

# APSY 450T Selected Topics in Psychology: Neuroscience and Psychology of Stress (3 credits) Fall 2017

**Professor:** Joanna Workman, Ph.D.  
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**Office hours:** Th & F 10 – 11 AM or by appt.  
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**Class Time:** Tu & Th 2:45 – 4:05 PM  
**Location:** HU 115  
**Website:** [blackboard.albany.edu](http://blackboard.albany.edu)  
**Course Number:** 10381

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**Office hour:** By appt.  
**Location:** TBD

## Overview and Course Objectives

This class will cover the biological systems that coordinate hormonal and neural responses to psychological stressors and how activation of these systems, in turn, alter the nervous, immune, and other endocrine systems and psychological processes. We will address how psychological stress affects learning and memory, immune function, reproduction, and brain plasticity and how chronic stress can contribute to cardiovascular diseases, depression, anxiety, and substance abuse, for examples. Course content will emphasize sex and gender differences and the risk for illness. We will also discuss how interventions and psychosocial variables can mitigate responses to stressors. The prerequisite for this course is APSY 214.

By the end of this course, you will...

- ★ describe the physiological systems that respond to stressors.
- ★ compare and contrast acute vs chronic stress and adaptive vs maladaptive effects of stress.
- ★ describe how long-term stress might increase the likelihood for illness.
- ★ describe how stress during development can exert enduring effects on the brain and behavior.
- ★ discuss psychological factors and interventions that can reduce stress responses.
- ★ discuss and evaluate methods to study stress in humans, nonhuman primates, and rodents.
- ★ exercise critical thinking skills that allow for careful analysis of psychological, scientific, and real-life issues related to stress.

This course meets the General Education Academic Competencies of **Advanced Writing, Oral Discourse, and Information Literacy**. Fulfillment of each of these criteria is achieved through several mechanisms. Competency in Advanced Writing is achieved through explicit, in-class writing instruction, short in-class writing activities, two papers, and essay questions on exams. All writing activities will receive feedback intended to help students improve their writing skills. Competency in Oral Discourse is achieved through presenting a journal article of the student's choosing, small- and large-group discussions, and a classroom atmosphere that encourages and incentivizes in-class participation. Finally, competency in Information Literacy is achieved through instruction of how to perform literature searches using PubMed, Google Scholar, and Interlibrary Loan (ILL), critical thinking exercises regarding secondary and primary sources of scientific information, the use of APA style for formatting the assigned papers, and explicit instruction on what constitutes plagiarism.

## Materials

You are required to keep a Blue Book to record short written summaries or reactions to assigned readings. You will hand the Blue Book in for participation credit.

No textbook will be required; however, I strongly recommend that you have a general behavioral neuroscience textbook on hand to review concepts from 214 or 314. I also strongly recommend that you have the *Publication Manual of the American Psychological Association* for reference as you

write your papers. Alternatively, you may use the Purdue **O**nline **W**riting **L**ab (OWL) as a resource for APA style: <https://owl.english.purdue.edu/owl/>

Required reading will include selected primary articles or excerpts from textbooks that will be posted in PDF format on Blackboard. PowerPoint slides for lectures will also be posted in their entirety on Blackboard *after* each class. I recommend taking notes during class that help you understand the material (as opposed to copying down text from the slides verbatim).

### **Course Format**

Classes will be mixed format and will include lectures, small- or large-group discussions, and brief written responses to assigned articles. Videos and activities might also be used to supplement lectures and discussions. Assigned articles must be read prior to class in order to complete the written responses and engage in discussions. Written responses and engagement in discussions will constitute part of your participation grade.

### **Attendance and Participation**

Attendance will be taken at 2:45p for each class and will serve as a portion of your grade. Please be on time. If you come to class late, I am unable to guarantee that you will be counted as 'present.' Also, content that does not appear in the readings or slides will be provided in lectures and attendance is necessary to gain this information. Participation points can be gained by responding to my questions, asking questions, taking an active role in small-group discussions and peer writing workshops, and in-class written responses.

### **Exams**

There will be 3 noncumulative exams (40 points each) and 1 final, cumulative exam (50 points; see course calendar for dates). All exams will be in-class and closed-note. Exam questions will be mixed format and may consist of multiple choice, true-false correction, matching, diagram completion, fill-in-the-blank, and short and long essay. Questions will cover material from the preceding classes up to the previous exam (except for the final exam). The final exam will be cumulative and will cover material from any preceding class (except for the presentations). Written feedback will be provided on essay questions in order to improve your writing and prepare you for the assigned papers.

### **Make-up Exam Policy**

Please avoid missing exams at all costs. Make-up exams will only be administered in the event of a medical or family emergency. If you miss an exam, then you may take a make-up of similar content and format *only* if I receive notification from the Office of the Vice Provost for Undergraduate Education that there was a medical or family emergency. Make-up exams must be taken within a week of your medically excused absence. Please see the following link for University policy regarding medical emergencies: [http://www.albany.edu/health\\_center/medicalexcuse.shtml](http://www.albany.edu/health_center/medicalexcuse.shtml)

No early final exams will be offered. I do not have the resources to proctor exams outside of the regularly scheduled final, so please plan to be on campus for our final as scheduled. There is **no** University policy that requires instructors to offer finals at an alternate time if students have three finals in one day. The current policy says that students shall be offered alternate examination times if three examinations occur on one day due to a "departmental exam" (ours is not) or due to "official rescheduling."

<http://www.albany.edu/undergraduateeducation/examinations.php>

### **Papers**

You will write two papers (four pages each); see course calendar for due dates. **Stress, the brain, and behavior or psychological function must be central to the topic of your papers**, but they are otherwise open, so be creative! For each paper, you will develop a thesis statement around which you will build supporting information. Thesis statements with a short paragraph of what you

intend to write about must be turned in during class. You will be expected to synthesize the topic of your paper with multiple topics covered in class. You are also encouraged to draw on more advanced topics not covered in class to the extent that they are relevant for your paper. Papers should be double-spaced with one-inch margins on all sides and formatted using APA style. Include a title page and a running head. References are unlimited, but you must cite at least 10 *primary* articles (only one of which can be a review article). Title page and references are not included in page count. You may use the Online Writing Lab by Purdue University to guide you in APA formatting: <https://owl.english.purdue.edu/owl/>

Drafts will be due prior to the due dates for the papers; see course calendar for due dates. Drafts will not be graded, but I will give feedback on your drafts. Please submit all writing assignments (thesis statements, rough drafts, and final drafts) on Blackboard by 11:59pm. Please do not turn in papers to the TA, through email, by putting them in my mailbox, or by slipping them under my office or laboratory door. Papers submitted after the deadline without notification of a medical or family emergency will receive a 10% grade reduction for each day late. In the event of a medical or family emergency, late papers will not receive a grade reduction (i.e., *only* if I receive notification from the Office of the Vice Provost for Undergraduate education; please refer to the link above).

### Presentations

You will present one empirical journal article of your choosing at the end of the semester. I must approve the article at least two weeks prior to your presentation. **The article must be about stress the brain, and behavior or psychological function**, but can use human participants or animal subjects. Your presentation should consist of a summary *in your own words* of all sections of the journal article (Introduction, Methods, Results, and Discussion). At the end of the presentation, you should also describe the strengths and weaknesses of the paper, implications, and future directions. How does the paper fit with concepts that we have covered in class? In what ways is this paper important for the advancements of science in general and our understanding of human health and disease? You should pay special attention to the extent that the data support the conclusions that the authors make. You will be assessed on the completeness and accuracy of your summary, whether you include a clear statement of the hypotheses, and your ability to think critically about the conclusions and implications of the article.

### Grading

No curve will be applied to the final grade and no extra credit will be offered. If you find the material more challenging than you anticipated, please come to my office hours *early* in the semester.

Evaluation	Points
Attendance & Participation	50
Exams (3 x 40)	120
Final (Cumulative)	50
Presentation	30
Papers (2 x 40)	80
<b>Total</b>	<b>330</b>

Percentage	Letter	Percentage	Letter
92.5 - 100%	A	72.5 - 76.49%	C
89.5 - 92.49%	A-	69.5 - 72.49%	C-
86.5 - 89.49%	B+	66.5 - 69.49%	D+
82.5 - 86.49%	B	62.5 - 66.49%	D
79.5 - 82.49%	B-	59.5 - 62.49	D-
76.5 - 79.49%	C+	Below 59.49%	E

### Academic Integrity

You are expected to uphold a high standard of academic integrity. Cheating, falsification of information, and plagiarism will not be tolerated. Failure to adhere to these guidelines may result in a failing grade, suspension, or both. Please see Standards of Academic Integrity published on the University at Albany website: [http://www.albany.edu/undergraduate\\_bulletin/regulations.html](http://www.albany.edu/undergraduate_bulletin/regulations.html)

**Accessibility**

If you have a disability that interferes with your ability to attend class, complete assignments on time, take exams at regularly scheduled times, or otherwise perform well in this class please ensure that you are registered with the Disability Resource Center (DRC, BA 120) and please let me know. I am happy to coordinate with the DRC to provide academic support or accommodations for students with disabilities. I am also able to provide alternative assignments for students whose disabilities interfere with their ability to do the assignments. <http://www.albany.edu/disability/index.shtml>

**Course Calendar**

Please be aware that the Course Calendar is subject to change. If I need to adjust the calendar due to illness, the dates of exams may change. If this happens and you did not anticipate attending class for the rescheduled exam, I am unable to offer you a make-up exam unless you have a medical emergency. Please plan on attending every class regardless of what is scheduled.

### Unit 1

Tuesday,	August	29	Introduction to Stress
Thursday,	August	31	Stress and the Cardiovascular System Witte, D. R., Bots, M. L., Hoes, A. W., & Grobbee, D. E. (2000). Cardiovascular mortality in Dutch men during 1996 European football championship: longitudinal population study. <i>BMJ</i> , 321(7276), 1552-1554.
Tuesday,	September	5	Stress, Digestion, and Food Intake <b>Thesis Statement Due on Blackboard by 11:59 PM</b>
Thursday,	September	7	Stress, Sex, and Reproduction
Tuesday,	September	12	Stress and Development I Schulz, L. C. (2010). The Dutch Hunger Winter and the developmental origins of health and disease. <i>Proc Natl Acad Sci U S A</i> , 107(39), 16757-16758.
Thursday,	September	14	Stress and Development II Liu, D., Diorio, J., Tannenbaum, B., Caldji, C., Francis, D., Freedman, A., . . . Meaney, M. J. (1997). Maternal care, hippocampal glucocorticoid receptors, and hypothalamic-pituitary-adrenal responses to stress. <i>Science</i> , 277(5332), 1659-1662.
Tuesday,	September	19	<b>Exam 1</b>

### Unit 2

Thursday,	September	21	No Class - Rosh Hashanah
Tuesday,	September	26	Stress and Pain <b>Draft of Paper 1 Due on Blackboard by 11:59 PM</b>
Thursday,	September	28	Stress, Sleep, and Biological Rhythms
Tuesday,	October	3	Stress and Immune Function I Lovallo, W. R. (2016). <i>Stress and Health: Biological and Psychological Interactions</i> (3rd ed.). Los Angeles: Sage. Pp 148 - 155
Thursday,	October	5	Stress and Immune Function II Dhabhar, F. S., & McEwen, B. S. (1999). Enhancing versus suppressive effects of stress hormones on skin immune function. <i>Proc Natl Acad Sci U S A</i> , 96(3), 1059-1064.
Tuesday,	October	10	Stress, Learning and Memory I Andreano, J. M., & Cahill, L. (2006). Glucocorticoid release and memory consolidation in men and women. <i>Psychol Sci</i> , 17(6), 466-470.
Thursday,	October	12	Stress, Learning and Memory II de Quervain, D. J., Roozendaal, B., & McGaugh, J. L. (1998). Stress and glucocorticoids impair retrieval of long-term spatial memory. <i>Nature</i> , 394(6695), 787-790.
Tuesday,	October	17	<b>Exam 2</b>

### Unit 3

Thursday,	October	19	Stress and Psychological Illness I (Depression) <b>Paper 1 Due on Blackboard</b>
Tuesday,	October	24	Stress and Psychological Illness II (Anxiety and PTSD) Mitra, R., Jadhav, S., McEwen, B. S., Vyas, A., & Chattarji, S. (2005). Stress duration modulates the spatiotemporal patterns of spine formation in the basolateral amygdala. <i>Proc Natl Acad Sci U S A</i> , 102(26), 9371.
Thursday,	October	26	Stress and Addiciton Piazza, P. V., Rouge-Pont, F., Deroche, V., Maccari, S., Simon, H., & Le Moal, M. (1996). Glucocorticoids have state-dependent stimulant effects on the mesencephalic dopaminergic transmission. <i>Proc Natl Acad Sci U S A</i> , 93(16), 8716-8720. <b>Thesis Statement Due on Blackboard by 11:59 PM</b>
Tuesday,	October	31	Stress and Aging
Thursday,	November	2	Stress and Social Context Gesquiere, L. R., Learn, N. H., Simao, M. C., Onyango, P. O., Alberts, S. C., & Altmann, J. (2011). Life at the top: rank and stress in wild male baboons. <i>Science</i> , 333(6040), 357-360.
Tuesday,	November	7	Mediators and Management of Stress
Thursday,	November	9	<b>Exam 3</b>

### Unit 4

Tuesday,	November	14	No Class - Society for Neuroscience Meeting <b>Draft of Paper 2 Due on Blackboard by 11:59 PM</b>
Thursday,	November	16	Presentations
Tuesday,	November	21	Presentations
Thursday,	November	23	No Class - Thanksgiving
Tuesday,	November	28	Presentations
Thursday,	November	30	Presentations
Tuesday,	December	5	Presentations
Thursday,	December	7	Wrap up and Review <b>Paper 2 Due on Blackboard by 11:59 PM</b>
Thursday	December	14	<b>Final Exam: 10:30 AM – 12:30 PM (Cumulative)</b>