This five-week course will cover the basic principles underlying the development and organization of the nervous system. This course is the first in a series of four core course modules that are required for all IDP Neuroscience students. The objective of the course is to provide students with an overview of the fundamental processes underlying brain development. Questions that will be discussed include: How and where does the nervous system originate? How are the cell types that constitute the nervous system generated? How do progenitors know which cell type to become? How do progenitors find and reach their appropriate location in the brain? How do maturing neurons form synaptic connections? What are the limits of plasticity in the brain?

The primary teaching format will be lectures followed at the end of the week by student-led discussions of material related to the topics covered that week. By understanding how the nervous system develops, students will be prepared for the 2nd, 3rd, and 4th modules of this course series that will focus on signaling in the nervous system, neuropharmacology, and neural integration and control of behavior, respectively.

**COURSE TEXTBOOK:**  
*Development of the Nervous System* by Sanes, DH, Reh TA, and Harrris WA.  

The course follows this textbook quite closely so we strongly encourage you to read assigned chapters in this textbook that supplement lectures.

Students may supplement assigned course readings from the course textbook with material found in *Principles of Neural Science*, Kandel et al., 4th edition 2001, or *Fundamentals of Neuroscience*.

**PREREQUISITE KNOWLEDGE AND SKILLS:**  
You are expected to be familiar with basic Neuroscience concepts before starting this course series. If you are uncertain about the sufficiency of your background, you are encouraged to read through the following chapter in Neuroscience Online – an electronic textbook (Open Access) [http://neuroscience.uth.tmc.edu/](http://neuroscience.uth.tmc.edu/)
## COURSE SCHEDULE:

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
<th>Lecturer</th>
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<tbody>
<tr>
<td>1</td>
<td>Jan 7</td>
<td>Broad Impacts of Neural Development</td>
<td></td>
<td>Drs. Matt Sarkisian &amp; Sue Semple-Rowland</td>
</tr>
<tr>
<td>2</td>
<td>Jan 9</td>
<td>Neural Induction</td>
<td>Ch 1</td>
<td>Dr. Pedro Fernandez-Funez</td>
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<td>3</td>
<td>Jan 10</td>
<td>Introductory Student Project</td>
<td></td>
<td>Drs. Matt Sarkisian &amp; Sue Semple-Rowland</td>
</tr>
<tr>
<td>4</td>
<td>Jan 14</td>
<td>Neural Patterning</td>
<td>Ch 2</td>
<td>Dr. Christy Larkins</td>
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<tr>
<td>5</td>
<td>Jan 16</td>
<td>Neurogenesis and Gliogenesis</td>
<td>Ch 3</td>
<td>Dr. Matt Sarkisian</td>
</tr>
<tr>
<td>6</td>
<td>Jan 17</td>
<td>Student Project</td>
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<td>Drs. Matt Sarkisian &amp; Sue Semple-Rowland</td>
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<tr>
<td>7</td>
<td>Jan 21</td>
<td>Neural cell migration</td>
<td>Ch 3</td>
<td>Dr. Matt Sarkisian</td>
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<td>8</td>
<td>Jan 23</td>
<td>Neural Differentiation and Regionalization of the Brain</td>
<td>Ch 2,4</td>
<td>Dr. Matt Sarkisian</td>
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<td>9</td>
<td>Jan 24</td>
<td>MIDTERM EXAM</td>
<td></td>
<td>Drs. Matt Sarkisian &amp; Sue Semple-Rowland</td>
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<td>10</td>
<td>Jan 28</td>
<td>Axon Growth and Pathfinding</td>
<td>Ch 5,6</td>
<td>Dr. Sue Semple-Rowland</td>
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<tr>
<td>11</td>
<td>Jan 30</td>
<td>Synaptogenesis</td>
<td>Ch 8</td>
<td>Dr. Lucia Notterpek</td>
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<td>12</td>
<td>Jan 31</td>
<td>Student Project</td>
<td></td>
<td>Drs. Matt Sarkisian &amp; Sue Semple-Rowland</td>
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<tr>
<td>13</td>
<td>Feb 4</td>
<td>Regulation of Neural Survival</td>
<td>Ch 7</td>
<td>Dr. Marieta Heaton</td>
</tr>
<tr>
<td>14</td>
<td>Feb 6</td>
<td>Neural Plasticity</td>
<td>Ch 9</td>
<td>Dr. Jason Coleman</td>
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<tr>
<td>15</td>
<td>Feb 7</td>
<td>FINAL EXAM</td>
<td></td>
<td>Drs. Matt Sarkisian &amp; Sue Semple-Rowland</td>
</tr>
</tbody>
</table>

Disclaimer: This syllabus represents our current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

### GRADING POLICIES:

- **Student Projects:** 20%
- **Midterm Exam:** 40%
- **Final Exam:** 40%

### INSTRUCTIONAL METHODS:

Course materials will be delivered using traditional lectures. Student group learning projects will provide opportunities to review course material and explore topics of interest in more depth. These projects will be created and delivered using VoiceThread, an asynchronous communication learning platform.
COURSE POLICIES:

ATTENDANCE POLICY: You are expected to attend each lecture and actively participate in the student projects.

QUIZ/EXAM POLICY: There are two exams in this course, a mid-term and a final. They are in-class exams comprised primarily of multiple choice and short answer questions.

MAKE-UP POLICY: You are expected to notify the course directors of any anticipated absences. You should make every effort to take the exams on the days they are scheduled. If extenuating circumstances prevent you from taking a scheduled exam, you will need to schedule an appointment to meet with the course directors to identify an alternative exam date.

ASSIGNMENT POLICY: Group or individual projects must be completed and posted or turned in by the due date/time to obtain credit for the work.

COURSE TECHNOLOGY: We will use VoiceThread, an asynchronous online learning system, as the media for constructing and posting your student projects. While not required, a microphone/video camera is useful when creating VoiceThreads. Most laptops are equipped with these devices. We will enroll you in the VoiceThread course which will allow you to access the VoiceThread system using your Gatorlink name and password. This technology will be introduced during the first class period.

UF POLICIES:

UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES: Students requesting accommodation for disabilities must first register with the Dean of Students Office (http://www.dso.ufl.edu/drc/). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT: Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at http://www.dso.ufl.edu/students.php

NETIQUETTE: COMMUNICATION COURTESY: All members of the class are expected to follow rules of common courtesy when creating VoiceThreads. The course directors reserve the right to remove materials deemed inappropriate.
ABOUT THE LECTURERS

Dr. Matt Sarkisian is Assistant Professor in the Department of Neuroscience and is a Co-director of the course
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