

## End-of-Program Review 2009-10

### ***Compelling Intellectual Experience(s) and Successful Pedagogical or Innovative Practice***

#### **Scientific Inquiry Programs**

<b>Program name</b>	<b>Faculty</b>	<b>For purposes of helping reflect on the range of teaching practices and experiences at the college, please identify the most compelling intellectual experience(s) in your program or the most successful or innovative pedagogical practice in your program.</b>
Astronomy & Cosmologies	EJ Zita	Essays and responses based on the Finkel Model Research projects by student teams Pre-seminar assignments: Points, Insights, and Questions generated by each student team the day before each seminar.
Atoms Molecules and Reactions II	Clyde Barlow	Applying theory to practice, for instance- 1. Visualizing in three dimensions the effect of small or bulky reagents in producing an organic reaction product of a specific geometry. Performing the reactions at different temperatures and isolating the products to determine the effect of temperature on the preferential formation of one geometry over the other (Stereochemical selectivity). Analyzing products by several instrumental methods to determine structure and concentration. Presenting results in formal papers and as oral presentations. 2. Reading federal guidelines for lead, copper, and arsenic in drinking water. Learning theory and practice of inductively coupled plasma mass spectrometry. Collecting and analyzing water from home drinking water sources. Writing formal paper evaluating the validity of the method and the sources of the three metal contaminants in the water. Presenting results in oral format.
Atoms, Molecules, Reactions III: Thermodynamics, Kinetics and Materials Chemistry	Krishna Chowdary	Independent Research Project (advanced research methods; finding, managing, reading primary literature references; scaffolded drafts to create a review article; weekly public presentations as research updates) Significant independent work outside of class combined with extended in-class workshop time.
Foundations of Health Science	Benjamin Simon, Nick Lalena	We had the students design and implement a human subjects experiment for part of our bioethics unit. This included preparing and submitting a proposal to the Human Subjects Review Board.

Introduction to Natural Science: Life, the Universe, and Everything	Krishna Chowdary, Clariss Dirks, Lydia McKinstry	Extensive pre- and post tests within disciplines, interdisciplinary, science process skills. Deliberate assessment of interdisciplinary science on homework, labs quizzes, exams. Integrated or linked labs. Teaching to broad science themes (thus not following traditional textbook presentation order). Joint seminar with philosophy program (Pailthorp's What's What) to discuss Cronon's Only Connect to engage in meaning of liberal education along with deliberate attention paid to five Foci and Six expectations. Overnight trip to Rialto Beach to apply and synthesize science content. Voluntary field trip to America Physical Society March Meeting in Portland. Significant spring group research project framed around writing a grant proposal, which included faculty reviewed annotated bibliography, experimental design, background and significance, and final proposal and public presentation at science Carnival and in class.
Mathematical Origins of Life	David McAvity	Small group workshops for problem solving, using white boards in the Quasr. This is where the active learning happened.
Mathematical Systems	Brian L. Walter	We used Inquiry-Based Learning for two subjects. In this mode, students spend all of the in-class time presenting their solutions to a carefully designed sequence of problems intended to lead them through a mathematical subject.
Models of Motion	Mario Gadea-Rivas	Presentations on history of science/participation in American Physics Society meetings/visit with the author of the textbooks.
MOLECULE TO ORGANISM	Paula Schofield	STUDENTS WORKED COLLABORATIVELY IN GROUPS OF 2-4 ON 10-WEEK LAB RESEARCH PROJECTS, CULMINATING IN PP PRESENTATIONS. THESE PROJECTS WERE INTERDISCIPLINARY BY NATURE, WERE STUDENT ORIGINATED, DESIGNED, AND IMPLEMENTED. THE SOPHISTICATED LAB METHODS AND SCIENTIFIC INSTRUMENTATION USED, AND COMMUNICATION OF IDEAS VIA A FINAL PRESENTATION SHOWED SYNTHESIS OF LEARNING ACROSS MANY SCIENTIFIC DISCIPLINES, AND SHOWED DEPTH OF LEARNING IN ALL OF THESE AREAS. MOREOVER THE HANDS-ON SKILLS AND DATA ANALYSIS SKILLS OF EACH STUDENTS WERE VERY APPARENT.
SOS: Experimental Science	Peter Pessiki	Allowing access to laboratories and having the expertise to assist students in their work. It is not just allowing access, it is me being there to answer questions and give guidance.
Sustainable Forestry	Dylan Fischer	Hands-on learning about conducting forestry operations.