

**Psychology 411 - Current Topics in Psychology  
Epigenetics and the Brain**

**Fall 2013**

Day:

Room

**Professor: Anthony Auger**

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Office Hours: By Appointment- Room 530

**Course Structure and Evaluation:**

Nature versus nurture can now be referred to as understanding gene X environmental interactions. That is, the emerging area of epigenetic is the study of how the environment can reprogram the genome. In some cases, this reprogramming can be passed onto future generations. Epigenetics is the study of changes to gene activity without changing the underlying code. This course will focus on how our behavior and overall health can be shaped by markings on our DNA. For the first part, we will cover a general background on how epigenetic changes occur and how they shape behavior. During the second part, we will examine various topics in greater depth by discussing the primary research articles that shaped those topics. Finally, you will orally defend a research proposal on a topic of your choice, as well as hand in a final written research proposal on the same topic.

**Objectives:**

- Understand the basics of gene x environmental interactions.
- Be able to read critically and discuss assigned readings.
- Be able to present a relevant topic of interest to the class and answer questions.
- Learn how to design a research project that will answer a specific question and present the project as an oral proposal and a written research proposal.

**Evaluation and grading:** Grades will be determined partly by class participation, including daily homework based on the topics that are presented. As well as performance on, **1** in class primary research article presentation, **1** research proposal presentation, and **1** written research proposal.

Grading for the semester will be based on the following components:

- Class participation (15%)
- Questions (homework)/evaluations (15%)
- Presentation of paper (10%)
- Exam (20%)
- Research proposal oral presentation (20%)
- Research proposal written (20%)

*Class Format* - 3 parts:

1) Lecture format. This is to provide a general background as to how epigenetic events occur during brain development and how this events impact mental health.

2) Primary research article discussion. Each of you will lead a discussion of a primary research article dealing with epigenetics. This gives us a chance to immerse ourselves in the primary literature, and have insightful discussions about it. Also, you will prepare written questions/comments to class based on 1 of the 3 readings for each of these class days.

3) Student research proposal presentations. These presentations will be based upon a topic of your choosing that deals with epigenetics. Each student will be required to listen and evaluate each other's research proposals. During finals, you will hand in the written research proposal.

### Questions/Comments (homework):

Before each research article is presented, I want each of you to come up with 2 questions or comments about 1 of the 3 readings presented on each of the scheduled class days. I require this in order to ensure that we are all reading the articles and that discussion of these articles will progress.

### Primary Research Articles:

You will lead a 10-15 minute discussion of a primary research article that is based within the field of epigenetics. I have selected several themes in which you can choose an article. More information on how to critically evaluate, and concisely present, and discuss primary research articles will be provided.

### Research Proposal:

*Oral* - You will propose a research project on a topic of interest to you, as long as it is within the scope of epigenetics, hormones and behavior. Basically, I want you each to present a research proposal as if you are submitting this to a granting agency for funding. The general idea is to present a research proposal as you would if you were asking for funding for this research project. Therefore, you will provide a brief background of the subject area, what knowledge is lacking in that area, and why it is important to investigate the current hypothesis. You will then describe the proposed experiment and briefly discuss expected findings. You will also discuss what will happen if you do not find the expected results and how would you then explore the unexpected result. Details on how to do this will be provided at a later date. For each of these presentations each student will have a chance to evaluate each other's presentation.

*Written* - You will write a 5-page limit (single space line) research proposal on a hypothetical research project of to be carried out the same topic you presented to the class. The research proposal will be due on the last day of classes. The specific format for the research proposal will be provided later; however, it will be similar to the format that you presented in class. Pay attention to questions asked as you should integrate those into your written proposal. Feedback from the class during the oral presentation will make the project easier to write and will lead to a better experimental design. The paper will have an annotated bibliography of at least 10 primary research articles on the topic.

-- Please email me if you have to miss class or a presentation due to illness. I still expect you to do reading assignments and homework as required. I do not anticipate having to cancel class should I become sick, I will have another faculty member hold class.

\* All late assignments (except questions) will be deducted 10% per day late. Late questions will not be graded.

### **UW Psychology Club:**

If you are interested in psychology and would like to meet new people that share the same interest, you are welcome to check out UW's Psych Club. You will have the opportunity to observe aspects of psychology outside of a classroom setting, watch popular movies that involve psychology, meet professors, psychologists, and other people with careers in psychology, take part in fun fundraising activities, and more! All students can become new members; you do not have to be a psych major and can join at any time. For more information, email [psychclub@psych.wisc.edu](mailto:psychclub@psych.wisc.edu), and don't forget to check out our Facebook group, "UW Psychology Club."

**University legislation specifies that the following must appear on the syllabus:**

**Where to take complaints about a Teaching Assistant or Course Instructor:**

Occasionally, a student may have a complaint about a Teaching Assistant or course instructor. If that happens, you should feel free to discuss the matter directly with the TA or instructor. If the complaint is about the TA and you do not feel comfortable discussing it with him or her, you should discuss it with the course instructor. If you do not want to approach the instructor, make an appointment to speak to the Department Chair, Professor Patricia Devine: [chair@psych.wisc.edu](mailto:chair@psych.wisc.edu).

If your complaint has to do with sexual harassment, you may also take your complaint to Vicky Lenzlinger, Instructional Program Manager, [vlenzlinger@psych.wisc.edu](mailto:vlenzlinger@psych.wisc.edu). Her office is located on the second floor of the Psychology building, room 222.

If you believe the TA or course instructor has discriminated against you because of your religion, race, gender, sexual orientation, or ethnic background, you also may take your complaint to the Office of Equity and Diversity, room 179-A Bascom Hall, or go to: <http://www.oed.wisc.edu/>

(Optional) If your TA is not a native English speaker and you have difficulty understanding his or her speech, ask the TA to repeat sentences that you do not understand. If you have serious or prolonged difficulty understanding, discuss the problem with the course instructor. But remember that this is a multicultural institution and that the diversity of TAs can add substantially to your education. Some patience with unfamiliar accents may reward you with a better understanding of the world.

**Psychology Department Strongly Recommended Ethics Statement:**

**Ethics of being a student in the Department of Psychology**

The members of the faculty of the Department of Psychology at UW-Madison uphold the highest ethical standards of teaching and research. They expect their students to uphold the same standards of ethical conduct. By registering for this course, you are implicitly agreeing to conduct yourself with the utmost integrity throughout the semester.

In the Department of Psychology, acts of academic misconduct are taken very seriously. Such acts diminish the educational experience for all involved – students who commit the acts, classmates who would never consider engaging in such behaviors, and instructors. Academic misconduct includes, but is not limited to, cheating on assignments and exams, stealing exams, sabotaging the work of classmates, submitting fraudulent data, plagiarizing the work of classmates or published and/or online sources, acquiring previously written papers and submitting them (altered or unaltered) for course assignments, collaborating with classmates when such collaboration is not authorized, and assisting fellow students in acts of misconduct. Students who have knowledge that classmates have engaged in academic misconduct should report this to the instructor.

For detailed information on how to avoid plagiarism, please see the following website:  
<http://writing.wisc.edu/Handbook/QuotingSources.html>

Your instructor will contact you if s/he has concerns about academic misconduct. You will have an opportunity to explain your work and address your instructor's concerns. Following the meeting, if your instructor believes that you engaged in misconduct, s/he will decide on an action. Following UW protocol, your instructor will inform the Dean of Students' Office of the outcome of the meeting and proposed sanction. Penalties for substantiated cases of academic misconduct include a zero on the

assignment or exam, a lower grade in the course, and failure in the course. Repeated acts of academic misconduct may result in more serious actions such as probation or suspension. For complete information on proper conduct, academic misconduct, and sanctions, please see UWS Chapter 14: <http://students.wisc.edu/saja/misconduct/UWS14.html>

**Recommended info regarding pandemic/catastrophic readiness:**

**Pandemic/Catastrophic Readiness:**

In the event that this course is no longer able to meet face-to-face, the course will use the resources online at learn@UW. Web conferencing will be used during the scheduled time of class, as well as discussion boards, and dropbox for written assignments. An email will be sent out if this occurs.

**TENTATIVE Outline of the semester (subjected to change):**

<u>Dates</u>	<u>Topic to be covered (subject to change)</u>
1/23	Introduction
1/28	Genetic mechanisms
1/30	Epigenetic mechanisms
2/4	Epigenetic mechanisms
2/6	How to critically evaluate and present a research paper
2/11	Maternal environment - (Questions)
2/13	Human early-life diversity - (Questions)
<b>2/18</b>	Online Topics
<b>2/20</b>	Online Topics
2/25	Stress - (Questions)
2/27	Learning and memory - (Questions)
3/4	Drugs of abuse - (Questions)
3/6	Mecp2 and Rett syndrome - (Questions)
3/11	Epigenetic mechanisms - (Questions)
3/13	Mental Health and Disease - (Questions)
3/18	Review
3/20	Exam
3/25	Spring Recess
3/27	Spring Recess
4/1	Proposal Meeting (Questions)
4/3	Proposal Meeting (Questions)
4/8	Proposal Meeting (Questions)
4/10	Proposal Meeting (Questions)
4/15	Proposal Meeting (Questions)
4/17	Proposal Meeting (Questions)
4/22	Proposal Meeting (Questions)
4/24	Proposal Meeting (Questions)
4/29	Proposal Meeting (Questions)
5/1	Proposal Meeting (Questions)
5/6	Proposal Meeting (Questions)
5/8	Review and Final Paper