

Neuroscience of Learning

Basic Institute Course Syllabus

A. Description

In the past few years, learning science together with neuroscientists have made amazing discoveries about how the human brain learns. In this Neuroscience of Learning Summer Institute, we translate the most significant of these discoveries into practical teaching systems that deliver powerful improvements in education for both teachers and students. Evidence of recent methodological changes derived from brain-centric models has described results, which are always significant, and often breathtaking. Our goal is to increase teacher capacity in this field where neuroscience informs classroom practices and processes.

B. Organization

This one-week immersive course in the Neuroscience of Learning answers these questions for teachers - how can I get this child to engage in learning?; how come he can't pay attention?; why doesn't she follow instructions?; I wish I could get these children to behave like learners. This institute is essentially the beginning of a Professional Learning Community in the field of Mind, Brain, and Education. Each participant who attends and completes a required Keystone Course deliverable is invited to contribute to the growing field by staying connected, by attempting new methods and trying out new models in their classrooms. The course will explore all key components of learning that are based on neural substrates pertaining to plasticity, working memory, and self-regulation. Participants will be introduced to a brain-centric pedagogical model that is central to critical understandings of areas of attention, comprehension, mindset, and engagement. Finally, a hands-on component that examines 'learning' areas of the human brain that is central to knowledge acquisition, meaning-making, executive function, and emotional wellbeing. This hands-on immersive course assumes no previous experience with neurobiology as it pertains to self-regulation, attention, or working memory.

C. Course Objectives

- To introduce participants to basic neuroscience of learning
- To introduce participants to regions of the human brain with particular reference to cognition and comprehension
- To introduce participants to a brain-centric pedagogical model that eliminates labeling and stratification, and increases agency and learning with deep understanding
- To develop strategies for increasing awareness of the importance of mindset for teaching and learning
- To co-create meaningful methods and practices that are brain-centric and applicable to adolescent learning
- To make visible the critical components of plasticity, myelination, and neurotransmitters for the learning brain

D. Course Topics

This course will uncover and explicate the following topics:

- Regions of the Human Brain
- Keystone vs. Capstone Approach
- Pedagogical Model for Brain-centric engagement
- Eliminate Stress in the Classroom
- Eliminate labeling and stratification in your teaching
- Teach with Plasticity in mind
- Understanding Intelligence through a neural lens
- Apply Miller's Law to all your teaching
- Build in Hebb's Rule with cognitive rehearsal
- Making Visible learners' pre- and mis- conceptions
- Level the Playing Field for your learning communities
- Inclusive teaching practices eliminates labeling and stratification
- Assessments for the 21st century
- Technology, multi-tasking, and working memory are critical for today's learner

E. Required Readings

A list of short papers will be sent to each participant prior to the course date. It is strongly recommended that participants read these materials for best results. We suggest teachers gain familiarity with some of the underpinning concepts, critical terminology, and recent advances in the learning sciences, neuroscience, and formal systems of education.

F. Completion

All participants who satisfactorily complete the Neuroscience of Learning course will be eligible for Clock Hours. Each individual will receive a Certificate of Completion. Attendance is essential for all five days of the course. Please discuss reasonable absence with the course instructor.

1. Attendance of all portions of the course
2. Contribution to small group discussion
3. Ability to work in teams in inclusive capacity
4. Contribute to large group Report Out
5. Turn in individual or team Keystone Project
6. Offer meaningful critique to iterative team projects

G. Technology

Technology is welcome. We will have access to WiFi in the classroom. There will be sections of each day where access to the Internet and collaborative writing tools is essential. In addition, there will be intentional modeling around cell phone etiquette for adolescent learners, gamers and social activities so that we can better understand and devise schemas that eliminate maladaptive practices and discomfort for other learners.

H. Emergency Procedures

It will be summer at PLU campus and access to usual services will be limited. As such all participants will be made aware of emergency exits, evacuation procedures, first aid equipment, and other security issues that might arise.

I. Suggestions for Success



This is a hands-on immersive course focusing on how children learn and how the human brain works. Be prepared for lots of processing time, challenging concepts, and physical exercise consistent with focused attentive learning. Prepare to be surprised.

What educators are saying after the Summer Institute:

The Neural Education conference introduced and reinforced metacognitive strategies to create classrooms with intentionality where all learners can thrive.

Kathi Weight, EdD - Superintendent
Steilacoom Historical School District

Teaching with the brain in mind will help us meet the needs of each student in our classroom.

Lori Donati - Reading Specialist
Sawyer Woods Elementary

Learning about the brain allowed me to understand my own behavior in relation to the behavior of my students. Consequently, I was able to change my beliefs about student behavior by looking through a neural lens. Now I see the student, not the behavior.

Karen Foley - Elementary
Lincoln Elementary

In my 25 years of being in education, this is HANDS DOWN the VERY BEST professional development I've been part of...ever!!

Karey Richardson, Principal
Stahl Junior High