



Psychology 331: Physiological Psychology

Location
Loras College

Science Hall 208
T/TH 2:00-3:20

Psychology Program

Fall 2017

Instructor: Jake Kurczek, PhD
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Office Hours: By appointment

Textbook: *None*
Additional journal articles and materials will be assigned as needed and posted to the course website

Class Website: You will be able to find PDFs of the lectures and discussions posted to the course website

Course Goals and Overview

This course is titled Physiological Psychology, but could also be called behavioral neuroscience, psychobiology, biopsychology, or brain and behavior. By its nature, Physiological Psychology is a very interdisciplinary area and our discussions will include aspects of anatomy, genetics, cell biology, chemistry, physiology, pharmacology, etc. Some background in biology, physiology or microbiology is helpful but not imperative. Physiological psychology and neuroscience-related topics are rapidly developing areas -- many of the questions posed do not yet have answers. This makes study in the area particularly exciting, but at the same time difficult.

Primary Course Objectives

- To gain factual knowledge that includes terms and methodology related to Physiological Psychology.
- To gain a fundamental understanding of principles, ideas, and theories related to Physiological Psychology.
- To apply the course material to psychological and biological issues, such as drug abuse, motor control, emotions, learning, and memory.

Learning Outcomes

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- Students will be able to identify biological/neural structures and their associated functions
- Students will be able to apply factual knowledge about the brain to physical and mental functions and abnormalities.
- Students will demonstrate critical thinking about the advancement of physiological psychology and its application to affect, behavior, cognition, and disease.

Course Requirements, Policies and Assignments

Digital Storytelling	25
Presentation	3
Neurological Case Study	14
Literature Critique	7
Reflection Paper	3
Engagement	45
News Update	3
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Total	100

Digital Storytelling. As a class, we will create a web-based resource for students and adults to learn about how psychology interfaces with life. My thinking is that this resource will help understand the applications and misapplications of psychology to our lives. Others who are eager to learn about psychology and science should have access to this material for teaching and learning alike. A digital storybook of the psychology topic of your choice should be designed for an educated general audience. Your portfolio should contain 3 different ways of presenting different types of different information about your topic. Each time you turn something in, it should be in APA style (if appropriate).

This digital storybook should include the following aspects

An overview of the topic

Interesting/Analytic Components

Interactive components that can teach you more about the topic (e.g. data visualization, games, demonstrations, other resources)

Digital Storytelling Presentation. Psychology conferences typically host symposium sessions, in which researchers construct talks to present their research findings from a recent study or studies. The last few days of class will consist of an academic symposium. During the session, each student will present their digital story that they have developed over the course of the semester. Each presentation should be 5 minutes with a minute for questions.

Neurological Case Study

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Case studies most often describe individuals with rare, unique, and abnormal conditions. You'll choose a condition, find an example case and produce a summary of the case with a presentation.

Literature Critique

One of the most important skills to acquire in any scientific field is the ability to think critically about a given topic. In this course you will be required to find an article from BioArXiv or PsyArXiv that reports on a physiological psychology-related topic. In groups, your assignment is to review this article, as well as five (5) relevant peer-reviewed journal publications, and write a 5-page paper that includes the following:

- 1) A summary of the popular article, specifically those points that are relevant to the course (basically the abstract and any complicating portions)
- 2) A brief description of the peer-reviewed articles that you found (1 paragraph across all 5 max)
- 3) A synthesizing analysis of the validity of the pre-publication.
- 4) An analysis of the methods

Critique will be graded on the group's ability to:

- 1) Identify the main findings of the main article and the relevant findings from scientific sources
- 2) Synthesize and evaluate reporting from both main and scientific sources
- 3) Write effectively and concisely

Reflection Paper. Students are asked to write a 3 page, double-spaced reflection paper reacting to the experience of researching a topic and what the process was like. Also, discuss why the topic is significant to people in general.

News Updates. Students will be asked to give a presentation of 2-4 minute each on topics of their choice across the semester. These presentations will give students an opportunity to summarize either a current event or research finding and discuss how it relates to psychology.

Engagement

Critical Thinking Journal. Over the course of the semester I will ask students to respond to questions in-class. You must be present in order to receive credit. If you will be absent any given day, make sure to send me an e-mail **before** class.

In-Class Participation/Activities/Discussion. I look forward to this being an active class where we discuss ideas and participate in a number of different activities. I will post questionnaires/surveys and other aids to facilitate in class experiments and inquiries, please do your best to fill them out on time.

Out of class engagement. In addition to learning, the college experience involves building relationships with peers and faculty. For many students, interactions with faculty take place only in the classroom. For students at small liberal arts colleges, though, students and faculty often meet serendipitously both on and off campus. Thus, by attending guest lectures, meetings and other campus community events you can

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contribute to our learning experience. Further you can contribute to your peers learning by bringing our attention to relevant new studies or information by posting on twitter or instagram and tagging me (@engagedbrain) or through our course webpage.

Comprehension Checks. There will be exams/quizzes in class. The exam questions may include the following question formats: multiple-choice; fill-in-the-blank; matching; true/false; and short-answer sections. Everything that is presented in lecture and in the article/chapter readings will be fair game. Note also, that some of the lecture material will be non-overlapping with the article/textbook, as lectures are designed to augment, or expand upon, the article/chapter readings. Your lowest 10% of scores will be dropped.

Schedule

Important Dates

8/28 – First day of classes

9/4 – Labor Day

9/15 - Last day to drop classes without “W”

10/7 - Homecoming

10/16-10/17 – Fall Free Days

10/27 - Last day to drop without receiving an “F”

11/10 – Nick Wetjen Visit

11/22-11/24 – Thanksgiving

12/8 – Last Day of Class

12/11-12/14 – Final Exams

Day	Topic	Reading	Assignment
8/29	Introduction / Foundations	(Franz, 1912)	
8/31	Cells of the Nervous System	(Patestas & Gartner, 2006)	Syllabus Assignment
9/5	Electrical Signaling	(Katz, 1959)	
9/7	Synapses	(McConnell & Hull, 2011)	
9/12	Anatomy of the Nervous System	(Blumenfield, 2002)	
9/14	Plasticity	(Clifford, 1999)	

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9/19	Literature Critique		
9/21	Hemispheric Specialization	(Banich, 2004)	
9/26	Psychopharmacology	(U.S. Congress, Office of Technology Assessment, 1993)	
9/28	Peer Review		
10/3	Methods	(Kable, 2011)	
10/5	Sleep and Consciousness	(Carskadon, Dement, & others, 2005)	
10/10	Internal Regulation / Reproductive Behavior	(Berridge, 2004)	
10/12	Peer Review		
10/17	Fall Free Days - No Class		
10/19	Stress and Health	(McEwen & Gianaros, 2010)	
10/24	Emotional Processing	(Lindquist, Wager, Kober, Bliss-Moreau, & Barrett, 2012)	
10/26	Social Cognition	(Frith & Frith, 2012)	
10/31	Decision-Making	(Fellows, 2004)	
11/2	Language	(Poeppel, Emmorey, Hickok, & Pylkkanen, 2012)	
11/7	Memory	(Milner, Squire, & Kandel, 1998)	

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11/9	Memory	(Cabeza & Moscovitch, 2013)	Neurological Disorders Case (11/11)
11/14	Neurological Disorders Case		
11/16	Neurological Disorders Case		
11/21	Peer Review		
11/23	Thanksgiving - No Class		
11/28	Executive Functions	(Jurado & Rosselli, 2007)	
11/30	Executive Functions	(Stuss, 2011)	Digital Storytelling Presentation (12/1)
12/5	Presentations		
12/7	Presentations		
12/11-12/14	Finals		Reflection

Case Studies

Category	Condition
Perceptual Disorders	Prosopagnosia
	Disorder of Proprioception
	Hemiplesia
	Achromatopsia
	Cluster Headaches

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	Phantom Limb
	Charles Bonnet Syndrome
	Hemineglect
	Anosognosia
	Capgrass Syndrome
Motor Disorders	Tourettes
	Huntington's
	Wilson's Disease
	Multiple Sclerosis
	Myasthenia Gravis
Language Disorders	Broca's Aphasia
	Landau-Kleffner Syndrome
	Wernicke's Aphasia
Memory Disorders	Amnesia
	Korsakoff's Syndrome
	Dementia
Miscellaneous	Prion Disease
	Mercury Poisoning
	Epilepsy
	Syphilis
	Acromegaly
	Pathological Laughter
	Pseudocyesis
	Trigeminal Neuralgia
	Bell's Palsy
	ALS

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	Kluver-Bucy Syndrome
	Locked-In Syndrome
	Narcolepsy
	Neuronal Migration Disorders
	Guillain-Barré Syndrome
	Sleep Apnea

Cases not allowed: ADHD, Addiction, Anxiety, Autism, Alzheimer's, Depression, Schizophrenia, Stroke, TBI/CTE