

II. WORKSHOPS

Monday, 14 June 2010

Promoting Meaningful Learning

Science 165

Monday

1:30 p.m. – 5:00 p.m.

Half-day workshop organized by Dr. Kathleen Fisher (Professor Emerita, Department of Biology and Center for Research in Mathematics and Science Education, San Diego State University, and Co-founder and Chief Educational Officer, Semantic Research, Inc., San Diego, CA) and sponsored by Semantic Research Inc. (San Diego, CA).

Semantica[®] is a commercial product developed by Semantic Research Inc. (SRI) in San Diego. It is descended from SemNet[®], a semantic networking tool developed by the author's research group at the University of California, Davis in the early eighties. Earlier versions of Semantica / SemNet have been used widely, primarily in higher education, in business settings in the US and Europe, and in K-12 classes. The author and a graduate student introduced Semantica into High Tech Middle School in San Diego last year.

Research suggests that when students organize the knowledge they are acquiring in the form of a semantic network, their learning and retention are enhanced significantly. Further, students may also acquire desirable and lasting learning habits.

When a faculty member reviews a semantic network, s/he can often diagnose a student's particular learning problems and give very explicit feedback to improve that student's learning. This benefit is particularly pronounced with ESL students, who often haven't yet mastered the verbs critical for understanding the topic. For example, a student who doesn't know the difference between 'has a part' and 'is a part of' has difficulty mastering biology. In general, verbs are more challenging to learn than nouns and are learned later than nouns.

Workshop participants will be given access to a website where they can download SemanticaEdu at no charge. SemanticaEdu 3.0 contains, on the Help menu, the Manual, a tutorial, and a Sample Gallery containing semantic networks in various sciences and other subjects.

Limited to 24 participants.

Tuesday, 15 June 2010

Science Education for New Civic Engagements and Responsibilities (SENCER) Workshop

Science 225

Tuesday

8:00 a.m. – 12:00 p.m.

Half-day workshop organized by Drs. Amy Shachter (Associate Provost, Office of Research Initiatives, Santa Clara University, Santa Clara, CA) and Stephen Carroll (Department of English, Santa Clara University, Santa Clara, CA).

Initiated in 2001, Science Education for New Civic Engagements and Responsibilities (SENCER)¹ is a national dissemination project funded by the National Science Foundation. SENCER has established and supported an ever-growing community of faculty, students, academic leaders, and others to improve undergraduate STEM (science, technology, engineering and mathematics) education for non-science majors by connecting learning to critical civic questions. In 2007, the SENCER project established five regional SENCER Centers of Innovation (SCI). The SCIs expand the work of SENCER by organizing regional workshops designed to foster a multi- and interdisciplinary approach to science education with a focus on civic engagement. SCI-West is organizing this workshop to provide opportunities for AAAS members to engage SENCER faculty, discuss SENCER approaches, and consider developing regional collaborations. The AAAS Pacific Division SENCER workshop will have several one-hour segments:

- SENCER Overview and Model Courses (Amy Shachter, Santa Clara University). A dynamic introduction to the SENCER project including an overview of an interdisciplinary set of SENCER Model courses.
- Designing a SENCER course (Amy Shachter, Santa Clara University). An interactive workshop that takes participants through a nine step program to design a SENCER science course.
- Assessment using the SENCER Self-Assessment of Learning Gains Instrument (Stephen Carroll, Santa Clara University). An introduction to the SALG instrument and how it can be used to understand perceptions of student learning gains.

Limited to 24 participants.

¹<http://www.sencernet/About/projectoverview.cfm>

***Evidence-Based Research, the Science
of Research Synthesis: Implications and
Applications in the Delivery of Health Care***

Science 164
Tuesday
8:30 a.m. – 4:30 p.m.

Full-day workshop, organized by Dr. Francesco Chiappelli (Professor, UCLA School of Dentistry, Division of Oral Biology and Medicine, University of California, Los Angeles, CA).

Evidence-based medicine/nursing/dentistry is a complex process of health care delivery that rests on three distinct scientific domains. First, evidence-based research seeks to evaluate pre-clinical and clinical research in order to obtain the “best available” evidence by means of systematic reviews and meta-analyses. Second, in the context of developing evidence-based clinical practice, the best available evidence is integrated in carefully crafted revisions of clinical practice guidelines. Third, the actual delivery of evidence-based health care rests on the integration of decision-making theories (e.g., utility theory) articulated so as to favor the integration of revised clinical practice guidelines into clinical intervention. Together, these three elements proffer evidence-based modes of treatment for optimizing clinical outcomes for the benefit of the patient. Thus, evidence-based health care rests fundamentally on the initial evaluative evidence-based research synthesis step for identifying the “best available” evidence. The goal of this workshop is to provide the audience with the basic skills and tools to perform evidence-based research.

If possible, participants should bring their laptop computer in order to connect to Pubmed or other websites as needed during the workshop. Wireless internet access will be available.

Limited to 24 participants.

***A Discussion on the Value
of Advanced Placement Programs
from High School and University Perspectives***

Science 215
Tuesday
1:30 p.m. – 5:00 p.m.

One-half day workshop organized by Drs. William B.N. Berry (University of California, Berkeley, CA) and William Wiecking (Hawai'i Preparatory Academy, Waimea, HI).

This discussion/workshop will begin to address the topic of the value of Advanced Placement courses at the high school level. Perspectives will come from high school students and instructors, university professors, and others interested in this very important issue. Three foci of the workshop will be:

- Benefits and drawbacks of high school AP programs from the student, parent, instructor and professor's perspectives.
- How can we best prepare our students for the future? Is AP part of the solution, part of the problem, or part of both?
- Field studies: a prototype for a new level of AP curriculum?

Wednesday, 16 June 2010

***Science and Religion: A Philosophical Look
at Issues and Approaches***

Science 215
Wednesday
8:30 a.m. – 12:00 p.m.

One half-day session, organized by Prakash Chenjeri (Department of Language, Literature and Philosophy, Southern Oregon University, Ashland, OR).

This workshop will explore some of the critical issues that science and religion have contested, focusing primarily on the methodological and epistemological questions.

The session will include a panel discussion and a documentary exploring the interaction between science and religion by looking at some of the landmark issues that have punctuated their relationship over the last five hundred years. Among the topics explored are: the nature of the scientific method; the trial of Galileo and its implications; the implications of Newton's mechanistic world view; the Darwinian revolution and the post-Darwinian controversies, in particular the debate over the 'intelligent design' argument; faith and reason; and cosmology and questions of origin. The sessions will also examine the question, "Does science make belief in religion obsolete?"

Geometry as a Design Tool

Science 067
Wednesday
8:30 a.m. – 5:00 p.m.

Full-day workshop organized by Dr. Rochelle Newman (Professor Emerita, Northern Essex Community College, Haverhill, MA).

This all-day, hands-on workshop takes an interdisciplinary approach to exploring relationships that exist in the world of nature, the domain of forms and the arena of ideas. Space, common to Art, Mathematics and Nature, is the central focus. Examining the natural world, participants use geometry as the design tool for creating art works. Emphasis is placed on taking a concept through craft to a completed composition. The thread that weaves this activity together are the concepts of the Golden Ratio and the Divine Proportion.

No art or math experience is necessary, just a desire to play with ideas and materials. All supplies and hand-outs will be provided for a \$5.00 workshop fee.

Limited to 24 participants.