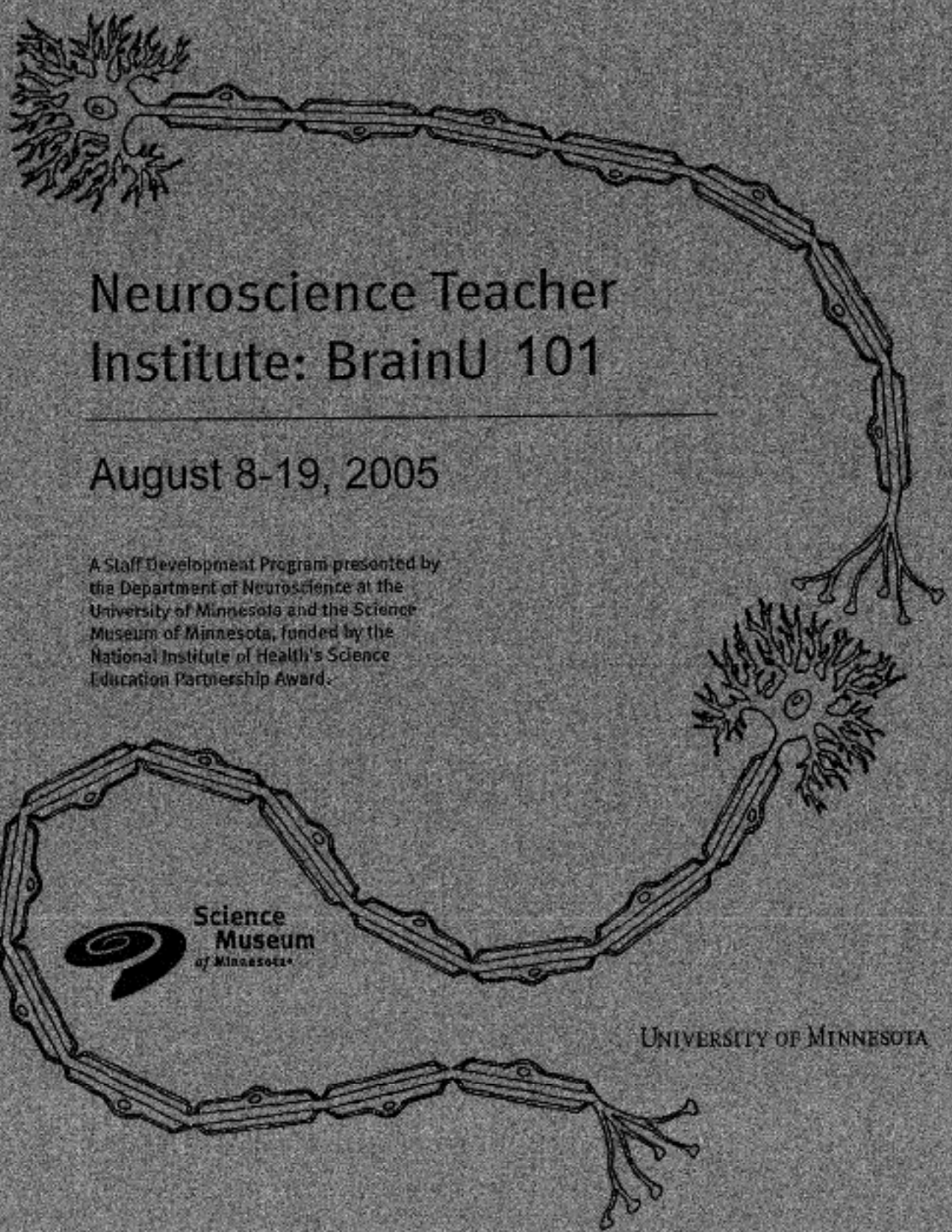


Jan Dubinsky



Neuroscience Teacher Institute: BrainU 101

August 8-19, 2005

A Staff Development Program presented by
the Department of Neuroscience at the
University of Minnesota and the Science
Museum of Minnesota, funded by the
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Education Partnership Award.



Science
Museum
of Minnesota

UNIVERSITY OF MINNESOTA

Brain U

Section One:



Information

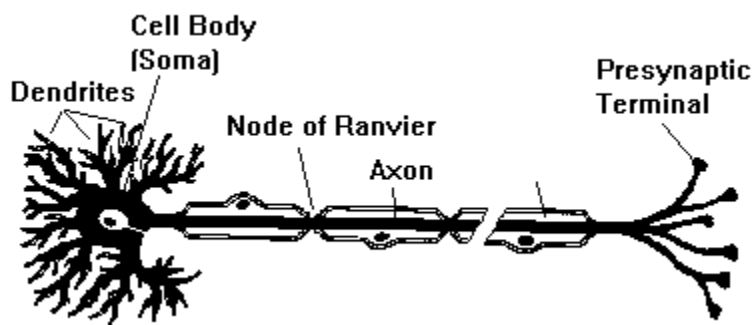
Brain U 101: Neuroscience Teachers Institute August 8 – 19, 2005

(All activities held in 6-135 Jackson Hall unless otherwise noted)

Monday, August 8, 2005: How is the brain organized? Connections to classrooms

7:30 am	Arrive on campus, breakfast
8:00 am	Welcome to Brain U 101 (Lee, Carrie, Georgia, Jen, Jan, Amber) <ul style="list-style-type: none">- content knowledge pretest- Neuroscience: everywhere in daily life. Share articles- Sentence strips
9:45 am	Describing an Apple
10:30 am	The 3 Pound Universe in Your Head (Dr. Timothy Ebner)
11:45 am	Lunch (<i>Pasta Bar</i>)
12:45 pm	Explain Your Brain Assembly, <i>2-137 Jackson Hall</i>
2:00 pm	Explain Your Brain Hands-On Exhibits, <i>B10 Ford Hall</i>
3:15 pm	Explain your brain in the classroom
3:45 pm	Registration for course credit and discussion of requirements
5:00 pm	Dinner with participants at Loring Pasta Bar

Suggested assignment: Pat Wolfe, Ch. 2-3, Sheep dissection lab and neural slide lab



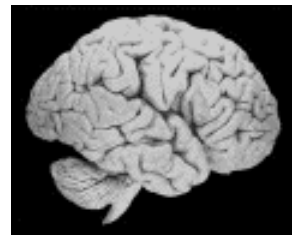
Tuesday, August 9, 2005: How is the brain organized? How do brains work?

- 7:30 am Arrive on campus, breakfast
8:00 am Brain warm-ups
- 8:30 am How is a worm “brain” like a human’s? (Dr. Jan Dubinsky), 3-146 MCB
- 9:15 am Animal Use in Research: a short discussion, 3-146 MCB
- 9:30 am What’s in a Brain? Sheep brain dissection (Jan) 3-146 MCB
- 11:00 am Sheep Brain Dissection and the Classroom
- 11:45am The Synapse: a Chemical Primer (Jan) 535 Diehl Hall
- 12:30 pm Lunch
- 1:30 pm What Makes the Brain Work? Neural slides (Jan) 3-146 MCB
- 2:30 pm Adapting anatomy and physiology lessons for the classroom (C, A, G, J)
- 3:15 pm Action Plan Introduction

Assignment: Brain and/or neuron model that moves – for Thursday (8/11/05)

Wednesday, August 10, 2005: How do brains work?

- 7:30 am Arrive on campus, breakfast (*Jumbo muffins*)
8:00 am Illusions and your brain
- 8:30 am Connect the Neurons! – Neural networks
- 10:00 am How does sensory information get to the brain? (Dr. Kathy Zahs)
- 11:00 am Introductions and explorations of neuro-cellular labs using sensory systems (Dr. Kathy Zahs, Dr. Eric Newman, Dr. Lance Zirpel)
- 12:30 pm Lunch (*Tex Mex – UDS*)
- 1:30 pm How does information go from the brain to muscles? (Dr. David Crowe)
- 2:30 pm Introduction/explorations of labs (Keith Fitzgerald; Shane Crandall; Adam Johnson)



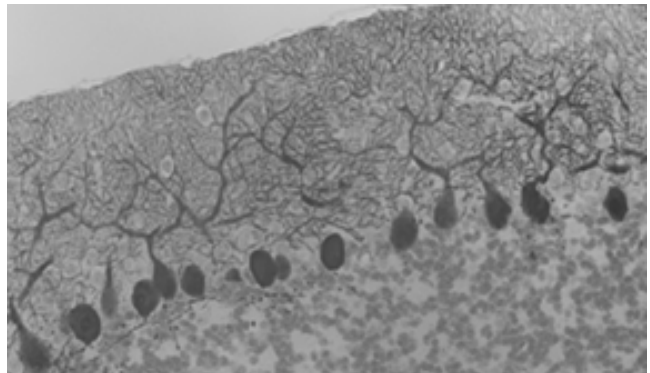
Thursday, August 11, 2005: Neuroscience resources / Investigating questions

7:30 am	Arrive on campus, breakfast
8:00 am	Brain Calisthenics
9:00 am	Neuroscience Ice Breakers (Dr. Eric Chudler)
10:00 am	Neuroscience for Kids: A Guided Tour (Dr. Chudler), 535 Learning Commons
11:30 am	Lunch offsite
1:00 pm	Altered reality – Learning from a different perspective

Assignment: Bring soil samples for tomorrow

Friday, August 12, 2005:
Resources for neuroscience in and
outside the classroom

(Argon Room at Science Museum)

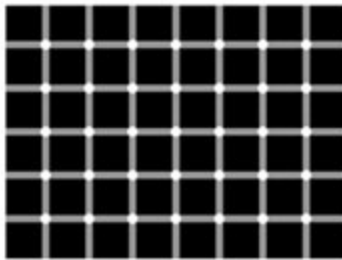


7:30 am	Arrive at museum, breakfast
8:00 am	Mirror Writing
8:45 am	What is thinking? (Jan)
10:00 am	Neuron Blocks! Physical and Virtual neuron models
12:00 pm	Lunch
1:00 pm	Bringing brains to your school
1:30 pm	Science Museum Neuroscience resources (Maija Sedzielarz)
3:00 pm	Envisioning your Brain
4:00 pm	Omni show –Bears!

Assignment: bring a worm attractant/repellant item

Monday, August 15, 2005: Experimental models for the classroom

7:30 am	Arrive on campus, breakfast
8:00 am	Mystery brains: a comparison
9:00 am	How stress affects the brain? (Dr. Engeland)
10:15 am	Invertebrate Neurobiology with (Dr. Ann Rougvie)
11:15 am	Caeno-WHAT? Intro to worms!, 3-146 MCB
12:00 pm	Lunch
1:00 pm	Do worms behave like people? (Dr. Jocelyn Shaw), 3-146 MCB
1:45 pm	Worm Attraction! And mutant worms too!
3:00 pm	How does neuroscience fit with education standards?



Are the dots white or black?

Tuesday, August 16, 2005: Learning and Memory

7:30 am	Arrive on campus, breakfast
8:00 am	Recency and Primacy
8:45 am	Sharing results and ideas for <i>C. elegans</i> in the classroom
9:30 am	Ethics and Animal Research (Dr. Peter Santi)
10:45 am	Shopping list of Potential Items for Action Plans
12:00 pm	Lunch
1:00 pm	Learning and Memory: Long term potentiation (Jan), 535 Diehl Hall
2:15 pm	Practical Aspects of Altered Reality

Wednesday, August 17, 2005: What happens inside the brain?

7:30 am	Arrive on campus, breakfast
8:00 am	Brain gym: making meaning-in the classroom and out
9:30 am	Development of working memory and planning skills in adolescents (Dr. Monica Luciana)
10:30 am	Brain Trunk Kit Resources
11:30 am	Lunch offsite
1:00 pm	How do drugs affect the brain? (Dr. Lucy Vulchanova)
2:00 pm	Design and discussion of action plans
3:00 pm	Work time for action plans

Thursday, August 18, 2005: Ways to look at the brain

7:30 am	Arrive on campus, breakfast
8:00 am	What do you remember about neuroanatomy and physiology?
8:45 am	Brain Inquiry Cubes
9:30 am	How do we know what the brain is doing without cracking our skulls? Imaging Techniques: Experimental Surgery (Lynn Hartman) and CMRR (Gulin Oz, Pierre-Gilles Henry, Rayan Kissoon)
12:00 pm	Lunch
1:00 pm	Brain diseases and therapies (Dr. Walt Low)
2:30 pm	Ways of remembering/ways people learn: How is the brain like broccoli?

Friday, August 19, 2005: Synthesis -> investigating neuroscience in classrooms

7:30 am	Arrive on campus, breakfast
8:00 am	Equity and familiarity: differences in organization

8:30 am	Action plan planning time
9:00 am	Action plan presentations
12:00 am	Lunch
1:00 pm	Brain U survey
1:45 pm	Endings and Beginnings

Line 1: one noun

Line 2: two adjectives (words that describe the noun)

Line 3: Three verbs

Line 4: Four nouns related to the noun in line one

Line 5: Three verbs related to line 7

Line 6: Two adjectives related to line 7

Line 7: One noun with opposite meaning to line 1 noun

example:

bugs
ugly, beautiful
munching, creeping, buzzing
butterflies, worms, caterpillars, beetles
growing, caring, helping
supportive, kind
friends

Diamante poem
