practicum</td>
<td>40 points</td>
</tr>
<tr>
<td>Brain Structure Report and Presentation</td>
<td>15 points</td>
</tr>
<tr>
<td>Report on Neuronal staining technique</td>
<td>10 points</td>
</tr>
<tr>
<td>Reflection and response to Golgi/Cajol</td>
<td>5 points</td>
</tr>
<tr>
<td>Abstract on Nerve Conduction Velocity</td>
<td>10 points</td>
</tr>
<tr>
<td>Abstract on Rate Coding</td>
<td>10 points</td>
</tr>
<tr>
<td>Comer Symposium Reflection Paper</td>
<td>10 points</td>
</tr>
<tr>
<td>Abstract on Two-Point Discrimination</td>
<td>10 points</td>
</tr>
<tr>
<td>Body Fluid Article Presentation</td>
<td>10 points</td>
</tr>
<tr>
<td>Lit Review Assignment</td>
<td>10 points</td>
</tr>
<tr>
<td>Abstract on Conditioned Taste Aversion</td>
<td>10 points</td>
</tr>
<tr>
<td>Abstract on Autism</td>
<td>10 points</td>
</tr>
<tr>
<td>Abstract on Amphetamine (extra credit)</td>
<td>(10 points)</td>
</tr>
<tr>
<td>Lab Report A</td>
<td>20 points</td>
</tr>
<tr>
<td>Lab Report B</td>
<td>30 points</td>
</tr>
<tr>
<td>Lab Report C</td>
<td>30 points</td>
</tr>
<tr>
<td>Lab Report D</td>
<td>15 points</td>
</tr>
<tr>
<td>Final Lab Report</td>
<td>20 points</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>325 points</strong></td>
</tr>
</tbody>
</table>
Grades and Grading Scale
Grade determination is based on the number of points earned divided by the maximum number of points. If you have any questions about your grade at any time, please feel free to contact me or Vaibhav (TA). The following grading scale will be used:

- At least 90% of Total Points = A Final Grade (Student demonstrates achievement of learning objectives at a level of outstanding mastery)
- 80% of Total Points = B Final Grade (Student demonstrates achievement of learning objectives at a level beyond mere minimum competency)
- 70% of Total Points = C Final Grade (Student demonstrates achievement of learning objectives at a level of minimum competency)
- 60% of Total Points = D Final Grade (Student demonstrates achievement of learning objectives at a level below minimum competency but sufficient to receive credit)
- Below 59% of Total Points = F Final Grade (Student demonstrates insufficient achievement of learning objectives to receive credit)

Final Exams
PSCH 363 does not have a comprehensive final exam. You will be able to use all of exam week to complete any outstanding work you may have left to turn in. This includes the final paper and the abstract on amphetamine.

http://www.uic.edu/depts/oar/current_students/calendars/final_exam_schedule.html

Grievance Procedures
UIC is committed to the most fundamental principles of academic freedom, equality of opportunity, and human dignity involving students and employees. Freedom from discrimination is a foundation for all decision making at UIC. Students are encouraged to study the University's "Nondiscrimination Statement". Students are also urged to read the document "Public Formal Grievance Procedures". Information on these policies and procedures is available on the University web pages of the Office of Access and Equity: http://oae.uic.edu/.

Course Policies
Policies

Attendance & Punctuality:
Attendance, defined as being present at the start of class and remaining present for the duration of the class period, is essential for your success in this course and is mandatory. Class runs from 2-5:50PM every Monday. Absences will only be excused under extreme circumstances and will require documentation. To ensure weekly attendance, your final grade will be reduced by 5% for each unexcused absence. Please note: regardless of whether an absence is excused or not, you are responsible for the material and assignments discussed in sessions that you do not attend.
Research indicates that students who attend class are more likely to be successful.

**Preparation** for class means reading the assigned readings & reviewing all videos and information required for that week.

**Assignments**
This course meets the Psychology major requirement for writing in the discipline. As such, we will provide feedback on your writing which you will then use to improve the document. There will be several small writing assignments where you will not receive feedback. However, ∼1/3 of your final grade will be based on a single lab report. You will be asked to hand in drafts of sections of the lab report and you will receive feedback on these drafts.

**All assignments are due at 11:59PM on the due date.** All due dates listed in Blackboard and this syllabus are the date something should be completed, not the first day it should be started. For ALL assignments (e.g. smaller writing assignments, drafts, final lab report) your score will be reduced by 5% for each day that the assignment is late. Exceptions will be made for only the most serious of documented circumstances. *Cheating and plagiarism will not be tolerated. Any evidence of cheating or plagiarism will result in disqualification and a 0 will be entered for that evaluation (see Academic Integrity below).*

**Communication**
. Please check the announcement on the Blackboard site frequently for updates, announcements, schedule changes etc. I will setup the BB announcements so that they will be sent to your uic email accounts as well.
. I will make every effort to respond to your email promptly. However, if you fail to hear back from me after 48 hours, do write a follow-up.
. Office hours are a great time to check-in with me to review material, discuss your progress in the class, or just chat about the wonders of Neuroscience. . I am available during the hours listed above; no appointment necessary.
. I am committed to your success in the class. If you feel like you are having difficulty with any aspect of the course or if you are encountering challenges that are preventing you from performing at your best, please see me as soon as possible so we can attempt to find a resolution or additional resources to help you.

**Appropriate Use of Course Materials**
The materials distributed in this class, including the syllabus, quizzes, handouts, study aids, and in-class presentations, may be protected by copyright and are provided solely for the educational use of students enrolled in this course. Please discuss any redistribution of course materials with me. Do not post course materials or your notes from lectures and discussion on commercial websites. Unauthorized uses of course materials may be considered academic misconduct.

**Students with Disabilities**
Accommodations are available for students who have disabilities. Any student who feels he or she may need an accommodation based on the impact of a disability should contact me privately as soon as possible (**and before the second week of class**) to discuss his or her specific needs. Students with disabilities who require accommodations for access and participation in this course must be registered with the Office of Disability Services (ODS). Please contact ODS at 312-413-2183 (voice) or 312-413-0123 (TTY).

**Academic Integrity Policies**
I do not anticipate any issues with academic integrity, but I am obligated to note the following at the outset of this course. Please reach out to me directly if there are any questions or concerns about academic integrity policies or standards.

*(copied directly from the UIC Academic Catalog here)*

As an academic community, the University of Illinois at Chicago is committed to providing an environment in which research, learning, and scholarship can flourish
and in which all endeavors are guided by academic and professional integrity. All members of the campus community—students, staff, faculty, administrators—share the responsibility of insuring that these standards are upheld so that such an environment exists. Instances of academic misconduct by students, and as defined herein, shall be handled pursuant to the Student Disciplinary Policy, which can be found online at

Academic dishonesty includes, but is not limited to:

**Cheating:** Either intentionally using or attempting to use unauthorized materials, information, people, or study aids in any academic exercise, or extending to or receiving any kind of unauthorized assistance on any examination or assignment to or from another person.

**Fabrication:** Knowing or unauthorized falsification, reproduction, lack of attribution, or invention of any information or citation in an academic exercise.

**Facilitating Academic Dishonesty/Plagiarism:** Intentionally or knowingly representing the words or ideas of another as one’s own in any academic exercise.

**Bribes, Favors, Threats:** Bribing or attempting to bribe, promising favors to or making threats against, any person, with the intention of affecting a record of a grade, grade, or evaluation of academic performance. Any conspiracy with another person who then takes or attempts to take action on behalf or at the direction of the student.

**Examination by Proxy:** Taking or attempting to take an exam for someone else other than the student is a violation by both the student enrolled in the course and the proxy or substitute.

**Grade Tampering:** Any unauthorized attempt to change, actual change of, or alteration of grades or any tampering with grades.

**Nonoriginal Works:** Submission or attempt to submit any written work authored, in whole or part, by someone other than the student.

**Course Notes**

- Are you squeamish? Don’t deal well with invertebrates? This course is meant to be hands on, so you will be handling live invertebrates including worms, and crickets. If you feel that you’ll have difficulty with this, please come speak with me.

- Primary literature takes A LOT of time and patience to read, please plan accordingly.
  - We will review primary literature readings in class.
  - These readings are assigned to give you a background for the lab exercises and the data that is collected in neuroscience research.
  - These readings will give you an understanding of what is expected from your lab report.
  - Pay careful attention not only to the overall structure and themes, but to the details: how are the statistics represented and discussed, how are figure legends written, etc.

**Campus Network or Blackboard Outage**

When access to Blackboard is not available for an extended period of time (greater than one entire evening - 6pm till 11pm) you can reasonably expect that the due date for assignments will be changed to the next day (assignment still due by midnight). I will alert you to any changes in due date through an announcement in Blackboard that will also be sent to your UIC student email.
Student Courtesy Policy
This course brings together people from different backgrounds and experiences. We must respect each other's backgrounds. During this course, you are expected to be civil in discussions and interactions with your fellow students, teaching assistants, and professor. Avoid the use of text messaging language, limit the use of internet memes, and check responses for spelling & grammar. Also, follow the top five rules of netiquette in an online course.

Academic Integrity Policy
As an academic community, UIC is committed to providing an environment in which research, learning, and scholarship can flourish and in which all endeavors are guided by academic and professional integrity. All members of the campus community—students, staff, faculty, and administrators—share the responsibility of insure that these standards are upheld so that such an environment exists. A first offense for cheating or plagiarism on any assignment or exam will result in a zero. A second offence will result in an F for the course. Instances of academic misconduct by students will be handled pursuant to the Student Disciplinary Policy:
http://dos.uic.edu/docs/Student%20Disciplinary%20Policy.pdf

Privacy Policies
In this course, you will use several different tools in order to meet the course requirements. The links for these tools’ privacy policies are included below for your information.

- Blackboard
- OpenStax
- Respondus LockDown Browser
- Respondus Monitor

Religious Holidays
Students who wish to observe their religious holidays shall notify the faculty member by the tenth day of the semester of the date when they will be absent unless the religious holiday is observed on or before the tenth day of the semester. In such cases, the student shall notify the faculty member at least five days in advance of the date when he/she will be absent. The faculty member shall make every reasonable effort to honor the request, not penalize the student for missing the class, and if an examination or project is due during the absence, give the student an exam or assignment equivalent to the one completed by those students in attendance. If the student feels aggrieved, he/she may request remedy through the campus grievance procedure.
http://oae.uic.edu/docs/ReligiousHolidaysFY20152017.pdf

Academic Deadlines
The last date to drop the class with a W on your transcript is October 29th, 2021. For more details on academic deadline see: http://catalog.uic.edu/ucat/academic-calendar/

Disability Accommodation
The University of Illinois at Chicago is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at UIC. Students with disabilities who require accommodations for access to and/or participation in this course are welcome, but must be registered with the Disability Resource Center (DRC). Students with disability accommodations must present the instructor with the letter outlining possible accommodations before any accommodation will be granted. You may contact DRC at 312-413-2183 (v) or 773-649-4535 (VP/Relay) and consult the following:
http://drc.uic.edu/guide-to-accommodations.
Accessibility Policies
The tools used in this course offer the below accessibility policies or Voluntary Product Accessibility Templates (VPATs) in order to convey the accessibility features of their products.

- Blackboard
- OpenStax
- Respondus