

NYU Prague

CORE-UA 9306 P01 and P02

Life Science: Brain and Behavior

Spring 2021

Online

Time Zone: CET

Spring 21

We know that you may be taking courses at multiple locations this semester. If you are enrolled in this course 100% remotely and are not a Go Local/Study Away student for this course site, please make sure that you have completed the online academic orientation via NYU Classes so you are aware of site specific support structure, policies and procedures. **Please contact the site academic staff (vanda.thorne@nyu.edu) if you have trouble accessing the NYU Classes site.**

If you are attending in person, you will be assigned a seat on the first day and are expected to use that seat for the entire semester due to NYU COVID-19 safety protocol. Please note that you are expected to attend every class meeting in-person; however, this may change during the drop/add period if in-person student registration increases significantly or at any point during the semester if local COVID-19 regulations require additional physical distancing.

Instructor Information

- TBA

Course Information

- CORE-UA 9306 P01 and P02
- Life Science: Brain and Behavior
- Lecture: Thursdays 11 a.m. – 1:30 p.m. (CET)
Laboratory: Thursdays 2 p.m. – 3:15 p.m. (CET)
- Zoom: meeting ID 921 8896 7834
- [NYU Prague Academic Calendar](#)

Course Overview and Goals

The main goal of the course is to acquire a basic understanding of the brain processes that underlie cognitive abilities. The course will emphasize that the brain is a complex system of interacting units with emergent properties, rather than the more traditional approach that focuses on the activity and function of single nerve cells. The topics of the course cover key aspects of brain function such as: processing of sensory information, motor system function, constructing mental models of the world,

that enable, for example, orientation in space, decision making, learning and memory, function of sleep, emotions, social behavior, brain development and brain pathologies.

An additional goal is to use neuroscience to illustrate and explain the scientific method and scientific work in general. When appropriate, the course will use historical examples and stories of specific scientists to inform about the process of scientific discoveries. The course will present scientific work as a continuous dialogue between theoretical ideas and experimental results, with controversies, conflicts and endless discussions.

Lectures and laboratory classes will be performed online. The lab sections will include “virtual visits” to research and clinical laboratories.

Upon Completion of this Course, students will be able to:

- Express a basic understanding of the brain processes that underlie cognitive abilities.
- Understand the process of scientific work – from stating a hypothesis, to experiments that test the hypothesis, to the interpretation of data.
- Understand how knowledge of brain science impacts society, healthcare, etc.

Course Requirements

Class Participation

You are expected to attend class during each scheduled online session.

Homework

Students will receive three to five questions at the end of each lecture and will be asked to prepare individually one-page answer to each question (with text and possibly illustrations). The answers should be submitted within two weeks. Grade will be partly based on the homework.

Grading of Assignments

The grade for this class will be based on homework questions, two larger essays and class participation. The two essays should be five to ten pages long on a topic selected by each student that is related to brain and behavior course.

The grade for this course will be determined according to the following formula:

Assignments/Activities	% of Final Grade
Homework	50%
Essay 1	20%
Essay 2	20%
Class participation	10%

Letter Grades

Letter grades for the entire course will be assigned as follows:

Letter Grade	Percent
A	92.5% and higher

A-	90.0 – 92.49%
B+	87.5% - 89.99%
B	82.5% - 87.49%
B-	80% - 82.49%
C+	77.5% - 79.99%
C	72.5% - 77.49%
C-	70% - 72.49%
D+	67.5% - 69.99%
D	62.5% - 67.49%
D-	60% - 62.49%
F	59.99% and lower

Assessment Expectations

Grade A: Excellent work (i.e. thorough understanding and knowledge of material demonstrated in homework and essays, active participation and discussion of materials in lectures and laboratory classes)

Grade B: Very good work (very good knowledge of material, active participation in classes and laboratories)

Grade C: Good work: (good understanding and knowledge of material demonstrated in homework and essays)

Grade D: Satisfactory performance (satisfactory understanding and knowledge of material)

Grade F: unsatisfactory work

Course Schedule

Topics and Assignments

Week/Date	Topic	Reading	Assignment Due
Session 1 Thursday January 28	<ul style="list-style-type: none"> ● Brain as a complex system ● Neurons – basic elements of neural networks 	Chapters 1 and 2 (part I)	Homework assigned at the end of each session is due two weeks later.
Session 2 Thursday, February 4	<ul style="list-style-type: none"> ● Brain structure and function ● Electrical signaling in nerve cells ● Lab: brain anatomy 	Chapter 2 (parts II and III) and chapter 3	

Session 3 Thursday, February 11	<ul style="list-style-type: none"> • Electro-chemical communication within neural networks • Neural communication review • Lab: Measuring electrical activity of neurons 	Chapter 3 and 4	
Thursday, February 18	No Class – Classes Meet according to Monday Schedule		
Session 4 Thursday, February 25	<ul style="list-style-type: none"> • Representation of the world vs. model of the world • Neural circuits for spatial navigation • Lab: behavioral experiments in animals 		
Session 5 Thursday, March 4	<ul style="list-style-type: none"> • Importance of timing in neuronal communication • Attractor neural networks 		
Session 6 Thursday, March 11	<ul style="list-style-type: none"> • Emotions • Social behavior and brain function 	Chapter 11	
Session 7 Thursday, March 18	<ul style="list-style-type: none"> • Vision and brain processing of visual world • Lab: sensory processing, optical illusions 	Chapter 7	Due date for essay 1.
Session 8 Thursday, March 25	<ul style="list-style-type: none"> • Sensory systems or how does the brain know about the world • Review session, discussions of essays 1. 	Chapter 6, chapter 5 (parts I and II)	
Session 9 Thursday, April 1	<ul style="list-style-type: none"> • Control of movements • Lab: magnetic resonance imaging 	Chapter 5 (part III)	
Session 10 Thursday, April 8	<ul style="list-style-type: none"> • Brain development, nature vs. nurture 	Chapter 13 (part III)	
Session 11 Thursday, April 15	<ul style="list-style-type: none"> • Brain in sleep • Effects of sleep on memory consolidation 	Chapter 10	

	<ul style="list-style-type: none"> •Lab: sleep laboratories 		
Session 12 Thursday, April 22	<ul style="list-style-type: none"> • Learning and memory, amnesia, false memories • Molecular substrate of memory processes 	Chapter 13 (parts I and II)	
Make-up Day (for any cancelled classes) Friday, April 23 (9am-9pm)			
Session 13 Thursday, April 29	<ul style="list-style-type: none"> • Attention on cognitive control • Mystery of consciousness and free will, altered states of consciousness • Lab: Human EEG 	Chapter 14	
Session 14 Thursday, May 6 (last day of classes)	<ul style="list-style-type: none"> • Brain in illness, brain disorders, prevention and treatment options 	Chapter 12	
Reading Day Tuesday, May 11	No Classes		Due date for essay 2.
Session 15 Thursday May 13	<ul style="list-style-type: none"> • Review, discussion of essays 2. 		

Course Materials

Required Textbooks & Materials

- The Mind's Machine – Foundations of Brain and Behavior
Watson and Breedlove. Oxford University Press, Third Edition

Resources

- Access your course materials: [NYU Classes](https://nyu.edu/its/classes)(nyu.edu/its/classes)
- Databases, journal articles, and more: [Bobst Library](https://library.nyu.edu) (library.nyu.edu)
- Assistance with strengthening your writing: [NYU Writing Center](https://nyu.mywconline.com) (nyu.mywconline.com)
- Obtain 24/7 technology assistance: [IT Help Desk](https://nyu.edu/it/servicedesk) (nyu.edu/it/servicedesk)
- NYU Prague library: [Tritius Catalog](https://nyu.tritius.cz/?lang=EN) (https://nyu.tritius.cz/?lang=EN)

Course Policies

Attendance and Tardiness

Studying at Global Academic Centers is an academically intensive and immersive experience, in which students from a wide range of backgrounds exchange ideas in discussion-based seminars. Learning in such an environment depends on the active participation of all students. And since classes typically meet once or twice a week, even a single absence can cause a student to miss a significant portion of a course. To ensure the integrity of this academic experience, class attendance at the centers or online through NYU Classes if the course is remote synchronous/blended, is expected promptly when class begins. Unexcused absences will affect students' semester participation grade. If you have scheduled a remote course immediately preceding/following an in-person class, you may want to discuss where at the Academic Center the remote course can be taken. Students are responsible for making up any work missed due to absence. Repeated absences in a course may result in failure.

Absences only for medical reasons and for religious observance will be excused. To be excused for religious observance, you must contact the instructor and the Academic Director Vanda Thorne (vanda.thorne@nyu.edu) via e-mail one week in advance of the holiday. Your absence is excused for the holiday only and does not include days of travel associated with the holiday. Unexcused absences will be penalized with a 2% percent deduction from your final course grade for every week of classes missed.

Please note that Friday, April 23 (9am – 9pm CET) is reserved as a make-up day for missed classes.

Students are responsible for making up any work missed due to absence. This means they should initiate email and/or office hour discussions to address any missed lectures and assignments and arrange a timeline for submitting missed work.

Late Submission of Work

Late submission of homework will lead to a 10% reduction of that homework's evaluation.

Academic Honesty/Plagiarism

According to the Liberal Studies Program Student Handbook, plagiarism is defined as follows:

Plagiarism is presenting someone else's work as though it were one's own. More specifically plagiarism is to present as one's own a sequence of words quoted without quotation marks from another writer, a paraphrased passage from another writer's work; facts or ideas gathered, organized and reported by someone else, orally and/or in writing. Since plagiarism is a matter of fact, not of the student's intention, it is crucial that acknowledgment of the sources be accurate and complete. Even where there is no conscious intention to deceive, the failure to make appropriate acknowledgment constitutes plagiarism.

The College of Arts and Science's Academic Handbook defines plagiarism similarly and also specifies the following:

“presenting an oral report drawn without attribution from other sources (oral or written), writing a paragraph which, despite being in different words, expresses someone else's idea without a reference to the source of the idea, or submitting essentially the same paper in two different courses (unless both teachers have given their permission in advance).

Receiving help on a take-home examination or quiz is also cheating – and so is giving that help – unless expressly permitted by the teacher (as in collaborative projects). While all this looks like a lot to remember, all you need to do is give credit where it is due, take credit only for original ideas, and ask your teacher or advisor when in doubt.”

“Penalties for plagiarism range from failure for a paper, failure for the course or dismissal from the university.” (**Liberal Studies Program Student Handbook**)

Classroom Etiquette

- Please be mindful of your microphone and video display during synchronous class meetings. Ambient noise and some visual images may disrupt class time for you and your peers.
- If you are not using your cell phone to follow the lesson, cell phones should be turned off or in silent mode during class time.
- Make sure to let your classmates finish speaking before you do.
- Please do not eat during class and minimize any other distracting noises (e.g. rustling of papers and leaving the classroom before the break, unless absolutely necessary)
- If deemed necessary by the study away site (ie COVID related need), synchronous class sessions may be recorded and archived for other students to view. This will be announced at the beginning of class time.
- Students should be respectful and courteous at all times to all participants in class. Consider using the chat function or “raise hand” function in order to add your voice to class discussions especially if leaving the video on presents challenges.

Disability Disclosure Statement

Academic accommodations are available for students with documented and registered disabilities. Please contact the Moses Center for Students with Disabilities (+ 1 212-998-4980 or mosescsd@nyu.edu) for further information. Students who are requesting academic accommodations are advised to reach out to the Moses Center as early as possible in the semester for assistance. Accommodations for this course are managed through the site sponsoring the class once you request it.