

Syllabus
APSY 387 - BEHAVIOR GENETICS - Spring Semester 2017
(1-18-17 version, official/updated version always available on the class web site)

Time: T-TH 1:15-2:35 P.M. Place: ED 120
Professor: Bruce Dudek Office: SS 327
Office Hours: Tues, 3-4pm and Wed, 1:30-3:00 (see web site for any changes in these hours)
Web Page: <http://www.albany.edu/psychology/bcd/387pub.htm>
 also reachable via professor Dudek's web page in the Psychology dept. web site.
 Lecture and other materials will be placed in a password protected part of the
 web site as explained in class. Please become familiar and functional with the web site
 right away. It is crucial to your progress in the class.
Email: bruce.dudek AT albany DOT edu; phone: 442-4824 (email is a much better way to contact me)

TA: Melanie Lolier. SS 318, mlolier AT albany DOT edu
TA Office hrs: TBA - see web site.

Extra office hrs and help sessions will be numerous and listed on the web site.

Course Objectives:

1. Provide students with an introduction to, and overview of the field of behavior genetics.
2. Introduce students to the basic principles of Mendelian, population and quantitative genetics, as necessary for study of neuro-behavioral phenotypes/characters/traits.
3. Familiarize students with foundation information on hereditary mechanisms and processes relevant for the nervous system and behavior.
4. Provide an overview of the major ways in which modern molecular biology is revolutionizing our approaches to questions in the interface between genetics and the neuro-behavioral sciences.
5. Examine the methods and findings specific to the analysis of both nonhuman and human behavior.
6. Develop information literacy skills to research and read the *primary scientific literature* on Behavior Genetics, using the PubMed search capability, and UA Library electronic article access.
7. Review some of the societal and ethical implications of the results of behavioral genetic studies.

Texts:

Required: Knopik, Neiderhiser, DeFries and Plomin. *Behavioral Genetics*. Worth, 2017, 7th Ed.

Recommended: Schaum's outline series in Genetics, or a basic college text in genetics

Grading:

Exams -

Two exams will each contribute 25%, each of the point total for the course, although each must be taken or automatic course failure results. Exam II will not be cumulative. The Exam I date will be determined by the rate of progress through lecture material and will be announced at least two class periods prior to the actual date. There is no final exam; the large paper assignment replaces a final exam.

Dates for these exams:

I Earliest possible date is Mar 9

II May 2

No make-up exams are given without prior consent of the instructor. If you are ill, an email notification prior to class is required as is documentation in order for a make-up to be given (see section below on missed assignments).

Writing Assignments:

- I. Two short papers will consist of research article summaries. These are designed to emphasize information literacy skills using Pub Med and the timing of them facilitates successful approval and completion of the course term paper. Each will be worth 5% of the course point total.
 - Due dates are tentatively set as first class meeting after exam1 and Apr 13.
 - The maximum 5 points is available only if they are completed by the designated due date. 0 points otherwise. Even if turned in late for zero points, each must be completed before the last class in Nov. If not, then automatic course failure results.
 - These assignments will consist of summaries of 2-3 research articles on topics to be designated. More detail will be provided in documents posted on the class web site.
- II. A term paper is due at the scheduled final exam time (Monday, May 15, 10:30). This paper is to be on a pre-approved topic (**must be approved by April 18**), narrowly defined as some aspect of the field of human behavior genetics. It is to be a review of the most recent research on that particular topic, found in the primary scientific literature (research journals). More detail on the scope and requirements for this paper is outlined in a detailed guideline document provided on the class web site. This paper will be worth 35% of the total course points.

Grading will be done on the basis of the total point distribution from the two exams, the papers, and 5% of the course point total coming from an attendance requirement for the last two classes. This last 5% can only be obtained by attending each of the last two lectures, after Exam II. Typically an A- is defined as 90% of the highest point total in the class, B- as 78% of that total, C- as 65% and D- as 55%. The instructor may shift these values down to provide a better fit to the actual point distribution.

Reading **Schedule** (Subject to change. Monitor the class web site for updates)

<u>Week of</u>	<u>Topic</u>	<u>Knopik</u>
Jan 23	Approaches to Genetic Analysis of Behavioral Traits	1
	Introductory topics	2,3
Feb 6	Mendelian/Basic Genetics	2,3
	Mendelian/Basic Genetics	2,3
	Classical Genetics and Molecular Foundations	4
	Population Genetics, Quantative Genetics/Complex Traits	5,7,9
Mar 6	Population Genetics, Quantative Genetics/Complex Traits	5,7,9
	NO CLASS ALL WEEK	
	Complex Traits/Sensory phenotypes	
	Learning/Memory/Intelligence	6,8,11,12
Apr 3	Cognitive Phenotypes - Language	
	Animal Models. Neuro-Genetics - NO CLASS APR 11	5,10
	Twin Method / Personality	6,16
	Schizophrenia, other psychopathologies	13,14
May 1	Autism/Neurodevelopmental Disorders	16
May 8	Alcoholism, Ethics	17,20

May 9 is our last lecture.

NOTES:

Much additional reading/study material will be provided on the web site and in handouts, as will sets of practice problems for use prior to Exam I. Several research or review articles will be required reading and pdf

files of these articles will be placed on the class web site.

The reading schedule is constructed under the assumption that a first reading of assigned material will be done prior to the lecture on the respective topic. The best strategy is to get as far ahead in your reading as possible. Lectures are most beneficial when a first reading of the material is completed prior to the lecture. Second and third readings can then be used to reinforce, clarify and crystallize your understanding of the material after its lecture. Don't be hesitant about using other recommended textbooks. Other authors' presentations are almost always slightly different, and such differences may be quite helpful (see additional recommendations below). Class lectures are not designed to match the textbook sequence, range of topics or style. The text should be viewed as a help in generating a "big picture" understanding and the lectures fill in details that are informative. Both are important for a real sense of the field. We will emphasize methodology more than research results. "How" to ask the research question is the primary theme of the course.

For most lecture topics, class notes and an extensive set of handouts will be far more critical for exam preparation than the textbook. Exceptions to this will be emphasized in class with regard to a few specific topics.

There is, of course, no attendance requirement, except for the last two classes. However, since exams are largely conceptual/verbal in nature and model on topics as presented in lecture, adequate performance usually presupposes the conceptual framework generated in the lectures. Study done solely from the texts will not enable adequate performance on exams.

Extra Help sessions can be scheduled, regularly, with higher frequency at points prior to each exam. These will be provided to go over practice problems and to clarify lecture material. Notification and location will be provided a few days in advance of these sessions. Historically, as many as ten help sessions have been provided, if there is demand.

Additional Course Policies

Academic Integrity:

Performance is expected to conform to the University requirements on Academic Integrity. Students are required to read the section in the University bulletin on this topic, including the sections on plagiarism, examination cheating, and multiple submissions: http://www.albany.edu/undergraduate_bulletin/regulations.html Additional specifications regarding plagiarism are found in the term paper guideline document for this class. Violations of these regulations will result in course failure.

Reasonable Accommodation and the Disability Resource Center:

If you have reasonable accommodation needs that may impact your course performance, assistance is available via the programs of the Disability Resource Center. In order to use this resource (e.g., examination arrangements), you must register with them and provide me with documentation no later than the second week of classes. The DRC can be reached at <http://www.albany.edu/disability/index.shtml> or 442-5490.

Missed assignments:

The course policy on missed exams is outlined above. If you miss other assignments and believe that it should be due to an excusable reason, please contact the Undergraduate Dean's office. They require contact within one week of the missed assignment. Note that except for very last minute illnesses, students who miss exams or deadlines should be able to contact the professor ahead of time if there is a problem. Waiting until after the fact is frowned upon although I will honor the decision of the Dean's office. You can reach them at 442-3950 and the email is ugeducation@uamail.albany.edu

Recommendation on readings for the Introductory Part of The Course on Basic Genetics

The first few weeks of this course are a review of basic genetics, with an emphasis on the aspects that are crucial for research on behavioral phenotypes. The textbook provides a cursory overview of these topics and class lecture notes offer additional detail. But students may want additional resources to refresh knowledge of basic genetics from high school biology, or to supplement textbook materials. Three possibilities for additional resources are suggested:

1. The Schaum's outline series on genetics is actually quite good, with all of the topics that we emphasize available. **Use of this text is most beneficial when you do the exercises included.**
2. An extensive list of web resources is available on the class web page. Many of these are truly excellent and students should take time to use the tutorials "early and often" during this semester.
3. Any basic college text on genetics would also be an excellent resource, but probably not necessary, given #1 and #2 above.

In addition, practice problems will be made available on the class web site, and help sessions scheduled to go over them.

Instructor Philosophy on Basic Genetics Background:

The class lectures cannot do a full presentation of introductory genetics. Rather, the lectures will emphasize just enough of the basics so that behavior genetics research strategies can be understood. The onus is on the student to quickly evaluate where additional work is needed in order to consolidate the language and concepts of basic genetics. There will be adequate resources provided so that the diligent student can pick up the important information relatively quickly. However, this is not a subject matter that can be crammed the few days before an exam. It requires constant, perhaps daily, work especially early in the semester. The class web site lists many online sites that are useful.