



### **Course Description**

#### **EEX4012 | Introduction to Brain-Based Teaching Strategies | 1.00 credit**

The student will learn how the brain processes information and how to best engage the brain during learning. In this overview course, the student will acquire research-based, brain-friendly strategies that focus on students with disabilities, English language learners, reading, and mathematics.

### **Course Competencies**

**Competency 1:** The student will apply knowledge of the importance of an inclusive environment that supports learning for students with disabilities by:

1. Comparing and contrasting elements of typical and atypical brain development and its impact on learning and assessment
2. Evaluating and utilizing scientifically based educational neuroscience and current cognitive research related to instructional practices for students with disabilities
3. Differentiating instruction for a student with disabilities based on the students' abilities, instructional needs, interests, and backgrounds

**Competency 2:** The student will examine assessment of students with disabilities by:

1. Selecting appropriate classroom assessment practices across disciplines
2. Analyzing the legal requirements and ethical principles regarding the assessment of students with disabilities (e.g., confidentiality, adherence to test protocols, and appropriateness of assessment for students' needs)

**Competency 3:** The student will examine the relationship between educational neuroscience and current cognitive research and their impact on learning and teaching English for Speakers of Other Languages (ESOL)/bilingual learning environments by:

1. Reading, analyzing, and interpreting the effects of current educational neuroscience and cognitive research and how they inform current ESOL/bilingual instructional practices
2. Evaluating and utilizing culturally responsive/sensitive, age appropriate and linguistically accessible materials for emergent bilinguals (ELLs) of diverse backgrounds and varying English proficiency levels
3. Modeling ESOL/bilingual strategies and activities to address the different learning profiles and needs of all students

**Competency 4:** The student will develop a repertoire of instructional strategies and best practices that reflect educational neuroscience, cognitive, and ESOL research by:

1. Implementing a variety of teaching strategies and techniques that develop and integrate emergent bilinguals' (ELLs') English listening, speaking, reading, and writing skills
2. Differentiating instruction to meet the needs of all students from diverse backgrounds and English proficiency levels
3. Distinguishing emergent bilinguals' language differences, gifted, and special education needs in order to address issues of equitable assessment

**Competency 5:** The student will examine educational neuroscience and current cognitive research and their impact on learning and teaching in the mathematics learning environment by:

1. Analyzing the effects of current educational neuroscience and cognitive research and how they inform current mathematical practices
2. Evaluating and utilizing mathematics curricula and teaching materials that support the learning needs of all students
3. Identifying mathematical tasks that infuse educational neuroscience and cognitive research and supports the development of higher-order thinking (e.g., discovering and formalizing patterns)

**Competency 6:** The student will develop a repertoire of instructional strategies and best practices that reflect current educational neuroscience, cognitive and mathematics education research by:

1. Identifying and sequencing mathematics learning activities which are in concert with educational neuroscience findings
2. Modeling mathematics strategies and activities to address the different learning profiles and needs of all students
3. Encouraging respect for the diverse ideas, skills, and experiences of all students

**Competency 7:** The student will examine educational neuroscience and current cognitive research and their impact on learning and teaching reading by:

1. Defining reading as a complex task that requires the development, coordination, and interconnection of multiple skills and neurological systems
2. Explaining how the brain acquires the ability to read and how this informs educational practices in reading
3. Identifying cognitive targets and the role of cognitive development in the construction of meaning
4. Analyzing educational neuroscience and cognitive research and how they inform current reading practices

**Competency 8:** The student will apply finding of educational neuroscience and cognitive research in reading by:

1. Applying intentional, explicit, and systematic instructional practices for scaffolding reading development that infuse educational neuroscience and cognitive research finding and supports the development of higher order thinking (e.g. discovering and formalizing patterns)
2. Modeling reading strategies and activities students can use to foster metacognition through self-correcting and self monitoring skills
3. Modeling reading strategies and activities to address the different learning profiles and needs of all students

**Learning Outcomes:**

- Communicate effectively using listening, speaking, reading, and writing skills
- Formulate strategies to locate, evaluate, and apply information
- Demonstrate knowledge of ethical thinking and its application to issues in society