

Functional Human Neuroanatomy

COURSE NUMBER GMS6705

CREDIT HOURS 4 credit hours

COURSE GOALS / LEARNING OUTCOMES

Human Neuroanatomy is a complex but rewarding field of study. The driving force behind studies of the human brain continues to be our desire to explain normal human behavior and cognition and the changes in behavior and cognition that often result from injury and disease. In this course we will cover the anatomy and functions of key neural systems including motor and somatosensory systems, the cranial nerves, the visual system, the auditory and vestibular systems, the basal ganglia and cerebellum, the hypothalamus, the limbic system, and higher cortical systems.

COURSE DESCRIPTION

This semester online course is organized into thirteen modules, each of which covers a key human neuroanatomical system. The primary focus of this course is mastery of human neuroanatomy and understanding how the various structures in the brain are connected to form functional neural systems. Beginning with Module 3 and moving forward you will work through a new Focus Case Study that will be associated with each module. Each Focus Case Study describes a patient exhibiting symptoms characteristic of disruption of the neural system being studied that week. Over the course of the week, you will “solve” the multi-assignment case study using the information presented in the module and in previous modules. These case studies have been designed to help you master the neuroanatomy and functions of the primary neural system under study. At the end of this course you will not only have a working knowledge of human neuroanatomy, but you will also be able to use this knowledge to explain how disruption of brain structure leads to changes in human behavior and cognition.

MODULE TOPICS

- Module 1 – Overview of neuroanatomy
- Module 2 – Cerebral cortex and environs
- Module 3 – Motor pathways
- Module 4 – Somatosensory pathways
- Module 5 – Brain stem surface anatomy and cranial nerves
- Module 6 – CNS vascular supply
- Module 7 – Eye movements and pupillary reflexes
- Module 8 – Visual system
- Module 9 – Auditory and vestibular systems
- Module 10 – Basal ganglia and cerebellum
- Module 11 – Hypothalamus
- Module 12 – Limbic system
- Module 13 – Higher order cortical function

COURSE FORMAT

Course Modules

This course is divided into 13 Modules. You will be completing one Module each week that covers a specific neural system. Each Module is broken down into 3-7 Units that contain the core material. The Units that have been designed to improve your ability to access and understand the material presented on the neural system covered in each module.

Focus Case Studies

In addition to the units that contain the core material, each Module contains a Focus Case Study that you will “solve” over the course of the week using the information presented in the Module under study and in the previous Modules. Each Case Study contains 2-5 assignments that you will be required to complete sequentially and submit prior to taking the Module tests that accompany each Module. Each assignment is submitted through a text entry box that allows rich formatting and insertion of media and images. This feature allows you to support your answers with drawings you create.

Module Units

Each Module is broken down into 3-7 Units that have been designed to improve your ability to access and understand the material presented on the neural system covered in each module. Each Unit contains a reading assignment, a video lecture(s) in VoiceThread format, and a self-check quiz that will allow you to determine how well you have understood the material presented in the unit. Each VoiceThread lecture is ~15 min in duration and can easily be viewed slide-by-slide allowing you to view the lectures on your schedule. You will complete the 13 Modules sequentially, and each Module will be considered complete when you have submitted the Case Study assignments, taken the unit self-check quizzes, and completed the Module tests for that module.

Weighting of Quizzes and Assignments

The self-check quizzes will constitute 10% of your final grade and the module tests will constitute 50% of your final grade. The remaining 40% of the final grade will be derived from the Case Study assignments you complete for each module. The content and quality of the Case Study assignments will be evaluated by both instructors.

Unit Self-check quizzes	10% Grade
Module tests	50% Grade
Case Study Assignments	40% Grade

TARGET AUDIENCE

This semester course has been specifically designed for students enrolled in the UF Biomedical Neuroscience Certificate Program. This course is designed to provide a working understanding of Human Neuroanatomy. Graduate students attending UF in programs outside of the IDP Neuroscience Program and interested postgraduate and advanced undergraduate students are encouraged to inquire about registration.

PREREQUISITES

While not required, students enrolled in this course should have a basic understanding of cell biology and preferably have taken introductory courses to Neuroscience that covered basic human neuroanatomy. Advanced undergraduate students may inquire about registration.

COURSE DIRECTORS AND INSTRUCTORS

Sue Semple-Rowland, PhD.
Professor of Neuroscience
Director of the Online Biomedical
Neuroscience Certificate Program

Ron Mandel, Ph.D.
Professor of Neuroscience