

**NSC 3361 Introduction to Neuroscience**  
**Formerly known as *Behavioral Neuroscience***  
**Spring 2017 Syllabus**

Van Miller MD PhD

Office: Jonsson 4.214

Phone 972-883-4229 (no voice mail)

Office Hours: *M, W noon-12:50 and other times by agreement*

Email [van.miller@utdallas.edu](mailto:van.miller@utdallas.edu) *For course-related communication, email should be sent through elearning*

**Graduate TA:** Michelle Kapolowicz - [mrk092020@utdallas.edu](mailto:mrk092020@utdallas.edu)

**Undergrad TAs:**

Student Learning Objectives: After completing the course, students should be able to:

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

**Textbook**

Recommended: Garrett, *Brain & Behavior*, 3<sup>rd</sup> ed. 2011 or 4<sup>th</sup> ed, 2015: ISBN 9781483318325. Many used paperback copies should be available via the bookstore and web. FYI: nearly all test questions come from lecture; use the book with this in mind. Do not overlook the web site for the textbook:

<https://edge.sagepub.com/garrett4e>

**Tutoring, Extra help**

Supplemental Instruction (SI) is offered for this course. SI sessions are free group study opportunities, scheduled three times per week. Sessions are facilitated by an SI Leader, who has recently taken the course and received a high final grade. Attendance is voluntary. For information about the days, times, and locations for SI sessions, refer to [www.utdallas.edu/studentsuccess/leaders/si.html](http://www.utdallas.edu/studentsuccess/leaders/si.html)

**Weekly lecture reviews** are another resource for you. These apply to that week's lectures - student TAs will discuss them and answer your questions. The review session immediately after each test will be a test review.

**Individual review:** You are welcome and indeed encouraged to meet with me or one of the student TAs during office hours to go over difficult concepts and discuss learning strategies. You must help us to help you. The day before the test is too late; make it a regular weekly thing.

### **Course Content**

This course has a strong 'clinical' orientation, as I am a pediatric neurologist. Every lecture will try to include examples from real patients (children and adults) with real neurological disorders. There is a **lot of new vocabulary** we need to learn to talk about the brain and behavior. The course begins with the study of nerve cells: their structure, the propagation of nerve impulses and transfer of information between nerve cells, the effects of drugs (legal and otherwise) on this process. We also examine the overall structure of the nervous system and its development. We will see how sensory systems such as vision, hearing, and motor systems control behavior. Finally, we will study sex, hunger and thirst, language, attention, sleep, mental illness, emotion, learning and memory. In one semester! Whew! Wear your seatbelt. Really.

### **Elearning**

Class lecture slides are posted on elearning. No portion of these slides may be sold, retransmitted, reposted, duplicated or otherwise used without the express written approval of the author. Discussion boards and Chat are available for your use. I will not routinely monitor them unless I receive complaints about inappropriate posting. Grades will be posted as soon as they are available. Announcements will be made from time to time. In event of classroom emergencies, such as lecture cancellations for March Madness, golfing, or World Cup games, I will send emails to all in the class.

### **Turning Point Clickers**

This course uses a classroom polling software Turning Point Cloud. In order to participate in the polling, you need to purchase a Turning License, available at the UTD Bookstore.

For this course, you need either an RF-LCD device (clicker) **or** the Turning Point Cloud app. If you had recently purchased an RF-LCD Clicker from the UTD Bookstore, you may be able to obtain a free Turning License. The UTD Bookstore has a limited time offer for legacy students, and it is on a first-come, first-served basis. Please check with the Bookstore for more details.

Please visit <http://www.utdallas.edu/elearning/resources>

### **Assessment**

**Exams:** There will be three exams during the course, plus a cumulative final exam. Each exam will be worth 33.3% of your final grade and will cover the material from the third of the course preceding the exam. Thus, you may drop your lowest exam, even the final if desired. Material covered on the exams will be taken from the assigned readings and **mostly** from class lectures, as well as any additional material that I may provide. Exams will consist of multiple choice questions. Missed exams may be made up by taking the final. You will need scantron form 229630 or 229634 (the others don't work) and your luckiest pencil for each test.

Extra-credit: Clicker grading; You receive 2 points for every correct clicker question answer, and 1 point for

every incorrect answer. For the final clicker grade computation, I will average the top three students' total clicker points and set that as 100%. So, if the top three students earned 130, 129 and 128 points, 100% is the average of these: 129. If you scored 112 total points, then your grade for the clickers is  $112/129$ : 87%, and you receive  $5 \times .87 = 4.5$  points added to your final course grade.

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.

Class attendance: Recall the wisdom of Woody Allen: "Ninety percent of life is just showing up". Your class participation affects your grade.

#### Teaching Assistants

For routine questions outside of class, please email the student TAs or graduate TAs. They will maintain office hours for questions and for reviews of tests, and other appropriate academic help. The student TAs are also a good sources for questions about course content, how to use elearning, the lecture slides, inside information about the tests, etc. The student TAs especially are to be consulted, because they have taken the same tests as you will be given. But I am available as well, either during office hours or by apt; I come to class early nearly every time to meet with you. No advance notice required.

## NSC 3361 Spring 2017 Lecture Schedule

	Lecture Topic	Class	Reading B&B
Week 1	Introduction	1	
	Neuroanatomy – Just the basics	2	Chapter 3
Week 2	Membrane Properties of Neurons; The Action Potential	3	Chapter 2
	Synaptic Transmission (Snap, Crackle, Pop)	4	Chapter 2
Week 3	Neuropharmacology ('Drugs, Man')	5	Chapter 5
	"	6	"
Week 4	Brain Development (From Little Acorns ...)	7	Chapter 3
	" (... Big Oaks Grow)	8	"
<b>2/7</b>	<b>Week 5 Exam 1</b>	9	
	Sex (and the Single Brain)	10	Chapter 7
Week 6	Hunger, Thirst, Homeostasis (Eat, Drink, and be Mellow)	11	Chapter 6
	Emotions, Stress and Aggression	12	Chapter 8
Week 7	Pain and Touch ('This Might Hurt a Little Bit')	13	Chapter 9
	"	14	Chapter 9
Week 8	Audition and Language (Listen Up!)	15	Chapter 9
	"	16	Chapter 10
Week 9	"	17	Chapter 10
	Visual System (Look Here!)	18	Chapter 11
Week 10	"	19	Chapter 11
<b>3/22</b>	<b>Exam 2</b>	20	
Week 11	Motor Control (Why Tiger is so Much ...)	21	Chapter 11
	(...Better at Golf than You and I Are)	22	Chapter 11
Week 12	Rhythms of the Brain (Sleep)	23	Chapter 15
	Psychopathology (Xtreme Brains)	24	Chapter 14
Week 13	"	25	Chapter 14
	Learning and Memory (How To Win at College)	26	Chapter 12
Week 14	"	27	
	"	28	Chapter 12
<b>4/27</b>	<b>Exam 3</b>	30	
	<b>Final Exam</b>		

Syllabus may be changed at any time during the course, as needed.

### UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.