



Principles of Brain-Based Learning: Teaching 21st Century Minds Online Participant Syllabus

Course Description

This course is designed to enhance a participant's knowledge of brain research. The following themes will be explored: brain development, information processing, memory and retention, transferring learning, and critical thinking. Participants in this course will explore ways to design brain-friendly and effective lesson plans using the latest scientific findings and discoveries. This course prepares teachers by providing them with the essential elements needed to translate the biology of brain-based learning from theory into classroom practice.

Course Prerequisites

This course is recommended for all PreK-12 educators. Participants must hold a baccalaureate degree. No prerequisites are required for this course.

System Requirements

- Computer with word processing software
- Internet access connection
- Online video viewing capabilities/Adobe flash player
- Software capable of reading PDF files

Textbooks/Supplemental Reading

Selected research articles, research summaries, Web resources, videos, and topical articles are integrated into the course. No textbook is required for this course.

Global Course Outcomes

Upon completion of this course, the learner will be able to:

1. Evaluate course related research, literature, content, and strategies and make correlations to teacher practice.
2. Analyze how environmental, emotional, and social influences shape brain development and impact learning.
3. Design instruction using brain-based strategies to enhance memory, transfer, and executive function.

4. Develop an action plan for implementing brain-based learning in the classroom.

Instructional Objectives

The learner will deepen existing knowledge of content and apply professional expertise to the skills and strategies contained in this course by meeting the following instructional objectives:

Milestone 1: Brain-Based Learning

- 1.1 Describe the parts of the brain and their function in learning and memory.
- 1.2 Analyze the principles that are the foundation of brain-based learning.

Milestone 2: Brain Development

- 2.1 Discuss the effects of poverty on the brain.
- 2.2 Analyze the effects of sleep, exercise, and nutrition on the brain.
- 2.3 Summarize the development of the brain for students at one's grade level.

Milestone 3: The Social/Emotional Brain

- 3.1 Discuss how emotions affect attention and learning.
- 3.2 Develop strategies to foster the five qualities of emotional intelligence.
- 3.3 Design a physically, emotionally, and intellectually safe learning environment.

Milestone 4: Memory and Learning

- 4.1 Describe the various memory systems and how they influence learning.
- 4.2 Utilize brain-compatible strategies to enhance memory and learning.
- 4.3 Utilize encoding strategies to facilitate storage and retrieval of content.

Milestone 5: Meaning, Transfer, and Retrieval

- 5.1 Utilize transfer strategies to enhance memory and learning.
- 5.2 Discuss how the brain makes meaning and retrieves information.
- 5.3 Utilize nonlinguistic representations in lessons to enhance memory and learning.

Milestone 6: Brain Organization and Executive Function

- 6.1 Analyze differences in the brain between genders.
- 6.2 Analyze hemispheric dominance and its impact on teaching and learning.
- 6.3 Utilize strategies to build executive functioning skills in students.

Milestone 7: The Arts and Movement

- 7.1 Discuss the importance of the arts in education.
- 7.2 Utilize strategies to incorporate movement in teaching and learning.

Milestone 8: Complexity and Depth of Knowledge

- 8.1 Compare and contrast complexity and difficulty.
- 8.2 Utilize Bloom's Taxonomy and Webb's Depth of Knowledge to incorporate rigor and complexity in lessons.
- 8.3 Analyze the various ways of thinking.

Topics Agenda

Milestone 1: Brain-Based Learning

Examine the various parts of the brain and how they impact learning—compare and contrast the principles of brain-based learning from the perspectives of researchers Caine & Caine, Jensen, and Sousa—identify the compelling why for using brain-compatible strategies—reflect on learning and make connections to teacher practice

Milestone 2: Brain Development

Analyze the brain development of individuals at various ages and grade levels—examine the effects of poverty on the brain—analyze the effects of sleep, exercise, and nutrition on the brain—discuss the myths and facts of brain-based learning—reflect on learning and make connections to teacher practice

Milestone 3: The Social/Emotional Brain

Examine the role of emotions in learning—explore strategies for getting and maintaining attention—discuss the social/emotional brain and the impact of social/emotional learning—analyze the components of a brain-compatible learning environment—reflect on learning and make connections to teacher practice

Milestone 4: Memory and Learning

Examine the various types of memory and the role they play in learning—investigate encoding and memory strategies for enhancing learning—analyze the ways in which learning modalities affect memory and retention—examine various organizational and patterning strategies—reflect on learning and make connections to teacher practice

Milestone 5: Meaning, Transfer, and Retrieval

Examine how the brain creates meaning—investigate the importance of nonlinguistic representations and strategies for using them in the classroom—explore strategies for making meaning and transfer of learning—examine retrieval and making meaning strategies—reflect on learning and make connections to teacher practice

Milestone 6: Brain Organization and Executive Function

Investigate hemispheric dominance and make connections to learning—discuss gender differences in the brain—define executive function and explore strategies for building executive functioning skills in students—discuss the connections between executive function deficit and ADHD—reflect on learning and make connections to teacher practice

Milestone 7: The Arts and Movement

Examine the importance of the arts in education and in developing the whole child—investigate the brain-compatible research that supports movement when learning—explore strategies for incorporating movement into instruction—discuss the current approach to education as it relates to brain-compatible learning—reflect on learning and make connections to teacher practice

Milestone 8: Complexity and Depth of Knowledge

Compare and contrast difficulty and complexity—investigate the various ways of thinking that support depth of knowledge—analyze Bloom's Taxonomy and Webb's Depth of Knowledge—explore strategies for adding rigor and complexity to lessons—reflect on learning and make connections to teacher practice

Learning Assessment

Formative assessment of learning objectives for this course is conducted informally throughout the course via discussion, critiques, peer- and self-evaluations, journal entries, instructor feedback, small-group sharing and activities requiring participants to make sense of new knowledge and/or skills within their realm of teaching. Additionally, three formative assessments are embedded with the course. Summative assessment for the course occurs in the form of a final project which requires each participant to synthesize class content and apply it within the teacher's specific teaching environment. Each assessment is evaluated according to a performance rubric.

Participants taking courses for professional development unit (not-for-credit) must follow the same Participation Expectations as posted in the course syllabus. Participants complete readings and tasks as outlined in the Task List. Forum Post Reflections are also required. However, participants will be exempt from completing the Formative and Summative Assessments unless otherwise noted. Proof of seat hours will be presented to the participants after completing the state required course evaluation located on the student portal.

In keeping with best instructional and assessment practices, this course requires participants to demonstrate synthesis and application of course knowledge in an applied Summative Assessment linked to the instructional objectives of this course. Assessment of the project should not be limited to the quantity of work submitted but should carefully consider the quality and intellectual value of the work.

The Summative Assessment is due and will be submitted to the instructor within the 8 weeks of the allotted class time. Unless the instructor states otherwise, all papers are expected to be properly formatted electronically.

Throughout the course, participants will engage in Formative and Summative Assessments. Points are assigned based on a four-point criterion rubric specifically delineated for each assessment that can be further defined as follows:

Distinguished: The assessment is highly imaginative; demonstrates critical thought; is unique; shows substantial application to one's own teaching or professional position; goes above and beyond requirements; is creative; demonstrates both breadth and depth of knowledge of transition-related subject matter; shows individual's personality; is professional in presentation and appearance; and demonstrates considerable effort. The assessment is exceptionally completed and demonstrates clear understanding of the tasks, gives explanations, and shows how the assessment applies to a teaching/learning situation. The assessment meets the specific criteria delineated in "Distinguished" on the course rubric.

Proficient: The assessment is well-organized and complete; is effectively and clearly presented; demonstrates clear understandings; applies what has been learned to the author's own classroom situation; clearly shows connections; is detailed; and is thoughtful and supported with ideas. A thoroughly completed assessment demonstrates that the participant shows awareness of the tasks, gives explanations, and shows how the assessment applies to a teaching/learning situation. The assessment meets the specific criteria delineated in "Proficient" on the course rubric.

Basic: This is the lowest passing grade. The assessment meets minimum requirements; includes general information but lacks descriptive detail; shows limited application to teaching/learning; and lacks originality. This denotes work that does not meet **all** aspects of standards for academic performance in a graduate-level course. The assessment meets the specific criteria delineated in "Basic" on the course rubric.

Unsatisfactory: The assessment is missing evidence or information; is sloppy and poorly organized; demonstrates only surface understandings; shows no evidence of application to the author's own teaching situation; is poorly written; and does not meet minimum standards for academic performance in a graduate-level course. The assessment meets the specific criteria delineated in "Unsatisfactory" on the course rubric.

Instructional Methodology and Delivery

Teaching methodologies used in this course are specifically designed to maximize learning in a guided, graduate-level, online distance-learning model. Each course facilitator is trained and/or experienced in facilitating graduate-level online courses as well at the specific content and skills of this course.

1. Online methodologies include instructor/expert presentations, directed skill practice, asynchronous class and group discussions using threaded discussion questions, peer evaluation, self-evaluation, portfolio development, and the synthesis of new knowledge and skills in designing grade-specific lesson plans or other educational applications of knowledge and skills.
2. The course is taught in a supportive learning environment with teacher-participant interaction and feedback. Class participants interact with other professionals via the Forum area by replying to existing posts as well as creating new threads on topics of their choice.
3. Content focuses on the presentation of advanced concepts linked to instructional strategies which accommodate learning needs of a diverse student population.
4. Course content, activities, and assignments are organized into "Milestones" that participants complete during the 8-week span of the course. Course content is intended to cover material equal to 45 seat hours of instructional time.
5. Class participants actively construct their own learning and make it personally relevant by acquiring and applying course knowledge/skills to their own teaching situation.

Academic Honesty and Integrity

All participants are expected to maintain academic honesty and integrity by doing their own work to the best of their ability. Academic dishonesty (cheating, fabrication, plagiarism, etc.) will result in the participant receiving a zero for that assignment or paper.

Americans with Disabilities Act Compliance

In compliance with Section 504 of the Rehabilitation Act and The Americans with Disabilities Act, participants who have any condition, either permanent or temporary, which might affect their ability to perform in this class, are encouraged to inform the Director of Academic Affairs prior to the first class session. Reasonable academic accommodations, aids, and adjustments may be made as needed to provide for equitable participation.

Attendance

Participants will have 8 weeks from the time of their first date of login to complete the course. They will need to contact The Connecting Link at (888) 550-5465 should they not be able to complete the online class in the time given.

Late Work and Make-Up Policy

Participants are expected to keep pace with assignments and expectations. If a situation arises in which an assignment cannot be completed, the participant is expected to make arrangements with the instructor for the timely submission of such work. Failure to complete all work in this time frame will result in an incomplete or a grade of F for the work, depending on the reason for the delay.

University Compliance

Course content and instruction are bound by policies associated with the university granting academic credit for the course. Such policies include, but are not limited to: academic integrity and honor codes, institutional objectives and grade grievance procedures. These policies are located within the official academic catalogs which can be accessed through the university's official website.