

BIO 440/540. Functional Neuroscience for Occupational Therapists. 3 Credits
Fall 2009. Second Block. Lecture Component.
James Madison University

Instructor: Dr. Mark Gabriele
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Office Hours: M 1:30-5:00 Burruss 312
F 10:30-12:00 Burruss 312

Section: Lecture: T 10:00-12:30 HHS 3028
Th 10:00-12:30 B 057

Required Text: *Neuroscience: Exploring the Brain*; Bear et. al., (3rd Edition)

Course Description: This course will examine functional performance of all aspects of the human nervous system. Specific nervous system conditions will be introduced and their impact on occupational performance, performance components and environmental contexts discussed. *Prerequisite: Admittance to the Occupational Therapy program and satisfactory completion of previous concentration course work.*

GRADING POLICY: The lecture component of this course will account for 50% of your overall grade. The other 50% will involve laboratory and tutorial performance. There are two lecture exams scheduled for this course. All exams are considered to be comprehensive in nature in that we will apply principles throughout the semester. Weekly quizzes will account for 5% of your grade to ensure that you are keeping up with the material. Group presentations will also account for 5% of your grade. Final letter grades will be assigned according to the defined OT grading scale (93-100% = A, 90-92% = A-, 86-89% = B+, 80-85% = B, 70-79% = C, <70% = F).

Lecture Exam 1	20%
Lecture Exam 2	20%
Quizzes	5%
<u>Presentations</u>	<u>5%</u>

50% of Final Grade

*additional graduate components/projects will be discussed on an individual basis with the instructor.

HONOR SYSTEM: All students are expected to be familiar with and to abide by the University Honor Code at JMU. A complete description of the University Honor System can be found in the JMU Student Handbook.

ATTENDANCE: Attendance is absolutely critical to the successful completion of this course. You are expected to attend ALL lecture and laboratory sessions. Officially excused absences from laboratory must be approved **prior** to the absence. Make-ups for **lecture and laboratory exams** will be given for **officially excused absences ONLY** (official school business, illness with M.D. excuse, death in the

family). If you are unable to attend a lecture exam, you must contact me directly **prior** to the scheduled exam time.

OFFICE OF DISABILITY SERVICES: Mission statement: James Madison University is committed to the full and total inclusion of all individuals and to the principle of individual rights and responsibilities. To this end, policies and procedures will ensure that persons with a disability will not, on the basis of that disability, be denied full and equal access to and enjoyment of academic and co-curricular programs or activities or otherwise be subjected to discrimination under programs or activities offered by the University. This policy was developed to ensure equal access at the University for individuals with disabilities and to ensure full compliance with all pertinent federal and state legislation.

Students with disabilities who require reasonable accommodations to fully participate in course activities and/or meet course requirements must register with the Office of Disability Services (ODS) and contact the instructor to discuss access issues. ODS will provide the student with an Access Plan Letter that will verify individual need for services and make recommendations for accommodations to be used in the classroom. ODS is located in the Wilson Learning Center, Room 107; Phone: 568-6705.

COURSE OBJECTIVES:

- Objective 1: To demonstrate knowledge and understanding of the structure and function of the central and peripheral nervous system and their impact on human development, behavior, and occupational performance.**
- Objective 2: To learn the basic vocabulary and normal structure of the central and peripheral nervous systems and appreciate changes that occur in neurological disease states.**
- Objective 3: To understand the neuron, the action potential, and synaptic communication.**
- Objective 4: To understand the hierarchy of the central nervous system and its levels of organization.**
- Objective 5: To demonstrate an understanding of sensory systems, sensorimotor integration, and basic motor system function.**
- Objective 6: To apply problem-solving skills to clinical situations based on course content (tutorials).**
- Objective 7: To gain an appreciation for the impact that neurological deficits have on occupational performance, to be able to recognize common signs in neurology, and to use this knowledge in screening and assessing patients.**

BIO 440/540: Tentative Lecture Schedule

Second Block, Starts Oct. 13

WEEK 8:	Oct 13 th Oct 15 th	Gross Anatomy, Development of the Nervous System, and Introduction to the Neuron (Chapters 1 & 7) The Neuron, Neurotransmission, and Noneuronal Cells (Chapters 2-4)
WEEK 9:	Oct 20 th Oct 22 nd	CLASS WILL NOT MEET – (presenting at <i>Society for Neuroscience</i> Conference) Continue Neuron & NT (Chapters 5 & 6; Begin Chapter 12)
WEEK 10:	Oct 27 th Oct 29 th	Finish Neuron & NT, Intro Sensory Systems; Begin the Somatosensory System (Chapters 5 & 6; Begin Chapter 12) Finish Somatosensation, Start Chemosenses (Chapter 12)
WEEK 11:	Nov 3 rd Nov 5 th	Chemosenses (Gustatory & Olfactory Systems) and The Visual System (Chapters 8-10) The Auditory and Vestibular Systems (Chapter 11)
WEEK 12:	Nov 10 th Nov 12 th	LECTURE EXAM 1 Review Exam, Intro Motor Systems, Motor 1: Lower Centers (Chapter 13)
WEEK 13:	Nov 17 th Nov 19 th	Motor 2 and Sensorimotor Integration (Chapter 14); Basal Ganglia Handouts IN CLASS DISCUSSIONS 1) Basal Ganglia and Parkinson's (<i>handout</i>) 2) Ethics in Neuroscience Research (<i>small group led discussions</i>)
WEEK 14:	Nov 24 th Nov 26 th	Thanksgiving Break – No Class Thanksgiving Break – No Class
WEEK 15:	Dec 1 st Dec 3 rd Dec 4 th	Autonomic Nervous System (Chapter 15) Learning, Memory, Language and Emotion (Chapters 18, 24, 25) Course Evaluations, Group Presentations on Stroke
WEEK 16:	Dec 8 th	FINAL LECTURE EXAM (10:30 - 12:30)