

**ICOS-326/PHAR-589: Drugs, the Brain and Behavior
- Spring 2018 -**

Tuesday & Thursday: 5:00-6:15pm, Med-Dent Building, NE403

Director:

Sikoya Ashburn
Cameron McKay

Assistant Directors:

Kevin Cook
Breana Downey
Evan Wicker

Instructor email: georgetowndbb@gmail.com

Office Hours: By Appointment

I. Rationale

This course is designed for students with an interest in brain function and dys- (or altered) function, as well as brain pharmacology.

II. Course Aims and Objectives

Aims

To familiarize students with the science of the diseases and disorders that affect brain function and behavior, as well as the relevant pharmacology.

Specific Learning Objectives

By the end of this course, students will:

- understand normal functioning of the brain as it relates to specific diseases/disorders
- comprehend basic mechanisms of neural function and dysfunction
- gain exposure to clinical presentations of nervous system diseases
- understand treatment options and mechanisms of therapeutic action
- gain the ability to knowledgeably critique papers
- gain the ability to weigh the pros and cons of competing theories
- develop familiarity with the wide variety of methods used in neuroscience research
- understand pharmacology as both a tool to explore and a therapy to treat brain dysfunction

III. Format and Procedures

This course meets twice a week. Classes will alternate between lectures in which new material will be presented, and paper discussions in which students will lead a critical discussion of a paper relevant to the preceding lectures.

IV. Course Requirements

1. Class attendance and participation policy:

Attendance and participation are mandatory. You are expected to participate in both the lectures (by asking questions and answering questions) and the paper discussions (by leading discussions, asking questions, and describing figures during discussions you are not leading). Attendance, participation, and performance on daily short quizzes account for 5% of your final grade.

2. Journal Clubs: To expose you to relevant scientific research and skills necessary to critically evaluate primary literature, journal club discussions will take place throughout the semester. For each discussion, a paper will be chosen by 1-2 students and must be related to a topic previously covered in class. Articles must also be from within the past five years and have 4-6 figures, not including tables. These students will be considered the “Journal Club Presenters” for that class. Presenters are expected to attend class on time and to be prepared to present during the second half of the class. Non-presenting class members are required to read the paper and answer Blackboard Discussion questions **before class** and participate by explaining figures to the rest of the class. The combined journal club grade is determined by your presentation (100pts possible), and class participation/discussion posts (5pts possible each journal club).

Expectations of Journal Club Presenters (100 pts possible):

- Select 3 primary journal articles at least 2 weeks before selected presentation date to get one approved
- Give article and two discussion questions to instructors for a new thread to the Blackboard Discussion Board at least 1 week before your presentation date
- Send your powerpoint slides to the DBB email by 5pm on the day of your scheduled JC
- Present the article context and background (rationale for studies and previous research)
- Describe key methods, particularly any new methods
- Have the results (i.e., the paper's figures) in your slides for the rest of the class to present
- Summarize main article conclusions
- Facilitate critical discussion of strengths, weaknesses, and future directions

Expectations of non-presenting students (5 pts possible each journal club):

- Read and take notes on the paper ahead of time; attend journal club
- Present figures to the class and participate in discussion
- Answer discussion questions on Blackboard *prior* to class (see below).

Blackboard Discussion Questions/Responses:

Presenters are required to **send two discussion questions to the instructors** related to the journal club paper **at least a week** before the presentation. The course instructors will upload these to Blackboard.

Non-presenting students are required to respond thoughtfully to posted questions **before** class. Following the journal club discussion, students may modify online answers if necessary by replying to the original response. **DO NOT delete your original response thread**, as this will delete evidence of completing your assignment on time. Grades will be determined based upon completion and quality.

3. Lecture Exams: Exams (midterms and final) may be short answer/essay format and all except for the final are administered during class periods. Content will focus on new material, but may also be cumulative, requiring integration of material presented on previous exams. Students needing additional time/resources should directly contact instructors and the Academic Resource Center.

4. Primary Literature Exams: These are take home exams that will test your comprehension of primary literature using excerpts from the main components of journal articles including abstract, introduction, methods, figures, results, and discussion sections. The skills for these exams will be acquired through preparation for and participation during journal club. Late primary literature exams will be accepted, with a 10% deduction for each day late. (i.e. exam earning 89% will be reduced to 79% for one day late, 69% for two days, etc.).

5. Final Paper: (Graduate Students Only: Paper = 100 pts, Outline = 15 pts). Students will write an open-ended argumentative essay, related to any dysfunction or disease discussed in class, which takes a stance and argues a specific conclusion based on thorough literature review. At least 8 primary sources are to be used that were not covered in class. This does not include review articles. As part of your grade, you must submit a preliminary outline for approval no later than **March 15th**, including a thesis statement, and 1-page annotated outline of content that incorporates at least 3 primary sources. You are encouraged to discuss potential paper topics with your instructors prior to writing the paper outline and to submit your outline early.

Term paper is due by 11:59pm on **April 26th**. Late papers will be accepted, with a 10% deduction for each day late. (i.e. paper earning 89% will be reduced to 79% for one day late, 69% for two days, etc.). **Requirements:** 8-10 pages, 1" margins, double-spaced, Arial or Times New Roman 12 pt font. In-text citations and bibliography should be formatted in either Nature, Journal of Neuroscience, or APA format. The bibliography is not included in the page limit. Grades will be determined based on the rubrics below. Your essay should be submitted to the DBB email as an attached Word document.

Resources for Citing Articles:

- **How to Cite Articles:** <http://www.citationmachine.net/the-journal-of-neuroscience/cite-a-journal>
- **Alternative:** <http://www.citethisforme.com/guides/the-journal-of-neuroscience/how-to-cite-a-journal>

Georgetown Writing Center: We encourage you to take advantage of the resources offered by the Writing Center. Resources include general writing and editing help as well as specific resources for second language writers (<http://writingcenter.georgetown.edu/>).

****NOTE:** Make-up exams and rescheduling journal clubs are only available under extreme circumstances and with sufficient evidence (i.e. Doctor's note, etc.). For JC, you are able to swap dates with a classmate, but you must notify the Directors and all deadlines will remain the same (i.e. sending article 2 weeks in advance and questions 1 week prior).

V. Grading Procedures:

Undergrad Students (ICOS 325)		Grad Students (PHARM 588)
15%	Midterm 1	10%
20%	Midterm 2	15%
25%	Final Examination	20%
25%	Journal Club	20%
10%	Primary Literature Exams	10%
--	Term Paper (+ outline)	20%
5%	Class Attendance	5%

Grading Scale

A = 94-100

A- = 90-93

B+ = 87-89

B = 84-86

B- = 80-83

C+ = 77-79

C = 74-78

C- = 70-73

D = 60-69

F = 59 and below

****NOTE:** Undergraduates have the option to choose between the two grading schemes. By default, undergraduates will be graded based upon scheme A. However, if an undergraduate would prefer to follow scheme B, they must notify the DBB instructors and make this change known by **March 13th**. Also, please note that C+/C- distinctions do not exist for graduate students.

VI. Academic Integrity

Each student in this course is expected to abide by the Georgetown University Honor Pledge. Any work submitted by a student in this course for academic credit will be the student's own work. Any violation of the

Honor Pledge will result in no credit for the given assignment and automatic reporting of the violation to the Honor Council.

VII. Journal Club Presentation Grading Rubric

Background	Presents previous research on this topic (citing and explaining specific previous experiments) to explain experimental rationale .	___/20
General Aims and Hypotheses	Explains the authors' general goals and provides directional hypotheses based on previous research.	___/15
Methods	Explains any previously un-discussed methods clearly and demonstrates basic understanding of how they work.	___/15
Conclusions	Explains the overall conclusions of the paper (beyond restating the results) and "big picture" importance.	___/10
Future Directions & Alternate Title	Outlines three or more experiments that logically follow from this paper, or experiments that could fill in the gaps in this paper. Include an alternate title (in your own words) that summarizes the main significance/impact of this paper. This title should be suitable for a lay audience.	___/10
Knowledge	Demonstrates fluency and competence of the paper through answering questions and making educated guesses .	___/10
Presentation Style	Presentation is clear and well-organized. Speaks loudly and confidently. Includes key figures in presentation. Facilitates and monitors discussion to stay focused and timely (25 min total).	___/10
Handed in on Time	Turns in chosen article and two Blackboard questions to instructors 1 week before the journal club.	___/10
	Total	___/100

VIII. Term Paper Rubric

Research Paper Grading Rubric

Name:

Course: Drugs, the Brain, and Behavior Date:

CATEGORY	Unacceptable (Below Standards)	Acceptable (Meets Standards)	Good (Occasionally Exceeds)	Excellent (Exceeds Standards)	SCORE
Introduction	Does not adequately convey topic. Does not describe subtopics to be reviewed. Lacks adequate thesis statement.	Conveys topic, but not key question(s). Describes subtopics to be reviewed. General thesis statement.	Conveys topic and key question(s). Clearly delineates subtopics to be reviewed. General thesis statement.	Strong introduction of topic's key question(s), terms. Clearly delineates subtopics to be reviewed. Specific thesis statement.	15 points
Focus & Sequencing	Little evidence material is logically organized into topic, subtopics or related to topic. Many transitions are unclear or nonexistent.	Most material clearly related to subtopic, main topic. Material may not be organized within subtopics. Attempts to provide variety of transitions	All material clearly related to subtopic, main topic and logically organized within subtopics. Clear, varied transitions linking subtopics, and main topic.	All material clearly related to subtopic, main topic. Strong organization and integration of material within subtopics. Strong transitions linking subtopics, and main topic.	25 points
Support	Few sources supporting thesis. Sources insignificant or unsubstantiated.	Sources generally acceptable but not peer-reviewed research (evidence) based.	Sources well selected to support thesis with some research in support of thesis.	Strong peer-reviewed research based support for thesis.	20 points
Conclusion	Does not summarize evidence with respect to thesis statement. Does not discuss the impact of researched material on topic.	Review of key conclusions. Some integration with thesis statement. Discusses impact of researched material on topic.	Strong review of key conclusions. Strong integration with thesis statement. Discusses impact of researched material on topic.	Strong review of key conclusions. Strong integration with thesis statement. Insightful discussion of impact of the researched material on topic.	15 points
Grammar & Mechanics	Grammatical errors or spelling & punctuation substantially detract from the paper.	Very few grammatical, spelling or punctuation errors interfere with reading the paper.	Grammatical errors or spelling & punctuation are rare and do not detract from the paper.	The paper is free of grammatical errors and spelling & punctuation.	10 points
Style & Communication	Errors in APA style detract substantially from the paper. Word choice is informal in tone. Writing is choppy, with many awkward or unclear passages.	Errors in APA style are noticeable. Word choice occasionally informal in tone. Writing has a few awkward or unclear passages.	Rare errors in APA style that do not detract from the paper. Scholarly style. Writing has minimal awkward of unclear passages.	No errors in APA style. Scholarly style. Writing is flowing and easy to follow.	5 points
Citations & References	Has < 3 primary sources. Reference and citation errors detract significantly from paper. Not in APA format.	Has 3 or 4 primary sources. Two references or citations missing or incorrectly written. Several errors in APA format.	Has 5-7 primary sources. One reference or citations missing or incorrectly written. Mostly correct APA format.	Has at least 8 primary sources not used in class. All references and citations are correctly written and present. APA format is correct.	10 points

Total Points:

IX. Class Schedule

Date	Topic	Lecturer
Thu Jan 11 th	Introduction to the Nervous System	Cameron McKay
Tues Jan 16 th	Neuronal Biology	Sikoya Ashburn
Thu Jan 18 th	Cognitive Development Journal Club 101: How to read, critique, present a paper	Gabrielle-Ann Torre Cameron McKay
Tues Jan 23 rd	Spinal Cord CNS/PNS Function Journal Club #1	Kevin Cook
Thu Jan 25 th	Touch and Pain	Kelly Michelis
Tues Jan 30 th	Motor Function	Steph Sloley
Thu Feb 1 st	PNS Injury	Seham Alaiyed
Tues Feb 6 th	CNS Injury	Chineyere Agbaegbu
Thu Feb 8th	EXAM I	
Tues Feb. 13 th	Multiple Sclerosis Journal Club #2 <i>1st Primary Literature Exam Posted</i>	Steph Davis
Thu Feb. 15 th	Glial Biology	Lorenzo Bozzelli
Tues Feb. 20 th	HIV Dementia Journal Club #3 <i>1st Primary Literature Exam Due by 8pm</i>	Erin Wenzel
Thu Feb. 22 nd	Neuroimmune Disorders	Nathanael Lee
Tues Feb. 27 th	Comparative Neuroscience	Breana Downey & Evan Wicker
Thu March 1 st	Huntington's Disease Journal Club #4	Sikoya Ashburn
Tues March 6 th	Spring Break	
Thu March 8 th	Spring Break	
Tues March 13 th	Parkinson's Disease I <i>2nd Primary Lit Exam Posted</i> <i>Undergrad: Last day to choose grading scheme</i>	Alan Fowler
Thu March 15 th	Cerebellar Disorders <i>Final Paper Outline Due</i>	Sikoya Ashburn
Tues March 20 th	Parkinson's Disease II Journal Club #5 <i>2nd Primary Literature Exam Due by 8pm</i>	Alan Fowler
Thu March 22nd	EXAM II	
Tues March 27 th	Brain & Language	Breana Downey
Thu March 29 th	Easter Break	
Tues April 3 rd	Normal Aging	Gabrielle-Ann Torre
Thu April 5 th	Stroke	Breana Downey
Tues April 10 th	Memory	Cameron McKay
Thu April 12 th	Epilepsy I Journal Club #6	Evan Wicker
Tues April 17 th	Epilepsy II Journal Club #7	Evan Wicker

	<i>3rd Primary Literature Exam Posted</i>	
Thu April 19 th	Anatomy Lab	DBB Instructors
Tues April 24 th	Alzheimer's Disease <i>3rd Primary Literature Exam Due by 8pm</i>	Nahdia Jones
Thu April 26 th	Neuroethics Journal Club #8 <i>Final Paper Due by 11:59pm</i>	Edith Brignioni-Perez
May 5th 12:30pm – 2:30pm	EXAM III	