
Psychology 367**Laboratory in Cognitive Neuroscience**

Section B (38020/38021): TR 2:00 PM – 3:50 PM
Science and Engineering Laboratory East (SELE) 3069

Eric W. Gobel, Ph.D.
Email: egobel@uic.edu
Office: BSB 2056C

Office Hours: Mon 10:30 AM – 11:30 AM
Wed 1:30 PM – 2:30 PM
or by appointment

TA: Jeffrey (Jeff) Dunn
Email: jdunn8@uic.edu

Office Hours: Fri 8:00 AM – 9:00 AM
or by appointment in BSB 1080

*Please include both “367” and a brief description in the **subject line** of all course-related emails*

Course Description

Laboratory practicum in techniques of cognitive neuroscience and scientific writing. Emphasis on physiological methods of measuring nervous system function during cognition. Exercises involve brain dissection, research participation, data analysis and interpretation, and reporting findings in an empirical report. This course fulfills the Writing-in-the-Discipline (WITD) requirement in the College of Liberal Arts and Sciences. 3 credit hours.

Prerequisites: PSCH 343 (Statistical Methods in Behavioral Science) and credit or concurrent registration in PSCH 350 (Sensation and Perception) or PSCH 366 (Cognitive Neuroscience).

Course Objectives

By the end of the course, you will be able to:

1. read and critically evaluate empirical reports of cognitive neuroscience research.
2. discuss and apply ethical principles of scientific research.
3. dissect a mammalian brain and locate various gross neuroanatomical structures.
4. measure neural activity with electrophysiological and hemodynamic imaging techniques.
5. manipulate neural function using non-invasive electrical and magnetic stimulation.
6. conduct basic experiments relating cognition to brain function.
7. construct graphs to visualize collected data.
8. analyze collected data with descriptive and inferential statistics.
9. write an APA-style empirical research report.

Materials

Required Textbook

Beins, B. C., & Beins, A. M. (2012). *Effective writing in psychology: Papers, posters, and presentations* (2nd ed.). Malden, MA: Wiley-Blackwell. ISBN: 978-0-470-67124-5 (hardcover), 978-0-470-67244-0 (paperback), 978-1-118-24215-5 (electronic).

The UIC Bookstore and many online retailers have print copies of this textbook available.

Electronic versions are available at several sites, including:

- <http://www.wiley.com/WileyCDA/WileyTitle/productCd-EHEP002869.html>
- https://www.amazon.com/Effective-Writing-Psychology-Posters-Presentations-ebook/dp/B007ODNPIU/ref=mt_kindle (includes a free preview of the first chapter)

A free preview of Chapter 1 can be found online at:

http://media.wiley.com/product_data/excerpt/69/EHEP0028/EHEP002869-377.pdf

Beyond being helpful for writing papers in this course, this textbook can serve as a very useful reference for any future writing projects, posters, and presentations in psychology or any scientific field. It also details the most common aspects of APA format and style.

Microsoft Office Software

This course will require you to complete assignments using software in the Microsoft Office suite, such as Word, Excel, and/or PowerPoint. The on-campus computer labs will have this software installed, and you can download Microsoft Office 365 at no cost using your UIC account (see <http://accu.uic.edu/service/office-365> for more information, with installation instructions at <http://dl.webstore.illinois.edu/docs/ii/office365uic.html>).

Course Website

The Blackboard course website found at <https://uic.blackboard.com> contains important course information and documents (including lecture slides in PDF format, lab procedures and additional required readings, assignment instructions and materials, helpful resources, and any revisions to the course schedule) and will be used for electronic submission of assignments. ***You are responsible for all information and materials that are posted on Blackboard.***

Optional Recommended Books

Below are two additional *recommended* books that may be helpful to you, depending on your academic goals. However, they are completely optional.

Harrington, M. (2011). *The design of experiments in neuroscience* (2nd ed.). Washington, DC: Sage. ISBN: 978-1-4129-7432-5 (paperback).

Covers many basic elements of research design, ethics, and writing specific for neuroscience research. This book could be very helpful if you are planning on further research and/or graduate school in neuroscience.

American Psychological Association (2010). *Publication manual of the American Psychological Association* (6th ed., second printing). Washington, DC: American Psychological Association.

This provides complete details about proper APA format and style, and may be useful if you plan on going into graduate school in psychology or a social science.

Assessment

Course Requirements

Students will participate in lab activities, complete a neuroanatomy lab practical, take four lab quizzes, and write four APA-style lab reports:

Participation in Lab Activities (32%): You will receive *participation points for taking part in a number of lab activities*, such as sheep brain dissection and physiological data collection, which occasionally require *short homework assignments*. This makes it *imperative that you attend class regularly*; you are *expected to attend all class sessions* (except in the case of an excused absence such as athletic team travel, illness, emergencies, etc.). If you absolutely must miss a class session, you should discuss this with Dr. Gobel beforehand.

Neuroanatomy Lab Practical (5%): Following the sheep brain dissection, you will be required to complete a lab practical that will require identifying gross brain structures on intact and/or sectioned brains and describing their function and/or anatomical characteristics.

Lab Quizzes (20%): Periodic lab quizzes will consist of several questions based on the lab activities and results, class material covering select aspects of cognitive neuroscience and scientific writing in APA style, and assigned readings that are posted on Blackboard.

APA-Style Lab Reports (43%): Following four of the lab activities, you will progressively build to writing a full APA-style empirical report: (a) Lab Report 1 has only a Title Page and Method section, (b) Lab Report 2 will have a Results section and Figures in addition to a Title Page and Method section, (c) Lab Report 3 will also have an Introduction section and References, and (d) Lab Report 4 will finally add the Discussion section and Abstract.

Grading Scale

You will earn points from your performance on each of the course requirements:

Participation in Lab Activities	320
Neuroanatomy Lab Practical	50
Lab Quizzes (four quizzes x 50 points each).....	200
Lab Report 1	40
Lab Report 2	80
Lab Report 3	130
Lab Report 4	180
Total Points Available	1000

Based on the total number of points you have earned at the end of the course, the grading scale shown below will be used to assign letter grades:

Letter Grade	A	B	C	D	F
Minimum Points	900 (90%)	800 (80%)	700 (70%)	600 (60%)	0

Course Policies

Expectations

It is expected that you will:

- **Be prepared** for every class session
 - Complete **reading assignments** prior to the corresponding class session
 - Show up on time to every class session
 - Be ready to actively participate in every class session
- **Be respectful** of your instructor and your classmates
 - Avoid having side conversations during class
 - Only use your phone and laptop/tablet for course-related activities during class
 - **Wait until class is dismissed to pack up your materials**
- **Be accountable** for your learning
 - Submit all assignments on time
 - Ensure that all writing you submit is written clearly, is grammatically correct, and follows APA format and style (when applicable)
 - **Read all course emails thoroughly**

Attendance Policy

It is the student's responsibility to *attend all class sessions on time* (except in the case of an excused absence). We will *begin class promptly at the course start time*. Participation points will be earned during class sessions, so attendance (and active participation) will have a direct effect on your course grade. In addition, your learning and performance in other aspects of the course will be maximized through your regular attendance. If you absolutely must miss a class session, you should discuss this with Dr. Gobel beforehand.

Policy on Late Assignments

It is expected that all assignments will be completed in full and turned in on time. *Late assignments will not be accepted.*

Email Policy

As indicated above, you are *responsible for carefully reading all course-related emails*. Therefore, be sure that you *check your UIC email regularly* and that you are able to receive emails sent through Blackboard.

When emailing Dr. Gobel or your TA(s), please *indicate the course number and a brief description of the issue in the subject line* of all course-related emails. Make sure the subject line reflects the topic of your email (therefore, do not simply reply to the most recent email from me unless its subject line is relevant to your email).

Before emailing, however, please check this Syllabus, the information posted on the Blackboard course site (including the FAQs section), and previous course emails to see if your question has already been answered. *We will reply to emails in a timely manner, but do not expect a response to a question that has already been answered.*

Appropriate Classroom Behavior

College students are adults and I will grant you the respect that comes with that. Therefore, please behave like adults during class and follow these guidelines about appropriate classroom behavior. Appropriate classroom behavior is simply a matter of *respecting the rights of others* in class and *maximizing your own learning*.

Maintain focus on class material during lecture and discussion. *Research has shown that multitasking during class impairs your learning and performance*, not to mention that it may be disruptive or distracting to other students and is disrespectful to your instructor. The use of personal technology devices for course-related purposes is perfectly fine, but *please avoid using laptops, tablets, or cell phones for activities unrelated to class* except in extraordinary circumstances. *Minimize talking* with other students during class, except when directed to discuss as part of an activity.

It likely goes without saying, but please respect others and their opinions during classroom discussion, and *refrain from discriminatory or hateful speech*. Inappropriate and/or disruptive behavior may result in you being asked to leave the room so that you are not disrespecting others and interfering with the learning of other students.

Finally, *please do not pack up before being dismissed at the end of the class period*. It is extremely disruptive to other students and disrespectful to your instructor.

Disability Services

The University of Illinois at Chicago is committed to maintaining a barrier-free environment so that individuals with disabilities can fully access programs, courses, services, and activities at UIC. Students with disabilities who require accommodations for full access and participation in UIC Programs must be registered with the Disability Resource Center (DRC). Please contact the DRC at 312-413-2183 (voice) or 312-413-0123 (TDD).

If you require accommodations in this course due to documented disability, you must obtain and deliver a letter from the DRC documenting the necessary accommodations and discuss these accommodations with Dr. Gobel (in person or by email) no later than the end of the second week of class or within one week of receiving new documentation.

Religious Holidays

If a course requirement conflicts with a religious holiday that you observe, please *let me know by the end of the second week of class and an appropriate accommodation will be made* (note that you can always submit an assignment early).

Additional Information and Resources

Writing Center

Tutors at the Writing Center can help you to organize and edit your writing. All students are welcome and encouraged to make an appointment to improve their writing. The optimum use is to *visit the Writing Center while preparing your draft of a writing assignment* and to make several visits. More information can be found at <http://writingcenter.uic.edu>.

APA Style

Most papers in psychology must be written in APA (American Psychological Association) format. *You are responsible for following APA style and citation format in all your writing assignments for this course, when applicable.* The most complete resource for APA style is the Publication Manual of the APA, but Purdue's Online Writing Lab (OWL) is an excellent, concise, and free online reference documenting APA style:

<http://owl.english.purdue.edu/owl/section/2/10>

Psi Chi Tutoring

Students in UIC's Psi Chi chapter with expertise in various psychology courses hold office hours throughout the week in **BSB 2048**. The tutoring schedule is usually established a few weeks into the semester, and will be posted on the door of the tutoring office in BSB 2048.

Academic Honesty and Plagiarism

All work should be your own. You are allowed, and even encouraged, to seek feedback from others, but all the writing you submit should be your own. Plagiarism is representing the words or ideas of others as your own, without crediting the source, and thus also includes copying or paraphrasing from your classmates or papers on the Internet. Major writing assignments will be submitted electronically via **SafeAssign** to automatically screen for potentially plagiarized material and ensure academic honesty.

Familiarize yourself with violations of academic honesty and the student disciplinary policy at <http://dos.uic.edu/conductforstudents.shtml>. You can find a number of principles, policies, and advice about crediting others and avoiding plagiarism at that website as well as at http://edelberg.people.uic.edu/crediting_others/index.htm.

Guidelines for Academic Integrity

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, and administrators – share the responsibility of ensuring 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.

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.

Above guidelines from <http://dos.uic.edu/docs/Guidelines%20for%20Academic%20Integrity.pdf>

In order for your work to be graded this semester, you must read and sign the Academic Honesty Form posted on Blackboard and then return the signed form.

Tentative Course Schedule

Wk	Day	Date	Sess	Topic/Activity	Reading or Assignment due
1	Tue	1/10	1	Course Introduction	Ward (2015) Chapter 1
	Thu	1/12	2	Overview of Scientific Communication	Ch. 1; Ch. 5
2	Tue	1/17	3	Reading an Empirical Journal Article	Sample Article / worksheet
	Thu	1/19	4	Research Ethics	Ch. 19; online ethics readings
3	Tue	1/24	5	Tools of Cognitive Neuroscience	CITI Training due
	Thu	1/26	6	BioPac Tutorial	BSL Tutorial; Ward Ch. 2 (p. 15-20)
4	Tue	1/31	7	Lab 1: EDA/Polygraph	Lab 1 Introduction/Procedure
	Thu	2/2	8	APA Style, Title Page, Method Section	Ch. 7; Ch. 11; Ch. 15 (p. 195-214)
5	Tue	2/7	9	Quiz 1 ; Work on Lab Report 1	Lab 1 worksheet
	Wed	2/8	-	Lab Report 1 due	Wed 11:59 PM
6	Thu	2/9	10	Lab 2: Biofeedback	Lab 2 Introduction/Procedure
	Tue	2/14	11	Excel Figure Construction	Ch. 12 (p. 160-166); online videos
7	Thu	2/16	12	SPSS Data Entry and Analysis	Ch. 8; online videos
	Tue	2/21	13	Statistical Copy and Results Section	Ch. 12 (p. 147-155, p. 166-169)
8	Thu	2/23	14	Quiz 2 ; Work on Lab Report 2	Lab 2 worksheet
	Mon	2/27	-	Lab Report 2 due	Mon 11:59 PM
9	Tue	2/28	15	Lab 3: EEG	Lab 3 Intro/Proc; Ward (2003)
	Thu	3/2	16	Introduction and Citations/References	Ch. 6; Ch. 10; Ch. 14
10	Tue	3/7	17	Literature Search	Ch.2; Ch. 3; Ch. 4
	Thu	3/9	-	T.B.D.	Lab 3 worksheet
11	Tue	3/14	18	Quiz 3 ; Work on Lab Report 3	Lab 3 Reading
	Thu	3/16	-	NO CLASS	
12	Fri	3/17	-	Lab Report 3 due	Thu 11:59 PM
	SPRING BREAK				
13	Tue	3/28	-	NO CLASS - CNS 2017	
	Thu	3/30	19	Lab 4: Alpha Rhythm	Lab 4 Intro/Proc
14	Tue	4/4	20	Lab 4 Data Analysis	De Smedt et al. (2009)
	Thu	4/6	21	Discussion Section and the Abstract	Ch. 13; Ch. 15 (p. 193-195)
15	Tue	4/11	22	Quiz 4 ; Work on Lab Report 4	Lab 4 worksheet
	Thu	4/13	23	Neurophysiology and Neuroanatomy	Ward Chapter 2 (p. 20-30)
16	Tue	4/18	24	Sheep Brain Dissection	
	Thu	4/20	25	Neuroanatomy Lab Practical	
17	Tue	4/25	26	Lab 5: Nerve Stimulation	
	Thu	4/27	27	Lab 6: fNIRS	Lab 5 worksheet
18	Sat	4/29	-	Lab Report 4 due	at Sat 11:59 PM

You should complete each reading/video assignment *prior* to the corresponding class session.

*This schedule is **subject to revision**; any revisions will be announced and posted on Blackboard.*

Add/Drop deadline: Friday, January 20th

Withdrawal deadline: Friday, March 17th