BIOL 435: Current Trends in the Neurobiology of Mental Illness

The objective of this graduate-level course is to provide an overview of the biological basis of major neuropsychiatric disorders as well as to explore the emerging methodologies (both basic sciences and clinical) utilized in the study of these brain disorders. A group of leading scientists and clinicians has been recruited to provide lectures in their areas of expertise. Disorders to be covered include: bipolar disorder; major depression; anxiety disorders; schizophrenia; autism; and, substance dependence. Speakers will discuss the evidence supporting current theories related to each disorder, with particular emphasis on the limitations of current diagnostic systems and methodologies, the prospects for the greatest advances, and their individual contributions to the field. Additionally, specific lectures will focus on methodologies that are rapidly having a major impact on neuroscience research as well as advancing our understanding of neural function, disease mechanisms, diagnostic systems, biomarkers, and drug discovery and development. Areas to be discussed will include: positron imaging tomography; magnetic resonance imaging (functional and structural); animal models; biochemical techniques; genetic and epidemiological analysis; and, statistical modeling. Students enrolled in the course will be expected to develop an understanding of the advanced techniques used to study these illnesses and pathways to develop new treatments.

Learning Objectives

- Demonstrate a familiarity with recent and groundbreaking novel research regarding the biological basis of major neuropsychiatric disorders
- Develop a broad knowledge of the scope and impact of mental illness through the synthesis of recent advances in etiology and treatment of pathophysiology
- Identify and describe the methodologies impacting neuroscience research, including positron emission tomography, magnetic resonance imaging, animal models, and genetics
- Discover real-world applications of material into future research, medical or graduate study pursuits
- Complete a final short-answer examination which incorporates material from all topics and guest speakers

Credits: 2
Class Type: Graduate Course
Prerequisites:
familiarity with college-level neurobiology, biochemistry, and genetics.
Program: Biology, Genetics, and Medicine
Availability Currently Not Available