PSYCHOLOGY 87 – GENES, EVOLUTION & BEHAVIOR

Winter, 2015

Course plan: In this course we will begin by reading and discussing a text that provides historical context and reviews more recent work on the long-standing question of how traits (particularly behavioral traits) are affected by inheritance over both the individual lifespan and the longer timespan of evolution. The goals will be to gain a firm understanding of the issues and to evaluate more carefully some of the science that has been brought to bear on these problems. In the second part of the course, we will apply this understanding to specific questions of interest to students. Each student will explore, both in writing and in a class presentation, a topic that has implications for understanding sources of differences between individuals.

Instructor: Catherine Cramer, 258 Moore, x6-3459
Office hours: Monday, 9:30-10:30 a.m. and Tuesday 1:30-2:30 p.m.

Readings:

Plomin, R., DeFries, J.C., Knopik, V. S., and Neiderhiser, J. M. 2013. *Behavioral Genetics, Sixth Edition*.

Additional primary source materials may be identified and distributed (electronically, when possible) as the course proceeds.

Learning Objectives:

Because this is a culminating course for Psychology majors, a primary goal is that students hone their skills in self-directed learning. By the end of this course, students will:

- understand the major approaches and questions that have driven genetics and evolutionary theory when applied to behavioral traits
- analyze and evaluate both primary sources and secondary reviews of scientific material
- identify new information on a topic of scientific inquiry or controversy
- improve written and oral communication skills
- review and evaluate the available evidence on a behavioral and/or neural phenomenon that is potentially influenced by both inherent and environmental sources of variation

Requirements and grading:

1) **Research Paper** (50%) - on a topic of the student's choosing (with approval of the instructor), that analyzes sources of variability. 5000-6500 words (approximately 15-20 double-spaced pages), exclusive of bibliography. Details will be discussed in class.

2) **Initial annotated bibliography** (5%) - at least 10 sources that could be used in developing the research topic, with a short paragraph describing the content

3) **Class Presentation** (15%) – on the topic of the student's research paper, approximately 60 minutes in length, including class discussion.

4) **Follow-up presentation** (10%) - on an article that follows from a topic discussed in class, approximately 20 minutes in length

5) **Written evaluations** (10%) – of other students' papers. We will develop the guidelines for these responses as a group. This assignment will be graded Complete/Incomplete.

6) **Midterm exam** (10%) - essay exam, approximately 1 hour.

Policies and Academic Honor

***Please note the following policy on **late work**. Written work will be accepted late, but grades will be reduced by 10% for each day that they are late *regardless of cause*. Thus, it would be wise to complete as much of your work as possible well before the due date, so that you do not incur a penalty for unforeseen circumstances.

Students requiring disability-related accommodations should give the instructor their Student Accessibility Office form in sufficient time for necessary arrangements to be made.

The Academic Honor Principle (*http://www.dartmouth.edu/~uja/honor/)* applies to all written work you submit in this course. Collaboration is acceptable in the development of presentations, but written work is to be entirely your own. Sources should be appropriately cited **(***http://writing-speech.dartmouth.edu/learning/materials/sources-and-citations-dartmouth***).** In addition to any College discipline imposed, an honors violation will also result in a course grade of E.

Schedule: (may be adjusted based on enrollment and student interests)

Date	Readings
Jan 5	Introduction and organization
Jan 7	Chapters 1 & 2
Jan 9	Chapters 3 & 4
Jan 12	Chapters 5 & 6
Jan 14	Chapters 7 & 8
Jan 16	Appendix
Jan 21	Chapters 9 & 10 **Paper topic proposal due**
Jan 23	Chapters 11, 12, 13
Jan 26	Chapters 14 & 15
Jan 28	Chapter 17
Jan 30	Chapters 16, 18, 19
Feb 2	Chapters 20, 21 **Initial annotated bibliography due**
Feb 4	Midterm
Feb 6	WINTER CARNIVAL – no class
Feb 9	Student Presentation #1
Feb 11	Student Presentation #2
Feb 13	Student Presentation #3
Feb 16	Student Presentation #4
Feb 18	Student Presentations #5
Feb 20	Student Presentations #6
Feb 23	Student Presentations #7
Feb 25	Student Presentation #8

Feb 27	Development of paper assessment rubric **Research papers due**
Mar 2	Follow-up presentations #1 & 2
Mar 4	Follow-up presentations #3 & 4
Mar 6	Follow-up presentations #5 & 6
Mar 9	Follow-up presentations #7 & 8 Last class **Paper reviews due**

Research Presentation

Each student will have the opportunity to share the content of their developing research paper with the class. Your presentation should include:

1) An overview of the question(s) being addressed in your paper. It is fair to assume your audience has an understanding of basic psychological principles but not necessarily background on your specific topic.

2) A review of findings that bear on the question. You will probably not have time for a comprehensive review; rather you should sample interesting and important findings. Depending on your topic, you may want to present competing viewpoints or develop a line of reasoning.

3) Evaluation of the studies you have presented that leads you to some conclusion about the current state of knowledge on your question(s). If you identify areas in which more research is needed (which is likely!), discuss the nature of studies that would help resolve the issues.

You may use PowerPoint to illustrate your presentation (this is particularly useful for graphs of data), but that is not a requirement. If you do decide to use PowerPoint, please make sure that all presentations for the day are pre-loaded onto the classroom computer, so that it is up and running by the beginning of class.

Plan on about 50 minutes, leaving about 15 minutes for class discussion.

"Follow-up" Article Presentation

The goal of this assignment is to find and review new information. Choose something cited by Plomin et al (full citations are in the References section) or another student's research presentation/paper and then use an index (such as Web of Science, Citation Index) to find an article that has built on or followed up on that finding or idea. In general, this should be a primary empirical paper, but a review positing a new hypothesis is also acceptable. In presenting the follow-up article to the group, you should:

1) Briefly remind us of the study from Plomin or the earlier presentation and then explain the hypothesis(es) addressed by the new paper.

2) Give an overview of the methodology. [Some of this may go beyond your technical expertise, but explain what you can.]

3) Describe the results and the authors' conclusions from those results.

4) Critique the article. Were there limitations or problems with the methods? Did the conclusions follow from the results? Did the study advance knowledge, raise new questions, and/or resolve some issues?

Plan on about 20 minutes plus a few minutes for class discussion.