



Course Description

EEX4992 | Brain-Based Teaching: The Exceptional Brain | 3.00 credits

The student will learn how the typical and atypical brain processes information. The student will acquire research-based and best practices for teaching, differentiating instruction, and assessing P-12 students with and without identified exceptionalities.

Course Competencies

Competency 1: The student will explain the parts of the brain and their functions as they relate to the teaching and learning process by:

1. Describing the basic anatomy and functions of the parts of the brain involved in learning and emotions
2. Identifying the role and importance of neurotransmitters in the learning process
3. Discussing how neuroplasticity impacts the acquisition of new information
4. Examining how emotions impact learning (ex, Positive Psychology as it relates to optimism, empathy, stress, and anxiety)
5. Explaining the interrelationship between cognitive and social-emotional domains in the learning process
6. Identifying how the atypical brain learns (e.g., specific learning disabilities, emotional and behavioral disabilities, autism spectrum disorders, etc.)

Competency 2: The student will examine educational neuroscience and cognitive research and their applications to the teaching and learning of students with disabilities by:

1. Comparing and contrasting typical and atypical brain development and the impact on teaching and learning
2. Comparing and contrasting how students with disabilities are taught currently with the integration of educational neuroscience and cognitive research to historical approaches to teaching this population
3. Summarizing educational neuroscience and cognitive research related to special education instructional practices
4. Recognizing the misunderstandings and misapplications of educational neuroscience research as it relates to students with disabilities
5. Examining educational neuroscience and cognitive research to determine how the brain of students with disabilities develops and sequences content area/discipline knowledge (e.g., math, science, social studies, etc.)
6. Comparing and contrasting educational neuroscience and cognitive research related to special education and equity (e.g., overrepresentation of males and minorities, etc.)

Competency 3: The student will develop a repertoire of instructional strategies and best practices that reflect educational neuroscience, cognitive, and research on students with disabilities by:

1. Discussing the relationship between a student's ecosystem (community, family, school, classroom, and teacher) and the teaching and learning process
2. Developing lessons for students with disabilities aligned with educational neuroscience and cognitive research
3. Evaluating and modifying instructional materials for students with disabilities to align with educational neuroscience and cognitive research
4. Differentiating instruction for students with disabilities to align with educational neuroscience and cognitive research
5. Modeling strategies and activities that address the different learning profiles and needs of students with disabilities
6. Communicating educational neuroscience and cognitive research practices to families in order to support home learning for students with disabilities

Competency 4: The student will examine assessment practices for students with disabilities that infuse educational neuroscience and cognitive research by:

1. Selecting assessment methods and strategies for students with disabilities that are aligned with educational neuroscience and cognitive research
2. Developing content area formative and summative assessments in alignment with educational neuroscience and cognitive research
3. Identifying assessment tools that align with educational neuroscience and can be used to monitor student progress, achievement, and learning gains
4. Utilizing assessment data to promote the academic achievement of a diverse population of learners