



**Master of Applied Psychology (MAP)**  
**Graduate School of Applied and Professional Psychology (GSAPP)**  
Rutgers University  
New Brunswick, New Jersey  
SPRING 2021

**18:844:507 Biological Bases of Behavior**  
Credits: 3; Level: Graduate  
Tuesday, 3:35-6:05pm

**Instructor:** Melissa Pedroza

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**Office Hours:** By appointment as needed.

The instructor will make every reasonable effort to meet with students whenever necessary.

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**Rutgers University Mission:** As the premier comprehensive public research university in the state's system of higher education, Rutgers, The State University of New Jersey, has the threefold mission of

- providing for the instructional needs of New Jersey's citizens through its undergraduate, graduate, and continuing education programs;
- conducting the cutting-edge research that contributes to the medical, environmental, social, and cultural well-being of the state, as well as aiding the economy and the state's businesses and industries; and
- performing public service in support of the needs of the citizens of the state and its local, county, and state governments.

Each component of the university's mission reinforces and supports the other two.

As the University of New Jersey®, Rutgers is dedicated to teaching that meets the highest standards of excellence, to conducting research that breaks new ground, and to providing services, solutions, and clinical care that help individuals and the local, national, and global communities where they live.

**GSAPP Mission:** The mission of GSAPP is threefold: education, research/scholarship, and public service. Its goal is to prepare well-educated, qualified, and competent direct-service psychologists who have a special commitment to direct community involvement and to underserved populations--professionals who can integrate scientific knowledge with innovation in the delivery of psychological services to individuals, families, groups, and organizations. Professionals receiving a doctoral degree in psychology should be capable of extending psychological knowledge and exhibiting the high level of analytic skills and theoretical understanding needed to use existing and emerging psychological knowledge.

**Core Values.** We are guided by four core values that are apparent in our learning environment, centers, and clinics:

1. **Academic excellence** in preparing students for careers in clinical and school psychology.
2. Commitment to **social justice** and helping **underserved populations**.
3. **Diversity** of students trained, approaches used, theoretical orientations followed, and populations served.
4. **Knowledge generation and dissemination** using contemporary research approaches.

**MAP Statement:** The program embraces the mission of the school by offering instruction that has an emphasis on civic and global citizenship, social justice and cultural diversity. This course of study provides students with knowledge needed to understand individual and collective behaviors; develop quantitative and qualitative statistical analysis and research design needed to analyze the corresponding physical and environmental contributors to human behavior; and a beginning understanding of the analysis and treatment of behavior problems and disorders.

The MAP degree will prepare students with the requisite theoretical knowledge; critical thinking and problem solving skills needed to successfully participate in employment or scholastic activities. Students will have opportunities to pursue scholarly activities that prepares them to successfully compete for admissions into doctoral level psychology and related academic programs, and pursue Master's level career pathways through available concentration and certificate programs. In addition to completing the required coursework (36 credits), completion of the MAP degree will be marked by a culminating academic experience—Capstone project (either a research project/presentation (3 credits) and experiential learning activity (6-credit practicum training). In general, students will acquire a knowledge base grounded in psychological theory and experiential learning (research or practicum) designed to further advance their personal and professional career development.

**COURSE DESCRIPTION:** In today's healthcare climate, psychologists are often required to serve beside medical personnel in integrated healthcare teams for assessment and treatment of complex cases. This course will prepare students for these interactions by providing them with a comprehensive overview of key aspects of biology that explain or otherwise interface with normal and/or dysfunctional behavior.

Scientific constructs, techniques, and theories will be examined in depth. Biological topics include the peripheral and central nervous system, the neurobiological systems that underlie sensation, motor behavior, emotion, cognition, self-other representation, and social behavior. We will also integrate understanding of altered behavioral processes of brain-damaged and psychiatric patients with knowledge of basic neuronal and neurobiological processes. Each week students will be required to read the textbook chapters, case studies, and watch a video dealing with a specific topic in the biological basis of behavior.

**COURSE OVERVIEW:**

This course will be presented predominantly online via Canvas. Class material (i.e., PowerPoint presentations), quizzes, and exams will be distributed online. See schedule of classes below for which material will be covered.

**OBJECTIVES FOR THE COURSE:**

After this course, you should be able to:

- Demonstrate an understanding of the neuron, brain organization, and functional neuroanatomy
- Understand the biological processes that underlie sensation, perception, memory, emotion, motor behaviors, language, sleep/dreaming, and psychopathology
- Integrate basic biological processes with single case studies in neurology and clinical psychology
- Integrate understanding of neurobiological processes into understanding normal and abnormal mental and behavioral functioning
- Demonstrate verbal and written comprehension of basic biological concepts across all domains listed within the course content/schedule

**CLASS FORMAT:**

- Online Classes: Review of course readings and PowerPoint presentations, review of associated videos, participation in online discussion board, and completion of quizzes and exams.

## **ASSIGNMENTS AND EVALUATION METHOD:**

**Final Grades** will be determined and computed based on the following:

- |  |           |
|--|-----------|
| 1. Participation/Online Discussion Posts | 10 points |
| 2. Quizzes                               | 20 points |
| 3. 3 Exams (20 points each)              | 60 points |
| 4. Final Project                         | 10 points |

**Maximum Total Points = 100 points**

## **GRADES AND GRADING POLICY**

Grade	Description	Numerical Equivalent	
A	Outstanding	90-100 (4.0)	
B+	Intermediate Grade	87-89 (3.5)	
B	Good	80-86 (3.0)	
C	Average	70-79 (2.0)	Grades of C do not count toward graduation
F	Failure	69 or below (0.0)	
INC	Incomplete		
S	Satisfactory		
U	Unsatisfactory		
PA	Pass		
NC	No credit given		

**Program requirement:** All MAP students must achieve a grade of B- or better and maintain a GPA of 3.0, or academic remediation will be enforced.

## **REQUIRED TEXTS:**

- Carlson, N.R., & Birkett, M.A. (2017). *Physiology of behavior*. Boston, MA: Pearson.
- Doidge, N. (2007, paperback). *The Brain that Changes Itself*. New York: Viking.
- Sacks, O. (1985/1998, paperback). *The Man Who Mistook His Wife for a Hat*. New York: Touchstone.

## **READINGS:**

Reading assignments are listed in the course schedule below. All students are expected to complete the assigned readings. As you read, please engage with the material actively and thoughtfully reflect on material included.

## **ASSESSMENT:**

1. **Participation/Online Discussion Posts = 10 points.** Every week, students will have the opportunity to post a threaded scholarly discourse (TSD) on the assigned readings and videos. In total, there will be 10 TSD prompts. Each TSD is worth 1 point for a total of 10 points. TSDs provide students with the opportunity to “think before they speak.” Students have time to reflect on what they want to say before entering the response, and students are able to view the responses and perspectives of all classmates, which is not easily accomplished in a real classroom setting. TSDs are expected to incorporate the assigned readings, and they will be graded according to the TSD rubric (see below). *Students will be provided with two prompt questions to which they can respond to either one or both. Students are expected to post their own personal*

responses (approximately 8 to 10 sentences).

2. **Quizzes = 20 points.** Each week, students are expected to review the material included in PowerPoint slides and complete weekly quiz testing the lesson for that week. There will be a total of 10 quizzes, each worth 2 points. These quizzes will be a combination of multiple choice and short answer, and you are permitted to reference your course materials. Quizzes will be made available on the Monday of every week and you are expected to complete the quiz by 11:59 p.m. Sunday evening. If there is a legitimate and unavoidable reason for not being able to complete a quiz during the allotted deadline, such as a medical emergency or other special circumstance, I must be notified immediately. Otherwise, you will receive a zero for that week's quiz.
3. **Exams (3) = 60 points.** Each exam will be worth 20 points of your grade. Exams will take place three times during the semester during the online portion of the class. The three exams will be multiple choice. There will be 40 questions in each exam. Each item is worth 0.5 points. Therefore, if you answer all 40 items correctly, you've attained a perfect score of 20; if you answer 38 items correctly, you've attained a 19; and so on. Given the exams are online and you will have 3-day window within which to take the exam, no make-up exams will be given. If there is a legitimate and unavoidable reason for not being able to complete the exam during the allotted deadline, such as a medical emergency or other special circumstance, I MUST BE NOTIFIED PRIOR TO THE exam. Otherwise, you will receive a zero on the exam. The exams will be open-book at home and questions will come primarily from lectures.
4. **Final Project = 10 points.** Groups of 2 students each will be required to create a presentation. The presentation should be a research lecture on a selected topic from the class (e.g., Neurological Disorders, Stress, Anxiety, PTSD, Neurodevelopmental Disorders, Substance Abuse etc.). Topics can be those that were discussed in the Carlson & Birkett (2017) Physiology textbook or in the Charlie Rose Brain Series Videos. All topics must be approved by the Professor. Students are required to turn in their presentation on Canvas on the last day of class, Tuesday, April 27<sup>th</sup>.

## **CLASS AND SCHOOL POLICIES AND RESOURCES**

### **Online-Attendance and Assignment Submissions**

Attendance and participation are measured by meeting online assignment deadlines, and actively participating in online discussions with meaningful comments, questions, ideas. As Internet access is worldwide, travel for work or pleasure does not constitute a justification for asking for special consideration and/or not meeting deadlines. If illness, an emergency, or some other serious situation prevents a student from any of the stated activities, the professor must be notified immediately by voice mail or e-mail. **Assignment Deadlines.** Odd things happen in cyberspace—computers crash, emails get lost, servers disconnect temporarily, and logins fail. Do not wait for the last minute to do your work. Allow time to meet deadlines. Have backup computer access should your computer malfunction.

### **Accommodations due to Disability**

If you seek accommodations due to a documented disability, you may arrange for these through the Office of Disability Services, Kreeger Learning Center, 151 College Avenue; [dfoffice@rci.rutgers.edu](mailto:dfoffice@rci.rutgers.edu)

### **Counseling services**

Students often experience personal problems or difficulties during the term that may interfere with learning and their daily activities. If you or someone you know needs to talk to someone regarding such personal issues, the University provides free counseling services through the Counseling and Psychological Services (CAPS) and their information can be found at: <http://health.rutgers.edu/medical->

counseling-services/counseling/ . They also offer a number of useful workshops for general stress management and techniques for promoting mental health. If you have any questions about CAPS or other services, I am happy to speak with you privately.

**Mandated Reporting**

Rutgers faculty are committed to helping create a safe learning environment for all students and for the university as a whole. If you have experienced any form of gender or sex-based discrimination or harassment, including sexual assault, sexual harassment, relationship violence, or stalking, know that help and support are available. Rutgers has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The University strongly encourages all students to report any such incidents to the University. Please be aware that all Rutgers employees (other than those designated as confidential resources such as advocates, counselors, clergy and healthcare providers as listed in Appendix A to Policy 10.3.12) are required to report information about such discrimination and harassment to the University. This means that if you tell a faculty member about a situation of sexual harassment or sexual violence, relationship violence, stalking or other related misconduct, the faculty member must share that information with the University’s Title IX Coordinator. If you wish to speak to a confidential employee who does not have this reporting responsibility, you can find a list of resources in Appendix A to University Policy 10.3.12. For more information about your options at Rutgers, please visit [endsexualviolence.rutgers.edu](http://endsexualviolence.rutgers.edu).

**For more information visit:** <https://gsapp.rutgers.edu/current-students/important-links>

**CLASS SCHEDULE AND READINGS**

<b>Date</b>	<b>Topic</b>	<b>Readings</b>	<b>Quiz/Video/Discussion Board</b>
Week 1 (1/19/21)	Course Introduction and Syllabus Review	1. Carlson & Birkett Ch. 1 (Introduction)	
Week 2 (1/26/21)	Structure and Function of Cells of the Nervous System	1. Carlson & Birkett Ch. 2 (Structure and Function of Cells) 2. Sacks, O. The Man Who Mistook His Wife for a Hat (Introduction) 3. Doidge, N. The Brain that Changes Itself. Ch. 9 (Turning Our Ghosts into Ancestors)	<b><u>Read PowerPoint Slides</u></b> for Chapters 2  <b><u>Watch Online Video.</u></b> Charlie Rose Brain Series: “The Great Mysteries of the Human Brain.”  <b><u>Contribute to Online Discussion Board #1</u></b>  <b><u>Complete Online Quiz #1</u></b>
Week 3 (2/2/21)	Methods and Strategies of Research	1. Carlson & Birkett Ch. 5 (Methods and Strategies of Research)	<b><u>Read PowerPoint Slides</u></b> for Chapters 5  <b><u>Watch Online Video:</u></b> Charlie Rose Brain Series, “The Developing Brain.” <a href="https://charlierose.com/collections/3/clip/15433">https://charlierose.com/collections/3/clip/15433</a>

			<p><b><u>Contribute to Online Discussion Board #2</u></b></p> <p><b><u>Complete Online Quiz #2</u></b></p>
Week 4 (2/9/21)	Structure of the Nervous System	<ol style="list-style-type: none"> <li>Carlson &amp; Birkett Ch. 3 (Structure of Nervous System)</li> <li>Doidge, N. Chapter 11. (More Than the Sum of Her Parts)</li> </ol>	<p><b><u>Read PowerPoint Slides</u></b> for Chapter 3</p> <p><b><u>Watch Online Video.</u></b> Charlie Rose Brain Series: “Childhood Adversity.”  <a href="https://charlierose.com/collections/3/clip/29983">https://charlierose.com/collections/3/clip/29983</a></p> <p><b><u>Contribute to Online Discussion Board #3</u></b></p> <p><b><u>Complete Online Quiz #3</u></b></p>
Week 5 (2/16/21)	The Visual System	<ol style="list-style-type: none"> <li>Carlson &amp; Birkett Ch. 6 (Vision)</li> <li>Sacks, O. The Man Who Mistook His Wife for A Hat. Chapter 1. (The Man Who Mistook His Wife for A Hat)</li> </ol>	<p><b><u>Read PowerPoint Slides</u></b> for Chapter 6</p> <p><b><u>Exam 1:</u></b> Chapters 1, 2, 3, 5, 6</p> <p><b><u>Watch Online Video:</u></b> Charlie Rose Brain Series, “Visual Perception.”  <a href="https://charlierose.com/collections/3/clip/14569">https://charlierose.com/collections/3/clip/14569</a></p>
Week 6 (2/23/21)	Neurotransmitters and Psychopharmacology	<ol style="list-style-type: none"> <li>Carlson &amp; Birkett (2017) Ch. 4 Psychopharmacology</li> </ol>	<p><b><u>Read PowerPoint Slides</u></b> for Chapter 4</p> <p><b><u>Watch Film Awakenings (1990).</u></b> Can be found on Amazon Prime Video (watch free with ads).</p> <p><b><u>Contribute to Online Discussion Board #4</u></b></p> <p><b><u>Complete Online Quiz #4</u></b></p>
Week 7 (3/2/21)	Motor Behavior	<ol style="list-style-type: none"> <li>Carlson &amp; Birkett (2017). <b>Ch. 8 (Control of Movement)</b> and <b>Ch. 15 (Neurological Disorders,</b> pp. 500-515)</li> <li>Sacks, O. The Man Who Mistook His Wife for A Hat. Chapter 3. (The Disembodied Lady)</li> <li>Sacks, O. The Man Who Mistook His Wife for A Hat. Chapter 5. (Hands)</li> </ol>	<p><b><u>Read PowerPoint Slides</u></b> for Chapters 8 and 15</p> <p><b><u>Watch Online Video.</u></b> Charlie Rose Brain Series, “Motor Disorders.”  <a href="https://charlierose.com/collections/3/clip/15489">https://charlierose.com/collections/3/clip/15489</a></p> <p><b><u>Contribute to Online Discussion Board #5</u></b></p> <p><b><u>Complete Online Quiz #5</u></b></p>

Week 8 (3/9/21)	Memory and the Brain	<ol style="list-style-type: none"> <li>1. Carlson &amp; Birkett (2017). Ch. 13 (Learning and Memory)</li> <li>2. Sacks, O. The Man Who Mistook His Wife for A Hat. Chapter 2. (The Lost Mariner)</li> </ol>	<p><b><u>Read PowerPoint Slides</u></b> for Chapter 13</p> <p><b><u>Watch Film Memento (2000).</u></b> Can be found on Amazon Prime Video (watch free with Sundance Trial).</p> <p><b><u>Optional: Watch Online Video.</u></b> Charlie Rose Brain Series, “The Aging Brain”  <a href="https://charlierose.com/collections/3/clip/16493">https://charlierose.com/collections/3/clip/16493</a></p> <p><b><u>Contribute to Online Discussion Board #6</u></b></p> <p><b><u>Complete Online Quiz #6</u></b></p>
Week 9 (3/16/21)	<b>NO CLASS</b>	<i>(Spring Break from 3/13-3/21/20)</i>	
Week 10 (3/23/21)	Sleep & Dreaming	<ol style="list-style-type: none"> <li>1. Carlson &amp; Birkett (2017). Ch. 9 (Sleep and Biological Rhythms)</li> </ol>	<p><b><u>Read PowerPoint Slides</u></b> for Chapter 9</p> <p><b><u>Exam 2: Chapters 4, 8, 9, 13, 15</u></b></p> <p><b><u>Watch Online Video.</u></b> Charlie Rose Brain Series, “Creativity”  <a href="https://charlierose.com/collections/3/clip/19846">https://charlierose.com/collections/3/clip/19846</a></p>
Week 11 (3/30/21)	Emotion	<ol style="list-style-type: none"> <li>1. Carlson &amp; Birkett (2017). Ch.11. (Emotion)</li> </ol>	<p><b><u>Read PowerPoint Slides</u></b> for Chapter 11</p> <p><b><u>Watch Online Video:</u></b> Charlie Rose Brain Series, “Fear and Anxiety”:  <a href="https://charlierose.com/collections/3/clip/18550">https://charlierose.com/collections/3/clip/18550</a></p> <p><b><u>Contribute to Online Discussion Board #7</u></b></p> <p><b><u>Complete Online Quiz #7</u></b></p>
Week 12 (4/6/21)	Language and Aphasias	<ol style="list-style-type: none"> <li>1. Carlson &amp; Birkett (2017). Ch. 14. Human Communication</li> <li>2. Sacks, O. The Man Who Mistook His Wife for A Hat. Chapter 9 (The President’s Speech)</li> <li>3. Doidge, N. The Brain that Changes Itself. Chapter 2</li> </ol>	<p><b><u>Read PowerPoint Slides</u></b> for Chapter 14</p> <p><b><u>Watch Online Videos.</u></b> National Aphasia Association several brief videos on Broca’s, Wernicke’s, Fluent, and Anomic Aphasias.  <a href="https://www.aphasia.org/stories/different-types-aphasia/">https://www.aphasia.org/stories/different-types-aphasia/</a></p> <p><b><u>Contribute to Online Discussion Board #8</u></b></p>

		(Building Herself a Better Brain).	<b><u>Complete Online Quiz #8</u></b>
Week 13 (4/13/21)	Biology of Stress, Anxiety, and Neurodevelopmental Disorders.	<ol style="list-style-type: none"> <li>1. Carlson &amp; Birkett (2017). Ch.17. Stress, Anxiety, and Neurodevelopmental Disorders</li> <li>2. Arnsten, A. F. (1998). The biology of being frazzled. Science, 280(5370), 1711-1712.</li> <li>3. Doidge, N. The Brain that Changes Itself. Chapter 6 (Brain Lock Unlocked).</li> </ol>	<b><u>Read PowerPoint Slides</u></b> for Chapter 17  <b><u>Watch Online Video.</u></b> Charlie Rose Brain Series, “Autism” <a href="https://charlierose.com/collections/3/clip/15078">https://charlierose.com/collections/3/clip/15078</a>  <b><u>Contribute to Online Discussion Board #9</u></b>  <b><u>Complete Online Quiz #9</u></b>
Week 14 (4/20/21)	Schizophrenia and Affective Disorders	<ol style="list-style-type: none"> <li>1. Carlson &amp; Birkett Ch. 16 (Schizophrenia and Affective Disorders)</li> </ol>	<b><u>Read PowerPoint Slides</u></b> for Chapter 16  <b><u>Exam 3: 11, 14, 16, 17</u></b>  <b><u>Watch Online Video.</u></b> Charlie Rose Brain Series, “Schizophrenia” <a href="https://charlierose.com/collections/3/clip/14403">https://charlierose.com/collections/3/clip/14403</a>  <b><u>Optional: Video:</u></b> Charlie Rose Brain Series, “Mental Illness” <a href="https://charlierose.com/collections/3/clip/18615">https://charlierose.com/collections/3/clip/18615</a>
Week 15 (4/27/21)  Last Day of Class	Substance Abuse	<ol style="list-style-type: none"> <li>1. Carlson &amp; Birkett Ch. 18 (Substance Abuse)</li> </ol>	<b><u>Read PowerPoint Slides</u></b> for Chapter 18  <b><u>Watch Online Video:</u></b> Charlie Rose Brain Series, “Neurology and Addiction” <a href="https://charlierose.com/collections/3/clip/18567">https://charlierose.com/collections/3/clip/18567</a>  <b><u>Contribute to Online Discussion Board #10</u></b>  <b><u>Complete Online Quiz #10</u></b>



**COURSE RUBRICS:**

**Online Discussion Board Posts Aka Threaded Scholarly Discourse (TSD)**

Students are responsible for participating as assigned, and by the assigned due date. Each TSD is worth 1 point based on the following rubrics.

	<b>1 Points</b>		<b>.5 Points</b>			<b>0.10 Points</b>
<b>Introduction</b>	Initial posting is excellent and promotes further exploration and discussion	Initial posting is very good and promotes engagement	Initial posting is good and promotes engagement	Initial posting is adequate	Initial posting is cursory	Initial posting lacks focus or does not meet assignment directives
<b>Analysis</b>	Excellent reasoning and analysis throughout the TSD	Very good reasoning, and analysis throughout the TSD	Decent reasoning, and analysis throughout the TSD	Some inaccuracies or flaws in analysis or reasoning during the TSD	Unclear reasoning and analysis	Lacks analysis
<b>Support</b>	Ideas are supported by scholarly sources	Ideas are supported by non- scholarly sources	Ideas are supported by undocumented sources	Ideas are supported using only anecdotal sources	Ideas consist primarily of personal opinions	Ideas are cursory and unsupported
<b>Interaction</b>	Quality of responses to others is excellent, meaningful, and respectful	Quality of response to others is very good, meaningful, and respectful	Quality of response to others is adequate and respectful	Quality of response to others is simplistic but respectful	Quality of responses to others is irrelevant and/or curt	Does not respond to others in meaningful or respectful ways
<b>Style</b>	Postings are expertly written yet concise and focused.	Postings are very well written and focused	Postings are adequately written though wordy/or not graduate level	Postings are written with errors in spelling grammar and/or focus	Postings are haphazardly written with little focus.	Postings do not meet scholarly standards.

*Postings will not be accepted after the close of the TSD.*

**Final Project Rubric**

	9-10 Points	4-8 Points	1-3 Points	0 Points
Relevant Topic- Concept	Excellent- topic is nuanced, approved by instructor, and related to the course.	Average- topic is acceptable, approved by instructor, and related to the course.	Below Average- unrelated topic, disregard of instructor approval.	Unacceptable/Not addressed- completely unrelated.
Content	Excellent- exceeds peer reviewed and scholarly content.	Average- is appropriately inclusive of the basic of the topic.	Below Average- missing significant pieces of the topic.	Unacceptable/Not addressed- no content.
Video quality and production	Excellent- uses technology, editing, and art. Considering career in video editing.	Average- perfectly suffice video, can hear and see. Sticking to the field of clinical/counseling psychology.	Below Average- issues with formatting, audio and/or visual, cannot view the final piece.	Unacceptable/Not addressed- no video.
Confidence and presentation style	Excellent- the next Jimmy Kimmel.	Average- OK, and academic.	Below Average- looking at the length of the video (how much more time is left).	Unacceptable/Not addressed.
Timeliness	Excellent- submitted early or on time.	Average- submitted in the last hour, but on time.	Below Average- late by single digit days.	Unacceptable- more than 2 weeks late.