

Fundamentals of Neuroscience

Course Handbook / Syllabus

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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 numbered modules, each of which covers a key area of Neuroscience. Weeks 7 and 13 correspond to unnumbered modules which contain the mid-term Capstone Portfolio Project and the project revision modules, respectively. Two of the ten numbered modules (3 [synaptic signaling] and 9 [memory and cognition]) include a Beyond the Basics unit that ties the basic information covered in the module to relevant problems and exciting new developments in Neuroscience. 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 or MSc in Biomedical Neuroscience. Qualified students may also take this course and other courses in this series without electing to earn a graduate certificate or MSc degree.

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 2-6 subunits 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 (if there is one), and the online tests 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 (5%), module tests (45%), and Beyond-the-Basics (BtB) assignments (25%) will be individually weighted and will constitute 75% of your final grade. The remaining 25% of your final grade will be derived from your Capstone Portfolio VoiceThread (VT) project that you will complete and turn in midway through the course. Because your Capstone Portfolio VT (scored 84% or higher) is one of the elements required for completion of your portfolio and degree, you will also have a chance to revise its content at the end of the course (week 13) for an improved score. Your VT projects will be structured as an in-depth analysis of a specific featured study whose content is related to the course materials. Your BtB assignments and VT project will be evaluated by the course director and teaching staff using grading rubrics.

TARGET AUDIENCE

This online course is tailored for asynchronous distance learners. Scheduled synchronous interactions between the students and instructor will be available as needed using Zoom throughout the course. This course is designed to provide a foundation in Neuroscience for students who either wish to refresh their working knowledge of this field or have not yet explored Neuroscience. The target audience for this course is Neuroscience graduate students working toward either the Biomedical Neuroscience Certificate or MSc degree and UF graduate students who are interested in improving their understanding of Neuroscience. All UF students must inquire about registration.

PREREQUISITES

Advanced undergraduate coursework in the basic sciences earning a B or better (e.g. biology, genetics, neuroscience, cell biology, chemistry).

COURSE DIRECTOR AND INSTRUCTORS

Jeremy Flint, PhD. Instructional Assistant Professor
Director of Online Programs and Instructor for GMS6007

Nicholas Musselwhite, PhD. Instructional Assistant Professor
Co-Director of Online Programs and Instructor for 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 only during the Fall term. One course module will be completed each week. In addition to readings, self-check quizzes, and module tests, students will complete two BtB assignments and one Capstone Portfolio VT project. A summary of the topics that will be covered in this course are shown 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 pages.

COURSE TOPICS

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

13-14	Capstone Portfolio VoiceThread Project (Revision)	
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GENERAL WEEKLY GRADED ASSIGNMENTS SCHEDULE

Day of Week	Assignment type
Monday	Begin work on Module for the week**
Tuesday	Unit Self-check quiz or quizzes due 11:59 pm
Wednesday	
Thursday	Unit Self-check quiz or quizzes due 11:59 pm
Friday	
Saturday	Unit Self-check quizzes due 11:59 pm (module 1) Beyond-the-Basics Essay due 11:59 pm (modules 3,9)
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 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 but should plan to read the assigned online readings as well as material in the textbook.
- Recorded VoiceThread lectures that are accessible through the course website. Students must write any questions they have about the course curriculum to their instructor using

the Canvas email system. Questions posted to VoiceThread lectures or as comments on submitted assignment pages in Canvas will most likely not be seen by your instructors.

- The Beyond the Basics units 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 as written essays to Canvas. 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. The questions in these quizzes were originally developed to serve as examples of the types of questions that will be found in the module tests; however, topic and question-specific study guides have been included most recently which are tailored to the specific content found on your module tests and essay exams. Be sure to use the provided study guides while learning the course content and review the materials within them immediately prior to completing your module and essay exams.
- Discussion boards are available for posting questions to other students and peers 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. Email us with your schedule availability and we will set up a meeting for us over Zoom.

REQUIRED TECHNOLOGY

- Laptop or desktop computer equipped with microphone and video camera. The microphone and video camera may be required for exam proctoring, and will also be used to post comments/questions to VoiceThread to create the Capstone Portfolio VoiceThread project. 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. We **strongly recommend** that you use a laptop or desktop computer when working on your VT projects for this course.
- High speed, broadband 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 and take quizzes and exams. It is also recommended that you take course exams and submit assignments well ahead of the deadlines 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.

- You must take time early in the first week to prepare your computer for taking quizzes and tests by installing appropriate proctoring software. You should plan to take exams in a designated location in your apartment/home and if possible, 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. Chrome is required for use of some proctoring programs. For specific questions about browser compatibilities and general questions about e-learning at UF please go to <https://elearning.ufl.edu/student-help-faqs/>

COURSE ASSIGNMENTS, EXAMINATIONS, AND GRADING

For each of the 10 modules, students will complete 2-6 self-check unit quizzes, a Beyond-the-Basics VoiceThread assignment (only modules 3 and 9), and finally a two-part module test.

SELF-CHECK QUIZZES

Each self-check quiz will be taken through Canvas using proctoring software. The quizzes are designed to help you to become familiar with the types of questions that will appear on the module tests and to help you 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. 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 arranged an extension of your deadline with the instructors.

When you submit your quiz, **you will be given an opportunity to see your quiz score and the questions you answered incorrectly. For some students this information will be available after the deadline for the quiz passes.** In some cases, we 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 so that you may identify the specific materials (if any) you are struggling to understand. This way, you will have an additional opportunity to review these materials prior to taking your module test and essay exam: both of which are weighted far more heavily than your self-check quizzes towards your final grade.

BEYOND THE BASICS ASSIGNMENTS

These short essays will be written in response to thought questions related to an assigned TedTalk and, in some cases, also peer-reviewed scientific papers. Your essays will be uploaded through the Beyond the Basics assignment portal in Canvas. The Beyond the Basics assignments will be assessed using grading rubrics that are posted with each assignment. Read the content of the grading rubrics thoroughly so that you will understand what your instructors are looking

for in your submissions and how your essays are assessed for required content. If you have questions about these rubrics, please do not hesitate to ask them.

MODULE TESTS

Each Module test will be taken using proctoring software (Lockdown or Honorlock). 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, 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.* We will grade these tests after the deadline passes and you will be given an opportunity to view your results and any comments associated with the tests once we 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, especially on Sundays. 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 and the Module tests are weighted to be 50% of your final grade. The two Beyond-the-Basics writing assignments and the Capstone Portfolio VT project are weighted to represent 50% of your course grade. You will be given grading rubrics for both the Beyond-the-Basics assignments and the VoiceThread project so that you will understand what is required to successfully complete these projects and how they will be evaluated.

Unit Self-check quizzes – 5%

Module tests – 45%

VoiceThread Project (1) - 25% Grade

Beyond-the-Basics Assignments (2) – 25%

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 should be responded to within 84 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

The Canvas gradebook will contain your numerical weighted total percent points and the associated grade based on the grading scale below so that you can monitor your performance throughout the course. It is very important that you keep track of your performance as you move through this course. If you have any problems that you wish to discuss with the teaching staff, please feel free to contact them through Canvas email. It is possible, though not guaranteed, that the grading scale could be adjusted slightly (i.e. curved) 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 directors 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 and module tests are graded automatically, so it is important that you view your results immediately after submission. If you believe that you did not receive credit for a question in error, send us an email using the Canvas system and describe in your email the assignment name and number, the text of the question you are concerned about (do not just indicate question number, since they are randomized for each student), and why you think you

should receive credit for your answer. We will then reevaluate your response 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:

- Quoting oral or written materials including but not limited to those found on the internet, whether published or unpublished, without proper attribution.
- 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.

Students 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 for conduct violations.

PROHIBITED COLLABORATION OR CONSULTATION

Students found to be involved in sharing answers and/or collaborating on exams or assignments (excluding exercises specifically designed for and designated as group work) will receive zeros for those exams and assignments 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 for conduct violations.

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 the use of automated 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

(i.e. 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 24-48 hrs of your posting of your question. Oftentimes, we answer much more quickly. Questions emailed on Sunday mornings or afternoons may not be answered prior to your 11:59 pm exam deadline on Sunday evening. Be sure to identify any curriculum content you are struggling with and email your questions about said content well in advance of your test submission deadline.

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 unless warranted. 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, the Beyond-the Basics assignments will be due on Saturdays at 11:59 pm when assigned.

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 6007 are expected to follow the University of Florida Honor Code (excerpt above). The full text can be found at:

<http://regulations.ufl.edu/chapter4/40412008.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. Their 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 curriculum itself and that are intended for your fellow students / peers 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. If you need a question answered by your instructor, contact them directly through the email interface in Canvas.

Before posting a discussion board 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 a Course's discussion board can be an effective way to enable group communication about common problems among students. Be sure to give your question a meaningful heading!

Questions of a private nature should only be e-mailed to the course instructor (see below on how to e-mail within E-learning). In all cases, please allow 24 to 48 hours for a response. Every effort will be made to answer questions as quickly as possible. If you have been waiting for more than two days for a response to an email sent via Canvas, please resend your original question.

WHEN DO I EMAIL MY INSTRUCTOR?

Questions about the course should be e-mailed to the instructor directly through the e-mail tool in E-learning (Canvas). Correspondence sent through UF email (Gatormail), posted to the course discussion board, or uploaded to your assignment submission pages may be missed and will likely not be. 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 Unit 2, self-check quiz assignment in module 3 (be sure to explain exactly why you think there is an error and provide documentation)
2. I am falling 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 Zoom 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.

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 UF IT Help Desk.

HOW TO EMAIL YOUR INSTRUCTOR

When emailing your instructor, please do so through Canvas rather than UF email.

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 specific description of your issue in the subject line
6. Type your message and add any necessary attachments. Be sure that your subject line is meaningful.
7. If your email is related to a specific assignment, test question, etc., be sure to include information such as the course number, module number, unit number, assignment

name, exam type, etc. when referring to the material. Also, if the email is related to a specific exam question, be sure to type a description of the content within the question rather than use a number for identification.

8. 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 ACCOMODATIONS

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.

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 3523928565.

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