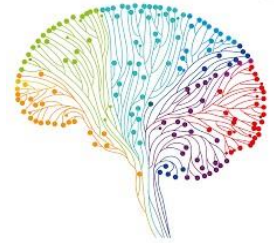


**BEHAVIORAL NEUROENDOCRINOLOGY**  
**PSYC 3610/BIOL 3020**  
**Meeting Time: TBA**  
**Location: TBA**



Instructors: TBA  
E-mail: TBA  
Office Location: TBA  
Office Hours: TBA  
Credit Hours: 3 credits, 3 hours

**Course Description**

This advanced course provides an introduction to the effects of hormones on brain and behavior including methodologies in behavioral endocrinology, sexual differentiation of the brain and behavior, and the role of hormones in social behavior, cognition, learning and memory, stress, and mental health disorders through development.

**Prerequisites**

Introductory Psychology (PSYC 1000); or both Biology 1001 and 1002; and Psychology 2600 or Biology 2020/ Psychology 2610.

**Class Format**

The class format includes a combination of multi-media lectures, student-led presentations and discussion, group exercises, and videos. Lectures enhance material in weekly readings.

**Course Goals and Learning Objectives**

Through this course, students will:

- Understand methodologies in behavioral endocrinology
- Understand mechanisms underlying sexual differentiation of the brain
- Understand the role of hormones and vertebrate social behavior
- Understand the role of hormones for various aspects of human cognition, emotion, motivation, and behavior
- Understand the role of hormones for developmental processes and disorders
- Understand and apply empirical evidence of endocrinology to mental health disorders
- Learn to think critically about research, methodology, theory, and applied concepts in behavioral neuroendocrinology

## Readings

**Required:** Required readings include the below textbook (for purchase by student; also available at BC Library Reserve Desk) and additional readings (mostly from peer-reviewed, scientific journals) made available in advance of their assigned due date.

- Nelson, R.J. and Kriegsfeld, L.J. (2022). *An Introduction to Behavioral Endocrinology*. 6<sup>th</sup> Edition. Oxford University Press.
  - *Companion Website:* Available through publisher. Contains useful tutorials to review basic neurobiology and endocrinology!

## Important Information

**Ensure Access to Accounts:** To participate fully in the course, students need to ensure they can access the following accounts: **Personal e-mail (registered with CUNY Blackboard), BC library (Username and Password), CUNYFirst, CUNY Dropbox**, Office 365, CUNY Virtual Desktop. You may access Blackboard (using your CUNYFirst User Name and Password) at <https://bbhosted.cuny.edu>.

**Due Dates:** Students must submit work by assignment due dates indicated on the Course Schedule (unless otherwise indicated by instructor). Points are deducted for late submissions. Dates and times of administration of the Midterm Exam and Final Exam are on the Course Schedule.

**Read this Syllabus Carefully:** When in doubt about anything related to PSYC 3610/ BIOL 3020, your first action should be to check this document. Most of your questions are likely answered here!

**Questions about the Course:** Most questions about this course are likely answered on the Course Syllabus. Please first consult the Syllabus and Blackboard Announcements (which are also emailed via BB to all students enrolled in this course). If you do not find the answer, feel free to post general course related questions (that are not time sensitive) on the "General Course Related Questions" thread on Discussion Board in Blackboard. Questions regarding personal issues should be emailed to the instructor(s) ONLY ([DWalder@brooklyn.cuny.edu](mailto:DWalder@brooklyn.cuny.edu) or [pforlano@brooklyn.cuny.edu](mailto:pforlano@brooklyn.cuny.edu)) or ask during regularly scheduled in-person class sessions or office hours.

**Emails to Instructors:** When communicating with instructors via email, please include in the Subject Line: "Full Name, PSYC 3610 or BIOL 3020 NET". Responses typically come within 24 to 48 hours, unless over a holiday, weekend, etc.

**Announcements and other content on BB:** Check our virtual classroom space on Blackboard at least weekly (if not daily) for class announcements and communications, posting of supplemental learning materials, scoring rubrics, etc. **BB Announcements contain important info, updates, and reminders to help you more easily navigate this course, stay on top of assignments, and succeed! Announcements are also sent via email to all students enrolled in this course.**

## Blackboard: Access & Email

**Make sure you can access Blackboard** with Username and Password and you **regularly check your e-mail address registered with Blackboard**. Otherwise, you will miss important information. Make sure **by first day of class** that you are receiving e-mail messages sent via BB.

**Blackboard E-mail Address:** Students should confirm their Blackboard e-mail address by looking at their personal information within the Blackboard home page. For instructions to change your e-mail address registered with Blackboard, go to this website and review answer for question #9: [https://libguides.brooklyn.cuny.edu/Blackboard\\_for\\_Students](https://libguides.brooklyn.cuny.edu/Blackboard_for_Students)

**NOTE:** This will NOT change the e-mail address used in the CUNY Portal or any other CUNY system. It will only change the e-mail used by the Blackboard system.

**Technical Support:** If technical issues with your e-mail account registered with Blackboard, contact Carlos Cruz at [CarlosA@brooklyn.cuny.edu](mailto:CarlosA@brooklyn.cuny.edu) or 718.951.4667.

## Technical Support

**Information Technology Services (ITS):** Technical support for this course such as help with technology, connectivity, using Blackboard, and using any other computer application required in the course is available through the Brooklyn College Information Technology Services (ITS). You may find help on the [ITS website](#) or e-mail ITS at [help@brooklyn.cuny.edu](mailto:help@brooklyn.cuny.edu).

## Class Policies: Attendance, Preparation, & Participation

**Attendance and participation are worth 10 points maximum, totaling 10% of the final course grade.**

Students are expected to actively participate and contribute to the intellectual atmosphere of the classroom. Absences impact course grade accordingly: 3 to 4 = -1 pt; 5 to 6= -2 pts; 7 to 8= 3 pts; 3 late = 1 absence; no participation= -2 Students are expected to:

- Complete all assignments on-time
- Attend, and promptly arrive at, all class sessions
- Turn off cell phones and non-essential electronic devices when engaging course material
- Mutually respect opinions and ideas of everyone in our class
- Ask questions about material you do not understand
- Be well prepared for each meeting (e.g., completion of assigned readings)
- Actively participate in discussions and class activities
- Students are responsible for assigned material not formally covered during class and, if absent, should ask a classmate for notes and handouts from that day's lecture.
- Adhere to the highest standards of academic integrity. If plagiarism or other forms of academic dishonesty occur, they will be dealt with in accordance with Brooklyn College procedures.
- The state law regarding non-attendance because of religious beliefs can be found on p. 53 of the College Bulletin.

*\*As this is an advanced course, students should use available resources from the textbook and online to get up to speed on background knowledge necessary to understand course material.*

### Exams

**There will be two examinations, each worth 25 points maximum, totaling 50% of the final course grade.**

Exams will be non-cumulative, though you will be expected to be able to apply concepts and ideas covered on the first exam to material covered on the final exam. Exams will consist of multiple-choice questions (and potentially other formats, subject to the instructors' discretion), drawn from readings and material presented in class.

All students are expected to take both exams on the dates and times indicated on the course schedule. Failure to attend an exam will result in a failing grade for that exam. Except in extenuating circumstances or the case of illness on the day of the exam (with confirmation by doctor's note) there will be no make-up exams. Make-up exams may differ in format and may be more difficult than in-class examinations. Make-up exams are not given during the final examination period. A missed final exam will result in an exam grade of zero, unless you arrange with the instructor to receive an Incomplete for the class.

**Midterm Exam** is administered **in-person** TBA.

**Final Exam** is administered **in-person** on TBA.

### Research Report

**There will be one research report worth 20 points maximum, totaling 20% of the final course grade. Points will be deducted for each day papers are turned in after the due date.**

Students will each independently write a 5-page written report integrating primary, peerreviewed research literature on a topic selected by each individual student. Topics should be drawn from the broad area of behavioral neuroendocrinology covered in this class (e.g., address hormones and behavior).

Students are encouraged to identify (as early as possible) paper topics and a selected list of 3 to 5 references published within the last 5 years (from the primary literature; review articles may be used as supplements).

The main objective of this paper is to read, interpret, critically evaluate and synthesize 3 to 5 current (published in past 5 years) empirical research articles on your topic. This may be supplemented by readings from earlier years and review articles. This will include introductory remarks, a description of the methods used in the articles, an organized summary of the major findings and/or controversies, limitations of the studies reviewed, and your own ideas for future research. Additional guidelines will be provided. **Students will not be given opportunity to revise and resubmit papers.**

Your final report must be submitted electronically before class on **Thursday, May 4** via Blackboard, where it is checked for plagiarism via safe assign. Plagiarism (*see policy*:

<https://www.cuny.edu/about/administration/offices/legal-affairs/policies-resources/academic-integrity-policy/>)

will result in major penalties at the discretion of the instructor. Points will be deducted for lateness. See Scoring Rubric.

**Note:** The Learning Center has writing tutors who can help you properly cite your sources and avoid plagiarism. Visit the [Learning Center's website](#) for the most up-to-date information on their schedule and how to set up a tutoring session.

### In-Class Presentation

**One in-class presentation (with a one-page summary handout) is worth 20 points maximum, totaling 20% of the final course grade.**

Each student will sign-up to present one *peer-reviewed primary paper* (NOT a review paper), from the scientific literature *published within the last 5 years* (chosen by the student and approved by the instructors at least one week in advance of presentation) that is presented on the day that topic is covered in class. **Students must sign-up on the first day of class.** Students will prepare one *15-minute presentation*, to be accompanied by a *one-page summary handout* of the presentation (prepared by the student) to be distributed to all members of the class on the day of presentation.

- \* **In-Class Presentation:** 15-minute in-class Powerpoint presentation of one peer-reviewed paper published within past 5 years.
- \* **Due Date:** Presentations are *due in-class on date assigned*, according to Sign-Up sheet.
- \* **Guidelines for Selection of Research Articles** (see PDF on BB): Guidelines are provided towards selecting appropriate articles for in-class presentations. Be sure that the topic is appropriate within the focus of the course description (e.g., hormones and behavior). See list of representative relevant journals on last page of Syllabus.
- \* **Submission of Student-Selected Article:** The student-selected paper for presentation must be *submitted via email to the instructor at least one week in advance* of the scheduled date of presentation.
- \* **One-Page Summary Handout:** Students are expected to *submit a one-page summary* with take-home points, in your own words. That is: Why was the study conducted (background)? What were the study hypotheses tested? How was the study was conducted? What were the major findings? What were the study conclusion? What is the significance of the study?

### University Policy on Academic Integrity

The faculty and administration of Brooklyn College support an environment free from cheating and plagiarism. Each student is responsible for being aware of what constitutes cheating and plagiarism and for avoiding both. The complete text of the CUNY Academic Integrity Policy and the Brooklyn College procedure for policy implementation can be found at [www.brooklyn.cuny.edu/bc/policies](http://www.brooklyn.cuny.edu/bc/policies). If a faculty member suspects a violation of academic integrity and, upon investigation, confirms that violation, or if the student admits the violation, the faculty member MUST report the violation. *Students should be aware that faculty may use plagiarism detection software.*

### Center for Students with Disabilities

The Center for Student Disability Services (CSDS) is currently working remotely. In order to receive disability-related academic accommodations students must first be registered with CSDS. Students who have a documented disability or suspect they may have a disability are invited to schedule an interview by calling (718) 951-5538 or emailing [testingcsds@brooklyn.cuny.edu](mailto:testingcsds@brooklyn.cuny.edu). If

you have already registered with CSDS, email [Josephine.Patterson@brooklyn.cuny.edu](mailto:Josephine.Patterson@brooklyn.cuny.edu) or [testingcsds@brooklyn.cuny.edu](mailto:testingcsds@brooklyn.cuny.edu) to ensure the accommodation email is sent to your professor.

### Student Bereavement Policy

The student bereavement policy can be found on this [website](#).

### Academic Regulations and Procedures at Brooklyn College

All students should read about “Academic Regulations and Procedures” in the Brooklyn College *Undergraduate Bulletin*, for a complete listing of academic regulations of the College. These may be found on Academic Calendars, Course Schedules, and Bulletins page of the Registrar’s [website](#).

### State Law Regarding Non-Attendance Because of Religious Beliefs

Reference to the state law regarding non-attendance because of religious beliefs, noted in the front matter of the *Undergraduate Bulletin* and *Graduate Bulletin*. These may be found on the [Academic Calendars, Course Schedules, and Bulletins](#) page of the Registrar’s website.

### Important Dates

The full academic calendar, including many other important dates, is available on the Office of the Registrar’s [website](#).

The full academic calendar, including many other important dates, is available on the [Office of the Registrar’s](#) website.

### Video and/or Audio Recordings

***Video and/or audio recording of class lectures and review sessions without the advanced consent of the instructor is prohibited.*** Upon written request, the instructor may grant in writing permission for students to record course lectures, on the condition that these recordings are only used as a study aid by the individual making the recording. Students with approved accommodations from the [Center for Student Disability Services](#) permitting the recording class meetings must present the accommodation letter to the instructor in advance of recording. On any days when classes will be recorded, the instructor will notify all students in advance. Distribution of recordings without written permission of the instructor is a violation of educational law.

### Evaluation Criteria and Grading

Students can obtain a maximum of 100 points in this course as outlined below:

Attendance & Participation	10	10%
In-Class Presentation	20	20%
Final Report	20	20%
Midterm Exam	25	25%
Final Exam	25	25%
TOTAL	100	100%

Course grades are assigned based on number of total points earned, using the following Grading Scale:

<b>Points</b>	<b>Grade</b>
97-100	A+
93-96	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-
Below 60	F (Failure)
INC	Incomplete
WU	Withdrew Unofficially

NOTE: The contents of the syllabus are subject to change at the discretion of the instructor.

## Course Schedule

Date	Topic	Due
	Review Syllabus; Introduction to Study of Behavioral Endocrinology and Methodologies I <i>* Sign-up for In-Class Presentation *</i>	Ch. 1
	Introduction to Study of Behavioral Endocrinology and Methodologies II /Brief Review of the Endocrine System	Ch. 2
	Sex Differences in Behavior: Sex Determination and Differentiation I	Ch. 3
	Sex Differences in Behavior: Sex Determination and Differentiation II	
	Sex Differences in Behavior I	Ch. 4
	Sex Differences in Behavior II	
	Reproductive Behavior: Males I	Ch. 5
	<b><i>Conversion Day: Classes follow a Monday Schedule</i></b>	
	Reproductive Behavior: Males II	
	Reproductive Behavior: Females I	Ch. 6
	Reproductive Behavior: Females II	
	Parental Behavior I	Ch. 7
	Parental Behavior II	
	Hormones & Social Behavior I	Ch. 8
	Hormones & Social Behavior II	
	<b><i>* MID-TERM EXAM * In-Person:</i></b>	
	Biological Rhythms I	Ch. 10
	Biological Rhythms II & Sleep	Supplemental Reading
	Stress I	Ch. 11
	Stress II	
	<b><i>Spring Recess: No classes scheduled</i></b>	
	Stress and Psychiatric Disorders	Supplemental Reading
	Learning and Memory I	Ch. 12



	Learning and Memory II	
	Sex Differences & Mental Health	Supplemental Reading
	Hormones and Mental Health I: <i>Tentative subtopics:</i> Depression, Psychosis, PTSD	Ch. 13
	Hormones and Mental Health II <b>* Final Report Due *</b>	
	Hormones, Memory, & Mental Health: <i>Tentative subtopics:</i> Menopausal transition, dementia	Supplemental Reading TBA
	Psychoneuroimmunology: Stress, mental health, and inflammation I	Supplemental Reading TBA
	Psychoneuroimmunology: Stress, mental health, and inflammation II	
	<b>* FINAL EXAM *</b>	

**\* Note:** All daily readings indicated above will be supplemented by readings from the primary scientific literature, to be presented by students in-class. All students will be expected to read these papers and contribute to discussion. **Content of the course syllabus are subject to change at the instructor's discretion.**

## BEHAVIORAL NEUROENDOCRINOLOGY PSYC 3610 / BIOL 3020

### RESEARCH TERM PAPER GUIDELINES

#### Papers are due on TBA

(1 additional point will be deducted for each day the paper is late, including weekends)

In this course, we explore 1) methodologies in behavioral endocrinology, 2) mechanisms underlying sexual differentiation of the brain, 3) the role of hormones in vertebrate social behavior, various aspects of human cognition, emotion, motivation and behavior, and developmental processes and disorders, and 4) empirical evidence of endocrinology to mental health disorders. Please be sure that your paper reflects the content areas and issues covered in class (e.g., hormones, behavior, sex differences).

The main objective of the paper will be to read, interpret, critically evaluate, and synthesize results from empirical research articles on your topic related to behavioral neuroendocrinology. This will include introductory remarks, a description of the methodologies utilized in the articles, an organized summary and integration of the major findings and/or controversies, and your own ideas for future research.

Pubmed <http://www.ncbi.nlm.nih.gov/pubmed> and Google Scholar <https://scholar.google.com/> are good search engines to find articles. *If you need help using these search engines see a librarian for assistance.*

***In addition, papers must incorporate at least 2 to 3 of the following questions into the paper:***

- 1 – Compare and contrast two methodologies used to date to address a question in the field.
- 2 – How might you design a future study to address issues not wholly accounted for by the prior studies reviewed?
- 3 – Compare human and animal studies addressing the topic.

Papers should be **5 pages, double-spaced, 11-12 point font, conform to APA format** (see APA Style Manual and format for references provided at the end of syllabus), and contain 3 to 5 recent (published in the past 5 years), relevant, peer reviewed, scientific articles (from relevant journals; see list of Representative Relevant Journals). Reference to one recent *review article* is recommended, where possible.

***\* See Research Term Paper Score Guide on last page of course syllabus.***

The paper will be worth 20 points maximum and count towards 20% of the final course grade.

**Submission Requirements:** Final report must be submitted both electronically via Blackboard AND in hard copy (in-class) on **May 4**. Along with your final report, please also submit the Abstract for each of the key original articles you referenced.

#### Research Term Paper Evaluation

**Evaluation:** Papers will be graded on timeliness of submission, content (e.g., appropriateness of selected topic and articles), grammar, organization, editing, writing style, quality of summary and integration of articles, critical/independent thinking, synthesis of information, overall content, style, adequacy with which it addressed the 2 to 3 questions, and ability to follow directions (including paper format and assignment directions).

**\* See Score Guide Rubric**

*Note: Students will not be given opportunity to revise and resubmit papers, presentations, or assignments. One additional point will be deducted for each day the paper is turned in after the due date.*

### **Suggested Paper Organization**

**Page 1:** Introduction to the topic, overview of research related to this topic, general context

**Pages 2-3:** Summarize each of the 3 to 5 key studies including the research questions, research methodologies, participants, overall results, and conclusions.

**Pages 4-5:** Synthesize the information from the previous section including critical analysis of studies, general discussion, study limitations, and directions for future research. Address 2 to 3 of the required questions. Conclusions.

### **REPRESENTATIVE RELEVANT JOURNALS**

- Hormones & Behavior
- Psychoneuroendocrinology
- Nature
- Nature Neuroscience
- BMC Neuroscience
- Biological Psychiatry
- Psychological Science
- Science
- Neuroimage
- Schizophrenia Research
- Archives of General Psychiatry
- Psychiatry Research
- Journal of Clinical Endocrinology & Metabolism
- Journal of Abnormal Psychology
- Journal of Biological Rhythms
- Developmental Neuroscience
- Behavior Genetics
- Animal Behavior
- Journal of Neuroscience
- Psychoneuroimmunology
- Psychological Bulletin

- Psychosomatic Medicine
- Cultural Diversity and Ethnic Minority Psychology
- International Journal of Stress Management
- Neuroendocrinology
- American Journal of Psychiatry
- Cognition and Emotion
- Neuropsychology
- Archives of Clinical Neuropsychology
- Neurology
- Journal of the American Academy of Child & Adolescent Psychiatry
- Health Psychology
- Endocrine ReviewsEndocrinology
- Life Sciences
- Molecular Endocrinology
- Journal of Cerebral Blood Flow and Metabolism
- Journal of Endocrinology
- General and Comparative Endocrinology
- Hormone Research
- Endocrine, Metabolic & Immune Disorders
- PLoS One
- PLoS Biology
- PNAS
- Genes, Brain and Behavior
- Brain, Behavior, Evolution

## SAMPLE REFERENCE SECTION: APA Format References

- Allaire, J.C. & Marsiske, M. (1999). Everyday cognition: Age and intellectual ability correlates. *Psychology and Aging, 14*, 627-644.
- Barona, A., Reynolds, C., & Chastain, R. (1984). A demographically based index of premorbid intelligence for the WAIS-R. *Journal of Consulting and Clinical Psychology, 52*, 885-887.
- Marsiske, M. & Margrett, J.A. (2006). Everyday problem solving and decision making. In J.E. Birren & K. Warner Schaie (Eds.), *Handbook of the Psychology of Aging* (6<sup>th</sup> edition, pp. 315-342). New York: Academic Press.
- Shrout, P.E. & Fleiss, J.L. (1979). Intraclass Correlations: Uses in assessing rater reliability. *Psychological Bulletin, 86*, 420-428.
- Squire L.R., Wetzel, C.D., & Slater, P.C. (1979). Memory complaints after electroconvulsive therapy: Assessment with a new self-rating instrument. *Biological Psychiatry, 14*, 791-801.
- Stern, R.A. & White, T. (2003). *Neuropsychological Assessment Battery: Administration, scoring and interpretation manual*. Lutz, FL: Psychological Assessment Resources.

**BEHAVIORAL NEUROENDOCRINOLOGY PSYC 3610 / BIOL 3020**

**Research Term Paper Score Guide**

**Professors Forlano & Walder Spring**

**2023**

STUDENT NAME: \_\_\_\_\_

Paper turned in on time	0	.5	1			
Appropriate topic selection and 3 to 5 references	0	.5	1			
Introduction / background information	0	1	1.5	2		
Clearly state Specific Hypotheses for each paper	0	1	2			
Communication of methods, findings, and results (3 to 5 articles)	0	1	2	3		
Critical evaluation and synthesis of information, including acknowledgement of study limitations	0	1	1.5	2		
Address 2 to 3 questions assigned	0	1	1.5	2	2.5	
General conclusions & directions for future research	0	1	1.5	2		
Writing/Grammatical style/APA format (including effective use of main/topic sentences, transitional sentences, & evidence of proof-reading/editing)	0	1	1.5	2		
Appropriate length in pages and ability to follow directions (e.g., handing in articles)	0	1	1.5	2		
Abstracts	0	0.5				

*\*Note: 1 additional point will be deducted for each day paper is turned in late, including weekend days.*

TOTAL SCORE (20 points maximum): \_\_\_\_\_

**BEHAVIORAL NEUROENDOCRINOLOGY**

**PSYC 3610 / BIOL 3020**

**In-Class Presentation Score Guide**

STUDENT NAME: \_\_\_\_\_

Length of Presentation (approx. 15 min)	.25	.5	.75	1	
Background Leading to Study	.5	1.0	1.5	2	2.5
Study Hypotheses	.5	1.0			
Methods	.5	1.0	1.5	2.0	
Results: Explain results including figures & tables	.5	1.0	1.5	2.0	2.5
Discussion: Summarize findings and significance/implications	.5	1.0	1.5	2.0	2.5
Study limitations/criticism	.5	1.0	1.5		
Organization of Material	.5	1.0	1.5	2	
Communication Style (not reading from notes, comfort level, eye contact) / Creativity	.5	1.0	1.5	2	
Familiarity with Topic & Ability to Answer Questions	.5	1.0	1.5	2	
* One-page summary handout *	0	1			

Total Score (20 points maximum): \_\_\_\_\_

***\* Students are expected to hand in a one-page summary distilled to the take home points, in your own words. That is, why the study was done (background), hypothesis tested, how the study was conducted, what were the major findings, conclusions and significance of the study.***