SCHEDULE

9:00    Demonstration of teaching a case and general tips on teaching with cases
        Richard Olivo

For the case discussion, the audience sitting in the room’s front left quadrant will serve as “the class,” while the others will be observers who participate in the second phase of the discussion. The case to be discussed begins on page 3.

9:45    Teaching basic neuroscience to medical students with cases
        Jeanette Norden

10:15   Using cases in undergraduate courses
        William Meil

10:45   Using cases in a graduate course
        Kurt Illig

11:15   "One minute" contributions from the audience
        Present one brief tip or example from your own experience! 60 seconds maximum.

11:30   Breakout groups
        Informal conversations among faculty teaching similar courses.

This handout, other supplementary materials, and Web links are available on the workshop’s website: tinyurl.com/sfn-pdw/
PANELISTS

Richard Olivo (Smith College and Harvard University, workshop organizer)
Professor of Biological Sciences and member of the Program in Neuroscience, Smith College; from 1996-2009, Associate Director, Derek Bok Center for Teaching and Learning, Harvard University. Dr. Olivo proposed the first neuroscience teaching workshop in 2005, and has organized workshops at each Annual Meeting since then. He is the developer of "MacRetina," and the author of a deep website for an undergraduate neurophysiology laboratory course. He was named "Educator of the Year" in 2005 by Faculty for Undergraduate Neuroscience. Email: rolivo@smith.edu.

Jeanette Norden (Vanderbilt University)
Professor and Director of Medical Education in in the Department of Cell and Developmental Biology, School of Medicine, and Professor of Neurosciences in the College of Arts and Sciences at Vanderbilt University. Dr. Norden has received a number of teaching awards, including the Shovel Award, given by the graduating class to the faculty member who has had the most positive influence on them in their four years of medical school, the Jack Davies Award for teaching excellence in the basic sciences, the Outstanding Teacher of the Year Award, and the Robert J. Glaser Distinguished Teacher Award from the Alpha Omega Alpha Medical Honor Society and the Association of American Medical Colleges. She was the first recipient of both the Teaching Excellence Award given by the Vanderbilt University School of Medicine and the University Chair of Teaching Excellence at Vanderbilt. Email: jeanette.norden@vanderbilt.edu.

William M. Meil (Indiana University of Pennsylvania)
Associate Professor of Psychology, Indiana University of Pennsylvania, Indiana PA. His interests include changes in frontal lobe function during recovery from drug addiction, the neural basis of drug abuse and addiction, substance abuse and treatment in rural areas, and influences on peoples' attributions regarding the causes of addictive behavior and disease. Dr Meil is the author of “The Use of Case Studies in Teaching Undergraduate Neuroscience” in the spring 2007 issue of the Journal of Undergraduate Neuroscience Education. Email: meil@iup.edu.

Kurt R. Illig (University of St. Thomas and University of Virginia)
Assistant Professor, Department of Biology and Neuroscience Program, University of St. Thomas, St. Paul MN; formerly Research Assistant Professor, Department of Psychology and Neuroscience Graduate Program, University of Virginia, Charlottesville. Dr. Illig's research focuses on understanding how sensory information is associated with behavioral significance in cortical structures, and how these representations change with experience. Email: krillig@gmail.com.
A Dilemma Case on "Animal Rights"

by Clyde Freeman Herreid

University at Buffalo, State University of New York

"And so if there are problems with registration, please see Ms. Lampier up here now. She'll be over in that corner," Professor Bill Torkey waved his hand to the right. "I'll be over here to handle all other questions that I may not have answered in my general discussion of the course. Remember labs don't start until next week. See you next Wednesday."

Torkey quickly straightened his notes and slipped them into the brown file folder and watched the chaos develop at the front of the large lecture hall. The first day of General Biology at the University was always the same. Three hundred young strained faces peering from dozens of rows into the lecture pit wondering what was going to happen here. They had heard the usual stories about the course. It's incredibly tough but rewarding if you worked your tail off. The lectures were exciting but the exams impossible. The labs were a mixed bag; some too simple, others ridiculous in what they demanded in the way of memorization, but there was one compensation - the teaching assistants were superb. Bill Torkey had a reputation among the graduate students for demanding excellence in their preparation for each lab session and he held long training sessions each Friday to work out problems that might develop during their teaching. He had even gotten University Honors students to volunteer to help the graduate students so that each of the fourteen lab sections had two teaching assistants.

The class closed their books, scraped their chairs back and began heading for the exits. Students with problems - there were always a lot the first day - headed for the front. The anxious types who were afraid of getting closed out of the class made a hurried scramble for Ms. Lampier, who implacably as ever, began the process of sorting problems and handing out signup sheets. Torkey looked at the swirling sea of faces about him clamoring for his attention and had one last thought before he turned to the individuals awaiting his attention. What an array of diversity in a public university of New York. How it had changed in his twenty-five years of teaching. Students from every conceivable culture were there sitting in his classroom: Chinese, Vietnamese, Japanese, Colombian, Russian, Iranian, African and
Indian along with second and third generation Europeans. There were even one or two Native Americans in his class this year. The American classroom was incredible.

Then the questions came. "I have a conflict with the first exam. Can I arrange an alternate time?" "Can I change my lab from Mondays to Tuesdays?" "Do you have any more handouts?" "I haven't been able to buy the book, will this one do just as well?" "Should I ... Will you ... ? Can we ... ?" Torkey rapidly answered or delayed most of the questions that bubbled up from the forty students clustered about the lectern. He had timed it well, for Charles Sargent from the philosophy department had the classroom next and his students were coming in. His day was just beginning.

One last student remained for Torkey, a serious faced student he had seen before in one of his freshman honors seminars last semester. "Well, Mr. Ballard, what's on your mind?"

"I would like to speak to you about a serious conflict that I may have with some of the laboratories. I didn't want to cause any difficulties so I waited until the other people were gone. It's about the dissecting labs, I am philosophically opposed to them."

Bill Torkey sighed to himself as he realized that this would take more than a moment and said, "Come on over to my office so we can talk about this. Do you have a minute?"

After a brief stroll across campus, while they talked amiably about other matters, Sam Ballard sat in Bill's office.

"Let me see if I understand this, Sam. You don't want to dissect any animals because you're philosophically opposed to it?"

"Yes, I don't believe that I should be a party in the death of any animal."

"Why is that?"

"All animals have the right to be free of pain. And I don't think any one has the right to subjugate and exploit animals simply for their own end."

"Sam, this is a Biology course. You knew when you signed up that there was dissection involved. Why did you take this class? You could have taken physics, chemistry or geology to complete your science requirements."

"Well, I considered that. But I like biology. In fact, I am majoring in Environmental Studies and they require that I take this course in order to graduate. I don't have any choice."

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"Sam, I agree with them. It's logical that you know something about animal anatomy and physiology if you are going to study Environmental Studies. In fact, I think every student should know the fundamentals of anatomy regardless of their major. It's part of becoming an educated person. And it sure doesn't make any more sense for a major in Environmental Studies to be allowed to bypass dissection than it does for someone who is a prevet or premed student. It's part of understanding the animal."

"But I plan to be a lawyer and specialize in environmental law. I don't see why I need to have the experience of working on a pickled dead animal which doesn't look anything like the real thing in order to pass this course or to graduate."

"Obviously, I don't agree with you. Nor for that matter does the Department of Environmental Studies. It is their requirement, not mine, that you take this course. So what do you suggest is the solution to this problem?"

"I'm not asking that you drop all of the dissection labs, although I think that is the correct thing to do. What I am asking is that I not be forced to dissect an animal. I would be happy to work on models, or look at videos or look at diagrams in textbooks to learn the material. I'll take the same tests as everyone else. I will be happy to do any extra work, a paper or project or anything. I just don't want to kill or cut up anything."

Bill Torkey leaned back in his chair listening. This wasn't his first student to challenge the time honored dissection approach to biology labs, but Sam Ballard was certainly his most serious student. Biology wasn't the same as it used to be. It was mostly cellular and molecular stuff today. Did students really have to dissect a frog, fetal pig, starfish, or earthworm to get a good education? What in the world was a lab about anyway? Most students hated it. There was nothing new to be discovered by poking around in a poorly preserved frog dripping with preservative. It had been done hundreds of thousands of times before. For what? Should he reevaluate his approach? What affect would his waiving this requirement for Sam have on the other students? What if some of them wanted other alternatives as well? What the devil should he do? He had skirted this problem long enough.

This case, along with the author's commentary on it, appears in the Journal of College Science Teaching (1996) 25:413-418.
TIPS ON TEACHING WITH CASES


1. Prepare in advance. 7. Control the discussion.
2. Choose a case with controversy. 8. Write key points on the blackboard.
3. Set the scene for the case. 9. Correct student error.
4. Use a good opening question. 10. Structure the discussion.
5. Involve as many people as possible. 11. Move around (but don't pace).

RESOURCES

Websites and articles

• National Center for Case Study Teaching in Science, University of Buffalo
  <http://ublib.buffalo.edu/libraries/projects/cases/case.html>
  A deep site with advice, bibliographies, sample cases (drawn from various sciences) and other resources. Highly recommended.

• Annual Conference on Case Study Teaching in Science
  <http://ublib.buffalo.edu/libraries/projects/cases/conference/conference.html>
  A well-regarded conference held every September for faculty interested in developing their skills in teaching with cases.

• Meil, William M. “The Use of Case Studies in Teaching Undergraduate Neuroscience.”
  <http://funjournal.org/downloads/MeilJUNEs07.pdf>
  A detailed, thoughtful article by one of today’s panelists.
• Cases for Discussion
<http://www.science.smith.edu/departments/NeuroSci/courses/bio330/cases.html>

Five brief cases used during lectures in a neurophysiology course at Smith College.

Books

• *Neuroanatomy through Clinical Cases*. Hal Blumenfeld, M.D., Ph.D., Yale University School of Medicine (Sinauer, 2002) <http://www.sinauer.com/detail.php?id=0604>

A detailed textbook for human neuroanatomy courses, with multiple clinical cases interspersed throughout.

• *Case Studies in Neuroscience*. Ralph Jozefowicz, M.D., and Robert Holloway, M.D., University of Rochester School of Medicine (F. A. Davis, 1999, out of print)

A series of clinical cases useful for teaching medical neuroanatomy.


Essays on “the artistry of discussion leadership,” edited by advocates for cased-based teaching in the business school curriculum. The general essays are useful.

• “Bill Meil’s List” by our panelist William Meil.

Bill has selected a set of books, many for the general reader, from which cases for teaching can be derived:


