

## Term Information

Effective Term Autumn 2019  
[Previous Value](#) Autumn 2015

## Course Change Information

### What change is being proposed? (If more than one, what changes are being proposed?)

Course number changing from 6808 to 5604. Course description changed in a minor way only. Prerequisite statement changed.

### What is the rationale for the proposed change(s)?

Changing course to 5000 level to accommodate advanced undergraduates interested in the subject material and ensure enough enrollment that the course will be able to be offered.

### What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

None

Is approval of the request contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

## General Information

Course Bulletin Listing/Subject Area Psychology  
Fiscal Unit/Academic Org Psychology - D0766  
College/Academic Group Arts and Sciences  
Level/Career Graduate, Undergraduate  
[Previous Value](#) Graduate  
Course Number/Catalog 5604  
[Previous Value](#) 6808  
Course Title Sex Differences in the Brain and Behavior  
Transcript Abbreviation Sex differences  
[Previous Value](#) Sex Diff Seminar  
Course Description Explores sex differences in the brain & behavior. Students will learn the importance of studying both males & females in neuroscience research & critical research & methodological issues in the study of sex differences. The goal of this course is to understand sex differences in a range of cognitive, emotional & social behaviors as well as sex differences in neurobiology of disease & mental disorders  
[Previous Value](#) This seminar will explore sex differences in both normal and abnormal brain function and behavior and will address the genetic, hormonal and neural bases of these differences.  
Semester Credit Hours/Units Fixed: 3

## Offering Information

Length Of Course 14 Week, 12 Week, 8 Week, 7 Week, 6 Week, 4 Week  
[Previous Value](#) 14 Week, 12 Week  
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** A grade of C- or above in 2220 and 2300 and 3313; or a grade of B or above in 3313 and Neurosc 3000, and Neuroscience major; or Grad standing.

[Previous Value](#)

### Exclusions

**Electronically Enforced** Yes

[Previous Value](#) **No**

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code	42.0101
Subsidy Level	Doctoral Course
Intended Rank	Junior, Senior, Masters, Doctoral
<a href="#">Previous Value</a>	<i>Masters, Doctoral</i>

## 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

- Students will learn the importance of studying both males and females in neuroscience research
  - Students will learn critical research and methodological issues in the study of sex differences
  - Students will learn sex differences in a range of cognitive, emotional and social behaviors
  - Students will learn sex differences in the neurobiology of disease and mental disorders
  - Students will learn the genetic and hormonal pathways by which sex differences are established
  - Students will learn to effectively read, interpret and present primary scientific literature; students will improve oral presentation and teamwork skills
  - Students will gain experience at performing effective scientific literature reviews and using this knowledge to write a clear and comprehensive scientific review term paper
- [Previous Value](#)
- *Students will learn the importance of studying both males and females in neuroscience research*
  - *Students will learn critical research and methodological issues in the study of sex differences*
  - *Students will learn sex differences in a range of cognitive, emotional and social behaviors*
  - *Students will learn sex differences in the neurobiology of disease and mental disorders*
  - *Students will learn the genetic and hormonal pathways by which sex differences are established*

**Content Topic List**

- Sex determination
- Research and methodological issues in the study of sex differences
- Sex differences in HPA axis regulation
- Sex differences in social bonding
- Sex differences in neuroplasticity

**Sought Concurrence**

No

**Attachments**

- Psych 5604 Sex Differences syllabus.docx: Syllabus  
*(Syllabus. Owner: Paulsen,Alisa Marie)*
- Psychology Major Learning Objectives-November 2018.docx: Curriculum Map  
*(Other Supporting Documentation. Owner: Paulsen,Alisa Marie)*

**Comments**

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Paulsen,Alisa Marie	11/01/2018 12:20 PM	Submitted for Approval
Approved	Paulsen,Alisa Marie	11/01/2018 12:20 PM	Unit Approval
Approved	Haddad,Deborah Moore	11/01/2018 01:54 PM	College Approval
Pending Approval	Nolen,Dawn Vankeerbergen,Bernadette Chantal Oldroyd,Shelby Quinn Hanlin,Deborah Kay Jenkins,Mary Ellen Bigler	11/01/2018 01:54 PM	ASCCAO Approval

**Sex Differences in the Brain and Behavior**  
**Psychology 5604**  
**Autumn, 2019**

**Scheduled time/location:** T/TH TBD

**Instructor:** Dr. Kathryn Lenz

Assistant Professor, Departments of Psychology and Neuroscience

Psychology Building, Rm. 45

Phone: 614-292-8565

Email: [lenz.56@osu.edu](mailto:lenz.56@osu.edu)

**Office hours:** TBD

**Course Overview:** This course explores sex differences in the brain and behavior. Specifically, students will learn the importance of studying both males and females in neuroscience research as well as critical research and methodological issues in the study of sex differences. We will cover sex differences in a range of cognitive, emotional and social behaviors as well as sex differences in the neurobiology of disease and mental disorders. The genetic and hormonal pathways by which sex differences are established will be emphasized. We will also consider the similarities and differences between the concepts of sex and gender in each covered topic.

**Learning Objectives:** By the end of the course, students should have a comprehensive, high level understanding of the origin of sex differences in the brain and behavior and the many physiological and behavioral domains in which sex differences are observed. Students should also have increased their skillset in reading and interpreting scientific articles, performing literature reviews on a chosen topic, and practiced effective scientific writing. Students will also gain experience in oral presentation and discussion skills, as well as effective teamwork in leading class discussion with classmates.

**Attendance:** This course is built around in-class presentations by students, thus attendance is required. If you expect to be absent you must obtain permission from the instructor prior to the start of the class. Acceptable excuses 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 no notification is received, the absence will be counted as unexcused. Attendance will count for 20 points of your final grade and will be computed as follows:

20 points = up to 2 excused absences

15 points = 3 excused or 1 unexcused absence

10 points = 4 excused or 2 unexcused absences

5 points = 5 excused or 3 unexcused absences

0 points = 6 or more excused or 4 or more unexcused absences

**Participation:** All students are expected to actively participate in class. The entire course revolves around our ability to read and then discuss a given topic, which means everyone

must contribute. In order to facilitate discussion, each student must prepare 2-3 discussion topics/questions that are to be posted in the Canvas discussion board *prior to class each day* on non-lecture days. A few bulleted sentences outlining thoughts, criticisms, methodological concerns, etc. about the assigned article(s) should suffice. Class participation will account for 20 points of your final grade. You are encouraged to also make regular comments, responses, and questions in class. Discussion board posts and in class oral participation will be combined to compute your participation grade.

**Readings:** Each week you must be prepared to discuss 2-4 pre-assigned journal articles, uploaded to Carmen, on a particular topic. There is no required textbook for this course. However, I recommend Sex Differences in the Brain: from Genes to Behavior (Eds. Becker, Berkley, Geary, Hampson, Herman and Young) for those students that would like a resource with background information relevant to the topics that will be discussed.

**Discussion Leaders:** Beginning in week 3, students will coordinate and lead the discussion based on that week's articles. NOTE: you may have to look up some background information or results from other studies to fully prepare. While I am always available to assist, my preference is each team work independently.

At the beginning of each class, discussion leaders should plan to spend about 20 min elaborating on: (i) the big-picture theme that ties the readings together; (ii) what information from each article informs the theme; and (iii) the paper's methodology and results (research paper) or summary of results (review paper). This is not an exhaustive list and there is no set format. Students are encouraged to be creative in their approach, provided we don't go too far off topic—e.g., you may use powerpoint slides, hand-outs, extra media (e.g., film clips), etc. Following the 20 min introduction you will then lead the remainder of the discussion. Your role as discussion leader will account for 20 points of the final grade.

**Student Presentations:** The final two weeks will consist of student presentations on something related to the topic of sex differences not discussed in class. Your presentation should run about 10 min. Although you can choose a topic of interest, it should be a high-quality research article within the last 3 years. The goal is to expand upon and apply what you've learned in the course. I am happy to provide feedback and guidance as you decide on what topic to present. Your presentation will be worth up to 20 points.

**Exams: 2 exams** will assess your knowledge of the course topics covered in class. Exam format will consist of a combination of multiple choice, matching, true false, and short essay answers. **Each exam will be worth 20 points.**

**Final Paper:** The final paper should be written in a review article format and will expand upon the topic of your student presentation. The length of the paper will be different for undergraduate versus graduate sections of the course. Your final paper will be worth up to 30 points. A rubric and guidelines for completing this paper will be provided in class.

**Undergraduate section:** The paper must be at least 5 double-spaced pages in length (12 pt Arial font; 1 inch margins) not including references.

**Graduate section:** The paper must be 10 double spaced pages in length (12 pt Arial font; 1 inch margins) not including references.

**Grade:** Final grades will be based on standard breakdown percentages, out of 150 points (e.g., 90 for an A-).

Exams:: 40 points: 2 exams at 20 points each

Class attendance: 20 points

Class participation: 20 points

Discussion leader: 20 points

Class presentation: 20 points

Final Paper: 30 points

**The standard OSU grading scale will be used to assign final grades:**

A	93-100%
A-	90-92.9%
B+	87-89.9%
B	83-86.9%
B-	80-82.9%
C+	77-79.9%
C	73-76.9%
C-	70-72.9%
D+	67-69.9%
D	60-66.9%
E	0-59.9%

**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 at <http://studentconduct.osu.edu>.

**Disabilities Statement:** The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12th Avenue.

**Sexual misconduct/relationship violence:** Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds

of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at [titleix@osu.edu](mailto:titleix@osu.edu).

**Course Schedule:** This schedule is *preliminary and subject to change*. A revised syllabus will be handed out the first day of class containing a listing of all reading material. Any other changes will be announced in class and posted on Carmen.

**Week 1:** Introduction/Historical Perspectives; Methodological Issues in the Study of Sex Differences

**Week 2:** Sexual differentiation and Disorders of Sexual Development

**Week 3:** Sexual Differentiation of the Brain: Chromosomes and Hormones

**Week 4:** Sexual Differentiation of the Brain: Hormones and Other factors

**Week 5:** Sexual behavior, Sexual orientation and Gender Identity

**Week 6: Exam 1;** Sex Differences in affiliation and parental behavior

**Week 7:** Sex Differences in Social behavior: social bonding; aggression

**Week 8:** Sex Differences in Neuroplasticity and Cognitive Function

**Week 9:** Sex Differences in Stress, neuroimmunology and pain

**Week 10:** Sex Differences in Feeding, Decision Making, Drug abuse and Reward

**Week 11: Exam 2;** Sex Differences in Neurodevelopmental disorders

**Week 12:** Sex Differences in Mood disorders

**Week 13:** Sex Differences in Aging and Neurological Conditions

**Week 14:** Student Presentations

**Week 15:** Student Presentations

**Week 16:** Student Presentations

## **Psychology Major Learning Objectives**

### **Program Objectives**

#### **Knowledge Base in Psychology**

- K1. Describe key concepts, principles, & overarching themes in psychology
- K2. Develop working knowledge of psychology's content domains
- K3. Describe applications of psychology

#### **Scientific Inquiry & Critical Thinking**

- S1. Use scientific reasoning to interpret psychological phenomena
- S2. Demonstrate psychology information literacy
- S3. Engage in innovative & integrative thinking & problem solving
- S4. Interpret, design, & conduct basic psychological research
- S5. Incorporate sociocultural factors in scientific inquiry

#### **Ethical & Social Responsibility in a Diverse World**

- E1. Apply ethical standards to evaluate psychological science & practice
- E2. Build & enhance personal relationships
- E3. Adopt values that build community at local, national, & global levels

#### **Communication**

- C1. Demonstrate effective writing for different purposes
- C2. Exhibit effective presentation skills for different purposes
- C3. Interact effectively with others

#### **Professional Development**

- P1. Apply psychological content & skills to career goals
- P2. Exhibit self-efficacy & self-regulation
- P3. Refine project-management skills
- P4. Enhance teamwork capacity
- P5. Develop meaningful professional direction for life after graduation

### **Learning Goal Levels**

- F – Foundational
- A- Advanced



I. Data Analysis and Research Requirement																				
Course	Area	K1	K2	K3	S1	S2	S3	S4	S5	E1	E2	E3	C1	C2	C3	P1	P2	P3	P4	P5
2220(H) Data Analysis		F			F	F	F	F					F			F	F	F		
2300 Research Methods		F	F	F	F	F	F	F	F	F	F		F		F	F	F	F		

II. Core Requirements (1 from each area)																				
A. Brain and Behavior																				
Course	Area	K1	K2	K3	S1	S2	S3	S4	S5	E1	E2	E3	C1	C2	C3	P1	P2	P3	P4	P5
3313 Intro to Behavioral Neuroscience	BN	F	F		F	F				F										
3313H Intro to Behavioral Neuroscience	BN	F	F		F	F	F	F		F	F		F	F	F				F	
3513 Intro to Cognitive Neuroscience	CO	F			F	A		F		F			F							
B. Cognitive Psychology																				
3302 Perception & Language	CO	A	A	A	A	A	F		F											
3310 Sensation & Perception	CO	A	A	F	A	F	F									F				F
3312 Memory & Cognition	CO	A	A	F	A	A	F	F	F	F			F	F	F					F
C. Clinical and Developmental Psychology																				
2367.02 Abnormal Psychology Analysis	CL	F	F	F	F		F						F		F				F	
3331 Abnormal Psychology	CL	F	F	A	A			A	A											
3335 Psychology of Adjustment	CL	F																		
3340 Lifespan Development	D	F	F	F	F	F						F	F							
3530 Theories of Personality	CL	A	A	A	A	F	F	F	A	F	A		F					F		

3550 Psychology of Childhood	D	F	F	F	F	F						F	F						
3551 Psychology of Adolescence	D	F		F	F	F		F						F					F
<b>D. Social Psychology</b>																			
2367.01 Social Psychology	S	F	F,A	F,A	F	F,A	F,A	F		F		F	F,A	F	F	F	F,A	F	F
3325 Intro to Social Psychology	S	F	F,A	F,A	F	F,A	F	F		F		F				F			
3375 Stereotyping and Prejudice	S	F	F	F,A	F	F	F	F	F	F	F	F,A			F	F,A			

<b>III. Advanced Requirements</b>																				
Course	Area	K1	K2	K3	S1	S2	S3	S4	S5	E1	E2	E3	C1	C2	C3	P1	P2	P3	P4	P5
<b>Sequenced Advanced Courses</b>																				
4305 Intro to Psychopharmacology	BN	A	A	A	A	A	A	A	A											
4475 The Self	S	A	A	A	A		A		A		A	A			A	A				A
4501 Advanced Behavioral Neuroscience	BN	A	A	A	A	A	A	A												
4510 Cognitive Psychology Laboratory	CO	A	A	A	A	A	A	A		A			A	A	F	F				
4518 Attitudes	S	F,A	F,A	F	F,A	F,A	F	F	F		F	F				F	F	F		
4520 Social Psychology Laboratory	S	A		F,A	F,A	F,A	A	F,A	F,A	F,A		A	A	A		F,A	F,A	A	A	A
4532 Clinical Psychology Science	CL	A	A	A	A		A	A		F,A						A				A
4540 Counseling Psychology	CL	F,A	F,A	F	F	F	F		F	F	F,A	F			F	F				
4630 Attitudes and Persuasion	S	F,A	F,A	F,A	F,A	F	F	F,A	F			F	F,A		F	F	F	F		
4644 Hormones and Behavior	BN	A	A	A	A	A	A	A												
5250 Mood Disorders	CL	A	A	A	A	F	A	A	F					F	F					

5600 Psychobio. of Learning and Memory	BN	A	A	A	A	A			A	A	A									
5602 Behavioral Genetics	BN	A	A	A	A	F	F	A	A											
5604 Sex differences in the brain and behavior	BN	A	A		A	A	A	A		F	F	A	F	F		F	F	A		
5606 High Level Vision	CO	A	A	F	A	F	A	A					A	A	F					
5614 Cognitive Neuroscience	CO	A	F	F	A	A	F	A	F	F			F	A	A				A	A
5622 Development of Brain and Behavior	BN	A	A	A	A	A	A	A	A					A	A					
5681 Development and Psychopathology	CL	A		A	A				F											
5684 Psychology of Delinquency	D	A	A	A	A	A	A	F	A	A	F	A	A	F	A	A	A	F	F	A
<b>Advanced Courses</b>																				
4309 Human Motor Control	CO	A	A	A	A	A	F	F					F			F				
4485 Psychology and the Law		F,A	F,A	F,A	F,A	F	F	F	F	F	F	F	F,A	F,A		F,A				
4505 History of Psychology		A	F,A	A	F	A			A	F										
4508(H) Judgment and Decision-Making	Q	F	F	A	F		F	F	F											
4511 Psychological Testing		F	F	F	A	F		A		F			F	F		F				
4515 Psychology of Emotion	S	A,F	A,F	A,F	A,F	A,F		A,F	A,F	F	F					F			F	
4521 Personnel Psychology		F,A		F,A	F,A	F,A	F,A	F,A	F,A	F	F,A	F,A	F,A	F,A	F,A	F,A	F	F,A	F	F,A
4522 Organizational Psychology		A,F	A,F	A,F	F	F	A,F	F	F	F,A			F	F	F	F,A	F	F		F
4531 Health Psychology	CL	A	A	A	A	F	F			A	F		F		F	F	F	F	F	A
4543 Psychology of Gender	CL	A	F	A	A	A	F	F	A		A	F	F	F	A	F	A	F	F	F
4545 Cross-Cultural Psychology	CL	F,A	F,A	A	A	F	F	F	F	F	F,A	F,A	F	F	F	F			F	

4552 Psychology of Adult Years	D	F		F	F	F													
4554 Language Development	D		A		A	A	A	F					A	A					
4555 Adolescent Sexuality	D	F		F	F	F		F					F	F					F
4571 Psychology of Dev. Disabilities	I	F		F	F	F, A							F, A						F
5601 Comparative Psychology		A	A		A	A													
5608 Introduction to Mathematical Models	Q	F			A			A											F
5610 Emotion Regulation	CL	A	A	A	A	A	A	F	F	F			A		A	A			
5613H Biological Psychiatry	BN	A	A	A	A	A	A												
5615 Psychology of Language	CO				F	F	F	F	F	F			F						
5618 Computational Cog. Neuroscience	CO	A	A	A	F	F	F						F	A	F	F			
5621 Intro to Event-Related Potentials	CO	A	A	A	A	F	A	A		F	F	F	F	A	F	F			A
5832 Lifespan Sociomoral Development	D	A	F		F	A							A						
5898 Seminar in Behavioral Neuroscience	BN	A	A	A	A	A	A	A	A					A	A				

**IV. Elective Courses**

Course	Area	K1	K2	K3	S1	S2	S3	S4	S5	E1	E2	E3	C1	C2	C3	P1	P2	P3	P4	P5
2301 Psychology of Extraordinary Beliefs	Q	F			A				F	F										
2303 Positive Psychology	CL	F		F	F	F	F	F		F	A	A	F		F	F	F			
2311 Psychology of Motivation	CO	A	A	F	F	F	F								F	F	F			
2333 Psychology of Human Sexuality	CL	A	F	F	F	F			F	F	A	A			F	F	F			
2350 Contemp. Developmental Psychology	D	F		F	F		F					F								
2376 Interpersonal Relationships	S	F,A		F,A	F	F		F	F		F				F	F		F	F	
2420 Psychology Applied to Sport		F		F,A	F,A	F			F	F	F				F	F			F	
2462 Psychology of Creativity							F,A				F	F		F	F	F,A				
3321(H) Quant. and Statistical Methods		F			A	F	F	F	F											
3371 Language and the Mind	CO	A	F		A	F		F	F		F		F	A	A	A	F	F	F	
3624 Primate Cognition		F	F		F	F				F										
4320 Psychological Science of Addiction		F	F	F			F													
4525 Psychology of Personal Security	S	A		F,A	F,A	F	F,A		F	F,A	F	F,A	F,A		F	F	F	F		
5425 Introduction to fMRI	CO	A		F,A	F,A	F	F,A			F,A	F	F,A	F,A		F	F	F	F		
5603 Stem Cells and the Brain	BN	A	A	A	A	A	A	A	A											
5612 Introduction to Cognitive Science	CO	A	A		F	F	F						F							
5620 Technology, Efficiency, and Happiness	CO	A	F	A	F	F	F	F				F	F	A		F				
5628 Developmental Cognitive Neuroscience	CO	A	A	A	A	A	A	A	A	A		A	A	A	A					

5870 Neuroeconomics and Decision Neuroscience	D	F	F	A	A		F	F	F											
5891 Proseminar in Cognitive Science	CO	A	A	A	A	A	A	A		A			A	A	F					
Experiential Elective Courses																				
3191 Internship in Psychology		F		F		F					A	F, A	F		A	F, A	F, A		A	F, A
3193.01 Individual Studies in Psychology		A				A														
3193.02 Individual Studies: Teaching		A	F,A	F,A	F,A	A	A	F	F	F	A	F, A	A	A	A	F, A	F	F, A	A	A
4998 Undergraduate Research		A			F,A	A	F, A	F,A		F,A					A					
4999.01(H) Thesis Research I			A		A	A	A	A		A	A		A	A		A	A	A		A
4999.02(H) Thesis Research II			A		A	A	A	A		A	A		A	A		A	A	A		A
5700 Science Education Outreach	D		A	A	A	A		A	A			A		A	A	A	A		A	