

THE AMERICAN CONFERENCE OF ACADEMIC DEANS
and THE PHI BETA KAPPA SOCIETY

Third Biennial Conference

PROMOTING THE LIBERAL SCIENCES:
SCIENCE AS LIBERAL EDUCATION

October 25-27, 2007
The Madison Hotel, Washington, D.C.

Thursday, October 25

5:00pm Registration Opens [Madison Foyer]

6:00-6:45pm Opening Reception [Montpelier]

7:00pm-9:00pm OPENING PLENARY [Mount Vernon]

The Other 98%: Science Education for Non-scientists

Dr. James Trefil, Clarence J. Robinson Professor of Physics, George Mason University

Based on his new book *Why Science?* prize-winning scientist and bestselling author James Trefil explains, with conviction and clarity, why every U.S. citizen needs to be “scientifically literate” and, therefore, why our schools must teach the fundamental principles of scientific literacy to every student. And he lays out those principles straightforwardly, so that educators—and everyone who is interested in education—can understand exactly what they are.

James Trefil is the Clarence J. Robinson Professor of Physics at George Mason University. His books include *The Dictionary of Cultural Literacy*, *1001 Things Everyone Needs to Know About Science*, *Are We Unique? A Scientist Explores the Human Mind*, and *The Nature of Science: An A-Z Guide to the Laws and Principles Governing Our Universe*. His latest book will be available for sale at the conference.

Friday, October 26

7:30am-12:00pm Registration Open [Madison Foyer]

7:30am-8:15am Coffee and Danish [Montpelier Foyer]

8:30am—10:00am Concurrent Sessions (5)

- **Teaching Science Through Cinema: The Biology of Science Fiction Cinema, a Learning Community Course** [John Adams]

Learning Community Research shows that learning and persistence are enhanced when students experience curriculum as an integrated body of knowledge in collaborative groups. Pace University has seen such positive results in a new flexible interdisciplinary Core curriculum. A recent successful example is a team-taught learning community, The Biology of Science Fiction Cinema, in which science, the arts and humanities provide a comprehensive integrated framework for learning.

Richard B. Schlesinger, Associate Dean for Academic Affairs and Research and Chair, Department of Biology and Health Sciences; **Adelia Williams**, Associate Dean for Academic Affairs and Professor of Modern Languages and Cultures; **Catherine Zimmer**, Assistant Professor of Film Studies; all of Dyson College of Arts and Sciences of Pace University.

• **Evolution Across the Curriculum** [Alexander Hamilton]

Evolutionary theory has had a powerful influence, not only in biology but also in the social sciences, art and literature. In the U.S., the theory remains under political attack, which creates specific challenges for teaching evolution across the liberal arts. This panel focuses on the benefits and challenges of teaching evolution from different disciplinary perspectives.

Bruce Wightman, Associate Professor of Biology; **Barri Gold**, Associate Professor of English, **Theodore Schick**, Professor of Philosophy; **Christopher Kovats-Bernat**, Associate Professor of Anthropology; all of Muhlenberg College.

• **Liberating Science: General Chemistry, Interdisciplinary Learning Communities and Informed Citizenship** [Montpelier-Salon 1]

Two curricular developments at Stonehill College promote the sciences as *liberated* from narrow specialization and *liberating* in developing the broad and deep scientific literacy required for engaged citizenship. Theme-based General Chemistry is an innovation supported by an NSF grant. The Sophomore Learning Community—a required three-course cluster—is expressly interdisciplinary, in many cases linking a science to a non-science discipline.

Katie Conboy, Vice President for Academic Affairs; **Louis Liotta**, Professor of Chemistry; **Karen Talentino**, Dean of Faculty; **Susan Mooney**, Associate Professor and Director of Environmental Studies; all of Stonehill College.

• **The American Liberal Sciences: Necessary or Otherwise?** [Montpelier-Salon 2]

A surprising confluence of voices external to the academy are expressing unusually deep concern about the inability of American students to compare favorably with their cohorts worldwide in scientific prowess. It can be argued that accepted American attitudes have influenced this situation. Does a scientific way of knowing epitomize the goal of a liberal education? Do American citizen thinkers cope more effectively with their world and others knowing a little science?

Susan C. Matts, Department of Physics, University of Mary Washington

• **Intellectual Leadership – A Major Criterion in Academic Searches?** [Mount Vernon-Salon B]

As colleges and universities set out to recruit new presidents and senior administrators, what are the qualifications they are really seeking? Criteria such as fundraising and community-building seem to be prevalent on every list, but is “intellectual leadership” still in demand?

Patricia T. (Tobie) van der Vorm, Senior Consultant, Academic Search, Inc.

10:00am—10:30am Coffee Break [Montpelier Foyer]

10:30am—12:00pm Concurrent Sessions (5)

• **Rebels, Rogues and Revolutionaries: History of Science as a Means to Teach Science from Historical and Contemporary Perspectives** [John Adams]

This presentation focuses on teaching science within the historical, political, religious and social contexts of scientific achievement, i.e. examining the liberal arts dimension of science. We will discuss the limitations of hands-on experience with the “scientific method” where an appreciation for the historical and philosophical roots of science and the interdisciplinary connections that exist between scientific disciplines is lacking.

Leanna C. Giancarlo, Associate Professor of Chemistry, University of Mary Washington

• **Numeracy and Scientific Literacy** [Alexander Hamilton]

In this panel, faculty from Alfred University will develop the concept of Numeracy, and how scientific literacy is incorporated into Alfred’s first ever Master of Science in Numeracy program. Numeracy is a *quantitative* literacy,

specifically referring to our ability to communicate with numbers and process quantitative information on a daily basis.

Eric Gaze, Professor of Mathematics and **Steve Pilgrim**, Professor of Ceramic Engineering and Glass Science; both of Alfred University.

- **First Year Seminar Program** [Montpelier-Salon 1]

The First Year Seminar Program at McDaniel College offers an excellent opportunity to introduce the sciences as an approach to the liberal arts. This panel will offer an overview of the First Year Seminar Program, followed by an examination of three specific First Year Seminar courses that introduce science as a liberal arts discipline with hands-on, scientific discovery.

Gretchen McKay, Associate Dean of Academic Affairs, Associate Professor of Art History, Director of Honors Program; **Peter Craig**, Assistant Professor of Chemistry; **Shabbir Mian**, Associate Professor of Physics; **Ralene Mitschler**, Associate Professor of Biology; all of McDaniel College.

- **Civic Scientific Literacy: Faculty Development Strategies;**

- Classroom Interventions** [Montpelier-Salon 2]

Use of actor network theory as a framework for interdisciplinary approaches to civic scientific literacy that are student-centered, linked to politico-scientific, real-world issues, and consistent with AAC&U's view of liberal education in *College Learning for the New Global Century*. The conceptual innovations of that theory present provocative challenges for faculty development; we look at how those challenges might be faced.

Michael Flower, Professor of Interdisciplinary Science Studies; **Jeffrey Gerwing**, Assistant Professor of University Studies; **Shawn Smallman**, Vice Provost for Instruction, Dean of Undergraduate Studies; all of Portland State University.

- **Integrated Methods of Teaching Science** [Mount Vernon-Salon B]

Austin College and Susquehanna University have implemented integrated methods of teaching science. These will be presented in a continuum from introductory general education requirements to senior-level student research in an interdisciplinary program. At Austin College, a required interdisciplinary Heritage of Western Culture course, emphasizing science and culture, was developed. The Ecology Program at Susquehanna University teaches the science by stressing teaming, writing, and speaking at all levels of the program.

Peggy Redshaw, Professor of Biology; **Don Salisbury**, Associate Professor of Physics; **Hank Gorman**, Professor of Psychology; all of Austin College. **Jack Holt**, Professor of Biology; **Carlos Iudica**, Assistant Professor of Biology; **Matthew Persons**, Associate Professor of Biology; all of Susquehanna University.

Lunch: On Your Own

3:00pm-5:00pm PLENARY SESSION [Mont Vernon]

Science as an Essential Literacy

Dr. Eric Jolly, President, Minnesota Science Museum

5:00pm-6:30pm Reception [Montpelier]

Saturday, October 27

7:30am-8:15am Coffee and Danish [Montpelier Foyer]

8:30am-10:00am Concurrent Sessions (4)

- **Conversations in Science Curriculums: Science and Liberal Arts at St. Olaf College and the Use of Debate and Projects in Liberal Arts Chemistry Course** [John Adams]

This session will focus on models to bring meaningful conversations to the science curriculum at liberal arts colleges. To initiate discussion, St. Olaf College will describe its Integrated Scientific Topics requirement and a vision for a yearlong Science Conversation Program. The University of Mary Washington will discuss the use of debate and projects in a one-year Chemistry and Society course.

David Van Wylene, Associate Dean for Natural Sciences and Mathematics, Professor of Biology; **Todd Nichol**, King Olav V Professor of Scandinavian-American Studies; **Shelly Dickinson**, Assistant Professor of Psychology and Neuroscience; all of St. Olaf College. **Kelli Slunt**, Associate Professor and Chair of Chemistry, University of Mary Washington.

- **Language: The Broken Bridge Between the Sciences and Humanities; and How to Repair It** [Alexander Hamilton]

I argue that the neglect of formal language studies is the single biggest cause of the "Two Cultures" rift. Suggested discussion topics include (1) the possibility of restoring grammar as unifying theme in general education; (2) the importance of modern linguistic scholarship (3) the advantages and disadvantages of returning to Latin and Greek specifically as languages to be learned.

Simon Levy, Assistant Professor of Computer Science, Washington and Lee University

- **The Liberal Arts Dimension of Teaching and Doing Science with Liberal Arts, the Foundation of a Science Education** [Montpelier-Salon 1]

This session analyzes ways of highlighting the liberal arts dimension of science. These ways include integrating the liberal arts with undergraduate research in preparing scientists and using interdisciplinary research not only to transform departmental majors but to change courses for non-majors as well. Broadening the discourse of science allows it to take its rightful place among the liberal arts.

Michael Fischer, Vice President for Academic Affairs and Dean of the Faculty; **Mark Brodl**, Brackenridge Distinguished Professor of Biology; **Nancy Mills**, Professor of Chemistry; all of Trinity University. **Moses Lee**, Dean of Natural and Applied Sciences, Professor of Chemistry; **James Boelkins**, Provost and Professor of Biology; both of Hope College.

- **Global Problems, Global Science** [Montpelier-Salon 2]

A basic life science course that implemented Sub-Saharan African issues to cover basic biological concepts was taught at three collaborating American institutions. Topics included HIV/AIDS, nutrition, and competition with wildlife. Collaborating with faculty and students from two Kenyan universities, the students here learned that environmental issues are commonplace globally. Their knowledge gain in the topics and attitude change also improved substantially.

Erica Kosal, Associate Professor, Biology, and Chair of Mathematics and Sciences Division, North Carolina Wesleyan College; **John Mecham**, Professor and Head of the Department of Biology and Health Sciences, Meredith College; **Pearl Fernandes**, Assistant Professor, Biology, University of South Carolina-Sumter; **Michael Otieno**, Kenyatta University, Kenya.

10:00am-10:30am Coffee Break [Montpelier Foyer]

11:00am-12:00pm CLOSING PLENARY [Madison Ballroom]

Young Men, Young Women and Fire: The Underappreciated Aesthetics of Scientific Understanding
Dr. Philip Glotzbach, President, Skidmore College

How does science fit into the overall scheme of liberal learning and, more importantly, why should our students care enough about it to become *scientifically literate*? What forms should that caring take – just what does it mean for a contemporary student to be scientifically literate? And what can we do, as educators, to create the conditions in which such literacy can flourish? This presentation explores these themes and describes how Skidmore College is using our unique Frances Young Tan Teaching Museum and Art Gallery to foster interdisciplinary appreciation of science through object exhibition.

Special Thanks

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AND THE PHI BETA KAPPA SOCIETY

BIENNIAL CONFERENCE PLANNING COMMITTEE

Conference Planning Committee Co-Chairs

John Churchill, Secretary
The Phi Beta Kappa Society
jchurchill@pbk.org

Ginny Coombs, ACAD Board Chair
Provost and VPAA Keuka College
gcoombs@mail.keuka.edu

Committee Members

Joseph W. Gordon, Deputy Dean and Dean of Undergraduate Instruction
Yale University
joseph.gordon@yale.edu

Angela Gosetti-Murrayjohn, Assistant Professor of Classics
University of Mary Washington
agosetti@umw.edu

Howard "Hank" Dobin, Dean of the College
Washington and Lee University
hdobin@wlu.edu

Jan Czechowski, VPAA and Dean of the Faculty
Washington and Jefferson College
jczechowski@washjeff.edu

Marjorie Hass, Provost
Muhlenberg College
mhass@muhlenberg.edu

Grady Ballenger, Dean College of Arts and Sciences
Stetson University
gballeng@stetson.edu