



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

Final Projects

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 final project 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.

Final projects are due and will be submitted to the instructor within 12 weeks of the allotted class time. Unless the instructor states otherwise, all papers are expected to be properly formatted electronically.

Assessments and Grading

Throughout the course, participants will engage in both formal and informal 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.

The assessments for this course are weighted as follows:

Participation and Reflection	30%
Formative Assessments	30%
Summative Assessments	40%

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 12 weeks from the time of their first date of login to complete the course. They will need to contact their instructor and The Connecting Link at (888) 550-5465 should they not be able to complete the online class in the time given. Failure to complete all work in the 12 week time frame may 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.

Alignment to the Danielson Framework for Effective Teaching

The Danielson Framework for Effective Teaching is designed to provide educators with a structure for analyzing and assessing teacher practice and in constructing techniques to strengthen that practice. The alignment of the framework to Global Course Outcomes is as follows:

Domains	Global Course Outcomes
Domain 1: Planning and Preparation	
Component 1a: Demonstrating Knowledge of Content and Pedagogy	1, 2, 3, 4
Component 1b: Demonstrating Knowledge of Students	1, 2, 3, 4
Component 1c: Setting Instructional Outcomes	—
Component 1d: Demonstrating Knowledge of Resources	1, 2, 3, 4
Component 1e: Designing Coherent Instruction	1, 2, 3, 4
Component 1f: Designing Student Assessments	—
Domain 2: The Classroom Environment	
Component 2a: Creating an Environment of Respect and Rapport	1, 2, 3, 4
Component 2b: Establishing a Culture for Learning	1, 2, 3, 4
Component 2c: Managing Classroom Procedures	—
Component 2d: Managing Student Behavior	—
Component 2e: Organizing Physical Space	—
Domain 3: Instruction	
Component 3a: Communicating with Students	1, 2, 3, 4
Component 3b: Using Questioning and Discussion Techniques	—
Component 3c: Engaging Students in Learning	1, 2, 3, 4
Component 3d: Using Assessment in Instruction	—
Component 3e: Demonstrating Flexibility and Responsiveness	1, 2, 3, 4
Domain 4: Professional Responsibilities	
Component 4a: Reflecting on Teaching	1, 2, 3, 4
Component 4b: Maintaining Accurate Records	—
Component 4c: Communicating with Families	—
Component 4d: Participating in a Professional Community	1, 2, 3, 4
Component 4e: Growing and Developing Professionally	—
Component 4f: Showing Professionalism	—

Danielson, C. (2009). Implementing the framework for teaching in enhancing professional practice. Alexandria, VA: Association for Supervision and Curriculum Development.

Compliance with National Board of Professional Teaching Standards (NBPTS)

The NBPTS represents the highest level of professional achievement in the continuum of teacher professional development. The alignment of NBPTS to Global Course Outcomes is as follows:

NBPTS Propositions	Global Course Outcomes
Proposition 1: Teachers are Committed to Students and Their Learning.	
NBCTs are dedicated to making knowledge accessible to all students. They believe all students can learn.	1, 2, 3, 4
They treat students equitably. They recognize the individual differences that distinguish their students from one another and they take account for these differences in their practice.	1, 2, 3, 4
NBCTs understand how students develop and learn.	1, 2, 3, 4
They respect the cultural and family differences students bring to their classroom.	—
They are concerned with their students' self-concept, their motivation and the effects of learning on peer relationships.	1, 2, 3, 4
NBCTs are also concerned with the development of character and civic responsibility.	1, 2, 3, 4
Proposition 2: Teachers Know the Subjects They Teach and How to Teach Those Subjects to Students.	
NBCTs have mastery over the subject(s) they teach. They have a deep understanding of the history, structure and real-world applications of the subject.	1, 2, 3, 4
They have skill and experience in teaching it, and they are very familiar with the skills gaps and preconceptions students may bring to the subject.	1, 2, 3, 4
They are able to use diverse instructional strategies to teach for understanding.	1, 2, 3, 4
Proposition 3: Teachers are Responsible for Managing and Monitoring Student Learning.	
NBCTs deliver effective instruction. They move fluently through a range of instructional techniques, keeping students motivated, engaged and focused.	1, 2, 3, 4
They know how to engage students to ensure a disciplined learning environment, and how to organize instruction to meet instructional goals.	1, 2, 3, 4
NBCTs know how to assess the progress of individual students as well as the class as a whole.	—

They use multiple methods for measuring student growth and understanding, and they can clearly explain student performance to parents.	—
Proposition 4: Teachers Think Systematically about Their Practice and Learn from Experience.	
NBCTs model what it means to be an educated person – they read, they question, they create and they are willing to try new things.	1, 2, 3, 4
They are familiar with learning theories and instructional strategies and stay abreast of current issues in American education.	1, 2, 3, 4
They critically examine their practice on a regular basis to deepen knowledge, expand their repertoire of skills, and incorporate new findings into their practice.	1, 2, 3, 4
Proposition 5: Teachers are Members of Learning Communities.	
NBCTs collaborate with others to improve student learning.	1, 2, 3, 4
They are leaders and actively know how to seek and build partnerships with community groups and businesses.	—
They work with other professionals on instructional policy, curriculum development and staff development.	—
They can evaluate school progress and the allocation of resources in order to meet state and local education objectives.	—
They know how to work collaboratively with parents to engage them productively in the work of the school.	—

National Board for Professional Teaching Standards, www.nbpts.org

Compliance with Interstate Teacher Assessment and Support Consortium (InTASC) Standards for Teachers

InTASC is guided by the basic premise that an effective teacher must be able to integrate content knowledge with the specific strengths and needs of students to ensure that all students learn and perform at high levels. The alignment of InTASC Standards to Global Course Outcomes is as follows:

InTASC Standards	Global Course Outcomes
Standard 1: Learner Development	
The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.	1, 2, 3, 4
Standard 2: Learning Differences	
The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.	1, 2, 3, 4
Standard 3: Learning Environments	
The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self motivation.	1, 2, 3, 4
Standard 4: Content Knowledge	
The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make these aspects of the discipline accessible and meaningful for learners to assure mastery of the content.	1, 2, 3, 4
Standard 5: Application of Content	
The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues.	1, 2, 3, 4
Standard 6: Assessment	
The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making.	—

Standard 7: Planning for Instruction	
The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context.	1, 2, 3, 4
Standard 8: Instructional Strategies	
The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways.	1, 2, 3, 4
Standard 9: Professional Learning and Ethical Practice	
The teacher engages in ongoing professional learning and uses evidence to continually evaluate his/her practice, particularly the effects of his/her choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.	1, 2, 3, 4
Standard 10: Leadership and Collaboration	
The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.	—

Council of Chief State School Officers. (2011, April). Interstate Teacher Assessment and Support Consortium (InTASC) Model Core Teaching Standards: A Resource for State Dialogue. Washington, DC: Author.