Course Description

This course is an advanced seminar with the goal of introducing students to the theory and practice of Clinical Neuropsychology. This specialized subfield of Clinical Psychology aims to assess and interpret the relationship between nervous system function, cognition, emotion and behavior; and to apply this knowledge to the design of individualized patient interventions. Students will gain an understanding of the field through review of adult and pediatric medical diseases and psychological disorders. The psychosocial adjustment of patients living with each disorder and the dynamics among individuals involved in their care are additional themes of emphasis. The course takes an interdisciplinary approach integrating information from several subfields of medicine (neurology, neuroradiology and psychiatry) and psychology (cognitive, abnormal, developmental, biological, health psychology). Students will acquire knowledge through review of both clinical cases and research outcomes. An introductory background in neuroscience is assumed.

Organizational Approach

An overview of neuroanatomy, neurophysiology and neurodevelopment will be presented in the first class session. Scientific approaches to brain/behavior investigation including animal and human research methodologies will also be reviewed. Next, Neuroassessmment and evaluation will be taught through a “hands-on” approach in which students will develop skills through direct practice with classmates. The succeeding lectures will examine the presentation of specific disorders including neuropathology, symptoms, and treatment. Ethical considerations in the field will be examined in the final class session.

Course Requirements

Attendance

Consistent attendance is extremely important. One unexcused absence is allowed during the semester. Please email me before the missed class. Each additional unexcused absence will be penalized by a reduction in your final grade if you cannot provide a Dean’s or medical excuse.

If you anticipate missing several classes, you must carefully consider the consequences. Unfortunately, due to the content and format of the course, it will be impossible to fully grasp material following a missed class.

Class Participation

This class will be taught in seminar format. Student participation is a key factor in nurturing an enriching learning environment. It is expected that all students will contribute to each week’s discussion. You will be evaluated on the quality of your contributions. Evaluations of class participation will be based on the following:
• Has the student demonstrated knowledge of the reading assignments?
• Has the student provided new insight which builds on information in the readings?
• Is the student a good listener, addressing and integrating comments from classmates?
• Are the student’s comments relevant, on track and non-tangential?

**Quiz on Neuroanatomy, Neurophysiology and Neurocognitive Domains**

Students are required to complete an in-class “neuro” quiz as a means to confirm consistency among student background knowledge of relevant neuroscience.

**Reading Assignments and Presentation**

Students are expected to read all articles and text chapters listed on the syllabus prior to our weekly meetings. Each student should come to class prepared to discuss the readings. In the first part of class, the instructor will review relevant background information from the readings. Following this didactic, one or two students will present a clinical case, applying knowledge in nervous system dysfunction, relevant functional domains (e.g. attention, memory, visuospatial abilities) and current empirically based interventions. The presenters will read all assigned readings as well as additional articles which will add more depth to the discussion. Presenters will meet with the instructor one week prior to the presentation to review the supplemental readings.

**Papers**

*Additional detail will be provided for each assignment*

**Clinical Case Reactions**—Over the course of the semester, several clinical cases will be presented. Students are required to write a “reaction” to two clinical cases, which must include application of knowledge of the relevant neurocognitive domain. These assignments should also stimulate thinking regarding the personal experience of individual’s living with the disease/disorder.

**Review of a Cognitive Domain**—The goal of this assignment is to review a particular neurocognitive domain in depth. Students are required to choose a domain of particular interest (e.g. memory, attention, executive function, visuospatial) and summarize current thinking on the theoretical definition of the domain and underlying neural substrates. Current research journal articles must be included as part of this review.

**Neuropsychological Assessment Report (Referral Question and Background Information)**—Students will have the opportunity to conduct a neuropsychological evaluation of a practice subject. This evaluation will consist of an interview and administration of neuropsychological tests. The test subject will be a classmate who may choose to feign symptoms of a disorder assigned by the instructor. Students will acquire skill in writing a Neuropsychological Assessment report in the course. For this assignment, students will summarize the presenting symptoms/referral question and background history of the test subject.

**Final Paper: Review of Empirical Knowledge**—Students will choose a disorder/disease and focus on one aspect of the disease- etiology and symptomatology, assessment or treatment. Students will review the scientific literature which informs our current knowledge of the chosen subject area. For example, if a student chooses Alzheimer’s disease, he/she may review empirical studies contrasting effective treatments or review studies contributing to knowledge of the neuropathology of Alzheimer’s.
Final Grades

Your final average will be calculated as follows:

- Neuro Quiz: 20%
- Reaction Papers: 20%
- Review of Cognitive Domain: 20%
- Neuroassessment Report: 10%
- Final Paper: 30%

Course Readings

A Coursepac will be available for purchase with selected readings from the texts below. Links to additional readings will be provided on Courseworks.


DISCUSSION TOPICS AND READINGS ASSIGNMENTS

Foundations of Clinical Neuropsychology

May 25: Introduction and Review of Functional Neuroanatomy and Neurophysiology

Reading Assignment:

Lezak: Chapter 3: The Behavioral Geography of the Brain
Morgan: Chapter 5: Neuroanatomy for Neuropsychologists
Chapter 6: Development of the CNS
Zillmer: Chapter 5: Functional Neuroanatomy

May 27: Neuroassessment and Cognitive Domains

Reading Assignment:

Grant: Chapter 2: The Analytical Approach to Neuroassessment
Chapter 7: Demographic Influences and Use of Demographically Corrected Norms in Neuropsychological Assessment
Kolb and Whisaw: Chapter 18: Memory
Chapter 19: Language
Chapter 21: Spatial Behavior
Chapter 22: Attention
Lezak: Chapter 5: The Neuropsychological Examination: Procedures
Chapter 6: The Neuropsychological Examination: Interpretation

We will begin our review of disease/disorders with those most commonly assessed by Child/Adolescent Clinical Neuropsychologists followed by Adult.
Overlap between diseases presenting in both Adult and Pediatric populations will be acknowledged in our discussion.

Diseases and Disorders of Childhood and Adolescence

June 1: Autism Spectrum Disorders/ Asperger’s Syndrome

Reading Assignment:

Reynolds: Chapter 31: Neuropsychological Aspects of Pervasive Developmental and Autism Spectrum Disorders
Yeates: Chapter 15: Autism Spectrum Disorder
June 3: Attention Deficit Hyperactivity Disorder/Oppositional Defiant Disorder

Readings Assignment:

Anderson: Chapter 11, Case 7: Attention Deficit Hyperactivity Disorder

Reynolds: Chapter 25: Neuropsychological Aspects of Attention-Deficit Hyperactivity Disorder
Chapter 22: Neuropsychological Effects of Stimulant Medication on Children’s Learning and Behavior

Yeates: Chapter 14: Attention-Deficit Hyperactivity Disorder

June 8: Learning Disorders

Reading Assignment:

Semrud-Clikeman: Chapter 12: Language Related and Learning Disorders

Zillmer: Chapter 11: Learning and Neuropsychiatric Disorders of Childhood (pg. 300-310)

June 10: Epilepsy and Seizure Disorders

Reading Assignment:

Grant: Chapter 12: The Neuropsychology of Epilepsy

Morgan: Chapter 10: Neuropsychology of Pediatric Epilepsy
Chapter 25: Emotional and Psychosocial Factors of Epilepsy

Ogden: Case: Out of Control: The Consequences and Treatment of Epilepsy

Diseases and Disorders of Adulthood

June 10: Head Trauma and Traumatic Brain Injury

Reading Assignment:

Grant: Chapter 24: Neurobehavioral Consequences of Traumatic Brain Injury
Chapter 25: Neuropsychiatric, Psychiatric and Behavioral Disorders Associated with TBI

Ogden: Case: Beating the Odds, Severe Head Injury and the Importance of Ongoing Rehabilitation
Case: The Unseen Injury, Minor Closed Head Injury

Reynolds: Chapter 20: Brain Injury Rehabilitation of Children and Youth: Neurodevelopmental Perspectives

Zillmer: Chapter 13: Traumatic Head Injury and Rehabilitation
**June 15: CNS Infection-HIV Associated Neurocognitive Compromise**

*Reading Assignment:*

Grant: Chapter 17: Neuropsychological Aspects of HIV Infection

Morgan: Chapter 26: CNS Infection: HIV Associated Neurocognitive Compromise

Reynolds: Chapter 26: Neurobehavioral and Neurodevelopmental Sequelae Associated with Pediatric HIV Infection

**June 17: CNS Toxins: Alcohol Related Disorders**

*Reading Assignment:*

Grant: Chapter 18: The Neurobehavioral Correlates of Alcoholism
Chapter 19: The Neuropsychological Consequences of Drug Abuse

Morgan: Chapter 30: Toxins in the CNS: Alcohol, Illicit Drugs

**June 22: Parkinson’s Disease/Huntington’s Disease**

*Reading Assignment:*

Grant: Chapter 9: The Neuropsychological Aspects of Parkinson’s Disease and Parkinsonism
Chapter 10: Huntington’s Disease

Morgan: Chapter 32: Huntington’s Disease

**June 24: Normal Aging, Mild Cognitive Impairment and Alzheimer’s Disease**

*Readings Assignment:*

Grant: Chapter 23: The Neuropsychology of Memory Dysfunction and Its Assessment

Ogden: Dementia: A Family Tragedy

Zillmer: Chapter 14: Normal Aging and Dementia: Alzheimer’s Disease

**June 29: Schizophrenia and Mood Disorders**

*Reading Assignment:*

Grant: Chapter 21: Clinical Neuropsychology of Schizophrenia
Chapter 22: Neuropsychology of Depression and Related Mood Disorders

Morgan: Chapter 38: Providing Neuropsychological Services for persons with schizophrenia
July 1: Ethical Issues in Clinical Neuropsychology

Reading Assignment:

Morgan: Chapter 46: Ethical Challenges in Neuropsychology

Note: Scientific Research Articles will supplement the texts. Links will be provided on Courseworks.

Extra Help

I am available for individual tutoring during my office hours or by appointment. Please do not hesitate to ask for tutoring, additional study materials, and/or general support throughout the semester. My goal is to make sure that each of you performs at your maximum potential and that your efforts are rewarded with high final grades at the close of the semester. I thoroughly enjoy talking with students about life at Barnard and Columbia and/or future career interests. I look forward to meeting each of you.

“A community of critical friends who can support, critique, challenge and hold each others’ thinking to the highest standards of rigor and creativity”