

BIOLOGY 335- NEUROBIOLOGY

Biol 335 Homepage: <http://blackboard.wku.edu> - Login required

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Class Time/Location: Online

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Required Textbook: Neuroscience, Sixth Edition, by Dale Purves et al, ISBN 9781605353807;

Note: the 5th Edition should also be sufficient.

Course overview: Neurobiology (or, more generally, neuroscience) attempts to understand the higher function of the nervous system in terms of the biology of nerve cells. We will examine the nervous system at the molecular, cellular and systemic level. Topics include the structure of neurons, how neurons transmit signals, sensory systems, brain organization, and neural development, as well as how these principles affect behavior and health.

Tentative Lecture/Exam Schedule:

Week	Tentative Topic	Text section
Section 1	Neural Signaling	
	Introduction to neuroscience	Ch. 1
	Electrical signals of nerve cells	Ch. 2
	Voltage-dependent membranes	Ch. 3
	Channels and transporters	Ch. 4
	Synaptic transmission	Ch. 5
	Neurotransmitters	Ch. 6
	The Case of the Frozen Addict	Video
	First Exam: Neural Signaling – 100 points	
Section 2	Sensation and sensory processing	
	Somatic sensory system	Ch. 9
	Pain	Ch. 10
	Vision	Ch. 11
	Central Visual Pathways	Ch. 12
	Auditory System	Ch. 13
	Vestibular System	Ch. 14
	Chemical Senses	Ch. 15
	Second Exam: The Senses – 100 points	
Section 3	Complex Brain Functions	
	Speech & Language	Ch. 27
	Sleep	Ch. 28
	Emotions	Ch. 29
	Sex and the Brain	Ch. 30
	Synaptic Plasticity	Ch. 8
	Memory	Ch. 31
	Nail Case Study Part 1	Video
	Nail Case Study Part 2	

	Thanksgiving Break	
	Neuroethics Lecture	
	Neuroscience Presentations	
	Neuroscience Presentations	
	Neuroscience Presentations	
Final	– Final Exam	
	-200 points	(Yes, it is comprehensive!)

GENERAL EDUCATION COURSE CONTENT AND GOALS:

Course Objectives:

This course fulfills an upper-level Biology major elective and has these student objectives:

- Develop a conceptual framework for modern neurobiology
- Gain an appreciation of science as a process
- Learn how knowledge in neuroscience is created, developed and changed through experimentation and reasoning
- Demonstrate knowledge in neurobiology, including theories, concepts, and principles that explain observations and make predictions
- Explain how neurobiology affects our health and global society

Learning Outcomes:

Students who successfully complete this course will be able to:

- Describe basic neurobiological concepts and principles,
- Appreciate the different levels of neural organization, from neurotransmitters to the brain,
- Understand that neurobiology has a chemical, physical, and mathematical basis,
- Explain the importance of the scientific method to understanding neurobiology,
- Effectively communicate recent neurobiology research and ideas.

Instructional Strategies

- Lecture/traditional lesson format
- Cooperative learning
- Discussion
- Practical case studies (critical thinking and problem-solving exercises)
- Project-based learning (group presentation projects)
- Technology Tools (Neurons in Action simulations)

Assessments/Mechanisms

- Pop quizzes
- Out-of-class application writing assignments
- Written/multiple-choice exams

LEARNING - Learning takes effort, and research on college students has shown that students who invest more time in learning get better results! Many times students feel helpless when they experience difficulty in class. ... However, it is important that you **take responsibility** for your learning and build partnerships with your professors. Success is a choice. Your choice. To get what you want, it helps to know what you want and know how to go about it. ... Becoming a master student is a lifelong process. The final destination is up to you!

To do well in this class, either prior knowledge of how to use a typical web site, or a willingness to learn on your own during the first week of class, is required. **This is because course announcements, lessons, reading assignments, and details explaining the policies for this course are found on Blackboard.** Most problems students have with this class result from their failure to READ instructions, deadlines, and course materials.

COMPUTER-BASED LEARNING: Owning your own computer is not required for successful completion of this course. There are several computer labs located throughout the campus: at the Library, DUC, TCCW, etc. Click here for a link to WKU's computer lab locations and hours of operation: [WKU Computer Labs](#). However, most students find that it is more convenient to have his/her own computer with access to the Internet (located in his/her own room). Since a computer can be the most valuable tool you can have while in college, it is strongly suggested that you purchase one.

The Learning Center (Tutoring): If you need help with study habits for this class (highly recommended for those with averages below 75%, but available for ANYONE, no matter how high your grade is - check your grades online to determine your present average, or see me) you can just drop in at The Learning Center (2141 Downing Student Union) or make an appointment to better suit your schedule. The Learning Center is available for help not only in this class, but for all your classes.

Check out their website at: www.wku.edu/tlc or e-mail them at tlc@wku.edu or call them at 745-5065.

ASSIGNMENTS: Of course you should read the assigned text before class. You will be responsible for understanding material in the text even if it is not specifically discussed during lecture- so use the lecture notes as a study guide but do not rely wholly on them. The Internet, in general, can also be a useful source of information. Students who do not do the required reading frequently have difficulties, as they would in any course. All the due dates for tests and assignments are posted well ahead of time (see the **Schedule**). That means **that late assignments will NOT be accepted without an acceptable university-approved excuse.** If you find the course incomprehensible or need extra help, be sure to come to my office or schedule an appointment with me. My office hours are given above.

ATTENDANCE: Your attendance and participation in this class is essential to you learning the material. It is extremely important that you attend every class session in order to help you do your best in this course. You are expected to arrive **on time** and remain for the entire class period. Important course announcements are often given at the beginning of class. Quizzes and exams will be given at the start of class as well. Extra time will not be allowed for quizzes or exams if you are late to class. Credit will not be given for any missed quizzes or exams. If you do miss a class, it is **your** responsibility to get any missed notes or handouts. Credit for the course

will not be changed to an audit after the university designated time. You also cannot drop the class or change to Audit or Withdraw after the designated time.

CLASSROOM CIVILITY: Students are expected to assist in maintaining a classroom environment that is conducive to learning and respectful of the instructor and fellow students. The time spent in the classroom is to be a time of intellectual gain, thus students are prohibited from using **laptop computers** (unless using to type notes only) and **cellular phones**, making offensive remarks, reading newspapers, or engaging in any form of distraction. Inappropriate behavior shall result in, minimally, a request to leave class.

EXAM FORMAT: The lecture exams will be given approximately every 4 weeks. Exams will start at the beginning of class on the scheduled day and are to be complete by the end of the class period. No extra time will be given if you are late to class. The final exam will be given as per the University designated exam schedule. **Exams** may include essay, true/false, fill-in-the-blank, multiple choice, matching, diagrams, and other types of questions. **Once the first student leaves** the Exam (finishes the Exam) no other students will be admitted to the room. Make-up exams will be given only for approved University excuses (illness with a doctor's written excuse or death of a close relative) and will be administered during finals week. The final exam is comprehensive. It covers all the material in BIO 335 and will be given **ONLY** during the university designated time. **All** students will be required to take the final exam.

ACADEMIC INTEGRITY: Students are expected to do their own work throughout this course and demonstrate academic integrity. Academic dishonesty in the form of cheating or plagiarism will not be tolerated. Please refer to the WKU Student handbook for policies and definitions regarding academic integrity at:

<http://www.wku.edu/Dept/Support/StuAffairs/StuLife/handbook/academicOffenses.htm>

ACADEMIC MISCONDUCT: Dishonesty on quizzes, exams, or written assignments (see WKU's plagiarism statement below) will result in a failing grade for the class. Cheating (completing an assignment for someone else, allowing someone else to copy your assignment, copying and pasting from internet sources or elsewhere when you have not been instructed that this is acceptable, etc.) on online assignments will be tracked by computer. Cheating will not be tolerated.

WKU'S PLAGIARISM DEFINITION: "To represent written work taken from another source as one's own is plagiarism. Plagiarism is a serious offense. The academic work of a student must be his/her own. One must give any author credit for source material borrowed from him/her. To lift content directly from a source without giving credit is a flagrant act. To present a borrowed passage without reference to the source after having changed a few words is also plagiarism."

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT:

Due to the Family Educational Rights and Privacy Act ([FERPA](#)), if you are 18 years old or older, I cannot discuss your grades, etc. with your parents.

GRADING: There will be a total of approximately 500 points possible in this course, consisting of some variation of.....

- 100 pts. – Class participation monitored via in class writing assignments/quizzes
- 200 pts. - Two 100-point In-Class Exams
- 200 pts. - One 200-point Cumulative Final Exam (100 pts. material SINCE Exam II + 100 pts. on Exam I-II material)
- **Total = 500 pts.**

Final course grades will be determined on the following percentage scale (to determine your final grade divide your total points achieved for the entire semester by 600, then multiple by 100 to get your percentage grade):

Grading Scale :		
90-100%	A	Outstanding
80-89%	B	Above average
70-79%	C	Average
60-69%	D	Below Average
Below 60%	F	Failing

WITHDRAWALS AND AUDITS: If you wish to audit or withdraw from the course you should do so by the dates mandated by the University. Be sure you are aware of these dates because credit for the course will not be changed to an audit after the university designated time. You also cannot drop the class or change to Audit or Withdraw after the designated time. Be aware that IT IS YOUR RESPONSIBILITY TO DROP THE CLASS. Do not assume that I will do this for you. University policy states, "Students who, without previous arrangement with the instructor or department, fail to attend the first two class meetings of a course meeting multiple times per week or the first meeting of a class that meets one time per week MAY be dropped from the course; however, students are responsible for officially dropping any course for which they have enrolled."

Ceasing to attend class does not activate the drop, withdrawal, or incomplete grade processes. You must submit the appropriate forms for each by the published deadlines to end your enrollment in this class. Failure to complete the appropriate forms may result in a failing grade for this course.

DISABILITY ACCOMODATIONS: Students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course must contact the Student Accessibility Resource Center (SARC), Room 1074, Downing Student Union. The telephone number is (270) 745-5004. Please DO NOT request accommodations directly from the professor or instructor without a letter of accommodation from the SARC. Note that if you require accommodations, you may be required to take exams at another location. You will need to make arrangements with me at the beginning of the semester to take your exams at a different location, such as the DELO testing center, in order to receive your accommodations. If at any time during the semester you want to change your testing arrangements, you must see me at least 3 days prior to the upcoming exam date. If you need extra time on assignments, you must make arrangements with me PRIOR TO THE DUE DATE of the assignment.

This syllabus is subject to change, but students will be notified of any potential changes via email and/or Blackboard announcement.

