# NSC 3361.03 Introduction to Neuroscience

Spring 2017

**Professor**
Dr. Xiaosi Gu, Ph.D.
Email: Xiaosi.Gu@utdallas.edu
Office Hours: by appointment only.
Location: GR 4.424
**For course-related communication, email should be sent through eLearning*.

**Teaching Assistants**
Graduate TA: Hye Bin Yoo (hxy140630@utdallas.edu)
Undergraduate TA: Chandana Chowdary Tatineni (cct140030@utdallas.edu)

**Textbooks**
1) The fun & easy to read: The Mind's Machine: Foundations of Brain and Behavior by Watson and Breedlove (required)
2) One-level up: Neuroscience: Exploring the Brain by Bear, Connors, and Pradiso (optional)
3) Even better: Principles of Neuroscience, 4th or 5th Edition by Eric Kendall (optional)

**eLearning**
- Primary platform of course-related communication (emails, announcements, ect.)
- Lecture slides and reading materials will be posted online after each class.

**Recording policy**
Any type of recording must be discussed and approved by Dr. Gu before class.

**Assessment**
1) Exams
- Four exams in total: 3 non-cumulative midterms (30% each) and 1 cumulative final (40%).
- You can drop the lowest score of the 3 non-cumulative exams.
- You CANNOT drop the cumulative final exam.
- All exams are conducted through the UTD testing center. You need to reserve a seat before each exam using this link: http://registerblast.com/utdallas/exam. No walk-ins are taken.

2) Make-up exams
- No make-up exam will be offered for the midterm exams.
- Make-up exam for the final can be arranged only in extreme circumstances such as severe sickness, hospitalization, death of a family member, etc. You will need to provide written proofs such as doctor's note, medical bill, obituary, and flight tickets.

3) Extra-credits
There will be a few attendance checks randomly distributed throughout the semester. Each attendance check is worth 1 extra credit. For each attendance check, you will need to answer a few short questions in class that are meant to help you review the lecture. You will then hand

deliver the written answers to TAs after class. Whether you get the questions right or wrong does not affect your extra-credit, as long as you are present for that lecture and hand in your answers in person.

4) Your final grade is strictly based on your exam scores and attendance. If you miss a midterm exam or attendance check/lose one extra credit, you will take full responsibility of that. No negotiation will be made regardless of the reason (sickness, car accident, family member passing away, etc.).

5) Final Grades: A final grade will be submitted: A+: 97-100%, A: 93-96.9%, A-: 90-92.9%, B+:87-89.9%, B: 83- 86.9%, B-: 80-82.9%, C+: 74-79.9%, C: 68-73.9%, C-: 60-67.9%, D: 50-59.9%, F < 50.

**Learning Objectives**

After completing the course, students should be able to:
- Describe the historical development of neuroscience as a cross-disciplinary science.
- Describe and analyze the contributions of anatomical, physiological, behavioral, pharmacological, developmental, and cell and molecular biological studies to the bases of neuroscience.
- Integrate pathological findings from psychology, psychiatry, physiology, and neurology with basic scientific work in the neurosciences.
- Identify and explain why research questions rather than methods ideally drive advances in the neurosciences.
- Compare textbook, popular and peer-reviewed scholarly reports in the neurosciences.
- Apply neuroscience concepts, theories, and research findings to issues in everyday life.
- Identify appropriate applications of neuroscience knowledge in health, service, education, or business professions.
- Describe basic components of the laws of nature as related to the brain.
- Set up neuroscience problems in feasible and solvable ways.
- Make reasoned arguments about major issues related to the nervous system.

# NSC 3361 Spring 2017 Schedule

| | Date | Topic |
|---|---|---|
| | | **MODULE I: Neurophysiology and Neurochemistry** |
| Week 1 | 1/9 | Introduction |
| | 1/11 | Basic Neuroanatomy |
| Week 2 | 1/16 | *Martine Luther King's Day – No Class* |
| | 1/18 | Cells in the brain |
| Week 3 | 1/23 | Action potential |
| | 1/25 | Synaptic transmission |
| Week 4 | 1/30 | Neurotransmitters |
| | 2/1 | Neuroscience Methods |
| Week 5 | 2/6 | TA review session |
| | 2/8 | Exam 1 |
| | | **MODULE II: Sensorimotor Systems** |
| Week 6 | 2/13 | Exam 1 Review / Vision Part I |
| | 2/15 | Vision Part II |
| Week 7 | 2/20 | Auditory System |
| | 2/22 | Somatosensory System |
| Week 8 | 2/27 | Olfactory System |
| | 3/1 | Motor System |
| Week 9 | 3/6 | TA review session |
| | 3/8 | Exam 2 |
| | | **MODULE III: Higher Cognition** |
| Week 10 | 3/13 | *Spring Break – No Class* |
| | 3/15 | *Spring Break – No Class* |
| Week 11 | 3/20 | Exam 2 Review / Emotion |
| | 3/22 | Attention |
| Week 12 | 3/27 | Language |
| | 3/29 | Memory |
| Week 13 | 4/3 | Learning and Decision-making |
| | 4/5 | Neuroeconomics & Social Neuroscience |
| Week 14 | 4/10 | TA review session |
| | 4/12 | Exam 3 |
| | | **MODULE IV: Disorders of the Brain** |
| Week 15 | 4/17 | Exam 3 Review / Neurological Disorders |
| | 4/19 | Mental Illness |
| | 4/24 | Drug Addiction |
| Week 16 | 4/26 | TA review session |
| | 5/2-8 TBC | Final exam |
| | | |

* Syllabus is subjective to change.