

CommSci 235
Human Neuroscience
Classroom: Pearson Hall Room 205
10:40 – 12:30 Monday and Friday

Instructor: Nadine Martin, Ph.D.

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Office Hours: Monday 1-2:30, Thursday 12:30 to 2:00 or by appointment.

Course Introduction.

The Human Neuroscience course is a four credit undergraduate class that introduces the student to the anatomy, organization, and function of the human nervous system, with an emphasis on disorders that result from damage to the brain. There are no pre-requisites or co-requisites for this course.

Course Philosophy and Goals.

This course will emphasize familiarity with the basic anatomy of the human nervous system and its control of physical functions as well as cognitive and motor behaviors. This will require learning the terminology that is typically used to describe components of the nervous system and learning to identify the components of the nervous system. As this basic knowledge of terms and components is acquired, the functional aspects of the human nervous system will be addressed. Additionally, the course will review the effects of pathology and injury to the nervous system on motor function, sensation, cognition and emotion. The course goals and learning objectives associated with each of those goals are: as follows:

Goal: To enhance students' understanding of human neuroanatomy and its functions.

Specific learning objectives:

- a. The student will be able to identify structures of the human nervous system and relations among them.
- b. The student will be able to describe basic functions of the human nervous system.
- c. The student will be able to identify methods of investigating the human nervous system.

Goal 2: To enhance students' understanding of how pathologies and injuries affect the human nervous system.

Specific learning objectives.

- a. The student will be able to describe neurological pathological conditions and injuries that can affect components of the nervous system.
- b. The student will be able to describe effects of pathologies and injuries to the nervous system on language and speech, motor function, sensation, cognition and emotion.
- c. The student will be able to describe how current technologies of neuroimaging and other means of diagnosing neurological pathology and injury can contribute to our understanding of how neuropathology affects behavior.

Course Policies on Attendance, Lateness, Participation and Academic Honesty/Dishonesty.

Students are expected to attend all class meetings. An attendance record will be kept throughout the course. You will be expected to read the assigned chapters prior to class and be ready to

participate in discussions. I encourage you to ask questions during lectures. Attendance and participation in class will be considered as part of your overall grade in this class.

Academic Honesty. Plagiarism, Violating the Rules of an Assignment, and Cheating on an Examination will not be tolerated. Students are expected to honor the code of Academic Honesty. Copies of this policy can be obtained on the Temple website (search: Academic Honesty, or <http://oll.temple.edu/ih/writing/plagiarism2.htm>)

What you can expect of the Instructor: You can expect that I will provide a classroom environment that is conducive to learning. You should feel comfortable to ask questions, make comments and initiate discussions about the lectures and reading material. I will do all that I can to make this a positive and interesting learning experience, but ultimately, you will be responsible for your own learning.

Course Textbook and readings.

The course text is Subhash Bhatnagar's *Neuroscience For the Study of Communicative Disorders, 2nd edition, 2002* (published by Lippincot Williams & Wilkins). Additional readings from Kenneth Heilman's *Matter of Mind: A neurologist's view of brain-behavior relationship* (Oxford Press) are required for specific lectures (see below). This book is recommended and some copies are available in the bookstore. **Required chapters from the Heilman book will be made available on Blackboard.**

The main text and selected chapters from the Heilman book are required. Also, recommended as an aid to understand neuroanatomy is M. Evelyn McNeill's *Neuroanatomy Primer*. The books store has ordered some copies of this book as well.

Disability Accommodations and Services.

Any student who has a need for accommodation based on the impact of a disability should contact me privately to discuss the specific situation as soon as possible. Contact the Disability Resources and Services at 215-204-1280 at 100 Ritter Annex to coordinate reasonable accommodations for students with documented disabilities.

Sexual Harassment.

Students are encouraged to consult Temple University's policies on sexual harassment. These policies, which include procedures for filing complaints, are available upon request by contacting Ms. Sandra A. Foehl, Associate Vice President for Affirmative Action, Office of Affirmative Action, 109 University Services Building, (215) 204-7303 (TTY: 204-6772). http://www.temple.edu/affirmative_action

Work/Assignments/Grading.

Grades will be based on 6 exams covering the lectures, text, readings and film material on topics as detailed below and 1 take home final covering the material in the last three lectures. The take-home final will consist of three essay questions pertaining to the material covered in the last three lectures. The 6 in-class exams and 1 take home exam will be worth 100 points each. They will be averaged for a final grade. Below is the grading scale with corresponding letter grades. Attendance and participation in class will also be considered in evaluating your overall grade.

Grading scale:

94+	A	80-82	B-	67-69	D+
90-93	A-	77-79	C+	63-66	D
87-89	B+	73-76	C	60-62	D-
83-86	B	70-72	C-	0-60	F

Human Neuroscience Course Calendar.

- 8/27 Bhatnagar Chapter 1. Scope, Principles , and Elements of Neuroscience.
8/31 Bhatnagar Chapter 2. Gross Anatomy of the Central Nervous System Part 1
9/4 Labor Day
9/7 Bhatnagar Chapter 2. Gross Anatomy of the Central Nervous System Part 2.
9/10 Exam 1 Bhatnagar Chapters 1-2, Lectures 8/27, 8/31 and 9/7
- 9/14 Bhatnagar Chapter 3. Internal Anatomy Overview
Bhatnagar Chapter 4. Embryological Development of the Nervous System.
9/17 Bhatnagar Chapter 5. Nerve Cells.
9/21 Bhatnagar Chapter 6. Diencephalon: Thalamus and Associated Structures.
9/24 Exam 2 Bhatnagar Chapters 3-6 , Lectures 9/14, 9/17 and 9/21.
- 9/28 Bhatnagar Chapter 7 Somatosensory System.
Heilman: Chapter 8 Sensation Perception and Recognition
10/1 Bhatnagar Chapter 8 Visual System
10/5 Bhatnagar Chapters 9-10 Auditory – Vestibular Systems
10/8 Exam 3 – Bhatnagar Chapters 7-10, Heilman Chapter 8, Lectures 9/28, 10/1, 10/5
- 10/12 Bhatnagar Chapter 11. Motor System: Spinal Cord
10/15 Bhatnagar Chapters 12-13. Motor System2: Cerebellum, Brainstem and Basal Ganglia.
10/19 Bhatnagar Chapter 14. Motor System 4: Motor Cortex.
Heilman Chapter 7 (Cognitive-motor systems)
10/22 Exam 4 Bhatnagar Chapters 11-14, Heilman Chapter 7, Lectures 10/12, 10/15,10/19.
- 10/26 Bhatnagar Chapter 15. Cranial Nerves I and the Neurological Exam
10/29 Bhatnagar Chapter 15 – Cranial Nerves II and the Neurological Exam
11/2 Bhatnagar Chapter 20 Diagnostic Techniques and Neurological Concepts.
11/5 Exam 5 Bhatnagar Chapters 15 and 20, Lectures 10/26, 10/29, 11/2.
- 11/9 Bhatnagar Chapter 16. Autonomic nervous system, Limbic System, Hypothalamus and Reticular Formation.
Heilman: Chapter 3 (Emotions).
11/12 Bhatnagar Chapter 17 Vascular System
Bhatnagar Chapter 18 Cerebrospinal Fluid.
11/16 Bhatnagar Chapter 19. Cerebral Cortex – Higher Mental Functions
****Take Home Final Assignment will be available during this class.**
11/19 Exam 6 Bhatnagar Chapters 16-19, Lectures 11/9, 11/12, 11/16.
- 11/23 No Class (Thanksgiving).**
- 11/26 Cerebral Cortex – Higher cognitive functions and their impairment.
Heilman: Chapter 2 (Language.)
11/30 Heilman Chapter 6 (Memory).
12/3 Cerebral Cortex – Higher cognitive functions and their impairment
Heilman: Chapters 4 (Attention) and 5 (Self-Awareness).
12/14 Final - Take Home Assignment Due

**Communication Sciences 235
Human Neuroscience**

Knowledge and Skills Acquisition

Student _____ Semester: _____

Instructor: Nadine Martin, Ph.D.

Standard

Knowledge and Skill

- III-C** The student demonstrated on examinations and in class discussions knowledge of the anatomy and physiology of the human nervous system and its relationship with behavior including cognitive (language, attention, emotional, memory) and sensory-motor (hearing, vision, speech, swallowing and other gross and fine motor abilities) functions.
- III-D** The student demonstrated on examinations and in class discussions knowledge of neurological pathological conditions and injuries that can affect components of the nervous system.
- III-D** The student demonstrated on examinations and in class discussions knowledge of the effects of pathologies and injuries to the nervous system have on behavior including cognitive (language, attention, emotional, memory) and sensory-motor (hearing, vision, speech, swallowing and other gross and fine motor abilities) functions.
- III-D** The student demonstrated on examinations and in class discussion knowledge of current technologies of neuroimaging and other means of diagnosing neurological pathology and how these methods can contribute to our understanding of the ways in which neuropathology affects behavior.

Student signature _____

Instructor signature _____