

Term Information

Effective Term Spring 2015

General Information

Course Bulletin Listing/Subject Area Psychology
Fiscal Unit/Academic Org Psychology - D0766
College/Academic Group Arts and Sciences
Level/Career Graduate, Undergraduate
Course Number/Catalog 5602
Course Title Behavioral Genetics
Transcript Abbreviation Behavior Genetics
Course Description Behavioral genetics is the field of study that examines the role of genetics in animal (including human) behavior. It is highly interdisciplinary, involving contributions from biology, genetics, epigenetics, ethology, psychology, & statistics. The goal is to provide knowledge concerning the interrelationship of genetics & behavior, & its implications for health & human development & education.
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 Week, 7 Week, 4 Week (May Session), 12 Week (May + Summer)
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Lecture
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites Psych 2220, 2300, and 3313; or Neuroscience major and 3313; or graduate standing
Exclusions

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 42.0101
Subsidy Level Doctoral Course
Intended Rank Junior, Senior, Masters, Doctoral

Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Describe the basic rules of heredity, its DNA basis, and the methods used to find genetic influence and to identify specific genes
- Understand the role of genes in cognitive disabilities and abilities, psychopathology, personality, health psychology, aging, and evolutionary psychology.
- Understand the interactions between gene and environment for determining nonhuman and human behaviors
- Learn to research and read the primary scientific literature on Behavioral Genetics and develop critical thinking about scientific publications

Content Topic List

- Mendelian/Basic Genetics
- Epigenetics
- Gene-environment interactions
- Animal Models. Neuro-Genetics – Pharmacogenetics
- Twin Method / Personality
- Schizophrenia, other psychopathologies
- Autism/Neurodevelopmental Disorders
- Alcoholism

Attachments

- Psychology BA Curricular Map.docx: curriculum map
(Other Supporting Documentation. Owner: Paulsen,Alisa Marie)
- Psychology BS Curricular Map.docx: curriculum map
(Other Supporting Documentation. Owner: Paulsen,Alisa Marie)
- Psych 5602 Syllabus SP2015.docx: syllabus
(Syllabus. Owner: Paulsen,Alisa Marie)

Comments

- Current curriculum map with Psych 5602 added is attached and a more detailed class schedule has been added to syllabus. *(by Paulsen,Alisa Marie on 04/24/2014 01:48 PM)*
- Please see 4-18-14 e-mail to A. Paulsen. *(by Vankeerbergen,Bernadette Chantal on 04/18/2014 12:42 PM)*

COURSE REQUEST
5602 - Status: PENDING

Last Updated: Haddad,Deborah Moore
04/24/2014

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Paulsen,Alisa Marie	04/09/2014 03:35 PM	Submitted for Approval
Approved	Vasey,Michael William	04/09/2014 03:36 PM	Unit Approval
Approved	Haddad,Deborah Moore	04/09/2014 04:17 PM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	04/18/2014 12:42 PM	ASCCAO Approval
Submitted	Paulsen,Alisa Marie	04/24/2014 01:48 PM	Submitted for Approval
Approved	Vasey,Michael William	04/24/2014 03:54 PM	Unit Approval
Approved	Haddad,Deborah Moore	04/24/2014 04:33 PM	College Approval
Pending Approval	Vankeerbergen,Bernadette Chantal Nolen,Dawn Jenkins,Mary Ellen Bigler Hogle,Danielle Nicole Hanlin,Deborah Kay	04/24/2014 04:33 PM	ASCCAO Approval

Psych 5602 – Behavioral Genetics
SPRING 2015

Dr. Laurence Coutellier

Dept. of Psychology

Office: Room 53, Psychology Building

Phone: 614-688-2270

Email: coutellier.8@osu.edu

Pre-requisite: PSYCH 2220 and 2300 and 3313

Lecture Time/Room: TBD

Office hours: TBD

Course description and objectives: Behavioral genetics is the field of study that examines the role of genetics in animal (including human) behavior. Often associated with the "nature versus nurture" debate, behavioral genetics is highly interdisciplinary, involving contributions from biology, genetics, epigenetics, ethology, psychology, and statistics. The goal is to provide knowledge concerning the interrelationship of genetics and behavior, and its implications for health and human development and education. The objectives of this class are:

- To introduce students with basic Mendelian genetics and how genes regulate behaviors
- To introduce students with the concepts of epigenetics and gene-environment interactions
- To examine the methods used to understand both nonhuman and human behavior.
- To understand the genetic contribution to many psychopathologies and neurodevelopmental disorders

In addition, students will learn to research and read the primary scientific literature on Behavior Genetics and will develop the ability to critically read and review scientific articles.

The course will be intellectually demanding, and will require a substantial amount of reading, active in-class discussion, and attentive development of a serious term paper. The course readings will require about 3 hours per week outside class. Apart from the textbook, they will include some recent journal papers and book chapters.

Textbook: The course textbook is "Behavioral Genetics" by Plomin, DeFries, McClearn and McGuffin 5th edition, Worth, 2008 (ISBN-10: 1429205776).

Websites: The course website can be found at www.carmen.osu.edu. This site is where all course materials and information are made available. The class will also use PubMed to find relevant scientific published articles (<http://www.ncbi.nlm.nih.gov/pubmed>).

Attendance/Participation: Each class will be taught in lecture format **and** class discussions. Active participation from each student will inevitably contribute to a more engaging and entertaining classroom experience for all. Consistent attendance and preparation prior to lecture is required and will not go unnoticed.

Assistance: I am available to talk about the course, the course material, and strategies to improve your learning. I have set office hours but can also answer questions by e-mail or phone, and I will gladly set up an appointment at a time that is mutually acceptable for more lengthy discussions.

Exams: There will be 3 exams in this course: 2 mid-term multiple choice questions (10% of the total grade each) and 1 final exam composed of multiple choice and short-answer questions (50% of the total grade). No make-up exams will be given, except in the case of documented illness or emergency. Prior approval must be received from instructor. In the event of a last-minute emergency, you must email or call the instructor on the same day as the exam, preferably before the exam begins. Acceptable excuses for missing an exam are a death in the family, personal illness or the illness of your child or spouse, and unforeseen accidents. Please obtain documented proof of these events should they occur. If you are late for an exam, you will be allowed to take it but you will have to submit your answers by the closing time like everybody else.

In addition to the 3 exams, students will be asked to provide a one term paper (30% of the total grade).

Details on the term paper: The term paper determines 30% of the course grade. Students can choose any topic related to the course content and course readings, as long as I approve it. The final paper should be about 4,000 to 6,000 words, plus references. It should be a summary of a current hypothesis/hot topic in behavioral genetics. A provisional Abstract/outline/bibliography will be due 3 weeks after the beginning of the semester. This should entail a provisional topic statement/abstract (one paragraph), provisional outline of paper (about a page), and provisional bibliography. The bibliography should list about 10 to 20 that you have actually read, with brief notes about their relevance to your paper. In the abstract, indicate what you think you'll probably write about. If the student changes his/her mind, no problem, just tell me in an email later. But it is important to have some topic in mind by this date. This topic statement/outline will determine 5% of the course grade. Late submissions will be penalized. After students will submit their outline and bibliography, they should come to my office hours at least once for my feedback. The final paper should be a highly polished document in correct format with no spelling or grammatical errors. It should represent the culmination of three months of research, thinking, and writing about a specific topic. The final draft will determine 25% of the course grade and his due 1 week prior the final exam. Late submissions will be penalized.

Grade Evaluation: The final grade is based on the percentage of total points. The 2 first exams will be worth 10%, the final exam 50% and the term paper 30%, for a total of 100%. The best grade in the class (i.e. the person with the highest total score) will be the top of the "A" range (100%). The other scores will be curved from this highest score, e.g. top 10% = A, next 10% = B, etc. It is possible therefore that the entire class could receive an "A."

Academic Ethics: All students enrolled in OSU courses are bound by the Code of Student Conduct (http://studentaffairs.osu.edu/resource_csc.asp). The instructor and course assistants are committed to maintaining a fair assessment of student performance in this course. Suspected violations of the Code will be dealt with according to the procedures detailed in the Code. Specifically, any alleged cases of misconduct will be referred to the Committee on Academic Misconduct. It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all

reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct.

For a good, concise description of academic misconduct and a list of frequently asked questions, see: <http://oaa.osu.edu/coamfaqs.html>.

Accommodations for Students with Special Needs: Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu/>.”

Course Schedule

WEEK	Lecture	CONTENT	CLASS CONTENT	ASSIGNMENT
1	1	Presentation/Overview		
	2	Mendel's Laws of Heredity/DNA: The Basis of Heredity	1st and 2nd law of heredity/ Beyond Mendel's laws	
2	3		DNA: the basis of heredity	
		4	Quantitative genetic experiments to study animal behavior	Read/prepare to discuss a scientific paper
3	5	Animal Models in Behavioral Genetics	Animal studies for identifying genes and gene functions + Discussion on a scientific paper about genetic control of animal behavior	
	6	Nature, Nurture and Human Behavior	Investigating the genetics of human behavior (i.e. the first adoption study of schizophrenia)/Gene mutation and polymorphism	Read/prepare to discuss a scientific paper
4	7		Estimating genetic and environmental influences + Discussion on a scientific paper about gene and environment influencing behavior	
		8	Heritability and gene-environment interactions (animal models and human studies)	
5	9	Pathways between Genes and Behavior	Gene expression and epigenetics	Read/prepare to discuss a scientific paper
	10		Discussion on a scientific paper about epigenetics	
6	11		Genetic of learning and memory and emotion	
	12	Review session	Review the main concepts of Chapters 1-5	
7		MID-TERM #1		
	13	Cognitive Abilities and Disabilities	General cognitive abilities: genetic and environmental influences/ developmental research	
8	14		General cognitive disabilities: single-gene disorders, chromosomal abnormalities + Discussion on a scientific paper about gene and cognitive disabilities	
		15	Genetic and environmental factors of schizophrenia	Read/prepare to discuss a scientific paper
9	16	Schizophrenia and Other Adult Psychopathology	Genetic and environmental factors of Mood and anxiety disorders + Discussion on a scientific paper about causes of adult psychopathologies	
	17	Developmental Psychopathology	Genetic and environmental influences of brain development	Read/prepare to discuss a scientific paper
10	18		Genetic and environmental factors of autism and ADHD + Discussion on a scientific paper about causes of developmental psychopathologies	
		19	Nature-nurture interplay in personality	Read/prepare to discuss a scientific paper
11	20	Personality and Personality Disorders	Personality disorders + Discussion on a scientific paper about the genetic of personality disorders	
	21	Review session	Review the main concepts of Chapters 6-9	
12		MID-TERM #2		
	22	Substance Use Disorders	Alcohol and nicotine dependence (twin studies and animal research)	Read/prepare to discuss a scientific paper
13	23		Other drugs + Discussion on a scientific paper about the complexity of studying the genetics of substance use	
		24	The genetic of obesity	
14	25	Health Psychology and Aging	The genetic of aging	
	26	Review session	Review the main concepts of Chapters 1-11	
		FINAL		

Psychology BS Curricular Map

All courses are three credit hours unless otherwise indicated. Learning Goals follow the course.

Key:

Major Program Learning Goals:

- 1 Students obtain knowledge across a broad spectrum of content domains.
- 2 Students are able to understand and evaluate research methods, designs, and statistics, and have opportunities to apply them in research endeavors.
- 3 Students understand the ethical issues involved in the practice of psychology.
- 4 Students are able to write and communicate effectively in the discipline.
- 5 Students learn in multiple learning environments.

Level of Major Program Learning Goals:

- A. Introductory
- B. Intermediate
- C. Advanced

Pre-Requisite Requirement

1100: General Psychology 1A

Data Analysis & Research Requirements

Students take both of the courses listed below.

2220(H) Data Analysis in Psychology 1A, 2A, 3A, 5A
2300 Research in Psychology 1A, 2A, 3A, 4B

Section II. Core Requirements

Students take one course in each of the 4 areas listed below.

A. Brain & Behavior

3313 Introduction to Behavioral Neuroscience 1B
3513 Introduction to Cognitive Neuroscience 1B

B. Cognitive Psychology

3302 Perception and Language 1B
3310 Sensation and Perception 1B
3312 Memory and Cognition 1B

C. Clinical & Developmental Psychology

3331(H) Abnormal Psychology 1B
3335 Psychology of Adjustment 1B
3340(H) Introduction to Life Span Developmental Psychology 1B
3530 Theories of Personality 1B
3550(H) Psychology of Childhood 1B
3551 Adolescence 1B

D. Social Psychology

3325(H) Introduction to Social Psychology 1B

3367	Social Psychology	1B, 4B
3375	Stereotyping and Prejudice	1B

Section III. Advanced Requirements

Students take at least two courses, one of which must be a Sequenced Advanced Course.

Sequenced Advanced Courses

4305	Psychopharmacology	1C
4475	The Self	1C
4500	Behavioral Neuroscience Laboratory	1C
4501	Advanced Behavioral Neuroscience	1C
4510	Cognitive Psychology Laboratory	1C, 2B, 3B, 4C, 5B
4518	Attitudes: Structure, Function, and Consequences	1C
4520	Social Psychology Laboratory	1C, 2B, 3B, 4C, 5B
4532	Clinical Psychological Science	1C
4540	Counseling Psychology	1C
4554	Language Development	1C
5602	Behavioral Genetics	1C, 2C,
5606	High Level Vision	1C
4630	Attitudes and Persuasion	1C
5652	Behavior Modification with Children	1C
5681	Development and Psychopathology	1C
5684	Psychology of Delinquency	1C

Advanced Courses

4309	Human Motor Control and Learning	1C
4485	Psychology and the Law	1C
4505	The History of Psychology	1C
4508(H)	Psychology of Judgment and Decision-Making	1C
4511	Psychological Testing	1C
4515	Psychology of Emotions	1C
4521	Personnel Psychology	1C
4522	Organizational Psychology	1C
4525	Psychology of Personal Security: Global & Local Perspectives	1C
4531	Health Psychology	1C
4543	Psychology of Gender	1C
4545	Cross-Cultural Psychology	1C
4552	Psychology of the Adult Years	1C
4555	Adolescent Sexuality	1C
4571	Psychology of Developmental Disabilities	1C
5600	Psychobiology of Learning and Memory	1C
5601	Comparative Psychology	1C
5608	Introduction to Mathematical Models	1C
5609	Intro to Mathematical Models in Experimental Psychology	1C
5612	Introduction to Cognitive Science	1C
5613H	Biological Psychiatry	1C
5615	Psychology of Language	1C
5616	Models of Language	1C
5621	Introduction to Event Related Potentials	1C
5717	Interdisciplinary Seminar on Autism Spectrum Disorders	1C
5718	Developmental Disabilities: An Interdisciplinary Perspective	1C
5737	Proseminar in Cognitive Science	1C
5726	Seminar in Behavioral Neuroscience	1C

Section IV. Elective Courses

2301	Psychology of Extraordinary Beliefs	1B
2303	Positive Psychology	1B
2311	Psychology of Motivation	1B
2333	Psychology of Human Sexuality	1B
2350	Contemporary Developmental Psychology	1B
2376	Interpersonal Relationships	1B
2420	Psychology Applied to Sport	1B
2462	Psychology of Creativity	1B
2371(H)	Language and the Mind	1B
3191	Internship in Psychology (variable credit hrs)	3C, 5C
3193.xx	Individual Studies (variable credit hrs)	3B, 4B, 5B
3194	Group Studies (variable credit hrs)	1B
3624	Primate Cognition	1B
4998	Undergraduate Research in Psychology (variable credit hrs)	2B, 3C, 4B, 5B
4999.01	Thesis Research I (2 credit hrs)	2C, 3C, 4C, 5C
4999.02	Thesis Research II (2 credit hrs)	2C, 3C, 4C, 5C
4999.01H	Honors Thesis Research I (2 credit hrs)	2C, 3C, 4C, 5C
4999.02H	Honors Thesis Research II (2 credit hrs)	2C, 3C, 4C, 5C
5797	Study at a Foreign Institution (variable credit hrs)	5C

Psychology BS Curricular Map

All courses are three credit hours unless otherwise indicated. Learning Goals follow the course.

Key:

Major Program Learning Goals:

- 1 Students obtain knowledge across a broad spectrum of content domains.
- 2 Students are able to understand and evaluate research methods, designs, and statistics, and have opportunities to apply them in research endeavors.
- 3 Students understand the ethical issues involved in the practice of psychology.
- 4 Students are able to write and communicate effectively in the discipline.
- 5 Students learn in multiple learning environments.

Level of Major Program Learning Goals:

- A. Introductory
- B. Intermediate
- C. Advanced

Pre-Requisite Requirement

1100: General Psychology 1A

Data Analysis & Research Requirements

Students take all 4 of the courses listed below.

2220(H) Data Analysis in Psychology	1A, 2A, 3A, 5A
2300 Research in Psychology	1A, 2A, 3A, 4B
3321(H) Quantitative and Statistical Methods in Psychology	1B, 2B, 3B, 5B
45xx Advanced Research Course (Psych 4510 or 4520)	1C, 2B, 3B, 4C, 5B

Section II. Core Requirements

Students take one course in each of the 4 areas listed below.

A. Brain & Behavior

3313 Introduction to Behavioral Neuroscience	1B
3513 Introduction to Cognitive Neuroscience	1B

B. Cognitive Psychology

3302 Perception and Language	1B
3310 Sensation and Perception	1B
3312 Memory and Cognition	1B

C. Clinical & Developmental Psychology

3331(H) Abnormal Psychology	1B
3335 Psychology of Adjustment	1B
3340(H) Introduction to Life Span Developmental Psychology	1B
3530 Theories of Personality	1B
3550(H) Psychology of Childhood	1B
3551 Adolescence	1B

D. Social Psychology

3325(H) Introduction to Social Psychology	1B
3367 Social Psychology	1B, 4B
3375 Stereotyping and Prejudice	1B

Section III. Advanced Requirements

Students take at least two courses, one of which must be a Sequenced Advanced Course.

Sequenced Advanced Courses

4305 Psychopharmacology	1C
4475 The Self	1C
4500 Behavioral Neuroscience Laboratory	1C
4501 Advanced Behavioral Neuroscience	1C
4510 Cognitive Psychology Laboratory	1C, 2B, 3B, 4C, 5B
4518 Attitudes: Structure, Function, and Consequences	1C
4520 Social Psychology Laboratory	1C, 2B, 3B, 4C, 5B
4532 Clinical Psychological Science	1C
4540 Counseling Psychology	1C
4554 Language Development	1C
5602 Behavioral Genetics	1C, 2C,
5606 High Level Vision	1C
4630 Attitudes and Persuasion	1C
5652 Behavior Modification with Children	1C
5681 Development and Psychopathology	1C
5684 Psychology of Delinquency	1C

Advanced Courses

4309 Human Motor Control and Learning	1C
4485 Psychology and the Law	1C
4505 The History of Psychology	1C
4508(H) Psychology of Judgment and Decision-Making	1C
4511 Psychological Testing	1C
4515 Psychology of Emotions	1C
4521 Personnel Psychology	1C
4522 Organizational Psychology	1C
4525 Psychology of Personal Security: Global & Local Perspectives	1C
4531 Health Psychology	1C
4543 Psychology of Gender	1C
4545 Cross-Cultural Psychology	1C
4552 Psychology of the Adult Years	1C
4555 Adolescent Sexuality	1C
4571 Psychology of Developmental Disabilities	1C
5600 Psychobiology of Learning and Memory	1C
5601 Comparative Psychology	1C
5608 Introduction to Mathematical Models	1C
5609 Intro to Mathematical Models in Experimental Psychology	1C
5612 Introduction to Cognitive Science	1C
5613H Biological Psychiatry	1C
5615 Psychology of Language	1C
5616 Models of Language	1C
5621 Introduction to Event Related Potentials	1C
5717 Interdisciplinary Seminar on Autism Spectrum Disorders	1C
5718 Developmental Disabilities: An Interdisciplinary Perspective	1C
5737 Proseminar in Cognitive Science	1C

Section IV. Elective Courses

2301	Psychology of Extraordinary Beliefs	1B
2303	Positive Psychology	1B
2311	Psychology of Motivation	1B
2333	Psychology of Human Sexuality	1B
2350	Contemporary Developmental Psychology	1B
2376	Interpersonal Relationships	1B
2420	Psychology Applied to Sport	1B
2462	Psychology of Creativity	1B
2371(H)	Language and the Mind	1B
3191	Internship in Psychology (variable credit hrs)	3C, 5C
3193.xx	Individual Studies (variable credit hrs)	3B, 4B, 5B
3194	Group Studies (variable credit hrs)	1B
3624	Primate Cognition	1B
4998	Undergraduate Research in Psychology (variable credit hrs)	2B, 3C, 4B, 5B
4999.01	Thesis Research I (2 credit hrs)	2C, 3C, 4C, 5C
4999.02	Thesis Research II (2 credit hrs)	2C, 3C, 4C, 5C
4999.01H	Honors Thesis Research I (2 credit hrs)	2C, 3C, 4C, 5C
4999.02H	Honors Thesis Research II (2 credit hrs)	2C, 3C, 4C, 5C
5797	Study at a Foreign Institution (variable credit hrs)	5C