

# IND-1255A - Science of 12 Principles of Brain Based Learning & Teaching With Common Core in Mind Course Syllabus

- **Instructor: Dr. Maryam Torbati**
- **Number of Credits/Units: 3 Semester Credits/Units**
- **Format: Online Self-Paced Course**
- **You will have 3 months from your date of registration to complete the course.**

## Course Overview:

Higher order thinking skills such as critical thinking, planning, decision making, cooperation with others, engagement, persistence, and being empowered are the keys to success in 21<sup>st</sup> Century education. You should not be surprised that it all begins with what's called "brain-based learning."

Brain based learning and teaching is a cutting-edge educational discipline that optimizes the learning and teaching process by teaming together neuroscience, psychology, and education. This course will introduce you to brain based learning and teaching and why it matters. We will explore many learning theories and how the brain changes while learning. The focus is on practical strategies linking brain research to student achievement as well as Common Core Standards. You will gain a new perspective on learning and teaching that will change the way you teach and how your students learn.

## Course Objectives:

By the end of the course, students will be able to:

1. Demonstrate a deep knowledge of brain based and performance-based approaches to effective learning.
2. Apply a variety of strategies to bring enhanced brain-based learning, improved learning, and the power of solving problems.

3. Discuss and identify how the 12 principles of brain-based learning align to common core standards.
4. Develop, expand, and adapt effective and practical brain based enhancing lessons.
5. Implement the 12 principles in reading, language arts, math, science, social studies, and many other subjects.
6. Explain effective brain-based techniques that you can use immediately.
7. Practice brain-based teaching for deep learning & retrieval as it relates to obtaining and maintaining excellence.
8. Identify brain-based strategies and how they work step by step.
9. Describe the brain-based process.
10. Identify major benefits of using brain-based principles.
11. Discuss problem solving through brain-based formats.
12. Describe how this can help ELD & Special Ed students.
13. Summarize the importance of brain-based learning in the classroom.
14. Formulate questions about aspects of the 12 principles.
15. Analyze how learners learn and how this can help that process.
16. Create appropriate materials to teach the 12 principles.
17. Align all of these to Common Core.

### **Recommended Textbook:**

*12 Brain/Mind Learning Principles in Action: The Fieldbook for Making Connections, Teaching, and the Human Brain* by Renate Nummela Caine, Geoffrey Caine, Carol Lynn McClintic and Karl J. Klimek (Nov 17, 2018)

### **CCSS Standard for Importance of Brain Based Learning**

- Describe and define brain-based learning
- Recognize and apply the 12 Principles of Brain Based Learning
- Utilize the steps to brain-based teaching
- Create brain-based learning environments.

- Compare & contrast brain-based learning vs traditional learning as it relates to learning.
- Development of critical thinking based on problem solving learning
- Why brain based is beneficial to learning
- Explore why problem-based learning is important.

### **Takeaways – What this course gives you:**

- A focus on how students are thinking and how they are growing as thinkers & learners.
- Insight on ways students develop problem-solving skills.
- A vision of building classrooms based on real life problems.
- Information on the expression of multiple perspectives about your problem solving
- Strategies for going beyond the classroom and text to connect with students' lives.
- Methods of classrooms participate in self-reflection and self-evaluation.
- Tools to help teachers shape timely instructional strategies targeted to immediate student needs.
- Insights that help you to provide increased opportunities for learning for each student in your classes.
- Ability to define brain-based learning and develop an understanding of how the brain learns.
- Tools to compare prior knowledge, new information, personal observations and reflections to help your classmates develop new strategies for teaching.
- Understanding of how children with multiple ranges of ability learn and gain insights about how to provide instruction that supports their development.
- Understanding of how the pupils' physiology leads to different approaches to learning and develop ways to eliminate some of the barriers to learning by adapting instruction to meet their diverse needs.
- Additional instructional strategies that will help you to encourage the students' development of critical thinking skills and problem-solving skills.

- New skills for the effective use of verbal and nonverbal communication methods to create active inquiry, collaboration and interaction among your students.
- The 12 principles of brain based with common core in mind
- Ability to recognize and distinguish between engagement & empowerment
- A full understanding of PBL

## **Assignments**

### **Assignment 1.1 Reflection and Goals**

Reflect on your past experience with brain-based learning and describe your future goals for enhancing learning through brain based.

### **Assignment 2.1: Readings/videos to acquaint you with the brain based learning tools.**

This assignment will help you to understand and reflect on what you have read about and viewed and how you can transfer this knowledge to your classroom.

### **Assignment 3.1: Brain Based Tools Pre-Planning**

Produce creative problem solving based/brain-based learning activities.

### **Assignment 4.1 & 4.2: Lesson Plan and Presentation**

Create a detailed, multi-paged, 3-Day lesson plan for applying the science of brain based /problem solving concepts in the classroom.

Create a 10-slide *PowerPoint* project based on the course readings, to present to an audience of peers.

### **Forum Posting**

Share your experience with other course participants