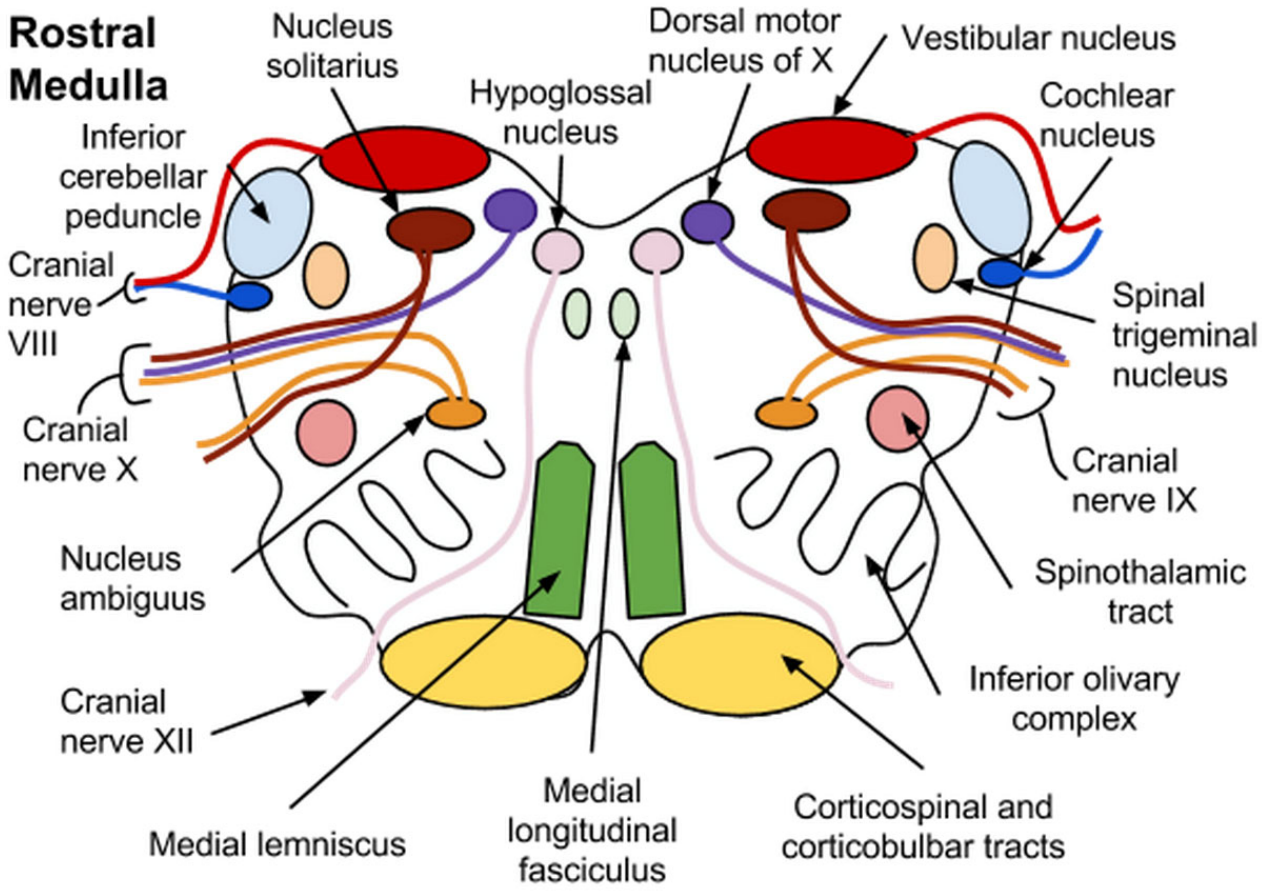
Mammalian Neuroanatomy (Neur 603)



https://imgur.com/a/A0Kib

Figure of the highly complex nuclei and pathways in the rostral medulla. Many students find structures such as the brainstem difficult to understand, however with a mind to the developmental trajectory and the structure function relationships, such structures can be understood and found to be beautiful in their complexity.

George Mason University

Fall 2019

Fridays 1:30-4:10 pm Exploratory Hall 2504, Fairfax Campus.

Instructor: Greta Ann Herin, Ph.D. Term Assistant Professor, Interdisciplinary Program in Neuroscience. Office: Krasnow 255 Office phone (703) 993-9720.

E-mail: gherin@gmu.edu (Please use your Masonlive e-mail for all university business including contacting me) Office hours: Tues 2-4 pm, and by appointment.

Classmate as a Resource:

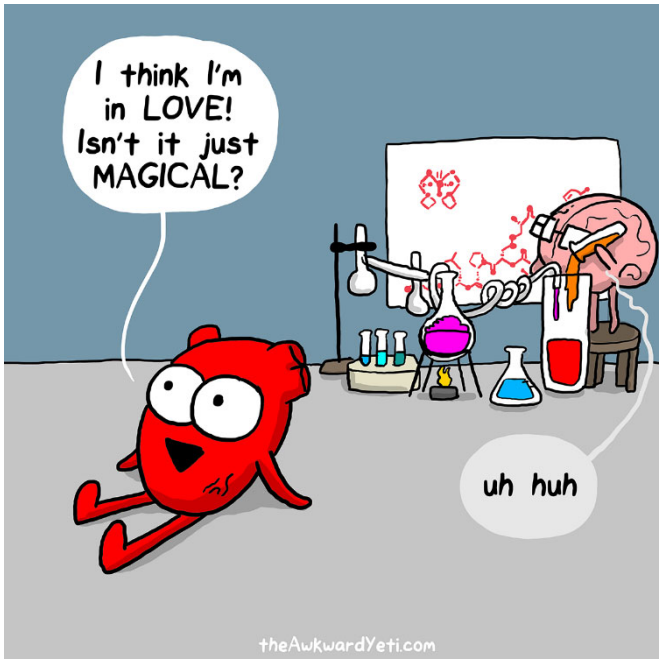
Classmate as a Resource**:**

Course Description (from the GMU catalog): Focus on mammalian brain organization and function, emphasizing human neurobiology. Modern experimental and clinical tools explain: gross and microscopic brain organization; functional brain circuits for sensory and motor processing; higher brain organization and function; and development of selected brain areas. The knowledge gained is then used to explain the clinical symptoms occurring after specific brain insults. Offered by Neuroscience. May not be repeated for credit.

Course Objectives: Neuroscience is a cross-disciplinary study, and examines the nervous system through multiple levels of analysis, from the molecular to the philosophical. This course focuses on the anatomy of the mammalian nervous system with an emphasis on the human neuroanatomy. The course is designed to look at anatomy from both a regional- and systems- based approach.

After successful completion of this course, students should be able to:

1. Articulate the organization of the nervous system including the developmental origins and histology of structures.
2. Describe the relationship between structure and function of major systems in the central nervous system.
3. Model the three dimensional structures of nervous system components and describe their relationship to nearby components.
4. Use clinical imaging to identify major structures of the human central nervous systems.
5. Explain on a cellular and structural level the biological bases of various diseases.
6. Develop critical thinking skills by engaging with current scientific research.
7. Synthesize common themes among the structure and function of neural systems.



How will we accomplish our course objectives? Through these assessments:

Section Exams will assess material covered in the unit before the exam. Unit exams will comprise multiple choice, short answer, and anatomical identification of specimen structures and/or paper images. Unit exams will be 60 minutes in length given at the beginning of the class. The rest of the class period will begin the next section as noted on the schedule. The specimen portion of the exams cannot be made up for any absence, even excused. Students must arrange in advance for a substitute exam to compensate for the specimen-based section of the exam. Material from lecture, the textbook, dissections, Sylvuis 4, and additional readings may be represented on exams. (Objectives 1-5)

The Final Exam will be a section exam for the last section but will also contain essay questions that will be given to you in advance. The essay questions will be synthetic in nature, asking you to describe structure-function relationships, explain common themes across systems, compare and contrast structures or systems, or diagnose a disease from symptoms. (Objectives 1-7, esp. 7).

Discussion and Participation As graduate students, it is assumed that you will come to class prepared and engage with the activities. I reserve the right to round your final grade by a +/- to recognize your course citizenship and adherence to our course covenant, made at our first meeting. I will not round down without a previous good faith effort and due diligence on my part to help you correct any hindrances you may have to good course participation. I can round up with no pervious notice. (Objectives 1-7)

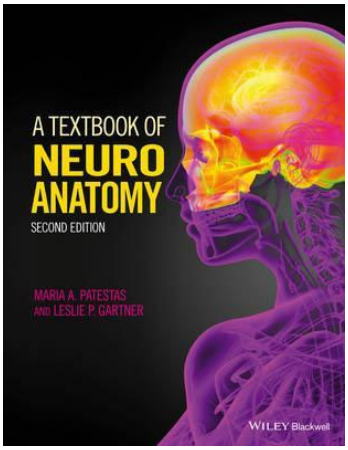
Attendance and Contribution

Your attendance is critical. Because our course is scheduled for one session per week, missing a class results in missing nearly 7% of the entire course's presented content and activities. Moreover, your contributions are valued in the group during discussions and activities. That being said, I understand that emergencies do come up. ***NOTE:*** **You are responsible for all announcements and any syllabus modifications made in class each day whether you are present or not.**

Grading Scale (percent total points)

Grading Scale

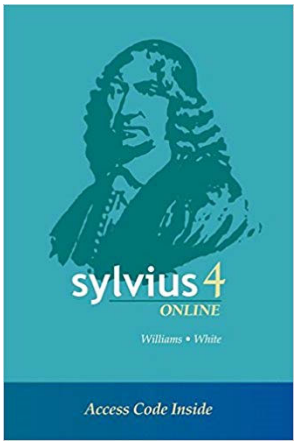
A	93-100
A-	90-92.9
B+	88-89.9
B	82-87.9
B-	80-81.9
F	< 79.9



Required Materials:

Patestas and Gartner Second Edition. ISBN 9781118677469. Please do what you can to economize yet maximize your access to this resource. We will rely heavily on the text in this course.

Sylvius 4 Imaging Software. ISBN-13: 978-0878939695



Course Schedule: The proposed course schedule is attached. Please note that some flexibility in the course schedule is expected. We enjoy following the class' interests and will be monitoring developments in the primary literature to make this course as current as possible. Also note that if there is a change in the points total, the number of points predominates over the weighting of points.

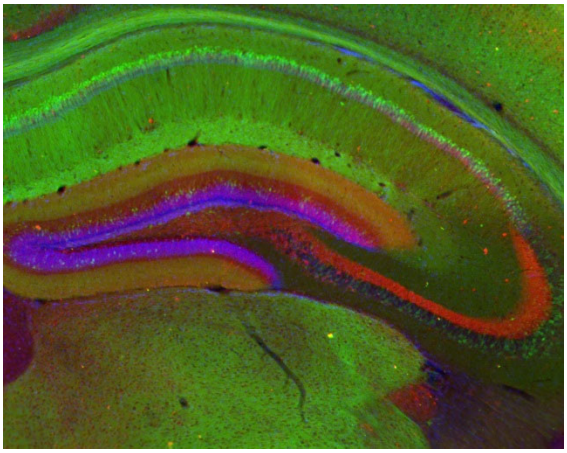


Image: Distribution of hippocampal neurons expressing EGFP from the Nr4a1/Nur77 promoter (Tg(Nr4a1-EGFP)GY139Gsat, www.gensat.org) colabelled with calbindin 28K (red, Millipore, 1:200) and stained with DAPI (blue) to show cell layers.

The following are modified from the NEUR 335 syllabus of J. Brielmaier

Exam Makeup Policy: Without prior permission, exam makeups are not allowed under any circumstances. Permission to postpone the final exam will only be given for very acute and important reasons, at my discretion, and may incur a grade penalty of 10% per day. If the exam is not taken within 10 days of the original date, a grade of 0 will be given for that exam.

Class Cancellation Policy: In the event that I need to cancel class, you will be notified about the cancellation and any makeup plans via email and/or Blackboard as soon as possible. Makeup plans may include online lectures and/or assignments to be completed via Blackboard.

Incomplete (IN) grades will be assigned only in cases of compelling and documented need, in accordance with policies set forth in the University Catalog.

The GMU Honor Code will be strictly enforced. Cheating and plagiarism will not be tolerated and will be reported to the University Honor Board and/or penalized. Plagiarism is defined as using another's work (e.g. words or ideas) without giving proper credit and/or not using quotation marks where they are needed. Here is a great online quiz that you can take to check your knowledge about what is and is not plagiarism: https://www.indiana.edu/~tedfrick/plagiarism/ (click on the first link). I reserve the right to enter a failing grade to any student found guilty of an honor code violation.

Official Communications via GMU Email: Mason uses electronic mail to provide official information to students. Examples include communications from course instructors, notices from the library, notices about academic standing, financial aid information, class materials, assignments, questions, and instructor feedback. Students are responsible for the content of university communication sent to their Mason email account, and are required to activate that account and **check it regularly**.

Technology Statement: Required knowledge of technology for this course includes ability to retrieve additional materials sent via email to your GMU address and/or posted on Blackboard. Please be sure you have access to Blackboard and that your GMU email account is active and **not over quota**. I will post relevant information and documents via the latest version of Microsoft Office, so make sure to have the latest version of office or download the converter in order to read all important documents.

Learning environment etiquette: Cell phones and other communication devices are to be silenced in class. There are instances when we will use web-enabled devices educationally, otherwise screens should be out of sight. Note taking on laptops is discouraged[1]. *Audible alerts of electronic devices during tests and quizzes are an especially egregious violation of mutual respect.*

1 http://www.newyorker.com/tech/elements/the-case-for-banning-laptops-in-the-classroom

Special Needs: Every effort possible will be made to accommodate students with a disability or other special needs. If you are a student with a disability and you need academic accommodations, please see me and contact the Disability Resource Center (DRC) at 703-993-2474. All academic accommodations must be arranged through that office.

Student Services:

Counseling and Psychological Services: The George Mason University Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling, workshops and outreach programs) to enhance students' personal experience and academic performance (See http://caps.gmu.edu).

Student Support and Advocacy Center: The George Mason University Student Support and Advocacy Center offers one-on-one support to students, interactive programming, and off-campus resources. Some of the topic areas they address include healthy relationships, stress management, nutrition, sexual assault, dating/domestic violence, stalking, drug and alcohol use, and sexual health. See http://ssac.gmu.edu for more information.

Religious Holidays: Please refer to George Mason University's calendar of religious holidays and observations (http://ulife.gmu.edu/calendar/religious -holiday-calendar/). It is the student's responsibility to speak to the instructor in advance should their religious observances impact their participation in class activities and assignments.

Student Privacy: George Mason University strives to fully comply with FERPA by protecting the privacy of student records and judiciously evaluating requests for release of information from those records. Please see George Mason University's student privacy policy https://registrar.gmu.edu/students/privacy/

Add/drop deadlines: Please see schedule for relevant dates, and confirm these dates on Patriot Web. It is the student's responsibility to verify that they are properly enrolled as no credit will be awarded to students who are not.