

Fundamentals of Neuroscience

Course Handbook

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COURSE NUMBER GMS6007

CREDIT HOURS 3 credit hours

COURSE DESCRIPTION

Fundamentals of Neuroscience (GMS6007) covers the basic background required to understand current topics in the field of Neuroscience, a rapidly changing area that impacts several fields of medicine including public health, public policy, and sports medicine, as well as on the military and the pharmaceutical industry. This course is organized into ten modules, each of which covers a key area of Neuroscience. Each module includes a Beyond the Basics unit that ties the basic information covered in the module to relevant problems and exciting new developments in the Neurosciences. Our goal is to help you obtain a working knowledge of the field of Neuroscience that will allow you to appreciate the significance of emerging findings in this field and enable you to pursue more in-depth studies of specific Neuroscience topics. This course represents the first in a series of courses that can be completed to earn a graduate certificate in

Biomedical Neuroscience. Qualified students may also take this course and other courses in this series without electing to earn a graduate certificate.

COURSE FORMAT

This is a 14-week, online course. It is divided into 10 modules, each of which is designed to be completed in one week and covers a specific topic within the Neurosciences. Each module is broken down into 3-7 subunits in an effort to improve the accessibility of the information covered in the module. Each unit contains an online reading assignment, a video lecture in VoiceThread format, and a self-check quiz that will allow you to assess your understanding of the unit material. Each VoiceThread lecture is ~10-15 min in duration but can easily be viewed slide-by-slide.

The ten modules are completed sequentially and each module will be considered complete when you have completed all unit reading assignments, self-check quizzes, the Beyond the Basics VoiceThread assignment, and the online test for that module. Detailed instructions for completing the various types of assignments in the course are associated with the first occurrence of the assignment type in the course.

The self-check quizzes, VoiceThread assignments, and module tests will be individually weighted and will constitute 70% of your final grade. The remaining 30% of your final grade will be derived from two projects and project peer reviews that will be completed and turned in midway through the course and at the end of the course. Your project will be structured as an in-depth analysis of a specific question related to the course materials that is supported by current peer-reviewed literature. You will complete your project by reviewing a peer's project. Your final submitted projects will be evaluated by the course director using a grading rubric.

TARGET AUDIENCE

This online course is tailored for asynchronous distance learners. Scheduled synchronous interactions between the students and instructor will be available as needed throughout the course. This course is designed to provide a foundation in the Neurosciences for students who either wish to refresh their working knowledge of this field or have not yet explored the Neurosciences. The target audience for this course is working professionals who are interested in improving their understanding of the field of Neuroscience and post-baccalaureate students who either want to pursue a career in medicine or biomedical research or who are interested in improving their understanding of Neuroscience.

PREREQUISITES

GMS 6001 or consent of instructor. Designed for first-year graduate students and Biomedical Graduate Certificate students.



COURSE DIRECTOR AND INSTRUCTOR

Sue Semple-Rowland, PhD. Professor of Neuroscience and Director of the Biomedical Neuroscience Certificate Program
Director and Instructor of GMS6007
Email – see directions below in the section How to email your instructor

GENERAL COURSE SCHEDULE

This is a 14 week course that is offered during the Fall and Spring terms. One course module will be completed each week. In addition to readings, Beyond-the-Basics assignments, self-check quizzes and module tests, students will complete two course projects, one over midway through the course (week 6 or 7) and one near the end of the course (week 12 or 13). We have posted a summary of the topics that will be covered in this course below and a general schedule of the assignments that you will complete each week. Specific due dates and times can be found in the Canvas course syllabus.

COURSE TOPICS

| Week | Topics |
|-------|--|
| 1 | Course Introduction |
| 2 | General Features and Cells of the Nervous System |
| 3 | Neural Signaling |
| 4 | Synaptic Transmission |
| 5 | Chemical Senses |
| 6 | The Auditory System |
| 7 | The Visual System |
| 8 & 9 | VoiceThread Project 1 |
| 10 | Motor Systems and Control |
| 11 | Language |
| 12 | Cognition and Memory |
| 13 | Development of the Nervous System |
| 14 | VoiceThread Project 2 |
| | |

GENERAL WEEKLY GRADED ASSIGNMENTS SCHEDULE

| Day of Week | Assignment type |
|-------------|---|
| Monday | Begin work on Module for the week** |
| Tuesday | Unit Self-check quizzes due 11:59 pm |
| Wednesday | Beyond-the-Basics Essay Answer due 11:59 pm |
| Thursday | Unit Self-check quizzes due 11:59 pm |
| Friday | Beyond-the-Basics Response to Peer's Answer due 11:59 pm |
| Saturday | |
| Sunday | Module Test and Module Short Answer Essay Test due 11:59 pm |

**The modules consist of 2-6 units. Each unit contains an assigned reading list as well as a VoiceThread lecture that you will view. Self-check quizzes should be taken after completing the readings and viewing the lecture.



COURSE GOALS / LEARNING OUTCOMES

Neuroscience is the science of how the nervous system functions, and is the basis for understanding nearly all aspects of modern medicine and the biomedical research sciences. This course will provide you with the following -

- A foundational understanding of the basic anatomy, organization, and cells that make up the central nervous system
- Knowledge of the anatomy and functions of the primary sensory and motor systems
- Basic understanding of the function of higher order Neuroscience systems including language, cognition, and memory.
- Overview of nervous system development.

LEARNING RESOURCES

- Readings are assigned from the publically available online textbook **Neuroscience**. 2nd edition Purves, D, Augustine GJ, Fitzpatrick D, et al., editors. Sunderland (MA); Sinauer Associates; 2001. This book is provided by PubMed Books. Students may also elect to purchase more recent editions of this textbook.
- Recorded VoiceThread lectures that are accessible through the course website. Students are encouraged to post any questions they have about the lecture material directly within the lectures using the text, audio, or video + audio commenting feature of VoiceThread. These questions will only be visible to the instructor. All questions will be answered by the instructor. The answers to questions that would benefit all students taking the course will be posted in the lecture so all students can view them.
- The Beyond the Basics units associated with each learning module are comprised primarily of Ted Talks, the topics of which were selected based on their relevance to the basic content covered in the module. These units are accompanied by thought questions that you will answer by posting your responses on assignment VoiceThreads. Additional details about this type of assignment are presented with the first assignment of this type in the course.
- Each unit contains a self-check online quiz designed to reinforce the lecture content. These quizzes contain questions serve as examples of the types of questions found on the module tests. Directions for these quizzes accompany each quiz. Pay particular attention to when the results of your quiz submission will be visible to you.
- Discussion boards are available for posting questions about the readings and general questions about the course and course materials. In addition, a discussion board containing links to stories about some of the newest developments in Neuroscience is also available. We hope that you find these stories interesting and encourage you to post questions/comments about them.
- Online, scheduled synchronous meetings between the students and the instructor will be available by request throughout the semester.



REQUIRED TECHNOLOGY

- Laptop or desktop computer equipped with microphone and video camera. The microphone and video camera can be used to post comments/questions to VoiceThread and will be used to create the VoiceThread projects. There are VoiceThread apps that are available for free for iOS and Android devices that can be used to view the VT and comment on them. I strongly recommend that you use a laptop or desktop computer when working on your VT projects for this course.
- High speed, broad band internet connection such as DSL or cable. A broadband Internet connection is strongly recommended. Slower connections may affect your ability to interact with materials in the course. It is also recommended that you try to submit course exams and assignments well ahead of the deadline since we have found that network speeds can significantly slow as the deadline approaches due to increased use. SPECIAL NOTE: Some users with satellite Internet service may find their online courses do not load quickly or consistently due to satellite network design issues.
- Installation of LockDown Browser on computer that you will use for this course. The computer you use to take exams should be “hard wired” to the internet. WiFi is not stable enough to support a reliable connection.
- Canvas courses are best viewed using Chrome or Firefox. For specific questions about browser compatibilities and general questions about e-learning at UF please go to <https://wiki.helpdesk.ufl.edu/FAQs/E-Learning>.

COURSE ASSIGNMENTS, EXAMINATIONS, AND GRADING

For each of the 10 modules, students will complete 3-7 self-check unit quizzes, a Beyond-the-Basics VoiceThread assignment that involves writing two short essays, one in which you answer questions related to the Beyond-the-Basics unit and one in which you respond to a peer’s answer, and finally a two-part module test.

SELF-CHECK QUIZZES

Each self-check quiz will be taken using LockDown browser. The quizzes are designed to help you to see the types of questions that will appear on the module tests and to identify the materials that you may not understand. The self-check quizzes consist of T/F, multiple choice, matching, fill-in-the-blank, and multiple answer questions. These quizzes are timed. Importantly, the time limit for completing the exam starts when you start the exam. *If you begin a 10 min quiz 5 minutes before it is due, you will have only 5 min to complete the quiz because it will automatically submit and close when it is due.* In order to receive credit for the self-check quizzes, you must complete them before the deadlines. You will not be able to take them after the deadline passes unless you have made arrangements with the instructor to extend your deadline.



When you submit your quiz, **you will be given ONE opportunity to immediately see your quiz score and questions you answered incorrectly.** In some cases, I have provided an explanation text that you will see if you selected an incorrect answer. It is important that you take time to go through your graded quiz. You will not be able to view your graded quiz again. When you check your quiz, if you believe that you did not receive credit for a question due to a spelling error in the answer you entered, please email me using the Canvas email system and indicate in your email which self-check quiz (unit #) and the question # you are concerned about. I will then evaluate your quiz and adjust your score if appropriate.

BEYOND THE BASICS ASSIGNMENTS

Each week you will complete two writing assignments that will focus on recent discoveries and scientific trends in the Neuroscience topic area being covered that week. These short essays will be written in response to thought questions related to an assigned TedTalk and in some cases, peer-reviewed scientific papers. You will post your essay as a text comment on the Beyond-the-Basics VoiceThread. The day after the essay is due, you will be able to view your peers' essays. To complete the assignment you will choose a peer's essay and respond to the question(s) posed by your peer in their essay by posting essay response as a threaded comment that you will attach to your peer's essay.

The Beyond the Basics assignments will be graded using grading rubrics that are posted with each assignment. If you have questions about these rubrics, please do not hesitate to ask them.

MODULE TESTS

Each Module test will be taken and the results will be viewed using LockDown browser. The Module tests consist of two separately timed parts: the Module test and the Module Essay test. The Module tests consist of T/F, multiple choice, matching, fill-in-the-blank, and multiple answer questions. The Module Essay tests consist of short essay questions. Both of these tests will be timed and the questions will be randomized. Importantly, the time limit for completing the exam starts when you start the exam. *If you begin a 40 min exam 20 minutes before it is due (e.g. 11:59 pm), you will have only 20 min to complete the exam because Lockdown browser will automatically submit your exam when it is due.* I will grade these tests myself after the deadline passes and you will be given an opportunity to view your results and any comments associated with the tests once I complete grading them.

We strongly recommend that you take the ALL online quizzes and tests well before the time deadline and during UF Help Desk hours so that you can obtain assistance if needed. The speed of the internet can significantly decrease between 10 pm and midnight. Thus, to avoid time delays during testing, you should try to complete exams during non-peak hours

GRADING

The scores from the self-check quizzes, the Beyond-the-Basics writing assignments, and the Module tests are weighted to represent 70% of your course grade. The remaining 30% of your course grade will come from the two graded VoiceThread projects that you will complete



midway through the course and at the end of the course. You will be given grading rubrics for both the Beyond-the-Basics assignments and the VoiceThread projects so that you will understand what is required to successfully complete these projects and how they will be evaluated.

| | | |
|-------------------------------------|---|-----------|
| Unit Self-check quizzes – 5% | } | 70% Grade |
| Beyond-the-Basics Assignments – 20% | | |
| Module tests – 45% | | |
| VoiceThread Project Analyses (2) | | |
| | | 30% Grade |

Late assignments, quizzes and tests

We recognize that personal circumstances arise that may interfere with your ability to meet a deadline. If you anticipate missing a deadline, please let the instructor know as soon as possible and they will work with you to resolve the issue. Your emails will be responded to within 24 hours (typically sooner). Please see the [UF Attendance Policies](#) concerning absences, religious holidays, and illness. In general, late assignments, quizzes, and tests will not be accepted unless you have obtained a deadline extension from the instructor.

If you encounter technical difficulties with assignments (e.g. LockDown browser malfunction), be sure to include a UF helpdesk ticket number in your request for a deadline extension if you plan to request one. The extension request **MUST** be submitted within 24 hours of the technical difficulty.

Grading scale

A numerical grade will be given at the end of the course and will be scored as follows. It is possible though not guaranteed that this scale could be adjusted slightly (1-2%) at the end of the course to better reflect the efforts of the class.

- 93-100% = 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-
- <60% = E



GRADING POLICY

Students will be expected to complete all requirements for one module each week. There will be no deadline extensions for completion of a module unless granted by the course director prior to the scheduled completion date. Failure to submit a module assignment or complete a module test by the course deadline will be recorded as a zero.

The self-check quizzes are graded automatically so it is important that you view your results immediately after submitting these quizzes. If you believe that you did not receive credit for a question due to either a spelling error in the answer you entered or for another reason, send me an email using the Canvas email system and describe in your email the self-check quiz (unit #), the text of the question you are concerned about (do not just indicate question number, since they are scrambled for each student), and why you think you should receive credit for your answer. I will then evaluate your quiz and adjust your score if appropriate.

COURSE EVALUATION

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations course evaluations online via GatorEvals at the end of the course. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. You will be notified when the evaluation period opens, and can access and complete evaluations through either the email you receive from GatorEvals, the Canvas course GatorEvals menu item, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

PLAGIARISM

Students must understand what plagiarism is and must not engage in this behavior when completing assignments and tests in this course. The University of Florida Student Honor Code states that plagiarism includes but is not limited to:

1. Quoting oral or written materials including but not limited to those found on the internet, whether published or unpublished, without proper attribution.
2. Submitting a document or assignment that in whole or in part is identical or substantially identical to a document or assignment not authored by the student.

Student whose assignments/tests exhibit evidence of plagiarism will receive zeros for those assignments and tests for the first offense and will receive a warning. Students who continue to engage in this behavior after the warning will be reported to the UF Dean of Students Office.

PROHIBITED COLLABORATION OR CONSULTATION



Student found to be involved in sharing answers and/or collaborating on exams or assignments will receive zeros for those exams and assignments. Students who continue to engage in this behavior after the warning will be reported to the UF Dean of Students Office.

HOW TO SUCCEED IN ONLINE COURSES

First, you need to be aware that online learning poses its own unique challenges. Because the online classroom is available to you 24 hours a day it is easy to delay work on course material, forget deadlines, and not put enough time in to perform well on exams. These challenges are exacerbated when a student is not a 'self-starter' or if does not possess good time management skills including use of reminders.

Unlike traditional instructional settings in which each student goes to the same class, the online setting enables every student to “create” the class of his or her choosing. In theory, this type of instruction should be more adaptable to a variety of learning styles; however, the reality is that some students have not yet determined what their optimal learning style is. Poor performance in online courses often can be directly linked to procrastination and poor time management (trying to do a week’s worth of work just before the deadline). Rushing to complete assignments before the 11:59 pm deadlines on Sundays is NOT a good strategy because you forfeit your opportunity to ask questions about material you do not understand. Completing the self-check quizzes during the work week can help you to pinpoint problem areas. In general, we are able answer questions you have about course content within 12-24 hrs of your posting of your question. Oftentimes, we answer much more quickly. Questions posted on Sundays may not be answered before you take your exams that are due at 11:59 pm on Sunday.

You are expected to adhere to the posted assignment deadlines; however, you should note that the assignments, quizzes, and tests associated with each Module can be completed at your own pace over the course of each week. The self-check quizzes associated with each module are due throughout the week. You should pay special attention to these deadlines since extensions to complete these quizzes will NOT be made. It is possible to request a deadline extension, but requests must be submitted to the instructor and approved prior to the deadline. The tests associated with each Module are due by 11:59 pm each Sunday. Finally, for the Beyond-the-Basics assignments your answers to the Thought questions will be due on Wednesdays at 11:59 pm and your responses to your peer’s answers will be due on Fridays at 11:59 pm.

ACADEMIC HONESTY

As a result of completing the registration form at the University of Florida, every student has signed the following statement: "I understand that the University of Florida expects its students to be honest in all their academic work. I agree to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University."

We fully support the intent of the above statement and will not tolerate academic dishonesty.



All students enrolled in GMS 6021 are expected to follow the University of Florida Honor Code (excerpt above). The full text can be found at: <http://regulations.ufl.edu/chapter4/4041-2008.pdf>

Student guidelines for ethical behavior can be found at:
<http://www.registrar.ufl.edu/catalog/policies/students.html>.

Please also review the use of copyrighted materials, which can be found on the Health Science Center Library's web page:
<http://www.library.health.ufl.edu/services/copyright.htm>

WHEN DO I CONTACT THE UF HELPDESK?

In the event that you have **technical difficulties with E-learning**, please contact the UF helpdesk at learning-support@ufl.edu, or (352) 392-4357 - select option 2. If your technical difficulties will cause you to miss a due date, you **MUST** report the problem to E-learning. Include the ticket number that you are given in an e-mail to the instructor to explain the late assignment/quiz/test.

Types of questions that should be directed to the Help Desk:

1. I can't log into E-learning
2. I have clicked on the "submit" button for my quiz and nothing is happening
3. I can't upload an assignment (be sure that you have reviewed the tutorial on how to do this **BEFORE** you contact the Help Desk)
4. E-learning has given me an error message and I can't submit my assignment.

NOTE: Late work that involves technical difficulties with E-learning **MUST** be accompanied by a ticket number from the Help Desk.

ALSO - Be sure to be familiar with the hours of operation for the UF help desk since they are oftentimes not available after 10:30pm on workdays and after 8:00 pm on weekends. There hours are posted at <http://helpdesk.ufl.edu/about/business-hours/>

WHEN DO I POST QUESTIONS TO THE COURSE QUESTIONS DISCUSSION BOARD?

Questions that deal with the course itself should be submitted to the Course Questions board. Posted questions should **NOT** be about grades or a private matter. Do not post personal grade questions on the Course Questions discussion board.

Before posting a question, check those already posted to be sure that you are not duplicating a question. These should be things that other students in the class might have trouble with. For example:



1. I am unable to post comments to VoiceThread.
2. The link to Blendspace or a specific VoiceThread is not working.
3. One of the quiz questions did not display properly.

Posting on the Course questions board is the fastest way to get an answer to your question. Be sure to give it a meaningful heading!

Questions of a private nature should be e-mailed to the course instructor (see below on how to e-mail within E-learning). In all cases, please allow 24 hours for a response. Every effort will be made to answer questions posted over the weekend with 24 hours. If not addressed, they will be addressed on the following Monday.

WHEN DO I EMAIL MY INSTRUCTOR?

Questions about the course should be e-mailed to the instructor through the e-mail tool in E-learning.

Examples of e-mail questions for the instructor to get clear, concise responses:

1. I think there is an error in my grade for the assignment in module 3 (be sure to explain exactly why you think there is an error and provide documentation)
2. I am behind in the course and I would like to know how I may catch up (in such a case, your instructor may ask you to set up a Skype meeting or a time to call on the telephone)

If you have questions about the course itself, please reread the syllabus before asking a question. If the answer is not in the syllabus, check the Course Questions discussion board (this discussion board can be located by clicking on the discussions menu tab on the left of the course home page). If the answer to your question is not there, please post the question on the Course Questions discussion board.

DO NOT e-mail the instructor with general course questions. If your question is of a personal nature, e-mail your instructor from within e-learning system using the instructions below. Late work that involves technical difficulties with E-learning MUST be accompanied by a ticket number from the Help Desk.

HOW TO EMAIL YOUR INSTRUCTOR

When emailing your instructor, please do so through Canvas.

To send an e-mail from the course:

1. Click on the mail icon that is located the left side of your screen.
2. Click the "Compose Message" button.
3. "To: window" will display.
4. Locate your instructor's name.
5. Always include a description in your subject line
6. Type your message and add any necessary attachments. Be sure that your subject line is meaningful.



7. Click "send."

STUDENT SUPPORT SERVICES

As a student in a distance learning course or program you have access to the same student support services that on campus students have. For course content questions contact your instructor.

For any technical issues you encounter with your course please contact the UF computing Help Desk at 352-392-4357. For Help Desk hours visit: <http://helpdesk.ufl.edu/>.

For a list of additional student support services links and information please visit: <http://www.distance.ufl.edu/student-services>

Special Accommodations

Students requesting disability-related academic accommodations must first register with the Disability Resource Center (<http://www.dso.ufl.edu/drc/>). This should be done as early in the semester as possible.

****All audio lectures in this course are accompanied by written transcripts****

The Disability Resource Center will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. The Disability Resource Center is located in 001 Building 0020 (Reid Hall). Their phone number is 352-392-8565.

