College of Public Health and Health Professions  
Syllabus  
PHT 6168: Neuroscience for Physical Therapists  
4 credit hours  
Spring Semester, 2022

Class time and location  
Mon 9:30am – 10:20am (Communicore, CG11)  
Wed 9:15am – 11:15am (CLC)  
Fri 9:45am – 11:45am  

Course Instructors  
Elisa Gonzalez-Rothi, PhD, DPT  
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Lecturers/Teaching Assistants  
Kimberly Patton, DPT  
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Course Overview  
This course is open first year physical therapy students enrolled in the UF Doctor of Physical Therapy program. In this course, we will discuss the fundamentals of how the human nervous system is constructed (i.e. neuroanatomy) and how it works (i.e. neurophysiology), in both health and disease.

Course Format and Instructional Methods  
This course is structured to help students to gain a basic understanding of neuroscience and its relationship to the practice of physical therapy. The course will consist of primarily in-person, synchronous lectures, laboratory experiences, and group work, with some content delivered online via blended learning opportunities. 

Pre-work – prior to coming to class, students are expected to complete pre-work (consisting of assigned readings and/or short videos). Pre-work assignments will be posted on canvas every Wednesday for the following week.  

Lectures are intended to highlight, clarify and/or expand on important concepts. Clinical examples will be utilized throughout the course to illustrate the relationship between “basic neuroscience” and the clinic.  

Laboratory/application experiences will be integrated throughout the course, including opportunities for students to examine brain models and wet specimens, practice clinical tests, observe clinical examples, and discuss how basic neuroscience principles relate to clinical cases.

Overall course objectives  
Upon successful completion of this course, students should be able to:  
1. Identify and describe the basic functions of neuroanatomical structures of the central and peripheral nervous systems.
2. Describe the different types of cells in the nervous system and their functions in health and disease.
3. Discuss principles and clinical applications of development and neuroplasticity of the nervous system.
4. Describe the structures and pathways of the sensory and motor systems.
5. Explain fundamental processes of the sensory, motor, and autonomic nervous system.
6. Apply principles of neuroscience and neuroanatomy described in the healthy/intact nervous system to the understanding of nervous system pathophysiology.
7. Use knowledge of cranial nerve function to understand how they are tested clinically.
8. Use neuroscience terminology appropriately to communicate with colleagues and patients.

Textbooks
1. REQUIRED
2. OPTIONAL/RECOMMENDED

Summary of grading
Final course grade will be computed as follows:
Module Quizzes: 70%
Final Exam: 20%
Class Participation, Attendance, & Professionalism 10%

Exams and scoring
This course will be graded according to the departmental guidelines in the student handbook. We will follow the standard grading scale listed below:

93-100% = A 4.0 grade point
90-92% = A- 3.67 grade point
87-89% = B+ 3.33 grade point
83-86% = B 3.0 grade point
80-82% = B- 2.67 grade point
70-79% = C 2.0 grade point
60-69% = D 1.0 grade point
< 60% = E 0 grade point

Course Materials and technology
You will need access to the internet and a computing device to access course materials on the Canvas page for this course. Required readings and links to assigned pre-work media will be provided on the “preparation” tab within each module on Canvas. Objectives and PDF files of lecture slides and lab materials will be made available on Canvas.

For technical support for this class, please contact the UF Help Desk at:
- helpdesk@ufl.edu
- (352) 359-HELP – select option 2
- https://helpdesk.ufl.edu/

Policy Related to Class Attendance
Attendance is MANDATORY. Please do not arrive late for class – attendance is taken within the first 5 minutes of class, and you will be marked absent if you are late. Only excused absences will be allowed, and students will need to submit the necessary documentation for these absences. Excused absences are defined as illness, family emergencies or other events outside your control. Please contact the instructor as soon as possible if you are unable to attend a class for any reason. Personal issues with respect to class attendance or fulfillment of
course requirements will be handled on an individual basis. Absences related to participation in professional activities may be deemed excused at the discretion of the course instructor, but such requests must be made in writing at least 2 weeks prior to the anticipated absence.

Please note, all faculty are bound by the UF policy for excused absences. Unexcused absences will result in forfeit of points for assignments on the scheduled day and loss of points from your professionalism/attendance grade. If a class meeting is missed due to an unexcused absence, instructors and teaching assistants are not obligated to meet outside of class to review lecture or lab material. For information regarding the UF Attendance Policy see: (https://catalog.ufl.edu/graduate/regulations/#text).

**ABSENCES RELATED TO ILLNESS OR COVID-19:** PLEASE DO NOT COME TO CLASS if you are feeling ill. Absence from class due to illness or contracting the COVID-19 virus will be considered “excused”. Consistent with UF and UFDPT policies, you will have opportunities to complete missed content including, but not limited to, in person skills laboratories, assignments, examinations and quizzes. You will not lose attendance points due to an illness-related absence if you notify the course instructor in advance. You may request a zoom link to watch class virtually (if appropriate for the content that will be missed), but only if you notify the course instructor of your absence BEFORE 9pm the night before class.

**EXAMS:** Unless prior arrangements have been made, late arrival for an exam will result in a grade of zero.

**Policy Related to Make-up Exams**
In extraordinary circumstances it may be possible to take an exam early or late. If for any reason you are unable to attend an exam, you must notify the instructor as soon as possible. A physician’s note will be required if the student is unable to take an exam due to illness. Personal issues with respect to exams will be handled on an individual basis.

**Professional Behavior**
Professional behavior is critical for a successful transition from the classroom to the clinic, and one of many traits expected of a doctoring profession. Professional Behavior is described in the Student Handbook that each student receives and acknowledges reading/understanding upon beginning the DPT program. Professional behavior is expected from all students at all times; including during scheduled class and laboratory times, as well as in communications with instructors, guest lecturers, and teaching assistants, whether by phone, email, or in person. Professional behavior is demonstrated by:

1. Refraining from using your phone/internet during class/laboratory sessions
2. Attendance
3. Timeliness
4. Attentiveness
5. Preparation
6. Participation
7. Respectful and polite interaction with peers and instructors
8. Active learning as demonstrated by asking questions and engaging in structured discussion

**Student Evaluation**
Performance of the student will be evaluated by quizzes, exams, and assessment of student’s display of professionalism during lecture and lab sessions. The student will be expected to read/watch any assigned materials prior to class/lab and to participate in discussions led by the instructor and/or guest lecturers as well as be actively engaged and participate in lab sessions. Up to 10% may be deducted from the overall grade and/or any specific evaluation for lack of preparation, participation, and/or professionalism.

**Academic Honesty / Honor Code**
Students are expected to act in accordance with the University of Florida policy on academic integrity. In this professional program we are particularly sensitive to students submitting independent work and to using
complete and accurate referencing in complying with the University of Florida Rules - 6CI-4.017 Student Affairs:
Academic Honesty Guidelines. Further details regarding the University of Florida honesty policy is available at:
http://www.dso.ufl.edu/judicial/procedures/academicguide.php and in your student handbook. As a student of
the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following
pledge:

“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the
highest standards of honesty and integrity”.

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on
all work submitted for credit at the University of Florida, the following pledge is either required or implied:

"On my honor, I have neither given nor received unauthorized aid in doing this assignment."

It is your individual responsibility to know and comply with all university policies and procedures regarding
the academic integrity and the Student Honor Code. Violations of the Honor Code will not be tolerated. Violations
will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information
regarding Academic Integrity, please see the Student Conduct Code, the Student Honor Code, the Graduate
Student Handbook, or these websites for additional details:

https://sccr.dso.ufl.edu/students/student-conduct-code/
https://sccr.dso.ufl.edu/process/students-rights-responsibilities/
http://www.graduateschool.ufl.edu/media/graduate-school/pdf-files/handbook.pdf

Cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.
Students may be referred to the Professionalism Committee and to the Dean of Students Office if they exhibit
behavior not in accordance to these standards/expectations.

There will be no opportunity to make up content missed as a result of a critical professional behavior infraction
in this class. Sanctions shall include lowering of grade for assignment, quiz, exam, and/or overall course grade;
sanctions from Professional Development Committee (i.e. oral or written reflection, observation and practice of
affective skills in clinical setting, etc); referral to the Dean of Student’s Office; loss of eligibility for scholarships,
trips (i.e. Nicaragua), awards, TA or leadership positions. A critical professional behavior infraction is grounds
for dismissal from the program.

Dress Code
Lecture or laboratory attire as per Student Handbook is acceptable for this class. Lecture or interview attire is
expected for guest lectures and will be announced in advance. For wet laboratory sessions, closed toed shoes
are required, and scrubs or lab coat are suggested.

Policy on Personal Electronics
Students are permitted to use laptop computers/tablets to take notes or use posted lecture slides during class.

Phone calls, text messaging, personal email and music devices are NEVER permitted while class or lab is
convened, and use of electronic devices for personal use must be restricted to break times. The instructor will
use their discretion to permit limited exceptions to the telephone policy, in the event of a family emergency and
with advanced notice.

Personal internet use is not permitted during class, e.g. Facebook, Twitter, Snapchat, TikTok, Instagram, etc….– this is a ZERO TOLERANCE RULE. Laptop computers/tablets will be entirely banned from class and lab on
the FIRST instance of unauthorized use observed during lecture or laboratory time.
No photography or videography will be permitted within the wet laboratory – this is a ZERO TOLERANCE RULE. Phones, tablets and laptop computers will be entirely banned from class and lab on the FIRST instance of any unauthorized use observed during wet laboratory time.

**Recording Within the Course:**
Students are allowed to record audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are: 1) for personal educational use, 2) in connection with a complaint to the university, or 3) as evidence in, or in preparation for, a civil or criminal proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations (such as patient history), academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session. Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording or transcript of a recording, is considered published if it is posted or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring service. A student who publishes a recording or transcript without written consent may be subject to civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

**Accommodations for students with disabilities**
If you require classroom accommodation because of a disability, you must first register with the Dean of Students Office (http://www.dso.ufl.edu). The Dean of Students Office will provide documentation of accommodations to you, which you must then provide to the course instructors to receive accommodations. The College is committed to providing reasonable accommodations to assist students in their coursework.

**Additional Academic Resources**
- **Career Connections Center:** Reitz Union Suite 1300, 352-392-1601. Career assistance & counseling services.
- **Library Support:** Various ways to receive assistance with respect to using the libraries or finding resources.
- **Teaching Center:** Broward Hall, 352-392-2010. General study skills and tutoring.
- **Writing Studio:** 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

**Counseling and Student Health**
Students may sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek assistance through the University resources available to you:

- **The Counseling and Wellness Center:** 352-392-1575 offers a variety of support services such as psychological assessment and intervention, short term counseling, crisis services and more. Visit their website for more information: http://www.counseling.ufl.edu. Online and in-person services are available.
- **U Matter, We Care Program:** The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. Website: http://www.umatter.ufl.edu/. A nighttime and weekend crisis counselor is available by phone at 352-392-1575.
- **The Student Health Care Center** at UF Health/Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at UF Health offers a variety of clinical services, including primary care, women's health care, immunizations, mental health care, and pharmacy...
The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: https://shcc.ufl.edu

- Crisis intervention is always available 24/7 from: Alachua County Crisis Center: (352) 264-6789 or http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx
- University Police Department: Visit the UF Police Department Website https://police.ufl.edu or call (352) 392-1111. In case of emergency, call 9-1-1.
- UF Health Shands Emergency Room / Trauma Center: For immediate medical care, call (352) 733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608. Website:

Do not wait until you reach a crisis to talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone - so do not be afraid to ask for assistance.

Inclusive Learning Environment

Public health and health professions are based on the belief in human dignity and on respect for the individual. As we share our personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels valued. We believe in, and promote, openness and tolerance of differences in ethnicity and culture, and we respect differing personal, spiritual, religious and political values. We further believe that celebrating such diversity enriches the quality of the educational experiences we provide our students and enhances our own personal and professional relationships. We embrace the University of Florida’s Non-Discrimination Policy, which reads, “The University of Florida shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans Readjustment Assistance Act.” If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office of Multicultural Affairs website: www.multicultural.ufl.edu.

Course evaluations

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and in-class time will be set aside within the final two weeks of class to complete these evaluations. Summaries of course evaluations will be available to students at https://gatorevals.aa.ufl.edu/public-results/

*The policies and assignments described in this syllabus are subject to change in the event of extenuating circumstances or by mutual agreement between the instructor and the students. The schedule is subject to change at the discretion of the instructors.

Topical Outline (dates are subject to change):
<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Activity</th>
<th>Lecture / Lab topic</th>
</tr>
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<tbody>
<tr>
<td>Monday</td>
<td>9-Jan</td>
<td>Lecture</td>
<td>Intro to Neuroscience</td>
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<tr>
<td>Wednesday</td>
<td>11-Jan</td>
<td>Lecture</td>
<td>Cells of the Nervous System</td>
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<tr>
<td>Friday</td>
<td>13-Jan</td>
<td>Lecture</td>
<td>Neuroanatomy</td>
</tr>
<tr>
<td>Monday</td>
<td>16-Jan</td>
<td>NO Class</td>
<td>MLK Jr. Day</td>
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<tr>
<td>Wednesday</td>
<td>18-Jan</td>
<td>Wet Lab</td>
<td>Wet Lab - surface anatomy and major structures</td>
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<tr>
<td>Friday</td>
<td>20-Jan</td>
<td>Quiz</td>
<td>Quiz - Module 1</td>
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<td></td>
<td></td>
<td>Lecture</td>
<td>Physical and Chemical Properties - part 1</td>
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<tr>
<td>Monday</td>
<td>23-Jan</td>
<td>Lecture</td>
<td>Physical and Chemical Properties - part 2</td>
</tr>
<tr>
<td>Wednesday</td>
<td>25-Jan</td>
<td>Lecture</td>
<td>Vascular, CSF, Meninges</td>
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<tr>
<td>Friday</td>
<td>27-Jan</td>
<td>Wet Lab</td>
<td>Wet Lab - vasculature, neuroimaging</td>
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<tr>
<td>Monday</td>
<td>30-Jan</td>
<td>Lecture</td>
<td>Neural Communication</td>
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<tr>
<td>Wednesday</td>
<td>1-Feb</td>
<td>Lecture</td>
<td>Review</td>
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<tr>
<td>Friday</td>
<td>3-Feb</td>
<td>Quiz</td>
<td>Quiz - Module 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lecture</td>
<td>Development</td>
</tr>
<tr>
<td>Monday</td>
<td>6-Feb</td>
<td>Lecture</td>
<td>Genetics</td>
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<tr>
<td>Wednesday</td>
<td>8-Feb</td>
<td>Lecture</td>
<td>Neuroplasticity</td>
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<tr>
<td>Friday</td>
<td>10-Feb</td>
<td>Lecture</td>
<td>Autonomic</td>
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<tr>
<td>Monday</td>
<td>13-Feb</td>
<td>Lecture</td>
<td>Review</td>
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<tr>
<td>Wednesday</td>
<td>15-Feb</td>
<td>Quiz</td>
<td>Quiz - Module 3</td>
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<tr>
<td>Friday</td>
<td>17-Feb</td>
<td>Lecture</td>
<td>Somatosensory Receptors</td>
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<tr>
<td>Monday</td>
<td>20-Feb</td>
<td>Lecture</td>
<td>Pain</td>
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<tr>
<td>Wednesday</td>
<td>22-Feb</td>
<td>Lecture</td>
<td>Somatosensory - Clinical</td>
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<tr>
<td>Friday</td>
<td>24-Feb</td>
<td>Quiz</td>
<td>Quiz - Module 4</td>
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<tr>
<td></td>
<td></td>
<td>Lecture</td>
<td>Sleep</td>
</tr>
<tr>
<td>Monday</td>
<td>27-Feb</td>
<td>Lecture</td>
<td>Stress</td>
</tr>
<tr>
<td>Wednesday</td>
<td>1-Mar</td>
<td>Lecture</td>
<td>Inflammation</td>
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<tr>
<td>Friday</td>
<td>3-Mar</td>
<td>Lecture</td>
<td>Mid-semester Review</td>
</tr>
<tr>
<td>Monday</td>
<td>6-Mar</td>
<td>no class</td>
<td>SPRING BREAK</td>
</tr>
<tr>
<td>Wednesday</td>
<td>8-Mar</td>
<td>no class</td>
<td>SPRING BREAK</td>
</tr>
<tr>
<td>Friday</td>
<td>10-Mar</td>
<td>no class</td>
<td>SPRING BREAK</td>
</tr>
<tr>
<td>Monday</td>
<td>13-Mar</td>
<td>Lecture</td>
<td>Muscle</td>
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<tr>
<td>Wednesday</td>
<td>15-Mar</td>
<td>Lecture</td>
<td>Motoneurons and Motor Tracts</td>
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<tr>
<td>Friday</td>
<td>17-Mar</td>
<td>Lecture</td>
<td>Spinal anatomy and reflexes</td>
</tr>
<tr>
<td>Monday</td>
<td>20-Mar</td>
<td>Lecture</td>
<td>Review</td>
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<tr>
<td>Wednesday</td>
<td>22-Mar</td>
<td>Quiz</td>
<td>Quiz - Module 5</td>
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<tr>
<td></td>
<td></td>
<td>Lecture</td>
<td>Spinal Cord Clinical</td>
</tr>
<tr>
<td>Friday</td>
<td>24-Mar</td>
<td>Symposium</td>
<td>NMPS (ATTENDANCE REQUIRED)</td>
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<tr>
<td>Monday</td>
<td>27-Mar</td>
<td>Lecture</td>
<td>Basal Ganglia - part 1</td>
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<tr>
<td>Wednesday</td>
<td>29-Mar</td>
<td>Lecture</td>
<td>Basal Ganglia - part 2; Cerebellum</td>
</tr>
<tr>
<td>Friday</td>
<td>31-Mar</td>
<td>Lecture/Lab</td>
<td>Motor Systems Clinical; Peripheral Nervous System</td>
</tr>
<tr>
<td>Monday</td>
<td>3-Apr</td>
<td>Lecture/Lab</td>
<td>Peripheral vs. Spinal</td>
</tr>
<tr>
<td>Wednesday</td>
<td>5-Apr</td>
<td>Lecture</td>
<td>Review</td>
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<tr>
<td>Friday</td>
<td>7-Apr</td>
<td>Quiz</td>
<td>Quiz - Module 6</td>
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<tr>
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<td>Lecture</td>
<td>Brainstem</td>
</tr>
<tr>
<td>Monday</td>
<td>10-Apr</td>
<td>Lecture</td>
<td>Vision</td>
</tr>
<tr>
<td>Wednesday</td>
<td>12-Apr</td>
<td>Lecture/Lab</td>
<td>Cranial Nerves - Part 1</td>
</tr>
<tr>
<td>Friday</td>
<td>14-Apr</td>
<td>Lecture/Lab</td>
<td>Cranial Nerves - Part 2</td>
</tr>
<tr>
<td>Monday</td>
<td>17-Apr</td>
<td>Lecture</td>
<td>Vestibular</td>
</tr>
<tr>
<td>Wednesday</td>
<td>19-Apr</td>
<td>Lab</td>
<td>Vestibular Guest*</td>
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<tr>
<td>Friday</td>
<td>21-Apr</td>
<td>Quiz</td>
<td>Quiz - Module 7</td>
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<td>Lecture</td>
<td>Cerebrum</td>
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<tr>
<td>Monday</td>
<td>24-Apr</td>
<td>Lecture</td>
<td>End of Semester Review</td>
</tr>
<tr>
<td>Wednesday</td>
<td>26-Apr</td>
<td>Lecture</td>
<td>Clinical Applications (Speech, Cognition)</td>
</tr>
<tr>
<td>Friday</td>
<td>28-Apr</td>
<td>no class</td>
<td>reading days</td>
</tr>
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EXAM Week: April 29
Final Exam (10AM-noon)