Required Texts:
1) Text: Principles of Neural Science (4th Ed), by Kandel, Schwartz & Jessel: As you will see below, there are specific page numbers assigned. For that reason, it is necessary that you buy a copy of the 4th edition, not an earlier edition.
2) Additional Text: Course Pack. Available at: University Bookstore only.
3) Additional material will be made available on Blackboard.

- Attendance is necessary for this course. The lectures serve to simplify the material from the textbook. If you cannot attend class consistently, drop the course.
- Exams will be on material covered in the lecture. This helps you focus your efforts. On the few occasions when exams include material not covered in lecture, you will be forewarned on the review sheet.

Objective: This course illustrates how complex behaviors are dependent upon the normal operations of very fundamental processes. As we seek to connect the relation between genes, and environmental factors to complex neural disorders, we need to converse at this fundamental level of analysis.

Schedule:
Week 1:
Monday: Handout syllabus; course sampler
Wednesday: Philosophy of the Mind (Origins of how we view the relationship between the brain and behavior), Blackboard/Course Documents/Philosophy of the Mind document.
Friday: Philosophy of the Mind, continued.

History of neuroscience: Textbook: Chapter 1.

The lecture provides information about historical shifts in our beliefs about the mind and its relationship to the physical world. These shifts support the fundamental assumption that underlies the material covered in physiological psychology.

Week 2:
Monday: Review material: Cells of the Nervous System” Textbook: Chapter 2
Wednesday: How do Cells encode and relay sensory information? Textbook: Chapter 2
Friday: Structures within the cells that allow neural signaling. Textbook: Chpt 6, pp 105-108, 112-116

Week 3:
Monday: Mechanisms of Cell Signaling. Group Activity for cell signaling. (Participation and summary together are worth 10 points), Course Pack, Chpt 4

FEB 2 **Pub med citation search due (5 points). See Blackboard and syllabus for instructions.**


Friday: Causes of Multiple Sclerosis, Supplementary material on Blackboard

Week 4:
Monday: Review
Wednesday: Exam 1
Friday: Neurotransmitters and their Release," Textbook: Chapter 14

Week 5:
Monday: Examples of impaired transmitter action: Myasthenia Gravis and Lambert-Eaton Disease, Textbook: Chapter 16

Wednesday: Types of Synapses: Textbook: Chapter 10


Week 6:

FEB 26 **Part I of the Neuroanatomy Assignment (10 points). See Blackboard/Assignments.**

Wednesday: Post-synaptic Potentials: Textbook: Chapter 11: Course Pack, Chapter 8

Friday: Calculation of Post-Synaptic Potentials: Spatial and Temporal Summation, Course Pack: Chapter 8.

Week 7:
Monday: The role of neural circuits in sensation; See material on Blackboard.

MAR 5 **Part II of the Neuroanatomy Assignment (10 points). See Blackboard/Assignments.**

Wednesday: Potential mechanisms for complex tasks like facial recognition.
Friday: Stability vs. Plasticity: Plasticity in circuits involved in learning and memory, Blackboard Readings

Week 8:
Monday: What happens to the brain when glucose is low? Hypoglycemia effects on mood and cognition and developmental glucose deprivation and its relation to seizures and retardation. Metabolism, See webpage

Wednesday: What happens to the brain when energy metabolism is high? Epilepsy and ALS Oxygen deprivation in high altitudes induces metabolic plasticity. Reduced blood flow in aging; effects on neural function. See webpage

Friday: Stroke, and Cell Death Pathways Blackboard

Week 9:

Wednesday: How is the brain protected from toxins? Blood Brain Barrier: Textbook: Appendix B and webpage

Friday: Review

Week 10:
Monday: Exam 2

Wednesday: Biological Basis for Emotions and Stress: Autonomic Nervous System and the Hypothalamus Textbook: Chapter 21 (pg. 960-962; pg. 974-980; Chapter 50: 982-986; we’ll focus on the hypothalamus.); Also see webpage on blackboard.

Friday: Biological Basis for Emotions and Stress: Autonomic Nervous System and the Hypothalamus Textbook: Chapter 21 (pg. 960-962; pg. 974-980; Chapter 50: 982-986; we’ll focus on the hypothalamus.); Also see webpage on blackboard.

Week 11: Spring Break

Week 12
Monday: Depression, Textbook Chapt 61

Wednesday: Post-traumatic stress disorder, See Blackboard

Friday: Post-traumatic stress disorder, See Blackboard
Week 13:
  Monday:      Student Presentations
  Friday:      Students Presentations

Week 14:
  Monday:      Student Presentations
  Wednesday:   Student Presentations
  Friday:      Student Presentations

Week 15:
  Monday:      Student Presentations
  Wednesday:   Student Presentations
  Friday (Last class): Student Presentations

May 7-8:      READING DAYS
May 9-15:     FINAL EXAMS
**Wed, May 9: 11:00-1:30 PM, FINAL EXAM**
   *(Location to be announced)*

The schedule outlined above may change as needed. Consult the blackboard site for changes.

**EXAMS**

**Objective:** Whereas each exam is designed to test knowledge of material covered in lecture and text since the previous exam, mastery of some of the material may be dependent upon knowledge from the first part of the course. It is unwise to fall behind in the course.

**Structure of Exams:** Exams will be multiple choice. There may be a short answer challenge question at the end of exams.

**POLICY ON EXAMS:** Visit the restroom before the exam, you will not be allowed to visit the restroom during the exam. During exams, students are required to sit spaced apart, with books away neatly, and all baseball or other caps with bills removed. No hoods can be worn during the exam. No food or drinks are allowed in the exam room. **Do not bring headphones** to the exam. Turn off cell phones. Touching your cell phone will be considered an indication that you choose to forfeit the exam. If you need to know the time, ask the TA or course instructor. **Do not cheat and do not take part in any activity resembling cheating. Do not speak to friends or classmates during an exam. Doing so will bring about an automatic F on the exam.** If you have any needs, you can ask the TA or Instructor rather than a classmate. We will then do our best to help you (such as getting a scantron form, eraser, pen etc.) If you must leave the room once the exam is handed out, you will forfeit your opportunity to take the exam, and you will have to take the make-up exam with the points deducted (unless you are clearly sick).

**Show up on time for exams.** Exams start at 11:45 am. No one will be admitted after 11:55. If you arrive afterward, you will be required to take the make-up exam as your one excused make-up. Everyone is expected to finish no later than 12:40. Please show up on time so that you will have plenty of time to complete the exam.

Policy on Make-up Exams: Each student is permitted to take one exam late. *Advanced notice* is required to take advantage of this option (leave a message at 632.7821 or email banderson@notes.cc.sunysb.edu) prior to the exam. In choosing this option, however, the student will automatically lose 5 percentage points. Make up exams will be given at the TAs first office hours held after the day of the exam (or following recovery from an illness with a doctor’s note). Under no circumstances will exams be given more than one week after the original exam was administered. In the case of excused exams, you must show your formal excuse to the TA in order to receive the exam. Make up exams may be in the form of either short answer or multiple choice. Be forewarned that they may be more difficult.
HOMEWORK GRADE

Homework Assignments:
Late assignments will be collected up to 48 hours after the homework assignment was due with a penalty of 10% of the possible points. After that, assignments will not be accepted.

1) Researching Neuroscience-related Topics (Due Feb. 2):
The objective of this assignment is to familiarize you with databases used by neuroscientists. You are required to turn in 5 abstracts obtained from a search of PubMed [http://www.ncbi.nih.gov/entrez/query.fcgi]. There must be a search result listing 5 (at least 5 and only 5) references and abstracts to journal articles related to behavioral neuroscience. I recommend you search a topic of interest, then read through the titles and check five of interest. Then look at the top and find the “display button.” Next to that choose abstract, and then hit display to view the references and abstracts of the articles of interest. This should yield 5 references with their abstracts. Worth 5 points. Full points require that you successfully following the instructions.

2) Neuroanatomy Assignment (Part I due Monday, February 26; Part II due, Monday, March 5).
The assignment is in two parts which will be made available on BlackBoard. One part will be in the form of multiple choice questions in the assignment folder on BlackBoard. (Part I, 15 points, Part II, 15 points).

In-Class Activities: Many of the activities of science and psychology require group projects. In-class activities provide the opportunity to participate in, and develop skills for solving problems in groups. These activities provide the opportunity to use appropriate social skills required for group cooperation. Each group will be asked to perform a task within class time, and must work quickly. At the end you will be required to present your product to the class or each individual will have to hand in a record of their work. Each student should turn in a 1 paragraph summary of the activity to receive credit. (Three activities, each worth 10 points)

In all of your assignments you should strive to demonstrate that you are using critical thinking skills. According to Ennis, critical thinking "is reasonable reflective thinking that is focused on deciding what to believe or do".

Moreover, According to Ennis, an able critical thinker will (interdependently):
1. Judge the credibility of sources.
2. Identify conclusions, reasons, and assumptions.
3. Judge the quality of an argument, including the acceptability of its reasons, assumptions, and evidence.
4. Develop and defend a position on an issue
5. Ask appropriate clarifying questions.
6. Plan experiments and judge experimental design
7. Define terms in a way appropriate for the context.
8. Be open-minded.
9. Try to be well informed
10. Draw conclusions when warranted, but with caution

This list of abilities and dispositions is Ennis's own abridgement of work presented in (Ennis 1991) and (Ennis 1993).


I suggest that you check your assignments to be sure that you have demonstrated the 10 items listed by Ennis in your assignment.

3) Homework. To prepare you for the type of questions used on the exams, there will be some early homework in the form of online quizzes. These will be available under the assignments folder in BlackBoard. These assignments will be worth 10 points.

GRADING: Your final grade will be based on the average of the percent correct for three exams and the homework. Do not compute your grade from your raw scores. Instead use the percent correct out of the total possible points. You must take all exams. Consider the percent correct on all homework assignments and class activities added together to be equal to the weight of one exam.
Because your scores will always be out of 100 percent possible, at any time during the course you can easily compute your current grade by averaging your percent correct for the exams taken so far and the homework/activities completed so far. For the final grade, there will be 3 exams plus all the home work assignments added together, which make 4 scores to be averaged. Each score is worth a total of 100 percentage points. The average percent correct from all 3 exams plus the home work assignments/activities (4 scores) will determine your grade. (Example: Exam 1: 81%; Exam 2: 85%; Exam 3: 90%; Homework: 87% = an average of 85.75%, or a B)

<table>
<thead>
<tr>
<th>Grade/Score</th>
<th>B+: 87-89</th>
<th>C+: 77-79</th>
<th>D+: 67-69</th>
<th>F: &lt; 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: 94-100</td>
<td>B: 83-86</td>
<td>C: 73-76</td>
<td>D: 63-66</td>
<td></td>
</tr>
<tr>
<td>A-: 90-93</td>
<td>B-: 80-82</td>
<td>C-: 70-72</td>
<td>D-: 60-62</td>
<td></td>
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If the instructor feels the need to curve grades, the curves will be made at the time the exam and homework scores are computed, not at the end of the semester. As a result, you have certainty of your current standing at any time in the course. No tests will be thrown out.

**Excuses:** For those who would like to bring formal excuses for missing class, especially when activities are missed, the excuses will be filed and taken into consideration when grades are on the border. Likewise, if you have family concerns, emotional problems, and health problems, I will be happy to take these into consideration if your grade is on the border. However, it is difficult to use this information for anything other than making borderline grade decisions. In other words, exams cannot be graded more easily because of these concerns. If any such concerns are severe enough, I would recommend the student drop the course or consider taking an incomplete until their situation is resolved. Incompletes must be negotiated with Dr. Anderson. Likewise, if such concerns interfere with your ability to take exams on time and hand in homework on time, documentation from a doctor or campus counselor will be needed. Students should be aware that in situations that warrant missing all of your classes for several days because of unexpected emergencies, you should contact the Dean of Students. He/She can help you contact professors, and your absence will then be considered excused. For any issues that require your absence at critical class time or your inability to hand in homework, you are expected to act responsibly and notify us in a timely manner.

**TO STUDENTS WITH SPECIAL NEEDS:**

*If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services (631) 632-6748. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website: http://www.ehs.sunysb.edu and search Fire Safety and Evacuation and Disabilities. (revised 9-03, still used 9-04).*

Students cannot take exams at DSS or ask for special accommodations without a formal letter from DSS to the course director.

- **BLACKBOARD:** Supplemental course information is available on blackboard. Information is available under “Course Documents” and is organized by exam and chapter. A copy of the syllabus will be available along with advice, announcements and reminders.

- You can access class information on-line at: http://blackboard.sunysb.edu. If you have never used Stony Brook's Blackboard system, your initial password is your SOLAR ID# and your username is the same as your Stony Brook (sparky) username, which is generally your first initial and the first 7 letters of your last name.

For help or more information see: http://www.sinc.sunysb.edu/helpdesk/docs/blackboard/bbstudent.php For problems logging in, go to the helpdesk in the Main Library SINC Site or the Union SINC Site, you can also call: 631-632-9602 or e-mail: helpme@ic.sunysb.edu
For your records: This is a copy of the statement below that you are required to sign and give to Dr. Anderson by the second class period. 

All students enrolled in the class are required to read the syllabus and consider it equal to a contract. With that in mind, you understand what is required to receive a passing grade in this course.

For your records: A copy of the statement below that you will sign and give to Dr. Anderson.

I have read the syllabus and I understand the grading system. With that in mind, I understand that all students will be graded as fairly as possible. I understand that my grade along with all grades in the course will be based on my test performance, and the quality of my homework, participation in group activities, and attendance. I understand that with fairness in mind, I cannot ask for special consideration when my grade is given. Therefore, I will not ask the instructor to change my grade because of outside circumstances.

Signature:___________________________________________ Date:  ______________
Read and sign below. Please turn this in to the TA by Feb. 2, 2005

I have read the syllabus and I understand the grading system. With that in mind, I understand that all students will be graded as fairly as possible. I understand that my grade along with all grades in the course will be based on my test performance, and the quality of my homework, participation in group activities, and attendance. I understand that with fairness in mind, I cannot ask for special consideration when my grade is given. Therefore, I will not ask the instructor to change my grade because of outside circumstances.

Signature:___________________________________________  Date:  ______________