



## LILIE, LLC Course Information

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**Title of Course (45 hours):** Learning and the Brain

**Course Description:** This course is designed to acquaint educators with the manner in which the brain impacts learning. Participants will also explore the latest in brain research and its implications for classroom instruction.

**Overall Course Objective and Expectation(s):** As a result of taking the course, participants will learn the following concepts:

- functional understanding of brain structure
- improve their understanding of the relationship between brain functions and learning
- the elements of brain-based instruction
- factors associated with student learning , the brain and its impact on instruction
- techniques for creating a learning environment that features brain-based instruction

Participants are expected to follow these guidelines during the course:

- log on four times per week and post to the discussion board re the assigned tasks for that week the length of the postings must demonstrate planning and thoughtfulness and they must adhere to the conventions of proper grammar
- some of the postings must include reactions to peers' postings
- the four required postings must be dispersed throughout the week
- all students must complete all assignments and the Lilie electronic log, which is due at the end of the course.; this log must reflect a minimum of 45 hours of logged course work
- students taking the course for graduate credit must complete a research paper(topic to be approved by the instructor)

### Course Instructional Materials:

All courses maintain a fully developed and dynamic webpage that houses all resources, reference material and various other required informational texts, videos and alike that is both active and relevant to course objectives and content. Course web pages are routinely updated to reflect most current research and available readings therefore instructional materials used to teach course objectives are subject to change.

### Instructor Consultation and Interaction:

Real time consultation and instruction is provided through the LILIE, LLC discussion boards for each course/classroom on a daily basis.

**Suggested Readings** (*subject to change*): *This bibliography contains references used in the course. There is no one required textbook for this course.*

## Bibliography

- Armstrong, T. (1998) *Awakening Genius in the Classroom*. Alexandria, VA: ASCD--Association for Curriculum and Development. ISBN: 0871203022.
- Benson, F. & Zaidel, E. (1985) *Dual Brain: The hemispheric specialization in humans*. New York: Guilford Press. ISBN: 089862643.
- Brandt, R. (1998) *Powerful Learning*. Alexandria, VA: ASCD--Association for Supervision and Curriculum Development. ISBN: 0871203057.
- Burke-Guild, P & Garger, S. (1998) *Marching to Different Drummers*, 2nd edition. Alexandria, VA: Association for Supervision and Curriculum Development. ISBN: 0871203065.
- Caine, G., Nummela-Caine, R., & Crowell, S. (1999) *Mindshifts: A Brain-Based Process for Restructuring Schools and Renewing Education*, 2nd edition. Tucson, AZ: Zephyr Press. ISBN: 1569760918.
- Campbell, L. (2002) *Mindful Learning: 101 Proven Strategies for Student and Teacher Success*. Thousand Oaks, CA: Corwin Press Incorporated... ISBN: 0761945725.
- Cherry, C., Godwin, D., & Staples, J. (1989) *Is the Left Brain Always Right: A guide to whole child development*. Belmont, CA: Fearon Teacher Aides. ISBN: 0822439115.
- Elman, J., Bates, E., Johnson, M., Karmiloff-Smith, A., Parisi, D., & Plunkett, K. (1996) *Rethinking Innateness: A connectionist perspective on development*. Cambridge, MA: MIT Press. ISBN: 0262050528.
- Erlauer, L. *The brain-compatible classroom: Using what we know about the brain to improve teaching*. Alexandria, VA: ASCD--Association for Supervision and Curriculum Development. ISBN: 0871207486.
- Forgary, R. (1997) *Brain Compatible Classrooms*. Andover, MA: Skylight Publishing. ISBN: 1575170442.
- Goleman, D. (1997) *Emotional Intelligence*. New York: Bantam Books. ISBN: 0553375067.
- Greenfield, S. (1996) *The Human Mind Explained: An owners guide to the mysteries of the mind*. New York: Henry Holt & Company. ISBN: 080504499 xs.
- Healey, J. (1994) *Your Child's Growing Mind: A guide to learning and brain development from birth to adolescence*. New York: Bantam Doubleday Dell. ISBN: 0385469306.
- Howard, P. (2000) *The Owners Manual for the Brain: Everyday applications from mind-brain research* 2nd edition. Austin, TX: Bard Press. ISBN: 1885167415.
- James, A. N. (2007) **Teaching the male brain**. Thousand Oaks, CA: Corwin Press Incorporated. ISBN: 978-1-4129-3663-7.
- Jensen, E. (1997) *Introduction to Brain-Compatible Learning*. San Diego: Brain Store Incorporated. ISBN: 1890460001.
- Jensen, E. (1998) *Teaching with the Brain in Mind*. Alexandria, VA: ASCD--Association for Supervision and Curriculum Development. ISBN: 0871202999.
- Jensen, E. (2000) *Brain-Based Learning*. San Diego: Brain Store Incorporated. ISBN: 1890460052.
- Jensen, E. & Johnson, G. (1994) *The Learning Brain*. San Diego: Brain Store Incorporated. ISBN: 096378322 xs.
- Kotulak, R. (1997) *Inside the Brain: Revolutionary discoveries of how the mind works*. Kansas City, KS: Andrews McMeel Publishing. ISBN: 0836232895.
- Nummela-Caine, R. (1994) *Making Connections: Teaching and the human brain*. Reading, MA: Addison-Wesley Publishing Company. ISBN: 0201490889.
- Nummela-Caine, R & Caine, G. (1997) *Educating on the Edge of Possibility*. Alexandria, VA: ASCD--Association for Supervision and Curriculum Development. ISBN: 0871202824.
- Nummela-Caine, R., Caine, G. (1997) *Unleashing the Power of Perceptual Change: The potential of brain-based teaching*. Alexandria, VA: ASCD--Association for Supervision and Curriculum Development. ISBN: 0871202875.
- Ornstein, R., Thompson, R., & Macaulay, D. (ill.). (1991) *The Amazing Brain*. Boston: Houghton Mifflin Company. ISBN: 0395585724.
- Ornstein, R. (1995) *The Roots of the Self: Unraveling the Mystery of Who We Are*. I S H K Book Service. ISBN: 0062507893.
- Parry, T. & Gregory, G. (1998) *Designing Brain-Compatible Learning*. Andover, MA: Skylight Publishing. ISBN: 1575170426.
- Ratey, J. J. (2002) *A User's Guide to the Brain: Perception, Attention, and the Four Theaters of the Brain*. Vintage. ISBN: 0375701079.
- Restak, R. & Kot, R. (ed.). (1996). *Brainscapes: An introduction to what neuroscience has learned about the structure, function, and abilities of the brain*. New York: Hyperion. ISBN: 0786881909.
- Smilkstein, R. (2002) *We're Born to Learn: Using the Brain's Natural Learning Process to Create Today's Curriculum*. Thousand Oaks, CA: Corwin Press Incorporated. ISBN: 076194642X.
- Sousa, D. (2006) *How the Brain Learns (with learning manual)*. Thousand Oaks, CA: Corwin Press Incorporated. ISBN: 0803967608.
- Sousa, D. (2001) *How the Special Needs Brain Learns*. Thousand Oaks, CA: Corwin Press Incorporated. ISBN: 0761978518.
- Sousa, D. (2003) *How the Gifted Brain Learns*. Thousand Oaks, CA: Corwin Press Incorporated. ISBN: 076193829X.
- Sousa, D. (2003) *The Leadership Brain*. Thousand Oaks, CA: Corwin Press Incorporated. ISBN: 0761939105.
- Sprenger, M. (2002) *Becoming a "Wiz" at Brain-based Teaching*. Thousand Oaks, CA: Corwin Press Incorporated. ISBN: 0761978615.

- Sprenger, M. (2003) Differentiation Through Learning Styles and Memory. Thousand Oaks, CA: Corwin Press Incorporated. ISBN: 0761939423.
- Sylwester, R. (1995) A Celebration of Neurons: An educator's guide to the human brain. Alexandria, VA: ASCD--Association for Supervision and Curriculum Development. ISBN: 0871202433.
- Sylwester, R. (2003) A Biological Brain in a Cultural Classroom: Enhancing Cognitive and Social Development Through Collaborative Classroom Management. Thousand Oaks, CA: Corwin Press Incorporated. ISBN: 0761938117.
- Tate, M. (2003) Worksheets Don't Grow Dendrites. Thousand Oaks, CA: Corwin Press Incorporated. ISBN: 0761938818.
- Wolfe, P. (2001) Brain Matters: Translating research into classroom practice. Alexandria, VA: ASCD--Association for Supervision and Curriculum Development) ISBN 0-87120-517.
- Zull, J. (2002) The Art of Changing the Brain: Enriching Teaching by Exploring the Biology of Learning. Stylus Publishing, LLC. ISBN: 1579220541.

[Extraordinary Link](#): From the Connecticut State Department and compiled by Steve Krasner of the SERC Library.

### Proof of Course Completion:

LILIE, LLC is committed to assuring that enrollees fully participate in and receive the educational benefits contemplated by the course. Enrollees must demonstrate participation by making detailed postings designed to foster dialogue among colleagues and instructors. These enrollee postings must be made four times each week in separate sessions. Enrollees will be required to submit a detailed log documenting at least 45 hours of course work, including discussion board posts, and will be required to apply information and strategies acquired from the course content to weekly classroom instruction. Attempts to falsify logs or discussion board entries will result in denial of credit and a report to the enrollee's employer.



## Scope & Sequence/Weekly Topics and Objectives

### *Week 1*

**Topic(s):** Introductions: Basic Brain Structure: Types of Memory: Brain Based Learning: Neuroscience Terms: Neuroscience and Education

#### **Objectives:**

- to have students become familiar with the instructor's background and the backgrounds and interests of their classmates
- to review students knowledge of basic structures of the brain
- to expose students to the different types of memory associated with the brain
- to have students become aware of the important neuroscience terms they will encounter in the course
- to have students become aware of the relationships between neuroscience and education

**Impact on Classroom Instruction:** The students will be able to utilize the newly acquired knowledge in the preparation of their lesson plans and they will be able to create a more effective classroom learning environment.

#### **Learner Outcomes:**

- students will be able to share experiences and instructional techniques with one another and interact with the instructor
- students will know the different types of human memory and its importance in developing lesson plans and providing learning experiences for students
- students will be familiar with brain-based learning and they will be able to use the concept in their daily instruction
- students will become aware of key neuroscience terminology and the connection between the neurosciences and educational concepts

**Assessment of Understanding and Learning/ Weekly Assignments (*including but not limited to posting requirements set forth by LILIE, LLC*):**

- post to the discussion board as outlined in the course expectations
- introduce self and respond to classmates' postings
- post reactions to the articles on brain structure and human memory
- indicate on the discussion board at least 2 ways classroom learning can be impacted by brain structure/functions and human memory
- read the article on brain-based learning and post one technique associated with it that you have used or would like to try
- share one of the brain-based techniques you have used in the classroom
- become familiar with the listing of neuroscience terms
- read the article on "neurosciences and education" and post 1 reaction to it on the discussion board



## *Week II*

**Topic(s):** Cognition and Information Processing: Stage Models of Cognition: How Teachers Can Improve Information Processing in the Classroom: Brain Research and Designing Brain-based Lesson Plans

### **Objectives:**

- to have students examine the concept of the “information processing approach to cognition”
- to have students compare and contrast several information processing models
- to have students analyze the five types of memory and their relationship to cognition
- to test students knowledge of one model of human information processing
- to have students learn how they can improve their students’ ability to process information
- to recommend methods that teachers can use to design brain-based lesson plans

**Impact on Classroom Instruction:** Class room instruction and the learning environment will become enhanced as a result of the teacher’s better understanding of how information can be more effectively processed by students.

### **Learner Outcomes:**

- students will have a clear understanding of the information processing approach to cognition
- students will be able to identify various cognition models used in information processing and apply the concepts associated with those models to their instruction
- students will be able to categorize the five types of memory and understand its impact on the methodology they might use in the classroom as well as how their students learn
- students will be able to design brain-based lesson plans

**Assessment of Understanding and Learning/ Weekly Assignments (*including but not limited to posting requirements set forth by LILIE, LLC*):**

- post to the discussion board as outlined in the course expectations
- view videos regarding information processing and post reactions to them
- read article on the information processing approach to cognition and post reaction to it
- study a model of human information processing and explain through a posting how it examines cognition and information processing
- take a short quiz on the human information processing and check your understanding of the model by examining your correct responses
- read the article on “what teachers can do to improve information processing” and then post on the discussion board 2 or 3 strategies mentioned in the article that you use in your classroom or that you’d like to try using to improve your students’ ability to process information
- read the articles on “brain-based research” and “brain-based lesson plans” ; examine the implications for teaching found in the articles and then find two similar articles on the Internet and post the urls to them on the discussion board for sharing with your classmate



### *Week III*

**Topic(s):** “The Concept of Rehearsal in Brain Research: Tool Kit of Brain-Compatible Strategies for use in Classroom Instruction: Characteristics of a Brain-Compatible Classroom:

#### **Objectives:**

- to explain the concept of “rehearsal “ in brain research
- to introduce the students to numerous “brain-compatible” strategies that may be use for instruction
- to have students research “brain-compatible’ strategies and explain their effectiveness as a teaching tool

**Impact on Classroom Instruction:** Students will be able to improve their delivery of instruction and they will be able to develop much more creative techniques for teaching as a result of learning these concepts. Classroom environment will become more of a laboratory for students to express themselves in many different ways if these techniques are employed.

#### **Learner Outcomes:**

- students will understand the role of rehearsal as it relates to memory
- students will be able to employ brain-compatible strategies in imparting their daily instruction
- students will be able to develop classroom environments that are more creative and conducive to student participation in higher levels of cognition

**Assessment of Understanding and Learning/ Weekly Assignments (*including but not limited to posting requirements set forth by LILIE, LLC*):**

- post to the discussion board as outlined in the course expectations
- view a power point presentation on the study of the brain and its implications for teaching and learning and post observations or opinions about the information presented on the discussion board
- view a slide show and read two articles regarding “brain-compatible” classrooms
- research on the Internet two articles related to “brain-compatible” classrooms and post the urls on the discussion board along with an explanation as to why you choose these particular articles



### *Week IV*

**Topic(s):** Exploration of Instructional Strategies and Assessments Based on Brain Research

**Objectives:**

- to have students explore the effectiveness of brain-based assessments
- to have students examine the use of brain-based learning as a possible methodology for their classroom instruction
- to have students practice using brain-based assessments in their classroom and share their findings with their classmates

**Impact on Classroom Instruction:** Students will be able to utilize brain-based lesson plans and they will be able to use brain-based assessments on a frequent basis to test student learning.

**Learner Outcomes:**

- students will be able to distinguish between the assessments they are currently employing and brain-based assessments
- students will be able to examine the effectiveness of brain-based assessments and determine if they are compatible or useful as appraisal techniques for ascertaining students' understanding of concepts taught
- students will be able to confirm the importance of brain research as it relates to more effective classroom instruction

**Assessment of Understanding and Learning/ Weekly Assignments (*including but not limited to posting requirements set forth by LILIE, LLC*):**

- post to the discussion board as outlined in the course expectations
- read articles on brain-based assessments and develop a 2-page sample brain-based assessment and e-mail it to me for grading and comments
- develop a brain-based lesson plan after reading the articles found on the following websites and post on the discussion board a brief description of the plan
- comment on at least one of your classmates' brain-based lesson plan