PSY-415 Mind, Brain and Education (3CHs)

Course Description

1. Mind, Brain and Education is an emerging field that bridges neuroscience, psychology and education. The field seeks to apply these findings to educationally relevant questions. and to investigate the idea that educational experiences fundamentally change brain structure and function.
2. In this course students will review evidence from recent cognitive neuroscience research on educationally relevant cognitive functions. They will discuss how such studies may be useful to education and how, in turn, insights from education may inform research in Developmental Cognitive Neuroscience research.
3. **Course objectives**
    a. To introduce foundational and emerging topics in the neuroscience, psychology and education as a field.
    b. To critically review recent evidence from psychological and Cognitive Neuroscience studies on the development of mental functions that are important in the context of education.
    c. Review and discussion of evidence from behavioral and brain-imaging studies of developmental processes can have an impact on education.
4. **Course Learning Outcomes**

Students will be able to

a. Know about how brain learns and how neural activity relates to learning success and difficulties.
b. Investigate educational problems in the light of neurscientific and psychological evidence.
c. To explore questions, tools and models central to current work in mind, brain and education.

5. **Contents**
    a. Introducing Mind, Brain and Education
    b. Introduction to Educational Neuroscience
    c. Methods and Models for the study of Mind, Brain and Education
    d. Brain Plasticity and its constraints
    e. The reading brain: adult studies and typical development, atypical development and remediation
    f. The mathematical brain: adult studies and typical development, atypical development and remediation
    g. Development of cognitive control, attention and working memory
    h. Cognitive Development
    i. Socio-economic status and parenting
    j. The Learning Brain: Higher-Order Cognitive Function-Executive Functions

k. Learning and Memory
l. The Future of Mind, Brain and Education
m. Outstanding issues, promise and pitfalls in the emerging field of mind, brain and education

6. Text Book

a. Tokuhama-Espnosa, T. (2011). Mind, Brain and Education Science: A Comprehensive Guide to the New Brain- Based Teaching. New York: W.W. Norton and Company.

7. **Reference Books**

a. Blakemore, S.-J. & Frith, U. (2005). *The Learning Brain: Lessons for Education*. Malden, MA: Blackwell Publishing.
b. Schwartz, M.S., Pare-Blagoev E. J. (2017). Research in mind, brain and education.Taylor & Francis.
c. Tokuhama-Espnosa, T. (2010). The New Science of Teaching and Learning: Using the Best of Mind, Brain, and educational science in the classroom. New York: Teachers college press.