ACUBE 46TH Annual Meeting
September 12-14, 2002
Columbia College
Chicago, IL

Visualizing and Communicating Environmental Issues

Preliminary Program

Thursday, September 12th

Noon – 6:00 PM  Field Trip to Mazon Creek  623 S. Wabash Building
Preregistration ($40.00), includes box lunch  1104 Conaway Cultural Center
6:00 - 8:00 PM  Registration and Reception  1104 Conaway Cultural Center
8:00 - 9:00 PM  Opening Session

Welcome to ACUBE:
ACUBE President: Malcolm Levin, University of Illinois – Springfield

Welcome to Columbia College:
Dr. Steve Kapelke, Provost/Vice President of Academic Affairs
and
Dr. Cheryl Johnson-Odim, Dean of School of Liberal Arts & Sciences

Program Chair: Bob Wallace, Ripon College
Local Arrangements Chair: Abour Cherif & Gerry Adams, Columbia College

OPENING ADDRESS (Public Welcome to Attend)
Waters of Wisconsin to the World — Drop of Life
David Kuckuk, Director, E.H. May Environmental Park
Sheboygan Co., WI

9:15 - 10:15 PM  Executive Committee Meeting  1104 Conaway Cultural Center
Friday, September 13th

7:00 AM - 5:00 PM
Registration table

7:00 - 8:00 AM Buffet Breakfast (by Interest Group)

9:00 AM - Noon SUSTAINING MEMBER EXHIBITS
(refreshments provided)

8:15-9:45 AM CONCURRENT WORKSHOP SESSIONS I

1. Developing distance courses in science in compliance with the A.D.A. Ateeq Al Arabi (Johnson County Community College)
2. Implementing computer technologies in the classroom: some new approaches. Robert Mahoney (Columbia College)
3. Investigative cases by community college faculty. Margaret Waterman & Ethel Stanley (Southeast MO State University & Beloit College)

9:50 – 10:20 AM SUSTAINING MEMBER EXHIBITS
(refreshments provided)

• NewSci Publishing Corporation
• Pearson Custom Publishing

9:50-10:20 AM POSTER SESSION I

1. Trichology: the science of hair — an interdisciplinary course for first-year college students. CANNON Charles, Abour Cherif, Sharron Jenkins, & Karl Larsen
2. Introducing the study of complex systems: building a conceptual and functional understanding using case-based inquiry. ANTHONY Richard A. & Lynn L. Gillie
3. Enhancing the Freshman/Senior Experience. BERGLAND, Mark
4. Harmful effects on whales and dolphins by ultra low frequency waves. CZECH, Natasha & D.M. Jedlicka
5. Dyes, fibers, and paper: a botany lab for non-biology majors. EGAN, Todd, J.Forrest Meekins, & Diane Maluso
6. Bimodal distributions, GILLIE, Lynn (Elmira College)
7. Math in Art and Nature. HANSON, Ann
8. Art students can collect valid field data, with a flare! JEDLICKA, Dianne M
9. Presenting poverty as an environmental problem: an interdisciplinary approach, NOWICKI, Alan (Highland Community College)
10. Student Projects on Environmental Issues.. POROMANSKA, Margarita
11. Recasting your Curriculum Vitae according to the Boyer (1990) of faculty development, WALLACE, Robert (Ripon College)

10:30 AM - noon CONCURRENT WORKSHOP SESSIONS II

1. Using a webcam to visualize biological processes with pedagogically inconvenient time scales. Steven D. Brewer (University of Massachusetts)
2. Cell receptors. Ann M. Larson (University of IL, Springfield)

Hokin Gallery

1104 Conaway Cultural Center

Hokin Hall & Hokin Gallery

Room 507

Room 509

Room 503

Hokin Hall & Hokin Gallery
3. Preparing faculty for entry level academic leadership positions. Stefanos Gialamas & Abour Cherif (DeVry University & Columbia College Chicago) Room 507

10:30 - 11:15 AM CONCURRENT PAPER SESSIONS I

1. The digital field trip. Austin Brooks (Wabash College) Room 203
2. Microbial community profiles of alkaline saline wetlands. Barbara J. Clement (Doan College) Room 405
3. Impacts of an inquiry-based Introductory Biology curriculum on student learning and attitudes. Terry Derting & Claire Fuller (Murray State University) Hokin Hall
4. Protein Synthesis. Gregory Grabowski (University of Detroit–Mercy) Room 509

11:20 - 12:05 AM CONCURRENT PAPER SESSIONS II

1. Toward a better understanding of the environment. Ben Ofari-Omoah & Abour Cherif (University of Wisconsin–Stevens Point; Columbia College) Room 203
2. Study abroad: cultural & natural history of St. Eustatices Island. Nancy Sanders (Truman State University) Room 509
3. "Dealing" with functional group recognition. Michael J. Welsh (Columbia College) Room 513
4. Student creative final projects as effective tools to maximize learning. Sharon Doering, Joella Sinda, & Abour Cherif (Illinois Institute of Art; Columbia College) Hokin Hall
5. Ethical theory & epidemiology: a case study involving the ebola virus. G.A. Griffith & H.E. Stark (South Suburban College) Room 405

12:15 - 1:00 PM Luncheon and First Business Meeting
First and Final Call for Nominations!! Conaway Cultural Center

1:00 - 1:45 PM Luncheon Program
Gone in 60 Seconds: The Evanescence of Scientific News
Jeff Lyon, Professor of Science Journalism, Columbia College & Senior Science Writer, The Chicago Tribune; author of Playing God in the Nursery
Conaway Cultural Center

2:00 - 5:00 PM SUSTAINING MEMBER EXHIBITS
(refreshments provided)
• NewSci Publishing Corporation
• Pearson Custom Publishing
Hokin Gallery

2:00–2:45 p.m CONCURRENT PAPER SESSIONS II

1. Redefining environmental priorities. David Arieti (Oakton Community College) Room 405
2. Interspecific competition experiments using fungi and fruit flies. Chester Wilson (University of St. Thomas) Room 507
3. Field experience as reinforcement to undergraduate awareness of contemporary environmental problems. N.C. Heywood et al. Room 203
2:50 - 3:20 PM  POSTER SESSION II  
Repeat of Poster Session I  
Hokin Gallery

3:30 - 5:00 PM  CONCURRENT WORKSHOP SESSIONS III
1. Cyber Science: a web-based science class. Sharron K. Jenkins (Columbia College Chicago)  
   Room 503
2. Distance education like white elephants: insect ID at a distance. Wyatt Hobach & Leon Higley (University of Nebraska, Kearney)  
   Room 511
3. Roundtable discussion for department chairs. Tom Davis (Loras College)  
   Room 507

5:05 - 5:45 PM  Web Committee Meeting  
Room 503

6:00 - 7:00 PM  Social  
(resumes of candidates available for review)  
Gold Room, Congress Hotel

7:00 - 9:00 PM  BANQUET and Second Business Meeting  
(two-minute speeches prior to banquet; balloting after dinner presentation)  
Gold Room, Congress Hotel

Dinner Presentation  
Teaching & communicating about integrative issues of health & disease  
Helen Davies, Ph.D., Department of Microbiology, School of Medicine, University of Pennsylvania

Saturday, September 14th

7:30 - 8:45 AM  Buffet Breakfast (by Interest Group)  
Conaway Cultural Center at 1104 S. Wabash

7:45 - 8:45 AM  Bioscene Editorial Board  
Conaway Cultural Center at 1104 S. Wabash

9:00 - 9:45 AM  CONCURRENT PAPER SESSION IV
1. Bioinformatics and environmental problem solving. Buzz Hoagland (Westfield State College)  
   Not Yet Assigned  
   Room 507
2. Ecology through art. Zachia Middlechild (Middlechild & Company)  
   Room 203
3. An international collaborative course on recombinant DNA technology. Presley Martin & Cynthia Bauerle (Hamline University)  
   Hokin Hall
4. Toward a better understanding of the environment. Ben Ofari-Omoh, Abour Cherif, & Senyo Adjibolosoo (University of Wisconsin–Stevens Point; Columbia College Chicago & Point Lama Nazerene University)  
   Room 405
5. Recycling of Non-Biodegradable Plastics to Protect the Environment. Sam Jody (Argonne National Laboratory)

10:00 - 10:45 AM  CONCURRENT PAPER SESSIONS V
1. Developing an environmental ethic: perspectives on the use of environmental philosophies in non-majors and majors courses. Kathleen Marr (Lakeland College)  
   Room 203
2. **The ongoing popularity of creatinism among biology teachers.** Randy Moore (*University of Minnesota*)

3. **Illusions: the eye, the brain, and the mind.** Peter Insley (Columbia College)

4. **Science and technology in forensic science.** A. Karl Larsen (*Illinois Police Forensic Science Laboratory Center, Chicago*)

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<th>Time</th>
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<td>11:00 AM - 12:15 PM</td>
<td>Luncheon and Third Business Meeting</td>
<td>Hokin Hall</td>
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<td><strong>BUSINESS MEETING</strong></td>
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<td><em>Lynn Gilley, Elmira College</em></td>
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<td><em>Dick Wilson, Rockhurst University</em></td>
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<td><em>Ethel Stanley, Beloit College &amp; Tim Mulkey, Indiana State University</em></td>
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<td><em>Malcolm Levin, SIU-Springfield</em></td>
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<td>2003 Meeting:</td>
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<td>12:30 - 1:15 PM</td>
<td><strong>Steering Committee Meeting</strong></td>
<td>Conaway Cultural Center</td>
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<td>Includes newly elected Steering Committee members!</td>
<td>at 1104S. Wabash</td>
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<td>12:30 – 3:30 PM</td>
<td><strong>SPECIAL FACULTY DEVELOPMENT OPPORTUNITY</strong></td>
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<td><em>Open session for local educators &amp; ACUBE Participants.</em></td>
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<td>2:00 – 6:00 PM</td>
<td><strong>Post conference Field Trip</strong></td>
<td>Meet at Best Western Hotel</td>
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<td><em>John G Shedd Aquarium</em></td>
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<td>5:30–9:30 PM</td>
<td><strong>DINNER WITH DARWIN !</strong></td>
<td>The Hot House: The Center</td>
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**DINNER WITH DARWIN** is a 4-hour social and intellectual event sponsored by the School of Liberal Arts and Sciences at Columbia College Chicago in conjunction with the 2002 ACUBE Conference "Visualizing and Communicating Biological & Environmental Issues;" the official annual conference of The Association of College and University Biology Educators (ACUBE). DINNER WITH DARWIN is open to educators from local colleges and universities as well as ACUBE Conference participants. The event will feature a panel discussion on the influence of The Origin of Species on a wide variety of areas of human endeavor. The panel will consist of highly respected scholars from the following disciplines: history, economics, mathematics, geography, artificial intelligence, art and design, music, photography, anthropology, psychology, literature, and philosophy. The Panel discussion will be moderated by the biologist, Professor Randy Moore, Dean of Arts & Sciences University of Minnesota, and the final remarks will be made by historian, Professor Cheryl Johnson-Odim, Dean of Liberal Arts and Sciences at Columbia College Chicago.

**DINNER WITH DARWIN** will start at 6:00 PM and end at 10:00 PM, Saturday night, September 14, and will cost $30.00. There will be music and other entertainment after the event.

Seats are limited; for additional information, or to reserve seats at this exciting intellectual event, contact Dr. Abour Cherif at Columbia College Chicago (phone: 312-344-7285; fax: 312-344-8075; e-mail address: acherif@popmail.colum.edu)
Abstracts of Oral Presentations, Workshops, & Posters

The abstracts listed here are those available at the time that this schedule was constructed; they are listed in alphabetical order by the last name of the first author.

**ALARABI**, Ateegh (Johnson County Community College, Overland Park, KS). Developing a distance learning science course in compliance with ADA. —PAPER I.1— Abstract: Do you have the desire to develop your own distance learning course, but you don't know where to start? Through this workshop you will learn about a teacher's experience in teaching science on the web. Pros and Cons will be discussed, along with tips on how to build and manage a difficult course on the web. You will be exposed to several options of the delivery media available to you and some solutions toward laboratory and field trip problems. I will present instruct you how to meet some of the requirements of the American Disability Act.

**ANTHONY**, Richard A. & Lynn L. Gillie (Rose-Hulman Institute of Technology, Terre Haute, IN & Elmira College, Elmir, NY). Introducing the study of complex systems: building a conceptual and functional understanding using case-based inquiry. —POSTER— Abstract. Studying complexity in biological systems can provide students with a holistic framework for further studies in the biological sciences. However, a functional understanding of complexity demands more than a definition of what complexity is - it requires an ability to dissect and methodically analyze the complexity within a given system. Herein, we present a robust and versatile approach for introducing undergraduate students to the study of complexity. The first of two exercises is designed to provide students with a conceptual understanding of complexity. The second involves analysis of a rich case study with both societal and scientific dimensions, and requires students to produce a diagrammatical model of the complexity inherent in their area of focus. Two variations of the approach are presented and discussed together with a preliminary assessment of student learning. It is our hope that this approach will prove efficacious for providing a broad spectrum of undergraduate students with a conceptual and functional understanding of the complexity in biological systems.

**ARIETI**, David (Oakton Community College, Des Plaines, IL). Redefining environmental priorities. —PAPER III.1— Abstract: After teaching Environmental Science for over 15 years at colleges around the country, I noticed that very few books cover topics like the priorities of politicians especially when it concerns the environment. Environmental science books cover topics such as water, air, and land pollution in a matter-of-fact way. I feel that in today’s world, when politicians on both sides of the aisle in The United States and in other countries are more concerned with polls and image than with very important environmental issues such as global warming and/or air pollution, it is incumbent on environmental science teachers to stress these issues. We as teachers do not have to be partisan, but we should stress these issues which are a matter of life and death for the planet rather than letting humans get bogged down in issues concerning human hatreds like the Arab-Palestinian dispute; the tribal wars in Rwanda and Burundi and the Indian-Pakistan conflict. It is correct that these issues weigh heavily on the minds of various politicians and they should try to resolve them, but I believe that we have to stress environmental concerns as well because if we allow these problems to get out of hand war will break out with devastating results including destruction of major life support ecosystems. We have to realize that if these countries go to war the entire world loses because of environmental destruction.

**BERGLAND**, Mark (Biology Department, University of Wisconsin-River Falls). Enhancing the Freshman/Senior Experience. —POSTER— Abstract: The freshman/senior experience in biology has been enhanced at UW-River Falls by two 1-credit courses, Freshman Colloquium (Biology 110) and Senior Colloquium (Biology 410). Biology 110 has been taught in the Biology Department since 1990. The course began as an orientation experience for new majors, and consisted primarily of presentations by faculty on a variety of topics. It evolved over time and now has a career emphasis, with students required to write a career paper based primarily on an interview with a professional working in the field of interest. This paper must be published as a web page, as the first entry in a web-based portfolio which highlights examples of the student's work throughout his or her academic career at UW-River Falls. These examples include other web-based projects (e.g. independent or collaborative research), or anything else that can be linked to a web page. In Biology 110, students learn how to use Dreamweaver, a popular web page editor,
and also learn how to convert digital documents to PDF files which can be linked to their portfolio. The course also includes presentations by personnel from the Library, Career Services, and the Biology Department. Students present their completed portfolios to their peers in Senior Colloquium, to better prepare themselves for entry into the job market and/or graduate and professional schools. We have found that the "bookend" nature of these two courses helps students to be better organized and focused on educational goals, and we highly recommend this approach to others interested in enhancing the freshman/senior experience.

**Brewer, Steven D. (University of Massachusetts, MA).** Using a webcam to visualize biological processes with pedagogically inconvenient time scales. — WORKSHOP II.1— Abstract: Not yet available.

**Brooks, Austin (Wabash College, Crawfordsville, IN).** Virtual field trips. — PAPER I.1— Abstract: In many biology courses student interests can be stimulated by including field trips that are apropos to the topics covered in the course. These off-campus excursions may involve traditional fieldwork, trips to museums or to commercial sites where biology is being used in practical ways. It is the latter category that I have regularly included in our non-majors, Plants and Human Affairs course. We typically visit a maple sugar camp, a veneering mill and a large plant biotechnology laboratory. Unfortunately some potentially outstanding field trips are not possible since the sites are too distant. While nothing substitutes for a live visit, the advent of high quality, consumer-grade digital video cameras and inexpensive, easy to use digital editing computer programs allow instructors to create virtual field trips that can give students a good sense of a biology-based business or a unique environment. In this presentation, we shall view a virtual field trip to the Taos (NM) Herb Company where plants are processed and formulated to make herbal medicines. The session will also include a segment on Apple Computer's, iMovie 2, the computer program used to edit the raw video footage used to create the trip to Taos Herb Co.

**Cannon, Charles, Abour Cherif, Sharron Jenkins, & Karl Larsen (Columbia College Chicago & Chicago Crime Laboratory, IL).** Trichology: the science of hair — an interdisciplinary course for first-year college students. — POSTER— Abstract: In this presentation we will discuss an interdisciplinary course for first-year students that is centered around the science of hair: Trichology. In this class, students use human hairs to explore and study the nature of science and core concepts in biochemistry, biophysics, hereditary, forensic science, cosmetics, etc., in an integrated approach. In The Science of Hair, we find ourselves exploring human heredity, protein synthesis/structure, health and wellness, solving criminal mysteries, inheritable and non-inheritable hair loss, and spending billions on hair products for personal beautification. In the United States alone, every year, industry and scientific laboratories spend billions of dollars searching and experimenting with new herbs, minerals and chemicals to manufacture new hair products. Business and marketing sectors also spend billions of dollars to make these new products known to us, and in turn, we spend billions of dollars buying products that help us make our hair the way we want. We spend significant time and money, as someone puts it, "cutting, combing, brushing, conditioning, coloring, curling, slashing, spraying, and growing our hair to convey style that has a language all its own." Unfortunately however, Trichology has been the forgotten science in biological education.

**Clement, Barbara J. (Doan College).** Microbial community profiles of alkaline saline wetlands. — PAPER I.2— Abstract: Not yet available.

**Czech, Natasha & D.M. Jedlicka (Columbia College Chicago).** Harmful effects on whales and dolphins by ultra low frequency waves. — POSTER— Abstract: Whales and dolphins are very sensitive to ultra low frequency (ULF) sounds. These ULF sound waves travel well through water. ULF sound waves are emitted from the whale/dolphin and will return to the animal after the waves have reached an object (e.g., bounce back after reaching a school of fish). Modern ships, including naval ships contacting submarines and vice versa, are filling the ocean's waters with these ULF sound waves which may confuse the interpretation of food sources by the whales/dolphins and/or actually may cause damage to the ear. Beaching of whales/dolphins and/or bleeding of the ear could be the results of the increased number of ULF sounds in our oceans. Current literature and personal observations will examine these possibilities.

**Davies, Helen Conrad** (University of Pennsylvania, School of Medicine; Past National President, Association for Women in Science) — Banquet Presentation — Over the decades of teaching Microbiology, Mechanisms of Infection, and Infectious Diseases to vast numbers of undergraduate, graduate and medical students, this medical school professor has found that reworking lyrics to well known songs is a way to help future scientists and physicians retain crucial information. Even students who can easily retain large amounts of important factual material, find that setting the basic information to music is fun. These students also enjoy teaching others with infectious tunes.

Helen C. Davies received her Ph.D. in Physical Biochemistry from the University of Pennsylvania (1960), her B.A. (Chemistry) from Brooklyn College, and M.S. (Biochemistry) from the University of Rochester.
The first woman faculty member named to the University of Pennsylvania's Microbiology Department (in 1965), she has been a full professor there since 1982 and Academic Coordinator of her Department for the past 14 years. She also served as Associate Dean for Student Affairs of the School of Medicine from 1991 to 1995.

Her primary research is in the field of bioenergetics, and she has worked with her graduate students on reactions of mitochondrial and bacterial cytochromes, using kinetic, immunological, and molecular biological techniques. She has investigated virulence factors of Streptococci, and bioenergetics of Paracoccus denitrificans and Haemophilus organisms. Another field of research that is of importance to her is the recruitment and retention of minority group members and women in biomedical careers. For this work, she was selected the 1999 recipient of the Lifetime Mentor Award of the American Association for the Advancement of Science.

Teaching is very important to her and she has received 19 major teaching awards, including Penn’s all-University Lindback Award for Distinguished Teaching; one of the two Distinguished Basic Science Educator Award awards given in the Medical School; and the Trustees Council of Penn Women’s Award for Generations of Academic Excellence. Her memorable teaching technique is the performance of original song parodies and light verse encapsulating the basics of infectious diseases, their symptoms and mechanisms. At an award presentation, she was given a plaque that said medical students and undergraduates studying infectious diseases remember for years what she taught “using aids that are mnemonic about the chronic, embryonic, euphonic, and the tonic.” She is the first woman to ever receive the American Medical Student Association’s National Excellence in Teaching Award (March, 2001). She was interviewed by National Public Radio and Voice of America, (May 2001) on her innovative ways of teaching about emerging infectious diseases.

The first woman faculty member to be designated a Master of a College House at the University of Pennsylvania, she lives with 380 undergraduate students, many of whom have chosen to live in her House because of their expressed interest in either the field of infectious diseases or the history and sociology of women in science.

Out of concern with the advancement of women in academe and in science, she helped to form Women for Equal Opportunity at the University of Pennsylvania in 1969. In 1973, she was appointed by the Governor of Pennsylvania to the Board of Trustees of the Pennsylvania State University for six years, and worked on the Board’s Committee on the Status of Women. Not limiting her interest to her own institution and region, Dr. Davies became a founding member of the Association for Women in Science (AWIS) 27 years ago and was elected to be AWIS’s National President in 1998–2000.

DAVIS, Tom (Department of Biology, Loras College, Dubuque, IA). Roundtable discussion for department chairs. —WORKSHOP III.3— Abstract: This session will be a discussion of the daily challenges and duties of Biology Department Chairpeople. Many of us face similar situations, responsibilities, and reports, but handle them according to the specific circumstances present. However, we rarely have the opportunity to share how we handle these duties with other chairs. Any current, prospective or past departmental chairs are invited to join this informal discussion that could explore topics like current methods of faculty evaluation, successful methods for communicating with Admissions, recruitment of students to your department, marketing department resources to enhance department visibility, grants and funding sources to enhance department equipment or programs, content, success and administration of interdepartmental majors, departmental accountability to the college, and annual assessment strategies of majors. Please contact me prior to the meeting or session if there are other specific topics that you would like discussed in this session.

DERTING, Terry L. & Claire Fuller (Department of Biological Sciences, BL 334, Murray State University, Murray, KY). Impacts of an inquiry-based introductory biology curriculum on student learning and attitudes. — PAPER I.3— Abstract: In an effort to improve student learning and success within the biology major, we have developed and implemented a new introductory biology curriculum, supported by an NSF CCLI-A1 grant. The curriculum focuses on active inquiry as a means of helping students develop a more in-depth and meaningful understanding of biological concepts. Two new courses to be taken upon entry into the curriculum have been implemented. One, Biological Inquiry and Analysis, focuses on understanding of biology as a process of inquiry. Students conduct three research projects during the semester. Each project includes the development of testable hypotheses, presentation of an oral proposal of their research, developing and implementing appropriate method, data analysis, and peer review of final research papers and posters. The second course, The Cellular Basis of Life uses a case-based approach to understanding basic concepts of cellular and molecular biology. Students then take two revised courses, Animal Form and Function and Plant Form and Function. These two courses now incorporate inquiry-based activities and a greater emphasis on physiological and ecological concepts. We will present an

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overview of the new curriculum and results of assessment data on content knowledge, student confidence in relation to conceptual learning and their scientific abilities, and attitudes towards science and its role in society.

EGAN, Todd P., J. Forrest Meekins, & Diane Maluso (Department of Biology, Elmira College, NY). Dyes, fibers, and paper: a botany lab for non-biology majors. —POSTER— Abstract: This laboratory afforded hands-on experience in learning about traditional dyes, fiber strength, and paper making. It was economical and simple to prepare. (1) Dyes: natural colors were extracted from plant tissue including coffee beans, berries, spinach leaves, and beet roots. Hard-boiled eggs were placed in the dye for 15 minutes to determine what colors each dye would produce. Colors of the eggs were somewhat different than the colors of the dye. (2) Fibers: twine from different materials (cotton, jute, hemp, etc.) was procured from local hardware stores. Filaments were removed from the twine and a stress test was used to determine the strength to weight ratio for each fiber type. Twine from each fiber type was used to make rope using the rope-maker from the Boy Scout's Pioneering Merit Badge Pamphlet. (3) Paper: recycled fibers were suspended in water, and a deckle made of a picture frame and chicken wire was used to collect and press the fibers. Students have a high amount of interest in this laboratory.

FITCH, Greg K. & Stephen S. Daggett (Department of Biology, Avila University, Kansas City MO). Assessing the impact of a biology curriculum on biological knowledge and skills of undergraduates majoring in biology. — PAPER III.4 — Abstract: It is useful to know how much biology a major understands and what kinds of laboratory and communication skills the student has when he or she graduates. It is also desirable to know how much improvement the student has made in these three areas during his or her exposure to higher education. Previously, assessments of these items at Avila University have been tied to specific courses. We are now in the process of developing and implementing an on-going assessment program that is not tied to specific courses. Three items have been identified that are important to each biology major upon graduation: (1) knowledge of living things and processes that govern them, (2) the acquisition of laboratory skills and techniques, and (3) the ability to communicate scientific knowledge to others. The assessment program being developed attempts to assess one (or a few) aspects(s) of each of the three items. To measure knowledge about several key biological concepts, we have constructed several versions of a written test. The test covers several concepts in biology about which we think all majors should know. To measure the acquisition of one laboratory skill, we are designing a tool to assess how well a student is able to use a microscope. This test will be scored using a rubric that allows the student to be graded on a variety of technique issues. To measure one aspect of the ability to communicate scientific knowledge, students will be videotaped giving oral presentations of student research projects. The videotaped presentations will be scored using a rubric designed to measure communication skills, particularly as those skills relate to scientific presentations. Each assessment measure (the written test, the microscope skills test, and the taped oral presentation) is administered to the student at two different times: during his or her first semester, and after either four semesters (for the written and microscope skills tests) or eight semesters (for the oral presentations). Thus, we hope to collect for each biology major a "before college" and "during or after college" measurement for level of biological understanding, for one laboratory skill, and for one communication skill. The resulting data are expected to be useful in recruiting, accreditation visits, and (most importantly) course and curriculum reform. In addition, it will be possible to give each individual major a "profile" during his or her final semester that shows how much improvement he or she has made and where he or she may still be deficient.

GIALAMAS, Stefanos & Abour Cherif (DeVry University & Columbia College Chicago, IL). Preparing faculty for entry level academic leadership positions. —WORKSHOP II.3— Abstract: This workshop focuses on preparing faculty for entry level academic leadership positions (department chairs, heads, directors, etc). The participants will be introduced to a comprehensive program that has been implemented at a multi-campus institution where teaching is the primary focus of faculty. The processes of developing a mission and purposes of a department, faculty recruiting, training, development and performance evaluation, curriculum design, development, and assessment, will be explored. Participants will also be engaged in activities simulating the implementation of components of the program.

In recent years, most institutions have directed a great deal of attention and amount of resources toward the design and implementation of faculty development programs. Programs focused on the development of future academic leaders, specifically department chairpersons, heads, etc are still rare. As such, it is the presenters’ hope that their counterparts at other institutions would find a great value and interest in learning about an academic leadership program that has been designed, implemented, evaluated, and revised based on the recommendations of both past participants and experienced department chairpersons, and heads.

The objectives of the session are: (1) to introduce participants to a comprehensive program that prepares faculty to assume entry level academic leadership positions; (2) to provide participants with a practical framework which they can use to begin to build their own academic leadership development program; (3) to engage participants in a variety of activities that will familiarize them with key elements of our program for implementation at their institutions.
The primary target audience would include faculty who anticipate moving into an entry-level academic leadership position. The session will be very active and learner-centered including a variety of activities such as having participants develop/revise their unit’s missions, designing faculty professional development plans, performance reviews and recruiting faculty. Topics will include: Strategies defining the mission and vision of the unit in line with the mission of the institution; Strategies for recruiting, training, developing and evaluating faculty; Strategies for curriculum design, implementation and assessment; and, Strategies for developing leadership skills.

GILLIE, Lynn L. (Department of Biology, Elmira College, Elmira, NY). Bimodal grade distributions in biology courses. —POSTER— Abstract: Populations of students that differ greatly in preparedness, motivation, or ability can be a great challenge to teach in the same classroom. A bimodal grade distribution may be one indicator of such a mixed set of students. Several class situations with bimodal grade distributions can be described: non-science majors mixed with biology majors; freshman biology majors in their first biology class; and even upper-level biology majors. However, reasons for these distributions may differ in each case, and may differ among particular colleges and universities. Data will be presented for three different courses taught at a small, Liberal Arts College: a non-majors course, an introductory biology course, and an upper-level biology course. A bimodal grade distribution tends to be most pronounced early in the semester and becomes less apparent by the end of the term, although the trend will still be measurable in many cases. Some strategies for teaching this type of group will be discussed.

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GRIFFITH, G.A. & H.E. Stark (South Suburban College, IL). Ethical theory and epidemiology: A case study involving the ebola virus. —CURRENT PAPER SESSION II— It is not uncommon for biologists, in discussing ethically laden biological phenomena, to slip in moral conclusions without offering a full and explicit account of the ethical concepts and principles behind those conclusions. It is not uncommon for philosophers, in discussing ethical theory in relation to environmental issues, to spin a web of moral “oughts” that are far removed from the subtle facts of real world biology. An interdisciplinary approach, drawing on both biology and philosophy, can help avoid these pitfalls. The destruction of the natural environment of the Ebola virus provides an example of how such an interdisciplinary approach may be used.

HANSON, Ann (Columbia College Chicago, IL). Math in Art and Nature. —POSTER— This poster session will describe the course, Math and Art and Nature, which is taught by Ann Hanson at Columbia College Chicago. The course is a type of geometry course which relates geometric figures to nature; such as, the triangular shape to a butterfly and/or relates geometric figures to art; such as, in M. C. Escher’s tessellations. Using a compass and straightedge, students learn how to do geometric constructions; as well as, how to construct the Golden Ratio or a spiral or the lute of Pythagoras. Students study constructions, triangles, quadrilaterals, dynamic rectangles, the Golden Ratio, Fibonacci numbers and spirals. After the students learn about the Fibonacci numbers, for example, they also see how that knowledge, especially biological knowledge, can be used to create a work of art. Samples of student artwork will be shown as well as some of the handouts.

HEYWOOD, N.C., K.P. Hefferan, M.E. Ritter, D. Post, P. Gasque, R. Bell, & R. Reser (University of Wisconsin—Stevens Point, WI). Field Experience as Reinforcement to Undergraduate Awareness of Contemporary Environmental Problems. —PAPER III.3— Long field trips to distant and unfamiliar locations affords superb opportunities for undergraduate students to reinforce prior classroom lessons, devise and practice acquisition and analysis of field data, advance their own professional development, and volunteer service to host agencies. Such excursions entail far greater expectations than mere sightseeing. With appropriate preparation and guidance, participants concurrently can experience the collaborative continuum of proposal, execution, analysis, and communication about a variety of environmental issues. Our field experiences have resulted in much faculty and student research for capstone projects, professional presentations, and publications. The focus has been eclectic yet cooperative, and includes such topics as historical bioclimatic habitat change assessment, satellite-assisted mapping of geologic formations and biosphere preserves, and analysis of catastrophic disturbance. Various student participants have visited such remote (and for Midwesterners, exotic) destinations as the North American and North African deserts, and most subsequently have further presented their work at local, regional, national, and international professional meetings. Our contentions are that (1) student and faculty participants who conform to the overall spirit and continuity of an excursion accrue substantial personal enrichment, & (2) there remains great need to extend cooperative field opportunities complementing classroom and technical competencies to more students and faculty.

HOBACH, Wyatt & Leon Higley (University of Nebraska, Kearney, NB). Distance education like white elephants: insect ID at a distance. —WORKSHOP III.2— Abstract: Not yet available.
CYBER-SCIENCE: a web-based science class. Abstract: The "Cyber-Science: Web-based Science Class" is a hands-on workshop designed to demonstrate the resourcefulness of the World Wide Web in enhancing the development of interdisciplinary science courses. Using a previously designed course called "The Biology of AIDS: The Life of A Virus", workshop participants will be guided through an "internet-based" curriculum that uses the topic of "AIDS biology" to develop basic scientific literacy. Through the study of the biological progression of HIV disease, the life cycle of HIV, and AIDS, students are exposed to basic concepts in general biology, chemistry, immunology and human disease. This type of course incorporates the elements of distance learning with traditional teaching methodology in which students are able to extend learning beyond the classroom and into their everyday life. The course format incorporates lectures with internet-based research activities and student-initiated discussions. "Web-based" science allows the instructor to incorporate interdisciplinary activities into a non-traditional science course and motivates proactive participation from students. "Cyber-Science" is a great way to enhance your science curriculum.

JODY, Sam (Argonne National Laboratory). Recycling of non-biodegradable plastics to protect the environment. —PAPER IV.1— Abstract: Not yet available.

KHALILI, Mahmoud & Hemati Hila (Northeastern Illinois University & Ravenswood Medical Center, Chicago, IL). Photodynamic therapy of cancer cells. —PAPER II.1— Abstract: Not yet available.


MAHONEY, Robert (Columbia College Chicago, Chicago, IL). Implementing computer technologies in the classroom: some new approaches. —WORKSHOP I.2— Abstract: A discussion of how recent developments in computer technologies may well revolutionize the teaching and grading of science and math concepts, both in the classroom and on the web. Topics covered will include the following: solving the broadband – narrowband problem; using overlays with movies; using interactive flash technology; using "Living Book Technology™"; improving academic integrity through new testing mechanisms; solving the high school science teacher shortage problem; and democratizing Advanced Placement™ for inner city youth.


MARTIN, Presley & Cynthia Bauerle, (Hamline University, MN). An international collaborative course on recombinant DNA technology. —PAPER IV.3— Abstract: Not yet available.

MIDDLECHILD, Zachia (Middlechild & Co. Evanston, Illinois & Columbia College Chicago, IL). Ecology through art: a course for arts, media and communication students. —PAPER IV.2— Abstract: In this presentation, I will talk about the development and teaching of an ecology course that is design specifically for Art, Media and Communications students. I will show how this course capitalizes on the use of visual thinking and expression, primarily drawing, to learn scientific and ecological concepts, and their assessment. It is specifically designed for
those students in the Arts who think, learn, and express their understanding visually, and who would benefit from a
course taught in this manner. For example, using sketchbooks and materials provided by the instructor, the students
complete drawings of different kinds of ecosystems showing how different kinds of ecosystems (temperate forest,
grasslands, oceans, etc.) different organisms interact with their environments. We will have researched through
various literary and visual sources, (internet, library, Science & Math Department, hand-outs from instructor, and
textbook). Through drawing, and painting students will "see" how an ecosystem works, and will then be able to
describe not only visually, but also in words their understanding of the ecological principles and concepts. The
perquisite for this course is Beginning Drawing from the Art Department or equivalent, or permission from the
instructor.

MOORE, Randy (General College, University of Minnesota, Minneapolis, MN). The ongoing popularity of
creationism among biology teachers. —PAPER V.2— Abstract: The "standards-based reform" of education has
become overwhelmingly popular. In biology, a centerpiece of many states' standards is the treatment of evolution.
Although evolution is the unifying concept in biology, relatively large percentages of biology teachers continue to
reject it in favor or creationism. In this talk I will present data showing how biology teachers' attitudes and actions
regarding the teaching of evolution correlate with their state's standards for teaching evolution.

NOWICKI, Alan, (Highland Community College). Presenting poverty as an environmental problem: an
interdisciplinary approach. —POSTER— Abstract: Not yet available.

POROMANSKA, Margarita (Columbia College Chicago). Student Projects on Environmental Issues. —
POSTER— Abstract: Not yet available.

OFARI-O MOAH, Ben, Abour Cherif, & Senyo Adjibolosoo (University of Wisconsin–Stevens Point, Columbia
College Chicago & Point Lama Nazeren University, San Diego, CA). Toward a better understanding of the
environment in the 21st century. —PAPER IV.4— Abstract: Over the past two decades or so, important
strides have been made towards environmental consciousness. For example, our attitudes towards the environment
have changed from less to more concern. We are now recycling a lot of materials that a decade ago we threw away
as garbage. In addition, the environment has become an important feature in school and college curricula, while
new business and community development projects have become increasingly evaluated for their environmental
impact. However, our understanding and actions regarding the environment are still based in two knowledge
compartments, namely ecology and economics (Grizzie, 1995). While this in itself has limited the scope for a better
understanding of the environment, the situation has been further aggravated by the tendency to pitch ecology against
economics in most environmental discussions. Thus, on the one hand, extreme environmentalists believe that
economics (more specifically economic progress) is the source of environmental breakdown. On the other hand,
conservative economists and businesses believe that environmentalist views are anti-economic progress (Carson
1965; Lorraine, 1972; Goldsmith et al, 1972; Curry-Lindahl, 1972; and Caldwell, 1972, Bartelmus, 1994). While
recent efforts have tried to resolve this controversy, these efforts have not been very successful and traces of such
confrontational views still remain.

This paper is of the view that a better understanding of the environment matters to everyone, not only to those
who become ecologists or environmentalists. However, in order to obtain this understanding we need to go beyond
economy and ecology. We need to develop a productive understanding that will enable us to see the environment as
a concordant among mind, nature, and wise action. We outline the main elements of this productive understanding
and show how each of the elements can help us achieve a better understanding of the environment. To achieve this,
we need to "employ a model that moves us from becoming aware of total environment, to giving us knowledge,
attitudes and skills, to finally empowering us to take positive environmental action." (Bacher 's, 1991, p. 31). This in
turn should help us make productive understanding a part of our own system of thought and behavior.


RASINARIU, Constantin (Columbia College Chicago). An accelerated introduction into the main features of
Maple, a math tool. —WORKSHOP I.4— Abstract: Used in many colleges and universities around the world,
Maple is a spectacular math tool able to manipulate a wide class of problems ranging from solving simple equations
to sophisticated differential equations. Complementing the symbolic operations there is a large set of graphics
routines for visualizing (in 2-d or 3-d) mathematical information. This workshop represents an accelerated

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introduction into the main features of Maple. It is organized in two parts. In first part the basics of Maple will be presented, which include the Maple interface, the help system, basic commands, numerical and symbolical calculations, algebraic manipulations and graphing. Each subject is introduced through numerous examples ranging from simple to not so simple. In the second part will be presented animations, solving equations and systems of equations (exact and numerical solutions), calculus and basic Maple programming. We conclude this workshop by discussing about Maple capabilities to export the worksheets directly ready for web or as Word documents. All the examples presented here will be included on the floppy disc attached to the workshop handouts.


SINDA, Joella, Sharon Doering, & Abour Cherif (Illinois Institute of Arts & Columbia College Chicago, IL). Student creative final project as effective tools to maximizing learning and understanding of biology. —PAPER II.4— Abstract: Freedom, imagination, creativity, critical thinking, scientific method, and humanizing science are elements that must be encouraged, developed, and nourished among students in order for them to make use of science and mathematics as permanent features of their lives as well as their professional careers (Cherif & Gialamas, 2000). Student Creative final project is an effective approach that engages students in exploring a given biological concept and producing a significant and substantial creative work that reflects their true understanding of the subject through media of their own choosing. In doing so, class final creative project becomes an educational instrument that helps to maximize students' learning and understanding.

In these kind of educational projects, students undertake a semester-long project, either individually or in pairs, to explore biological concepts utilizing their skills, creativity, and their professional choices. Students are encouraged to work in pairs as a collaborative work force, sharing ideas, creative styles and problem-solving methods. In this presentation, we will explain the approach's techniques, assessment, and the philosophy behind the student's final project approach to maximize learning and understanding. Then we will give successful examples of final projects in various areas of biology. Finally, we will share with the participants our own experiences and techniques that we have found successful in helping students produce high quality final creative projects in various biological concepts. In addition we will share successful evaluation and assessment techniques as well as strategies that ensure high quality projects.


WALLACE, Robert L. (Ripon College, WI). Recasting your Curriculum Vitae according to the Boyer (1990) model of faculty development. —POSTER— Abstract: ACUBE's purpose is to promote undergraduate education in the biological sciences. In the larger scope of undergraduate education that is, or at least should be, the primary goal for all colleges and universities in our country, after all this where our mission was founded. (Of course, this view is Pollyanna-ish in the extreme; research alone appears sovereign!) Nevertheless, when many colleges advertise for positions they expect broadly based, resourceful teacher-scholars, with a clear emphasis on the teacher part. Moreover, department chairs are usually responsible for the evaluation of established faculty members. In spite of these facts, most of the Curriculum Vitae (CVs) that I have seen are constructed to privilege the research agenda of the applicant/faculty member, even when there is a richer curriculum hidden within the résumé. I believe that ACUBE members should adopt the Boyer Model of faculty development (Boyer, 1990). The model states that there are four kinds of scholarship (below) and that all faculty members need to be engaged, at some meaningful level, and for some significant amount of time, in each. Beginning faculty might have more research than anything else to list on their CVs, but some point in one's career a better balance is achieved. These scholarships are the (1) Scholarship of Discovery, (2) Scholarship of Integration, (3) Scholarship of Application, and (4) Scholarship of Teaching. Here I demonstrate that a simple rearrangement of one's CV to the Boyer Model presents a different picture of the applicant/faculty member. Because this broad view of scholarship highlights strengths and weaknesses within all aspects of one's collegiate life, the Boyer model can be a useful tool in faculty development.

WATERMAN, Margaret & Ethel Stanley (Southeast Missouri State University mwaternan@semo.edu & BioQUEST, Beloit College, WI stanleye@beloit.edu) Investigative Cases by Community College Faculty. —WORKSHOP I.3— Abstract: Join us as we take a closer look at investigative case-based learning (ICBL) modules produced by community college faculty during the LifeLines OnLine summer institutes. To date, over thirty case modules offer exploration of biological topics such as microbial populations in a bath sponge, examining snake taxa using venom proteins, and revisiting meiosis with twin sisters. In this session, we invite participants to use two of the latest cases, to explore additional cases and to discuss implementing these cases in the classroom. See http://bioquest.org/lifelines for more information.
**WELSH, Michael J.** (Columbia College Chicago, IL). *"Dealing" with functional group recognition.* — **PAPER II.3— Abstract:** The recognition and identification of organic functional groups, while essential for chemistry and biology majors, are also very useful for non-science majors in the study of molecules in art and life. In order to make this task more palatable for the non-science major (art and communications students), the images of a traditional playing deck of cards (heart, spade, diamond, and club) have been replaced with four representations of the most common organic functional groups. The IUPAC hierarchy rules for naming two groups in a molecule was incorporated to represent the sequence (King, Queen, Jack, ... Ace) of the deck. Students are assisted in the recognition and identification of organic groups by playing simple card games of "Old Maid" and "Go Fish". To play games like "Poker" or "Gin", a student must not only recognize the functional groups, but also master the naming hierarchy of the organic groups.

**WILSON, Chester** (University of St. Thomas). *Interspecific competition experiments using fungi and fruit flies.* — **PAPER III.2— Abstract:** Not yet available.

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**Call for Nominations**

**Bioscene Editorial Board**

We are soliciting nominations for four (4) *Bioscene* Editorial Board positions (term 2003-2005). Board members provide input concerning the publication of *Bioscene* to the Editors. Board members provide rapid review of manuscripts as requested. Board members are expected to assist in the solicitation of manuscripts and cover art for *Bioscene*. Board members are expected to provide assistance in proofing the final copy of *Bioscene* prior to publication.

If you are interested in serving a three-year term on the Editorial Board, please e-mail the editors by September 1, 2002.

Ethel Stanley -- stanleye@beloit.edu
Timothy Mulkey -- mulkey@biology.indstate.edu

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**Call for Applications**

**John Carlock Award**

This Award was established to encourage biologists in the early stages of their professional careers to become involved with and excited by the profession of biology teaching. To this end, the Award provides partial support for graduate students in the field of Biology to attend the Fall Meeting of ACUBE.

**Guidelines:** The applicant must be actively pursuing graduate work in Biology. He/she must have the support of an active member of ACUBE. The Award will help defray the cost of attending the Fall meeting of ACUBE. The recipient of the Award will receive a certificate or plaque that will be presented at the annual banquet; and the Executive Secretary will provide the recipient with letters that might be useful in furthering her/his career in teaching. The recipient is expected to submit a brief report on how he/she benefited by attendance at the meeting. This report will be published in Bioscene.

**Application:** Applications, in the form of a letter, can be submitted anytime during the year. The application letter should include a statement indicating how attendance at the ACUBE meeting will further her/his professional growth and be accompanied by a letter of recommendation from a member of ACUBE. Send application information to:

Dr. William J. Brett, Department of Life Sciences, Indiana State University, Terre Haute, IN 47809; Voice -- (812) 237-2392  FAX (812) 237-4480; E-mail -- lsbrett@scifac.indstate.edu

If you wish to contribute to the John Carlock Award fund, please send check to: Dr. Pres Martin, Executive Secretary, ACUBE, Department of Biology, Hamline University, 1536 Hewitt Ave., St. Paul, MN 55104.