

## Instructor/TA Info

### Instructor Information

**Jaycie Loewen:** Jaycie Loewen

**Office Location:** Zoom

**Office Phone:** N/A

**Office Hours:** Only By Appointment

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## Course Information

### Description

Students will be given an overview of the field of Behavioral Neuroscience. They will learn the basic functioning and structure of the nervous system, the interaction between various parts of the nervous system and the body and related behavioral manifestations. Students will explore the underlying neurophysiology and pathology related to the senses, movement, sleep, reproduction, emotion, ingestion, learning and memory. They will also learn about the neurophysiology involved in communication, neurological, psychiatric, substance abuse and trauma-related disorders. The course will be geared towards students training to work in teaching, therapeutic, and educational settings.

### Materials

Item	Price (new)	Price (used)
 <u>WHOLE-BRAIN CHILD (P)</u> - Required by SIEGEL	17.00	12.75
 <u>No-Drama Discipline</u> - Required by Siegel	17.00	12.75
 <u>Physiology of Behavior, global edition, 12e</u> - Required by Carlson		

### Learning Outcomes

#### Basic principles of neuroanatomy and neurophysiology

1. Discuss basic principles of neuroanatomy and neurophysiology.

#### Psychotropic drugs

2. Critically discuss the way in which psychotropic drugs are distributed, metabolized, and excreted.

#### Way in which different psychotropic agents modify behavior

3. Compare and contrast the way in which different psychotropic agents modify behavior by altering neurotransmitter systems.

#### Drug classification

4. Describe drug classification and which drugs are used to treat different disorders.

#### Psychobiology of drug abuse

5. Be familiar with the psychobiology of drug abuse, classes of abused drugs, and drug abuse treatment alternatives.

#### Neurologic impairment

6. Be familiar with various forms of neurologic impairment and accompanying behavioral manifestations.

### Grading Scale

Grades	Percent
A	93%
A-	90%
B+	87%
B	83%
B-	80%
C+	77%

C	73%
C-	70%
D+	67%
D	63%
D-	60%
E	0%

### Grading Policy

Grades for all assignments will be recorded in Gradebook. It is the students' responsibility to monitor their grades on Gradebook and to notify the instructor of any missing or incorrect grade. Any missing or incorrect grades from the midterm memorandum and final paper or from work turned in on the day of the final exam or before must be brought to the attention of the instructor by the day before the date that final grades are due to the registrar's office. Requests to fill in missing grades or to alter incorrect grades will not be accepted after this deadline. Finally, any missing or incorrect grades brought to the instructor's attention must be backed up by evidence of the correct grade and that the work was turned in on time.

### Participation Policy

This will constitute 13.3% of the students' grades. In order to have engaging discussions about the course material, students will need to come prepared for class having read the assigned readings. Rather than having weekly quizzes, class participation will be used to evaluate whether the student has completed the assigned reading material. I will make every effort to make sure students each have an opportunity to participate. If you have any concerns about class participation, please speak with me after the first class. Absences excused by the instructor will not be counted against his or her class participation grade.

### Attendance Policy

Students are expected to attend all classes except for emergencies and absences excused by the instructor. If they cannot attend a class, they should let the instructor know and find out how to make up what was missed in the class.

### Classroom Procedures

Please be respectful in our classroom. Please turn off cell phones while in class. Computers are welcome for note taking but please refrain from surfing the internet, answering email, texting...etc. during class times. These activities are distracting to the students around you and your instructor and your participation and contributions are important. Periods of self study during class time may be allowed on a case to case basis.

## Assignments

### Assignment Descriptions

#### Memorandum or briefing

May  
23

Due: Saturday, May 23 at 11:59 pm

(Worth **26.7%** of student's grade)

- Students will be expected to prepare a single-page memorandum, or briefing, on a clinic case or disease that includes a background, the problem, some possible solutions (with pros and cons), and final recommendation(s) (these can be implications, possible impact, etc.).

- Focus on being precise and direct.

- The assignment should follow the general format presented as shown by this article by The University of Edinburgh ([https://www.ed.ac.uk/files/atoms/files/how\\_to\\_write\\_a\\_research\\_briefing\\_oct2016.pdf](https://www.ed.ac.uk/files/atoms/files/how_to_write_a_research_briefing_oct2016.pdf) ([https://www.ed.ac.uk/files/atoms/files/how\\_to\\_write\\_a\\_research\\_briefing\\_oct2016.pdf](https://www.ed.ac.uk/files/atoms/files/how_to_write_a_research_briefing_oct2016.pdf)))

- Students will be expected to utilize multiple sources including peer reviewed journal articles. Their research should extend beyond what is covered in the texts. **Sources must be cited.**

***- In text and reference list ( citation style up to you - I would suggest in text numerical for space as one option). Include separate document with ref list or add to back or bottom of briefing main document.***

- Approval by instructor is advised but not required.

#### Peer Review

Jun  
01

Due: Monday, Jun 01 at 11:59 pm

Worth 13.3% of student's grade

Students will review a random mid-term memorandum prepared by another student as assigned by the instructor.

- Students are expected to provide reviews that provide quality, critical assessment of the memorandum/briefing, additional scientific literature or resources to support, challenge, and overall improve the memorandum, and provide comments with a supportive and positive message

- Students may choose how to organize their review (for example, whether comments are made on the file itself or provided in a separate document).

Jun  
05

Due: Friday, Jun 05 at 11:59 pm

(Worth 13.3% of students' grade)

- Each student will choose a disorder and/or therapeutic approach and/or neurobehavioral theory that has an underlying neurophysiological etiology with connections to behavioral manifestations neural systems such as: visual, auditory, body and chemical senses, sleep, movement, reproduction, emotion, ingestion, learning and memory.
- Each student will prepare a PowerPoint presentation that includes a background, body, and conclusions.
- Each student will be expected to present a **20-minute** PowerPoint to the class via Zoom and screen sharing,
- They will also be asked to describe and answer questions related to the underlying physiological mechanisms, based on readings from Carlson and Birkett (12<sup>th</sup> Edition), or their chosen topic.
- Students will be expected to research their disorder using multiple sources including peer reviewed journal articles. Their research should extend beyond what is covered in the texts. **Sources must be cited.**
- Students should include some interesting clinical examples (case studies, for example) and they can use video content (up to 2-3 minutes) if so desired.
- They must also demonstrate an understanding of what can be known about their topic based on an understanding of behavioral neuroscience and its limitations for understanding the brain/mind.
- Focus topics must be preapproved by the instructor by **May 7<sup>th</sup>**.
- **PowerPoints should be uploaded to BYU Learning Suite (or emailed to the instructor if problems occur) prior the class session in which the student is presenting.**

#### Student Participation

Jun  
13

Due: Saturday, Jun 13 at 11:59 pm

(Worth 13.3% of student's grade)

- Students are expected to come to class prepared and participate in discussions.

#### Student Research Paper

Jun  
17

Due: Wednesday, Jun 17 at 11:59 pm

(Worth 33.3% of students' grade)

Students will be expected to write up a research proposal OR literature review that is 5-8 pages.

- Research proposals should cover the design of a study based that has the potential to advance understanding in the field of behavioral neuroscience. Proposals may cover a previously discussed disorder or therapy (such as in the memorandum) but it is expected that the proposal will have unique and original content. The study should provide 1) very brief literature review in the introduction that can summarize the findings, 2) the proposed idea/hypothesis, 3) proposed methods, 4) expected outcomes and potential future directions.
- Literature reviews should cover recent research published in the scientific literature relating to a disease or therapeutic approach related to behavioral neuroscience. Reviews may cover a previously discussed disorder or therapy (such as in the memorandum) but it is expected that the proposal will have unique and original content. The review should provide 1) an overview of the history of their topic of choice 2) a discussion of recent publications/research findings related to their topic of choice 2) a proposal of future directions of the field based on recent research.
- Proposal of topics may be sent to the instructor at any time but are required by **May 30<sup>th</sup>**

#### APA Formatting

## University Policies

#### Honor Code

In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university. Students are also expected to adhere to the Dress and

Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation, and every instructor's expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have questions about those standards.

## **Preventing Sexual Misconduct**

In accordance with Title IX of the Education Amendments of 1972, Brigham Young University prohibits unlawful sex discrimination against any participant in its education programs or activities. The university also prohibits sexual harassment-including sexual violence-committed by or against students, university employees, and visitors to campus. As outlined in university policy, sexual harassment, dating violence, domestic violence, sexual assault, and stalking are considered forms of "Sexual Misconduct" prohibited by the university.

University policy requires all university employees in a teaching, managerial, or supervisory role to report all incidents of Sexual Misconduct that come to their attention in any way, including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Incidents of Sexual Misconduct should be reported to the Title IX Coordinator at [t9coordinator@byu.edu](mailto:t9coordinator@byu.edu) or (801) 422-8692. Reports may also be submitted through EthicsPoint at <https://titleix.byu.edu/report> (<https://titleix.byu.edu/report>) or 1-888-238-1062 (24-hours a day).

BYU offers confidential resources for those affected by Sexual Misconduct, including the university's Victim Advocate, as well as a number of non-confidential resources and services that may be helpful. Additional information about Title IX, the university's Sexual Misconduct Policy, reporting requirements, and resources can be found at <http://titleix.byu.edu> (<http://titleix.byu.edu>) or by contacting the university's Title IX Coordinator.

## **Student Disability**

Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. A disability is a physical or mental impairment that substantially limits one or more major life activities. Whether an impairment is substantially limiting depends on its nature and severity, its duration or expected duration, and its permanent or expected permanent or long-term impact. Examples include vision or hearing impairments, physical disabilities, chronic illnesses, emotional disorders (e.g., depression, anxiety), learning disorders, and attention disorders (e.g., ADHD). If you have a disability which impairs your ability to complete this course successfully, please contact the University Accessibility Center (UAC), 2170 WSC or 801-422-2767 to request a reasonable accommodation. The UAC can also assess students for learning, attention, and emotional concerns. If you feel you have been unlawfully discriminated against on the basis of disability, please contact the Equal Employment Office at 801-422-5895, D-285 ASB for help.

## **Academic Honesty**

The first injunction of the Honor Code is the call to "be honest." Students come to the university not only to improve their minds, gain knowledge, and develop skills that will assist them in their life's work, but also to build character. "President David O. McKay taught that character is the highest aim of education" (The Aims of a BYU Education, p.6). It is the purpose of the BYU Academic Honesty Policy to assist in fulfilling that aim. BYU students should seek to be totally honest in their dealings with others. They should complete their own work and be evaluated based upon that work. They should avoid academic dishonesty and misconduct in all its forms, including but not limited to plagiarism, fabrication or falsification, cheating, and other academic misconduct.

## **Inappropriate Use Of Course Materials**

All course materials (e.g., outlines, handouts, syllabi, exams, quizzes, PowerPoint presentations, lectures, audio and video recordings, etc.) are proprietary. Students are prohibited from posting or selling any such course materials without the express written permission of the professor teaching this course. To do so is a violation of the Brigham Young University Honor Code.

## **Mental Health Concerns**

Mental health concerns and stressful life events can affect students' academic performance and quality of life. BYU Counseling and Psychological Services (CAPS, 1500 WSC, 801-422-3035, [caps.byu.edu](http://caps.byu.edu)) provides individual, couples, and group counseling, as well as stress management services. These services are confidential and are provided by the university at no cost for full-time students. For general information please visit <https://caps.byu.edu> (<https://caps.byu.edu>); for more immediate concerns please visit <http://help.byu.edu> (<http://help.byu.edu>).

## **Plagiarism**

Intentional plagiarism is a form of intellectual theft that violates widely recognized principles of academic integrity as well as the Honor Code. Such plagiarism may subject the student to appropriate disciplinary action administered through the university Honor Code Office, in addition to academic sanctions that may be applied by an instructor. Inadvertent plagiarism, which may not be a violation of the Honor Code, is nevertheless a form of intellectual carelessness that is unacceptable in the academic community. Plagiarism of any kind is completely contrary to the established practices of higher education where all members of the university are expected to acknowledge the original intellectual work of others that is included in their own work. In some cases, plagiarism may also involve violations of copyright law. Intentional Plagiarism-Intentional plagiarism is the deliberate act of representing the words, ideas, or data of another as one's own without providing proper attribution to the author through quotation, reference, or footnote. Inadvertent Plagiarism-Inadvertent plagiarism involves the inappropriate, but non-deliberate, use of another's words, ideas, or data without proper attribution. Inadvertent plagiarism usually results from an ignorant failure to follow established rules for documenting sources or from simply not being sufficiently careful in research and writing. Although not a violation of the Honor Code, inadvertent plagiarism is a form of academic misconduct for which an instructor can impose appropriate academic sanctions. Students who are in doubt as to whether they are providing proper attribution have the responsibility to consult with their instructor and obtain guidance. Examples of plagiarism include: Direct Plagiarism-The verbatim copying of an original source without acknowledging the source. Paraphrased Plagiarism-The paraphrasing, without acknowledgement, of ideas from another that the reader might mistake for the author's own. Plagiarism Mosaic-The borrowing of words, ideas, or data from an original source and blending this original material with one's own without acknowledging the source. Insufficient Acknowledgement-The partial or incomplete attribution of words, ideas, or data from an original source. Plagiarism may occur with respect to unpublished as well as published material. Copying another student's work and submitting it as one's own individual work without proper attribution is a serious form of plagiarism.

## **Respectful Environment**

"Sadly, from time to time, we do hear reports of those who are at best insensitive and at worst insulting in their comments to and about others... We hear derogatory and sometimes even defamatory comments about those with different political, athletic, or ethnic views or experiences. Such behavior is completely out of place at BYU, and I enlist the aid of all to monitor carefully and, if necessary, correct any such that might occur here, however inadvertent or unintentional. "I worry particularly about demeaning comments made about the career or major choices of women or men either directly or about members of the BYU community generally. We must remember that personal agency is a fundamental principle and that

none of us has the right or option to criticize the lawful choices of another." President Cecil O. Samuelson, Annual University Conference, August 24, 2010 "Occasionally, we ... hear reports that our female faculty feel disrespected, especially by students, for choosing to work at BYU, even though each one has been approved by the BYU Board of Trustees. Brothers and sisters, these things ought not to be. Not here. Not at a university that shares a constitution with the School of the Prophets." Vice President John S. Tanner, Annual University Conference, August 24, 2010

## Schedule

Date	Column 1	Column 2
Week 1		
T Apr 28 Tuesday	Meet and Greet Lecture - Introduction to the Nervous System	Carlson & Birkett Chapter 1 Optional
Th Apr 30 Thursday	Review: Structure of the Nervous System/ Neural Communication  Lecture: Drugs, Medicines, and the Brain  Group Work: Clinical Cases	Carlson & Birkett Chapters 2 & 3 Optional
Week 2		
T May 05 Tuesday	Molecular psychopharmacology	Carlson & Birkett Chapter 4, Pediatric Epilepsy Mechanisms: Expanding the Paradigm of Excitation/Inhibition Imbalance
Th May 07 Thursday	Integrating brain functions and implications for therapy across all ages, parenting, and counseling	Selected sections from  - No Drama Parenting (Siegal & Bryson) - The Whole-Brain Child (Siegal & Bryson) - Integrating Neuroscience Into Counseling Psychology- A Systematic Review of Current Literature - Neurovascular coupling biomarkers (Allen and Epps)
Week 3		
T May 12 Tuesday	Vision & Audition	Carlson & Birkett, Chapters 6 & 7
Th May 14 Thursday	The Body and the Chemical Senses, Substance Abuse & Movement	Carlson & Birkett, Chapters 7, 9 and 18
Week 4		
T May 19 Tuesday	Sleep and Wakefulness/Ingestion	Carlson & Birkett, Chapters 9 & 12, student presentations
Th May 21 Thursday	Emotion/Learning and Memory "How to do a peer review"	Carlson & Birkett, Chapters 11 & 13 student presentations
Sa May 23 Saturday		
Week 5		
M May 25 Monday	<b>Memorial Day</b>	
T May 26 Tuesday	Reproduction/ Mindfulness	Carlson & Birkett, Chapter 10, student presentations
Th May 28 Thursday	Neurological Disorders	Carlson & Birkett, Chapters 15, student presentations
F May 29 Friday	<b>Instructor Ratings Open</b>	
Sa May 30 Saturday		
Week 6		

M Jun 01 Monday	<b>Peer Review</b>	
T Jun 02 Tuesday	Stress, Anxiety & Neurodevelopmental Disorders	Carlson & Birkett, Chapter 17
Th Jun 04 Thursday	Human Communication/Speech & Language Pathology	Carlson & Birkett, Chapter 14
F Jun 05 Friday		
Week 7		
T Jun 09 Tuesday	Schizophrenia & Affective Disorders	Carlson & Birkett, Chapters 16
Th Jun 11 Thursday	Group reviews and discussion	One on one meetings to discuss final paper
Sa Jun 13 Saturday		
Week 8		
M Jun 15 Monday		
T Jun 16 Tuesday	<b>Spring Exam Preparation (06/16/2020 - 06/16/2020)</b>	
W Jun 17 Wednesday	<b>First Day of Spring Final Exams (06/17/2020 - 06/18/2020)</b>	Final research paper or literature review DUE by midnight
Th Jun 18 Thursday		