



**Session 1c****LC 241 A/B****Serving and Learning Abroad****Bucknell in Northern Ireland***Bill Flack, Psychology, Bucknell University***Three Week Bucknell in Nicaragua Summer Program***Paul Susman, Geography; Don Stechsulte, Student Health Services, Bucknell University***Teaching/Learning Ecologically Balanced Economic Development and Self-Agency in El Convento, Honduras***Joshua Smith, Mechanical Engineering; Gladstone Hutchinson, Economics, Lafayette College***Short-Term Interdisciplinary Study Abroad Programs at Lafayette College***Michael S. Jordan, International and Off-Campus Education, Lafayette College.***Session 1d****LC 217****The POWER of the Patriot League****The POWER of Patriot League: Enhancement of Learning Communities through Creative Global Connections***Arthur Kney, Nancy Ball, Lafayette College; Traci Shoemaker, Spring Cove School District; Danuta Bukatko, College of the Holy Cross; Angela Moran, U.S. Naval Academy; Joe Colosi, DeSales University***Session 1e****LC 241 C/D****Kinesthetic and Experiential Learning in Public and Class Spaces****Performing Poetry on the Quad***Virginia Zimmerman, English, Bucknell University***Reading Poetry in Public Spaces***Michelle Allen-Emerson, English, U.S. Naval Academy***Greek Mythology, Astronomy, Space Science: The Interdisciplinary Poster Exhibition "Myths in the Skies"***Markus Dubischar, Foreign Languages and Literatures, Lafayette College***Experiential Anthropology's Contribution to Engaged Learning: Ritual Reenactments in the Classroom as an Alternative Pedagogy***Michelle C. Johnson, Anthropology, Bucknell University*

**Session 2a**

LC 213, Walls Lounge

**Practical Pedagogical Approaches for Teaching and Learning****Jigsaw Method in Intermediate Macroeconomics***Rae Jean Goodman, Economics, U.S. Naval Academy***What Cognitive Psychology Can Teach Us About Learning***Jennifer Talarico, Psychology, Lafayette College***Small Group Discussion in a Lecture-Style Class***Greg Reihman, Director of Faculty Development, Lehigh University***Session 2b**

LC 256, Center Room

**Where to Start in STEM****Starting With the Good Stuff***Christopher Keating, Physics, U.S. Naval Academy***Teaching Material and Energy Balances to First-Year Students Using Cooperative Team-Based Projects and Labs***Michael E. Hanyak, Jr., Timothy M. Raymond, Chemical Engineering, Bucknell University***Emerging Leaders: A Summer Program for Underrepresented Groups in STEM***Chawne Kimber, Mathematics, Director of the Summer Program to Advance Leadership in STEM, Lafayette College***Session 2c**

LC 217

**Lots of Learning in A Little Time: Educational Alternative Break Programs****The Impact of Participating on the Bucknell Katrina Recovery Team***Tammy Hiller, Management, Bucknell University***From Disaster Relief to Community Development: Reflections from a Long-Term Partnership***Janice Butler, Director of Service-Learning, Bucknell University*

## Session 2d

LC 241 A/B

**Using Simulations in the Classroom****Computer Simulations - An Introduction to Scientific Research***Katharina Vollmayr-Lee, Physics & Astronomy, Bucknell University***Blending Interactive Simulation Technology into Traditional Pedagogy to Teach Ethical Decision Making***Elizabeth Holmes, Director of Assessment, United States Naval Academy, Stockdale Center for Ethical Leadership***Using Virtual Corporate Reality (VCR) to Engage Students' Exploration of Economic Principles***Christopher Ruebeck, Economics, Lafayette College*

## Session 2e

Samek Gallery\*

**Pedagogy and Art: Connecting Galleries and Exhibits with Course Material****Supporting Alternative Pedagogies - The University Art Museum/Gallery as Cross-Disciplinary Lab***Dan Mills, Samek Art Gallery; Steve Stamos, Economics, Bucknell University; Michiko Okaya, Director of Lafayette Art Galleries, Lafayette College; Ricardo Viera, Director/Curator, Lehigh University Art Galleries, Lehigh University*

## Session 3a

LC 217

**Panel Discussion: Trying Innovative Pedagogies as an Untenured Faculty Member***Joe Tranquillo, Bucknell University; Bryan Englehardt, College of the Holy Cross*


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\* The Samek Gallery is located on the third floor of the Langone Center.

**Session 3b**

LC 213, Walls Lounge

**Hands-On Teaching in STEM Courses****Reliability of Structural Wire in Heart Valves Subjected to Very High Cycle Fatigue***D. Gary Harlow, Mechanical Engineering and Mechanics, Lehigh University***Enhancing Biomedical Engineering Courses with an Integrated Lecture-Lab Approach***Daniel Cavanagh, Joseph Tranquillo, Donna M. Ebenstein, Biomedical Engineering, Bucknell University***Experiments for Statics***Jeffrey Helm, Mechanical Engineering, Lafayette College***Session 3c**

LC 256, Center Room

**Interdisciplinary Community-Based Learning, Research and Service****Interdisciplinary Community Based-Learning, Research and Service at Lafayette***Ethan Berkove, Mathematics; Jamila Bookwala, Psychology; David Shulman, Anthropology and Sociology; Bonnie Winfield, Landis Community Outreach Center, Lafayette College***Session 3d**

LC 241 A/B

**Teaching Writing in a Variety of Disciplines****Writing Fellows Remix: The TRAC (Technology, Research, and Communication) Writing Fellows Program at Lehigh University***Greg Reihman, Director of Faculty Development; Greg Skutches, Coordinator of Writing Across the Curriculum; Tina Hertel, Librarian; Jason Slipp, Instructional Technology Consultant; Ben Wright, Religion Studies, Lehigh University***One-to-One is Still the Best: Three Strategies for Helping Writers Across the Curriculum***Christopher "Chip" Crane, Writing Center Director, U. S. Naval Academy***Writing in General Physics***James R. Huddle, Physics Department, U. S. Naval Academy***Session 3e**

Samek Gallery\*

**TLC Directors Meeting**


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\* The Samek Gallery is located on the third floor of the Langone Center.

## **Jazz Reception and Alternative Pedagogy Poster Session**

### **"Pass GO and Collect \$200": Using Monopoly as a Simulation to Support Kinesthetic Learners**

*Patrick Schuck, Behavioral Sciences & Leadership, U. S. Military Academy*

### **Personal Response Devices (Clickers)**

*Mary Beth James, Instructional Technology, Bucknell University*

### **Reeling in the Big Fish: Changing Pedagogy to Encourage the Completion of Reading Assignments**

*Mary G. Carney, Sara Winstead Fry, Rosaria Gabriele, Michelle Ballard, Education, Bucknell University*

### **Incorporating Art into Your Course**

*Dan Mills, Samek Art Gallery, Bucknell University*

### **Teaching Science as Inquiry: The Relationship Between Beliefs and Behaviors**

*Lori Smolleck, Sarah Seltzer, Education, Bucknell University*

### **Tibet and Buddhism in Film and Myth: Preparing and Delivering a Team-Taught Interdisciplinary Course**

*Greg Reihman, Director of Faculty Development, Lehigh University*

### **Making History: Supporting Classroom Scholarship Through Innovative Campus Connections**

*David Del Testa, History; Nancy Frazier, Instructional Services Librarian; Jenna Tesauero, Alumni Relations, Bucknell University*

### **Community Consulting Practicum: Transitioning from Bethlehem, PA to Galway, Ireland**

*Vincent Munley, Economics, Lehigh University*

### **Rethinking the Introductory Mechanics Course: A Better Gateway to the Physics Discipline**

*Joseph Amato, Physics and Astronomy, Colgate University*

### **Sex, Drugs and Funerals – Nothin' Free in Jazz**

*Phil Haynes, Jazz Artist-in-Residence, Bucknell University*

**Plenary Speakers: What the Best Patriot League Teachers Do****Signs of Successful Community Partnerships...****What We Are Doing and How We Know It's Working**

*Judy Freedman Fask, Director, Deaf Studies Program, College of the Holy Cross*

**Educational Bridge Building 201: Service Learning and Interdisciplinary Initiatives**

*T. Michael Toole, Civil & Environmental Engineering, Bucknell University*

**Lehigh University's South Mountain College (SMC)**

*Benjamin G. Wright, Religion Studies, Lehigh University*

**Saturday, October 31****8:00 – 9:25 AM****SESSION 6****LC 276, Terrace Room****Plenary Speakers : What the Best Patriot League Teachers Do****Designing, Conducting, and Assessing Project-Based Learning Experiences in Engineering Education**

*Daryl G. Boden, Aerospace Engineering, U. S. Naval Academy*

**Communicative Competence, Cultural Literacy and the World Languages e-Portfolio**

*Michelle Geoffrion-Vinci, Foreign Languages & Literatures, Lafayette College*

**Going Global, Locally: Lessons Learned from a Decade of Geographically Distributed Collaborative Learning in Cross-National Virtual Teams**

*Derrick Cogburn, International Relations, American University; Director, Center for Research on Collaboratories and Technology Enhanced Learning Communities (Cotelco)*

**Session 7a**

LC 272, Forum

**Living and Learning Communities****American University's University College***Patrick Thaddeus Jackson, International Politics, American University***Bucknell's Residential Colleges***Tom Rich, Mechanical Engineering, Bucknell University***Engaging Students Where They Live: Campus Greening Projects in the Environmental Residential College***Mark Spiro, Biology, Bucknell University***Putting Collaborative Pedagogy and Collaborative Teaching into Practice: An Illustration***Jan Knoedler, Economics, Bucknell University***The Impact of Bucknell's Living and Learning Community on Student Engagement***Amy Wolaver, Economics, Bucknell University***Roundtable Discussion on the Challenges and Opportunities Presented by Living & Learning Communities***Ben Wright, Religion Studies, Lehigh University; Patrick Thaddeus Jackson, International Politics, American University; Slava Yastremski, Foreign Language Programs, Bucknell University***Session 7b**

LC 256, Center Room

**Active and Kinesthetic Learning in STEM Courses****Application of Technology in the Physics Classroom***J. Hartke, R. Blair, K. Buettner, T. Lainis, K. Litzner, K McManus, W. Moore, and J. Trimble, Department of Physics, U.S. Military Academy***Stand Up and Think: Kinesthetic Learning During Lecture***Joseph Tranquillo, Biomedical Engineering Program, Bucknell University***Active Learning in Calculus at the U. S. Naval Academy***Amy Ksir, Mathematics; Will Traves, Mathematics, U.S. Naval Academy***Session 7c**

LC 241 C/D

**Cultivating Community Based Learning Opportunities****Practical Justice: An Experiment in Ethics***Lloyd Steffen, Religion Studies, Lehigh University***Labor Economics and Community Based Learning: Lessons from Entering the Labor Force with a Criminal Record***Bryan Engelhardt, Economics, College of the Holy Cross***Community Fellows at Lehigh***Judith N. Lasker, Sociology and Anthropology, Lehigh University*

**Session 7d****LC 241 A/B****Leadership and Pedagogy****Participation in Peer Tutoring Services by NCAA Student-Athletes**

*Vincent G. Munley, Economics, Lehigh University; Eoghan Garvey, National University of Ireland, Galway; Michael J. McConnell, Economic Research Service, U.S. Department of Agriculture*

**Culture and Leadership Education: An Imperative for the Naval Officer**

*Mark Adamshick, Tony Doran, Stephen Trainor, Leadership, Ethics and Law; Clementine Fujimura, Anthropology; U.S. Naval Academy; Andrea Stover, Joseph Thomas, U. S. Marine Corps*

**Transitioning High School Graduates into Successful Cadets at the U.S. Military Academy**

*Bob Ryan, U. S. Military Academy Preparatory School*

**Leadership Development in a Wilderness Environment: The National Outdoor Leadership School-US Naval Academy Partnership**

*Joseph J. Thomas, Leadership, Ethics and Law, U.S. Naval Academy; Rachael Price, National Outdoor Leadership School*

**Session 7e****LC 213, Walls Lounge****Integrating Teaching and Research****Integrating Teaching and Research: Effects of Peer and Supervisor Rankings, Leadership Grades, and Varsity Athletic Participation on Leadership Development Assessments**

*Rebecca S. Shepherd, U.S. Naval Academy, University of Maryland Eastern Shore; Donald H. Horner, Jr., U.S. Naval Academy, Jacksonville University*

**Does Faculty Research Improve Undergraduate Teaching?**

*Michael Prince, Chemical Engineering, Bucknell University; Richard Felder, Chemical Engineering, North Carolina State University; Rebecca Brent, Educational Designs, Inc.*

**Crossing Traditional Boundaries – Designing a Laboratory Curriculum to Foster Student Research**

*Debra Dillner, Chemistry, U.S. Naval Academy*

**Session 7f****LC 217****Information Literacy and Technological Competency****How Did You Know That?: Information Literacy in Major Courses**

*Lijuan Xu, Library Instruction Coordinator; Jim Dearworth, Biology; Chris Phillips, English; Terese Heidenwolf, Associate Director for Research & Instructional Services, Lafayette College*

**Technology Competency Roundtable**

*Nancy Frazier, Instructional Services Librarian; Kathleen McQuiston, Assistant Director, Research Services, Bucknell University*

**Session 7g****LC 240, Lounge****Meeting of Assessment Coordinators****11:00 AM – 12:00 PM SESSION 8****Session 8a****LC 256, Center Room****Provost Roundtable: Why and How Universities Should Promote Alternative Pedagogies**

*Mick Smyer, Provost, Bucknell University; Wendy Hill, Provost and Dean of the Faculty, Lafayette College; Timothy Austin, Vice President for Academic Affairs and Dean, College of the Holy Cross*

**Session 8b****LC 213, Walls Lounge****Abroad Experiences for STEM students****Development of a Cooperative International Undergraduate Research Program**

*Joanne Romagni, Director of Sponsored Research, Bucknell University.*

**Five Years of Short-Term Study Abroad Programs: Engineering in a Global and Societal Context**

*Jeff Evans, Richard McGinnis, Civil & Environmental Engineering, Bucknell University*

**Session 8c****LC 241 A/B****Experiential Learning and Immersion Experiences****Through the Looking Glass: Exploring Diversity in One-Room Buggy Schools**

*Katharyn E. K. Nottis, Education, Bucknell University*

**Combining Experiential Leadership Education with Community Outreach to Minority Student Populations**

*Donald H. Horner, Jr., Leadership Education, U.S. Naval Academy; Edwin D. Leahy, O.S.B., Saint Benedict's Preparatory School*

**D.C. Intersections: A Semester-long Community Reporting Immersion in Washington's Most Diverse Neighborhoods**

*Angie Chuang, Journalism, American University*

Session 8d

LC 241 C/D

**Assessment and Teaching**

**Assessment Methods and Best Practices in Interdisciplinary, Project-Based Capstone Courses**

*John B Ochs, Director, Lisa Getzler-Linn, Associate Director, Integrated Product Development Program, Lehigh University*

**Program Assessment Methodology**

*Kenny McDonald, Systems Engineering, U.S. Military Academy*

12:00 PM

**LUNCH PICKUP**

**Refectory**

**Stop by the Refectory on the 2<sup>nd</sup> floor of the Langone Center to pick up a bag lunch prior to your departure.**

# Session 1a: Workshop on Creating an Engaging Syllabus

## Creating an Engaging Syllabus

*Ken Bain, Montclair State University*

In this highly interactive workshop, we will explore the creation of a new kind of syllabus, a Promising Syllabus. That kind of syllabus not only reflects the kind of syllabi that highly successful teachers create, but it also incorporates approaches and ideas coming from the research and theoretical literature on human learning and motivation. Come prepared to rethink your course and how you present it to your students.

## Teaching Engineering Tools Through Open-Ended Student-Selected Projects

*Donna M. Ebenstein, Joseph Tranquillo, Eric Kennedy, Daniel Cavanagh, Biomedical Engineering, Bucknell University*

One goal of the biomedical engineering curriculum at Bucknell University is to introduce students to a range of modern engineering tools, including both software and instrumentation, through direct hands-on experiences. One method we have found successful for introducing students to engineering tools is to use open-ended, self-selected projects to motivate skill development to enhance student “buy-in.” For each project, students choose a biomedical problem to study or model. They are provided with a foundation in each tool through introductory tutorials, structured problems, and/or demonstrations. They then enhance their skills through application to their self-selected, biomedically-motivated project.

## University Sports Facility Design at Lehigh – The First Dozen Years

*Gerard Lennon, Associate Dean of the College of Engineering and Applied Science; John Ochs, Director, Integrated Product Development Program; Richard Weisman, Civil and Environmental Engineering; Vincent Munley, Economics; Joe Sterrett, Dean of Athletics, Lehigh University*

For twelve years, undergraduate student teams have designed realistic, utilitarian athletic facilities for the Lehigh campus, some of which have been constructed. The \$2.4 million 2000-seat field hockey/lacrosse/soccer stadium presented to the Board of Trustees was the first facility constructed, and subsequently projects involving the redesign of the cross country course, and a golf practice complex including a club house have transitioned from classroom to construction. Facilities for crew, softball, baseball, tennis and a nine-hole golf course have been studied, as has a master plan for the entire athletics campus.

## A Framework for Engineering Dissection Exercise Creation and Implementation

*Steve Shooter, Charles Kim, Kathleen Hart, Mechanical Engineering, Bucknell University*

Hands-on product dissection and reverse engineering exercises have been shown to have a positive impact on engineering education, and many universities have incorporated such exercises in their curriculum. The CIBER-U project seeks to examine the potential to utilize cyberinfrastructure to enhance these active-learning exercises. We have formulated a framework for product dissection and reverse engineering activity creation to support a more rigorous approach to assessing other exercises for satisfaction of the CIBER-U project goals and adapting the best practices. This framework is driven by the fulfillment of learning outcomes and considers the maturity of students at different levels. Prototype exercises developed with the framework are presented. This project that was supported by the National Science Foundation has resulted in exercises incorporated into Sixth Grade Social Studies, two first year engineering courses, two second year mechanical engineering courses, one third year mechanical engineering course and two fourth year mechanical engineering courses. The approach is sufficiently general that it can be applied to the consideration and adaption of other types of exercises while ensuring satisfaction of the established goals.

# Session 1c: Serving and Learning Abroad

## **Bucknell in Northern Ireland**

*Bill Flack, Psychology, Bucknell University*

Bucknell in Northern Ireland is a short-term study-abroad program focused on the sectarian conflict and peace process in Northern Ireland. Students become immersed in the L'Derry community via service-learning placements in local voluntary sector organizations two days per week. Experiences in using these placements will be discussed.

## **Three Week Bucknell in Nicaragua Summer Program**

*Paul Susman, Geography; Don Stechschulte, Student Health Services, Bucknell University*

Drawing on a model of an educational community of elders and students, the Bucknell brigade inspired three week course combines: service learning, either in a health clinic or in the form of physical labor along side Nicaraguans; a formal academic component; meetings/lectures with local specialists; some travel; and intentional reflection sessions processing what we have learned and experienced and forming new ways to think about these. In a short time, participants' world views seem affected. We hypothesize it is not only the dramatic impact of new experiences, but living in a community, much as human societies have done for millennia, that contributes to the transformation of views.

## **Teaching/Learning Ecologically Balanced Economic Development and Self-Agency in El Convento, Honduras**

*Joshua Smith, Mechanical Engineering; Gladstone Hutchinson, Economics, Lafayette College*

The Lafayette College chapter of Engineers Without Borders (EWB-LC) and Lafayette College's Economic Empowerment and Global Learning Project (EEGLP) are multidisciplinary service-learning and public-scholarship organizations focusing on sustainable development in El Convento, Honduras. Their mission is to partner with the residents to strengthen their capacity to improve their well-being and development. To achieve this mission, EWB-LG and EEGLP have designed CODE-PSID, a new collaborative project design, implementation, and assessment paradigm for coordinating simultaneous building of water infrastructure and economic development systems while empowering residents with agency and a spirit of entrepreneurialism. A key element in the knowledge-making and co-learning about appropriate designs and economic initiatives that arises from the collaboration among students, professors/mentors, residents, and non-resident stakeholders.

# Session 1c: Serving and Learning Abroad (cont)

## Short-Term Interdisciplinary Study Abroad Programs at Lafayette College

*Michael S. Jordan, International and Off-Campus Education, Lafayette College.*

Within the academy the conventional wisdom is that more time abroad is better than less, but well-developed short-term programs can offer students unique opportunities for substantive interaction with a host culture, and serve an important function in preparing them for living and working in a global environment. Lafayette College is developing new interdisciplinary short-term study abroad programs that integrate service learning and collaboration with local community-based organizations into the educational experience, giving students the opportunity to interact directly and in a significant way with members of the host culture.

# Session 1d: The POWER of the Patriot League

## The POWER of Patriot League: Enhancement of Learning Communities through Creative Global Connections

*Arthur Kney, Nancy Ball, Lafayette College; Traci Shoemaker, Spring Cove School District; Danuta Bukatko, College of the Holy Cross; Angela Moran, U.S. Naval Academy; Joe Colosi, DeSales University*

Participation in Patriot League 2009 led to the development of a diverse, informed, and interactive team of educators with a seemingly infinite wealth of knowledge. The power behind such a team became apparent as we developed our program. Our team members now believe in the POWER; Patriot Outreach = Wisdom in Educational Resources. Discussions will focus on the development of our team and our resulting program; one that has brought the college and K-8 students together in a globally connected adventure.

During winter (and often spring) interims, faculty-led groups of college students travel nationally and internationally to explore selected topics; however, these experiences are rarely shared with people outside the group. These interim trips are central to this project in that they provide an exciting and out-of-the-ordinary experience for those involved. Our uniquely eclectic team of informed educators developed a model that breaks the mold of the traditional college interim trip by including K-8 students, teachers, and parents in these academic experiences through the use of technology. The trip is the focal point of a five-month-long curriculum in which inquiry-based exchanges of ideas, theories, and experiences take place utilizing faculty-guided student mentoring. This model incorporates an innovative approach to learning that includes a wide range of STEM and Information and Communications Technology (ICT) activities to motivate and actively engage learners as well as educators.

In particular the presentation will highlight how the dynamics of the project were positively transformed by the inclusion of Patriot League partners from both Holy Cross and the US Naval Academy. Interestingly enough, the true value of these partnerships did not surface until the proposed project had a delay in funding; it was at this critical point that the POWER of the league became clearly evident. These highlights, as well as key elements specific to the project will be presented in an engaging manner such to encourage thoughtful group discussions.

# Session 1e: Kinesthetic and Experiential Learning in Public and Class Spaces

## Performing Poetry on the Quad

Virginia Zimmerman, English, Bucknell University

This paper discusses the use of kinesthetic learning to teach meter in an introduction to poetry class. The purpose and effectiveness of bringing the students out to the quad to “perform” poems and to play a version of tag designed to reinforce metric patterns is described.

## Reading Poetry in Public Spaces

Michelle Allen-Emerson, English, U.S. Naval Academy

Michelle will talk about a project she does in her freshman writing class: she asks students to think about reading poetry in private and in public and requires them to read their poems in a variety of unexpected public spaces.

## Greek Mythology, Astronomy, Space Science: The Interdisciplinary Poster Exhibition “Myths in the Skies”

Markus Dubischar, Foreign Languages and Literatures, Lafayette College

Last fall (2008), the 29 students of my course “Classical Mythology” worked together in a big project (preparation 10 weeks) that combined

- Group work: Collaboration of eight teams with different tasks and responsibilities
- Interdisciplinarity: The exhibition features how modern astronomy/space science is linked to classical mythology (e.g. names of star constellations, NASA space projects, etc.).
- Use of technology: After their research, students designed large professional-looking color posters, using the program *Illustrator*, and printed them on a special print machine.
- A practical purpose: The exhibition (formal opening with reception, presentations, etc.) is displayed in Lafayette’s Multi Media Resource Center (giving Classics a “modern” visible presence).

In my presentation I will sketch the making of this exhibition, show sample posters, and analyze what worked well and what could be improved the next time.

## Experiential Anthropology’s Contribution to Engaged Learning: Ritual Reenactments in the Classroom as an Alternative Pedagogy

Michelle C. Johnson, Anthropology, Bucknell University

In the 1980s, anthropologist Victor Turner merged ritual, theater, and ethnography in a creative, embodied attempt to offset the dehumanizing tendencies of scholarly texts. As a teacher, Turner used the alternative pedagogy of reenacting African rituals with his students in the basement of his Virginia home. In this paper, I reflect on my own personal engagement with ritual reenactments in the classroom, both as a student at the University of Washington and, most recently, as a professor at Bucknell University. I consider what ritual reenactments and Turner’s experiential anthropology might offer current pedagogical debates about engaged learning in higher education.

# Session 2a: Practical Pedagogical Approaches for Teaching and Learning

## Jigsaw Method in Intermediate Macroeconomics

*Rae Jean Goodman, Economics, U.S. Naval Academy*

Within the context of cooperative learning groups, we show how the jigsaw method is used with students to learn consumption, investment and money demand theories. The results of a small study show that students perform better on exam questions than those taught by lecture and that the students involved with using the jigsaw method preferred that approach to a traditional “chalk and talk” approach.

The jigsaw procedure (Johnson, Johnson and Smith; Barlett) is an alternative to student reading and faculty lecturing on a topic and provides the students with an opportunity to teach and learn material from peers. The procedure is to assign the same topics to all cooperative learning groups; to divide the material into unique parts, like a jigsaw puzzle, so that each member of the group has a “piece of the puzzle.” Each member studies the specific topic assigned, decides how to teach that material to the group, and then teaches the topic. Each student learns all of the topics with the teaching and assistance of the other group members.

The jigsaw procedure incorporates the essential elements of cooperative learning: positive interdependence, individual and group accountability, face-to-face interaction, teamwork skills, and group processing. The results of using this method to teach consumption, investment and money demand theories are:

1. The class time allotted for the material is less than when presented by the professor in lecture format.
2. Students perform better on examination question than when the material was presented in the lecture format.
3. Student response to the technique and the learning experience is positive.

## What Cognitive Psychology Can Teach Us About Learning

*Jennifer Talarico, Psychology, Lafayette College*

What kinds of questions should I include on my exams? Should I give quizzes?

Should I show movies in class? Should I make my notes available to students? If so, in what form? When should they be available? How should I encourage my students to study? Recent work in cognitive psychology has provided answers to these and other common questions about teaching and learning. This talk will cover which techniques work and why.

## Small Group Discussion in a Lecture-Style Class

*Greg Reihman, Director of Faculty Development, Lehigh University*

Faculty who value student participation and see the benefits of peer-to-peer discussion often find themselves frustrated when teaching larger classes, where even our most engaged students can fall into passive roles. In this presentation, I will discuss a variety of approaches faculty can take to break up the lecture and create an environment conducive to conversation, while still delivering content and meeting learning outcomes. Attendees will hear of some model classes and participate in a discussion focused on putting these ideas into practice in their own teaching.

## **Starting With the Good Stuff**

*Christopher Keating, Physics, U.S. Naval Academy*

Interviews with students elicited the comment that STEM courses begin with the most boring material. Not only is this true, but the courses were designed that way with the philosophy of laying a foundation to build on. The problem with this is that by the time we are ready to build something, we have lost the students and never get them back. With this in mind, I began this semester with the more interesting material with the hope of keeping the students engaged.

This presentation will discuss details of this change in pedagogy and results to date.

## **Teaching Material and Energy Balances to First-Year Students Using Cooperative Team-Based Projects and Labs**

*Michael E. Hanyak, Jr., Timothy M. Raymond, Chemical Engineering, Bucknell University*

A team-based cooperative learning environment for teaching Principles of Chemical Engineering (the material and energy balances course) has been used at Bucknell University for several years. This course has been carefully designed to include a variety of best practices to help prepare chemical engineering students in their first course in the curriculum. The course involves five two-week projects where students work in teams to complete problems covering a range of materials and, at the same time, practice teamwork and professional skills. Additionally, each project involves a complex laboratory experiment and use of process simulation software (HYSYS) problems. This work is carefully guided by the course instructors in a way to promote independent learning while assessing the desired outcomes.

Assessment for this course has been ongoing and involves a range of data from team self-reports, before and after project concept inventories, individual surveys, team surveys, and final course evaluations. This paper will explain the details of the course setup, the unique application and evaluation of various best practices used in the course, and assessment/evaluation of the benefits of the cooperative learning environment.

## **Emerging Leaders: A Summer Program for Underrepresented Groups in STEM**

*Chawne Kimber, Mathematics, Director of the Summer Program to Advance Leadership in STEM, Lafayette College.*

Summer 2009 was the pilot season for a six-week program to mentor academically talented students at the critical high school-to-college transition point. The students, who show promise to be leaders as students in STEM majors, take and earn credit for two required courses and participate in a variety of short modules that introduce them to many science and engineering fields, the Lafayette College campus, and the City of Easton. We will report on the mission, the structure of the program, the students, and some early outcomes of this vibrant new program.

## **Session 2c: Lots of Learning in A Little Time: Educational Alternative Break Programs**

### **The Impact of Participating on the Bucknell Katrina Recovery Team**

*Tammy Hiller, Management, Bucknell University*

This session will provide an overview of Bucknell University's Katrina Recovery Team alternative break service learning program. Although the history and structure of the program will be explained briefly, the session will focus on discussing both the immediate and longer-term impact of participation on student, faculty, and staff Katrina Recovery Team members.

### **From Disaster Relief to Community Development: Reflections from a Long-Term Partnership**

*Janice Butler, Director of Service-Learning, Bucknell University*

This discussion will focus on more than a decade of lessons learned while conducting service-learning trips to Nicaragua. The Bucknell Brigade was student initiated following the devastation of Hurricane Mitch in 1998. Working with the Center for Development in Central America, the Brigade has now become a very sought-after experience and one that many students consider transformative. The structure of this model -- with its pre-trip mini-curriculum, community engagement and critical reflection components during the trip, as well as its post-trip involvement -- will be addressed. Video testimonials will be presented.

# Session 2d: Using Simulations in the Classroom

## **Computer Simulations - An Introduction to Scientific Research**

*Katharina Vollmayr-Lee, Physics & Astronomy, Bucknell University*

I will present a computer simulation course for seniors (capstone) which I have taught both as an interdisciplinary course and as a physics course. In this course students are exposed to topics such as the Game of Life, traffic flow, fractal growth (e.g. snow flake), population dynamics, and random walks. The course is mainly lab based. The course introduces the students to scientific research via individual semester long projects. For these projects each student does a literature search, writes a program, analyzes data, and presents the data in the form of a paper and a talk. I will comment on both successes and difficulties with the courses.

## **Blending Interactive Simulation Technology into Traditional Pedagogy to Teach Ethical Decision Making**

*Elizabeth Holmes, Director of Assessment, United States Naval Academy, Stockdale Center for Ethical Leadership*

Blending innovative simulation technology into traditional academic environments has been successfully achieved at the US Naval Academy. Today's college students, especially those joining the military expect greater degrees of activity and experiential learning.

Teaching ethical decision making using computer based interactive simulations over the last three years report positive quantitative and qualitative assessment results. This presentation will provide faculty the opportunity to experience first hand an ethical decision making interactive simulation. Assessment results based on over 3000 midshipmen participants will be presented. An innovation in teaching technology has enhanced the learning of moral reasoning. Thousands of future Naval officers have learned to be better ethical leaders from this cutting edge technology.

## **Using Virtual Corporate Reality (VCR) to Engage Students' Exploration of Economic Principles**

*Christopher Ruebeck, Economics, Lafayette College*

How well do students understand price theory, market power, strategic interaction, and oligopoly theory? Do they internalize the concepts after listening in lecture and completing their homework assignments? Typical undergraduate exposure to these ideas may occur in Principles of Economics and Intermediate Microeconomics, followed by coverage in upper-level courses on Game Theory, Industrial Organization, and Regulation. We describe an extra-classroom activity called Virtual Corporate Reality (VCR), designed to engage students' exploration of these concepts.

# Session 2e: Pedagogy and Art: Connecting Galleries and Course Exhibits with Course Material

## Supporting Alternative Pedagogies - The University Art Museum/Gallery as Cross-Disciplinary Lab

*Dan Mills, Samek Art Gallery; Steve Stamos, Economics, Bucknell University; Michiko Okaya, Director of Lafayette Art Galleries, Lafayette College; Ricardo Viera, Director/Curator, Lehigh University Art Galleries, Lehigh University*

This session will present examples of how faculty have successfully utilized the university museum or gallery within courses. The panel will focus on collaborations between faculty from a variety of disciplines and museum/gallery staff that utilize exhibitions and collections. The presentation will include examples of:

- Direct experience with art and objects of material culture in non-art courses;
- Incorporating visual art into courses as a means to examine subjects and topics across disciplines;
- Integration of visual culture into classes (Integrative education);
- Examples of how faculty/staff collaborations have lead to additional creative ways to access class material.

# Session 3a: Panel Discussion: Trying Innovative Pedagogies as an Untenured Faculty Member

*Joe Tranquillo, Biomedical Engineering, Bucknell University; Bryan Englehardt, Economics, College of the Holy Cross*

Untenured faculty are often advised to stick with tried and true teaching methods. This session will explore how any faculty member, but especially untenured faculty, can begin to integrate low-risk alternative pedagogies into their classes, labs and studios. Helpful tips and lessons learned will be shared through first-hand accounts from untenured faculty who have ventured beyond traditional teaching formats.

## Reliability of Structural Wire in Heart Valves Subjected to Very High Cycle Fatigue

*D. Gary Harlow, Mechanical Engineering and Mechanics, Lehigh University*

Fatigue is the dominant failure mechanism in the structural component of commercially available heart valves. The fatigue life for a heart valve is required to reliably exceed 600 million cycles, about 16 years. The purpose of this presentation is to illustrate the integration of basic aspects of undergraduate topics from strength of materials and statistical modeling. Specifically, the example demonstrates how the Goodman diagram for fatigue is used to develop a stress dependent Weibull distribution function that accurately predicts the life cycle statistics. Parametric estimation for censored data, from laboratory testing, is implemented. While the techniques are in undergraduate texts, the application is more advanced than typical illustrations.

## Enhancing Biomedical Engineering Courses with an Integrated Lecture-Lab Approach

*Daniel Cavanagh, Joseph Tranquillo, Donna M. Ebenstein, Biomedical Engineering, Bucknell University*

For the past several years, faculty in the Department of Biomedical Engineering at Bucknell University have utilized a unique course structure centered around the integration of lecture and laboratory components. The underlying educational motivation of this new approach is to enhance student retention and understanding of technical concepts through the integrated offering of lecture and hands-on laboratory experiences. The faculty believe that this methodology has several benefits over traditional course formats where lecture and associated labs may be presented days apart. Example benefits include the immediate reinforcement of technical concepts through hands-on activities and the opportunity for instructors to identify student misunderstandings by observing the immediate application of concepts in lab.

## Experiments for Statics

*Jeffrey Helm, Mechanical Engineering, Lafayette College*

Statics is typically the first subject specific-engineering class in an engineering curriculum. This work presents a set of experimental apparatus designed to give the students a physical connection with the topics being presented. Experimental apparatus have been developed to demonstrate the decomposition of forces into component values, addition of forces, truss structures and friction forces. Introducing the experiments gives students the opportunity to apply their static analysis to a physical mechanism and get immediate feedback about the quality of information their analysis yields. In other words, they get a concrete example that statics really works. The development of the equipment and their integration into the class will be presented.

# Session 3c: Interdisciplinary Community-Based Learning, Research and Service

## **Interdisciplinary Community Based-Learning, Research and Service at Lafayette**

*Ethan Berkove, Mathematics; Jamila Bookwala, Psychology; David Shulman, Anthropology and Sociology; Bonnie Winfield, Landis Community Outreach Center, Lafayette College*

Our interdisciplinary panel will address teaching experiences with students that involve community based-learning and research projects. All of us will discuss our distinct individual experiences integrating CBLR into classes and/or research with students.

# Session 3d: Teaching Writing in a Variety of Disciplines

## **Writing Fellows Remix: The TRAC (Technology, Research, and Communication) Writing Fellows Program at Lehigh University**

*Greg Reihman, Director of Faculty Development; Greg Skutches, Coordinator of Writing Across the Curriculum; Tina Hertel, Librarian; Jason Slipp, Instructional Technology Consultant; Ben Wright, Religion Studies, Lehigh University*

In 2008, Lehigh University launched a new program that trains talented undergraduates to work as peer tutors and assigns them to faculty who have requested help with student research and writing. In one sense, the work the Fellows do is very traditional: shoulder-to-shoulder conferences with students working on academic papers. But the TRAC Writing Fellows is testing out some new twists on this traditional approach; for example, faculty development is an explicit goal of the program and the fellows are trained to think not just about writing but about innovative methods for research and communication. To these ends, fellows are trained and supported by a teaching team that consists of the coordinator of our Writing Across the Curriculum program, our Director of Faculty Development, a Research Librarian and an Instructional Technologist. In this presentation, members of this teaching team, together with a participating faculty member and an undergraduate Fellow will discuss some of our strategies for implementing this new program and share some of early challenges and successes.

## **One-to-One is Still the Best: Three Strategies for Helping Writers Across the Curriculum**

*Christopher "Chip" Crane, Writing Center Director, U. S. Naval Academy*

My presentation will offer three practical, more-affordable-than-you-might-think ways I use the advantages of one-to-one interaction to help writers. The first involves a new, one-credit, one-person course called "Writing Center Laboratory," in which upperclass students identified as weak writers meet weekly with a tutor for a semester. The second strategy, "Live Grading," I use in my own literature courses, grading each student's paper through a one-on-one conversation. The third strategy I employ as the Writing Center Director; it involves establishing relationships with individual representatives from other departments to identify and offer discipline-specific ways of helping writers in their courses.

## **Writing in General Physics**

*James R. Huddle, Physics Department, U. S. Naval Academy*

When a writing component is included in General Physics, it is usually in the form of formal lab reports. Students find these boring to write and teachers find them tedious to grade. Can't we satisfy the requirements, provide practice in proper sentence and paragraph construction, and still have fun? I will describe positive experiences with a briefer style of lab report, an assignment called "Newton's Laws in Verse," and test questions written by students.

# Session 4: Jazz Reception and Alternative Pedagogy Poster Session

## **"Pass GO and Collect \$200": Using Monopoly as a Simulation to Support Kinesthetic Learners**

*Patrick Schuck, Behavioral Sciences & Leadership, U. S. Military Academy*

Simulations allow kinesthetic learners to engage and retain material in ways that listening to a lecture, reading a textbook, or watching a presentation cannot. This poster presentation will demonstrate how a classroom simulation can enhance understanding of critical concepts and naturally pique students' interest by way of discovery learning. Specifically, this presentation will highlight how the use of a Real Estate Simulation (Monopoly Game) helped cadets at West Point, the United States Military Academy, learn basic concepts of Financial Accounting. Cadets formed individual consulting companies and "played" Monopoly in groups during two successive class periods. The simulation requires cadets to maintain detailed accounting records for each transaction and complete the accounting cycle for their respective companies resulting in detailed financial statements. The presentation will also highlight the flexibility of simulations to bring in other learning objectives and even disciplines.

## **Personal Response Devices (Clickers)**

*Mary Beth James, Instructional Technology, Bucknell University*

## **Reeling in the Big Fish: Changing Pedagogy to Encourage the Completion of Reading Assignments**

*Amy G. Carney, Sara Winstead Fry, Rosaria Gabriele, Michelle Ballard, Education, Bucknell University*

This investigation examined how the regular use of Monte Carlo Quizzes (Fernald 2004), learning logs, or non-random quizzes impacted student completion of assigned reading and preparedness for class. A questionnaire was used to gather data on student perceptions and self-reported reading behavior in response to each of the methods over the course of a semester. Results suggested that students in classes that used the learning log method were more motivated to complete readings, felt better able to contribute to class discussions, and were more likely to recommend the assessment method than students in classes that used the other methods.

## **Incorporating Art into Your Course**

*Dan Mills, Samek Art Gallery, Bucknell University*

This video presentation will describe a collaboration between the Samek Art Gallery and a Economics 101 class. Professor Steve Stamos brought his students to the Gallery to view the works of Oswaldo Guayasamin, which focus on war, injustice and human rights. "This was a way to take our class-based analysis and make it real and let them react to the images," says Stamos. "I had them write papers about the work, and they were amazing."

## **Teaching Science as Inquiry: The Relationship Between Beliefs and Behaviors**

*Lori Smolleck, Sarah Seltzer, Education, Bucknell University*

The purpose of this research was to utilize a case study approach to investigate the extent to which the self-efficacy beliefs of preservice teachers impact teaching behaviors and practices in relation to the teaching of science as inquiry.

Instrumentation included the TSI Instrument (Smolleck, Zembal-Saul, & Yoder, 2006) and the TSI Rubric (Smolleck & Hills, 2007). Data analysis indicates that preservice teachers beliefs tend to overestimate the extent to which they actually implement inquiry based teaching practices. This presentation will discuss these findings in detail as well as the ways in which practice may also influence beliefs.

## **Tibet and Buddhism in Film and Myth: Preparing and Delivering a Team-Taught Interdisciplinary Course**

*Greg Reihman, Director of Faculty Development, Lehigh University*

As part of our campus' preparation for a visit by the Dalai Lama in summer 2008, a number of Lehigh faculty offered courses to help students learn more about the Dalai Lama and Tibetan Buddhism. In this talk, I will discuss "Tibet and Buddhism in Film and Myth," a team-taught interdisciplinary course that brought together three professors and forty-five students in a combination lecture/discussion class that made with heavy use of social media and presentation tools in order to research these topics and create a web-based study resource for the larger community. This presentation will discuss how the course was structured, how the faculty worked through challenges of interdisciplinary team teaching, how technology was integrated into the class, and how students' research, writing, and presentation skills were sharpened in the process.

## **Making History: Supporting Classroom Scholarship Through Innovative Campus Connections**

*David Del Testa, History; Nancy Frazier, Instructional Services Librarian; Jenna Tesauro, Alumni Relations, Bucknell University*

This fall, students in David Del Testa's History 100 class, "*Thinking About History: World War II*" are engaged in interviewing and writing about Bucknell alumni who lived through the World War II, and agreed to share their stories. In collaboration with Jenna Tesauro, Program Director/Academic Interests of Alumni Relations, and Nancy Frazier, Instructional Services Librarian, Del Testa challenges students to become active historians through capturing, researching, analyzing, and writing alumni stories. This poster will highlight a unique collaboration across campus constituents designed to enhance student learning and support classroom scholarship through connecting current students and alumni.

## **Community Consulting Practicum: Transitioning from Bethlehem, PA to Galway, Ireland**

*Vincent Munley, Economics, Lehigh University*

## **Rethinking the Introductory Mechanics Course: A Better Gateway to the Physics Discipline**

*Joseph Amato, Physics and Astronomy, Colgate University*

The first semester physics course for potential majors at Colgate, called *Modern Introductory Physics*, emphasizes the historical development of our present day understanding of the atom and quantum concepts. The success of that course over the past two decades has inspired the physics faculty to revise the structure and format of other courses throughout the physics curriculum. In particular, we have developed an alternate approach to the introductory calculus-based mechanics course, which we call *Physics from Spaceship Earth*. Just as classical mechanics was invented 300 years ago to explain the motion of the planets, we derive and apply the laws of mechanics to examine the structure of the universe. The three conservation laws are emphasized more than in the standard mechanics course, and much new material, including astronomy-based homework problems and new "black box" laboratories have been developed to stimulate and sustain student interest. Student evaluations of the course have consistently been very positive, student retention has improved, and the course has become a favorite assignment for department faculty.

## **Sex, Drugs and Funerals – Nothin' Free in Jazz**

*Phil Haynes, Jazz Artist-in-Residence, Bucknell University, drums; Steve Adams, Fender Rhodes piano; Bill Stetz, acoustic bass*

The colorful American jazz tradition stretches at least as far back as early 1900's New Orleans, where the emerging new "melting pot" musical form was commonly performed for funerals, weddings, parades and various other civic functions. Such musical improvisations and Ragtime compositions also famously kept waiting clients entertained at the regions Brothels, where drinking, drugs, sex, disease and jazz were irrevocably linked economically. The human costs have been clear enough as none of these activities were without costs - much as this improvised Pop and Art music models such great human expression and democratic latitude, yet is anything but free of formal structures, even in it's post-1960's "Free Jazz" state. This concert and informal discussion, led by Bucknell's Kushell Jazz Artist-in-Residence, Phil Haynes, will present a history of jazz through the classic works by pianist/composers such as Scott Joplin, Fats Waller, Duke Ellington, Thelonious Monk, Bud Powell, Bill Evans, Chick Corea, and Keith Jarrett.

# Session 5: Plenary Speakers – What the Best Patriot League Teachers Do

## **Signs of Successful Community Partnerships... What We Are Doing and How We Know It's Working**

*Judy Freedman Fask, Director, Deaf Studies Program, College of the Holy Cross*

The College of the Holy Cross Deaf Studies program prides itself on offering students learning American Sign Language (ASL) and classes in Deaf Studies many opportunities to make very personal connections with people in the Deaf community through creative experiential learning, interdisciplinary approach, community based learning partnerships and shared collaborations. The Deaf Studies program has been recognized and received numerous awards locally and statewide from Institutions of Higher Education plus Hearing and Deaf agencies for the innovative pedagogy, collaborative efforts, unique programs and contributions to the community.

## **Educational Bridge Building 201: Service Learning and Interdisciplinary Initiatives**

*T. Michael Toole, Civil & Environmental Engineering, Bucknell University*

The focus on teaching at Patriot League institutions allows faculty to implement innovative pedagogies to increase the depth of student learning and connect classroom concepts with real world problems. One of the most promising methods for achieving these goals is service learning, which has been successfully adopted by several Bucknell faculty in both the College of Engineering and the College of Arts and Sciences. This presentation will highlight experiences in engineering senior design projects, including a waterline that was recently constructed in Nicaragua in conjunction with the Bucknell Brigade. Promising interdisciplinary service learning opportunities may be offered by the National Academies of Engineering's Grand Challenges initiative.

## **Lehigh University's South Mountain College (SMC)**

*Benjamin G. Wright, Religion Studies, Lehigh University*

SMC is an interdisciplinary program that integrates residential life and learning within Lehigh's College of Arts and Sciences. SMC fosters intellectual community through student-driven, immersive learning and the open exploration of ideas. Program elements include:

- Students assuming responsibility for their educations and making connections across disciplines.
- An emphasis on student-faculty interaction outside the classroom.
- A unique curriculum consisting of: "Seminar," taken each semester and "Investigations," a year-long exploration oriented around a specific theme.
- No grades for SMC courses. Instead a narrative evaluation becomes part of the student's academic record, encouraging students to be self-directed and to take intellectual risks.

## Session 6: Plenary Speakers - What the Best Patriot League Teachers Do

### **Designing, Conducting, and Assessing Project-Based Learning Experiences in Engineering Education**

*Daryl G. Boden, Aerospace Engineering, U. S. Naval Academy*

The overall goal of a project-based learning experience is to promote students' ability to describe, anticipate, and plan for some of the realistic factors encountered in engineering projects. Students benefit from setting learning activities in realistic contexts. Project-based learning experiences provide a context for introducing the need for good documentation, customer requirements and construction regulations, R&D, critical thinking, creativity and intuition, problem solving and experimentation, teamwork, competition, budget and schedule constraints, aesthetics, and the unusual requirement of safety. It also draws on engineering and scientific disciplinary knowledge.

This paper describes a process for designing, conducting, and assessing project-based learning experiences. The paper then describes some projects we use in our curriculum in the Department of Aerospace Engineering at the United States Naval Academy.

### **Communicative Competence, Cultural Literacy and the World Languages e-Portfolio**

*Michelle Geoffrion-Vinci, Foreign Languages & Literatures, Lafayette College*

Precisely what does it mean to be "fluent" in a language? After completing a major or minor in one of the many language programs offered at colleges and universities nation-wide, what do our graduates know and what can they do with this knowledge? In increasing use in North American and European academic institutions, the Language e-Portfolio is a personalized and responsive/reflective record of development and progress that measures students' communicative competence and cultural literacy by providing an electronic folder of evidence of language acquisition and skills. Designed cooperatively by faculty and students, the e-portfolio can also serve the dual purpose of informing instruction and motivating students. In my presentation, I will acquaint participants with the Lafayette World Languages e-Portfolio Initiative in its present stage of development. I will also explore the pedagogical implications of electronic portfolios as they relate to collegiate language-learning, one of the final frontiers that has yet to incorporate this tool into its methodological structure.

# Going Global, Locally: Lessons Learned from a Decade of Geographically Distributed Collaborative Learning in Cross-National Virtual Teams

*Derrick Cogburn, International Relations, American University; Director, Center for Research on Collaboratories and Technology Enhanced Learning Communities (Cotelco)*

In 1999 an historic experiment in geographically distributed collaborative learning began between the School of Information at the University of Michigan and its partners at the Graduate School of Public and Development Management at the University of the Witwatersrand in South Africa and the School of International Service at American University in Washington, D.C. Known as the Global Graduate Seminar on Globalization and the Information Society: Information, Communication, and Development this project focused on exploring one primary question, "In what ways can the socio-technical infrastructure to support successful cross-national teaching and learning in interdisciplinary studies of globalization and the information society be developed between US and South African Universities? Obviously, several sub-questions quickly emerged, such as: (1) how effective is a distributed seminar compared to a face-to-face seminar?; (2) are there regional differences between the South African and US students?; (3) are there gender differences in student satisfaction?; (4) can cross-national collaborative learning teams assist students in learning complex material in globalization studies?; (5) in what ways can a globally distributed learning environment contribute to "authentic" cross-cultural learning?; (6) can human capacity development for the information society occur in a distributed collaborative learning environment?; and (7) can a distributed learning environment assist instructors in bringing the world to the classroom, and the classroom to the world? To address these, and other, questions, the authors worked through the administrative, logistical, and technological challenges to develop the Globalization Seminar on their respective campuses. The seminar, which was last taught in spring 2008, eventually encompassed six universities, three in the United States, and three in South Africa, and included participants from around the world. The last four years of the seminar were driven from the Syracuse University School of Information Studies and was included in the Web-Based Information Science Education (WISE) consortium giving the seminar an even broader global perspective. This paper outlines the history and evolution of the Globalization Seminar and describes the various research designs, theoretical framework, and pedagogical strategies that have characterized its delivery for the last decade. We pay particularly close attention to the collaborative learning strategy illustrated by the five global virtual teams utilized in the course, each representing a different "stakeholder" in the global information society (i.e., global and multinational corporations; developed country national governments; developing country national governments; intergovernmental organizations; and non-governmental and civil society organizations). These teams (or Global Syndicates as they are called in the seminar) were comprised of students from each of the participating universities, and represented highly complex, interdisciplinary global virtual teams. Through the use of these teams, students were able to engage with their "real world" counterparts active in the United Nations World Summit on the Information Society and its various follow-on activities.

# Session 7a: Living and Learning Communities

## **American University's University College**

*Patrick Thaddeus Jackson, International Politics, American University*

## **Bucknell's Residential Colleges**

*Tom Rich, Mechanical Engineering, Bucknell University*

## **Engaging Students Where They Live: Campus Greening Projects in the Environmental Residential College**

*Mark Spiro, Biology, Bucknell University*

For the past two years, students in the environmental residential college have been active participants in Bucknell's campus greening initiative. I will discuss the pedagogical approach in this community of learners and the outcome of the greening projects in their campus community.

## **Putting Collaborative Pedagogy and Collaborative Teaching into Practice: An Illustration**

*Jan Knoedler, Economics, Bucknell University*

The Society and Technology College utilized a combination of collaborative teaching and collaborative pedagogy to present several issues related to the historic Johnstown flood to their students. An engineer, an astronomer, a health economist, and a political economist combined to present the text from several points of view, and then organized the students to examine the issues in the context of a mock trial.

## **The Impact of Bucknell's Living and Learning Community on Student Engagement**

*Amy Wolaver, Economics, Bucknell University*

Data from the Bucknell University's National Survey of Student Engagement is used to analyze the impact of the first year residential college program on student engagement at Bucknell.

## **Roundtable Discussion on the Challenges and Opportunities Presented by Living & Learning Communities**

*Ben Wright, Religion Studies, Lehigh University; Patrick Thaddeus Jackson, International Politics, American University; Slava Yastremski, Foreign Language Programs, Bucknell University*

# Session 7b: Active and Kinesthetic Learning in STEM Courses

## **Application of Technology in the Physics Classroom**

*J. Hartke, R. Blair, K. Buettner, T. Lainis, K. Litzner, K. McManus, W. Moore, and J. Trimble, Department of Physics, U.S. Military Academy*

Every cadet at the United States Military Academy is required to take two semesters of calculus based physics regardless of the cadet's academic major. The diversity of the student population and its range of learning styles creates challenges for instructors. The Department of Physics at West Point employs a variety of technologies in the classroom to help students discover and learn the principles of physics covered in the course. The authors will discuss these technologies and how they are used in the classroom to enhance the learning environment. The technologies discussed will include video instructor, personal response systems, tablet PCs, document cameras, and PASCO data acquisition systems.

## **Stand Up and Think: Kinesthetic Learning During Lecture**

*Joseph Tranquillo, Biomedical Engineering Program, Bucknell University*

Although many learning styles have been shown to be effective, few instructors use kinesthetic learning in their classrooms. This presentation will include ideas for generating and developing kinesthetic learning activities, implementation strategies and ideas for post-processing. The presentation will also include example activities that have been tried in the classroom as well as student assessment data and instructor observations.

## **Active Learning in Calculus at the U. S. Naval Academy**

*Amy Ksir, Mathematics; Will Traves, Mathematics, U.S. Naval Academy*

The goal of the CAPABLE project is to improve students' metacognitive skills and habits of mind. Our hypothesis is that the use of active learning strategies will contribute towards this improvement. After one summer of work, we have created a repository of projects and activities for Calculus I; begun the assessment process; and created a weekly seminar to share ideas and observations on teaching with all of our colleagues. Come hear the story of the first summer of this project!

# Session 7c: Cultivating Community Based Learning Opportunities

## **Practical Justice: An Experiment in Ethics**

*Lloyd Steffen, Religion Studies, Lehigh University*

In this presentation, Lloyd Steffen, Professor of Religion Studies at Lehigh University, discusses a “service learning” course he teaches that partnered with the Lehigh University Community Service Office and three local institutions: a local elementary school with a majority Hispanic population, the community outreach office of the local hospital, and the county prison. Student integrated service assignments at the sites (20 hours for the semester) with the study of issues related to “No Child Left Behind,” health care, and criminal justice. The course investigated the question of social, distributive and retributive justice by examining the role that race and disadvantage play in American society.

## **Labor Economics and Community Based Learning: Lessons from Entering the Labor Force with a Criminal Record**

*Bryan Engelhardt, Economics, College of the Holy Cross*

In conjunction with a local half-way house, students in my labor economics course have been required to interview, construct a resume, and help initiate a job search for an individual entering the program. The objective is to engage students on a wide variety of topics including those related to work experience, discrimination, human capital accumulation, and inequality. The project also provides valuable insights into the job search process including the trade-off between the length of unemployment and an individuals “reservation” wage.

## **Community Fellows at Lehigh**

*Judy Lasker, Sociology and Anthropology, Lehigh University*

This paper describes the Community Fellows program, which was designed to support partnerships between Lehigh University’s Departments of Political Science and Sociology and Anthropology and regional agencies that are active in the broad areas of economic and community development. The mission of the Community Fellows Program is to provide students with rigorous academic training in policy and research as well as career-enhancing experiences in regional non-profits, contributing to long-term partnerships between Lehigh and the local community.

The Community Fellows program provides masters-level students in the two Departments with an opportunity to gain meaningful community-based experience by working on agency-defined projects and goals for fifteen hours a week for twelve months in combination with their masters degree course work, including interdisciplinary courses designed to enhance their research and analytical skills.

## **Participation in Peer Tutoring Services by NCAA Student-Athletes**

*Vincent G. Munley, Economics, Lehigh University; Eoghan Garvey, National University of Ireland, Galway; Michael J. McConnell, Economic Research Service, U.S. Department of Agriculture*

Touting the tutoring services provided to student-athletes has become a key component in the recruiting wars among major college athletics departments for blue chip high school prospects, especially in the revenue producing sports. At the Division 1 level these programs are increasingly operated directly out of the athletics department rather than the academic stem of a university. This paper uses data from Lehigh University to examine empirically the participation pattern of student-athletes in an institutional setting where they enroll in the same tutoring program, operated out of the dean of students' office, as non-athletes.

## **Culture and Leadership Education: An Imperative for the Naval Officer**

*Mark Adamshick, Tony Doran, Stephen Trainor, Leadership, Ethics and Law; Clementine Fujimura, Anthropology; U.S. Naval Academy; Andrea Stover, Joseph Thomas, U. S. Marine Corps*

The Department of Leadership, Ethics and Law (LEL) at the US Naval Academy (USNA) developed an experimental course titled "Culture, Military Leadership and Global Human Terrain". The primary goal of this course was to explore the theories and concepts of culture from multiple perspectives in order to provide future military officers with a broad understanding of the role of culture and human terrain in communities, societies and in the armed forces. Six professors designed an innovative pedagogical approach around an experiential and personal mastery learning model, comprised of conceptualization, experimentation, reinforcement, and reflection (Kolb 1984, Murphy and Riggio 2003).

## **Transitioning High School Graduates into Successful Cadets at the U.S. Military Academy**

*Bob Ryan, U.S. Military Academy, Center for Enhanced Performance (CEP)*

This presentation will demonstrate how the Student Success Course at the U.S. Military Academy integrates Sport Psychology-based performance enhancement skills with basic reading and study skills to help quickly transition recent high school graduates into successful cadets and future commissioned officers for the Army. The workshop will highlight how the 20-lesson Student Success Course, designed primarily as a first-year college transition experience, offers lessons on individual performance skills such as confidence, attention control, goal setting, and energy management integrated with basic academic success techniques such as organization, time management, reading efficiency, and note-taking skills.

## **Leadership Development in a Wilderness Environment: The National Outdoor Leadership School-US Naval Academy Partnership**

*Joseph J. Thomas, Leadership, Ethics and Law, U.S. Naval Academy; Rachael Price, National Outdoor Leadership School*

Since 2004 the United States Naval Academy (USNA) and National Outdoor Leadership School (NOLS) have collaborated to offer experiential leadership development opportunities to undergraduates. This collaboration takes the form of month-long backpacking expeditions in the Wind River Range of Wyoming, glacier mountaineering in Alaska, whitewater canoeing in the Yukon Territory of Canada, among others. Each Naval Academy Leadership Expedition (NALE) develops competencies in the following areas:

- Effective action in four leadership roles (self-leadership, active followership, designated leadership, and peer leadership) through progressive assumption of positions over the period of the course.
- Risk management skills including first aid and survival training, contingency planning, and decision making.
- Technical skills relevant to the environment such as mountaineering and glacier traversing skills, rope and ice axe handling, river crossing, and “bear country” camping requirements.
- Leave No Trace© minimum impact travel techniques.

A core mechanism for developing these competencies is daily debriefing to examine how the theories and skills of leadership are applied in the process of leading the team.

This institutional collaboration builds on existing outdoor experiential leadership development research (Petzoldt, 1984; Propst & Koesler, 1998; Gookin, 2007) and complements the formal classroom instruction provided by USNA’s Leadership, Ethics, and Law Department. The specific skill sets of competency, efficacy, and judgment under physical and emotional pressure are directly relevant to leadership in a broad array of contexts, and are developed and tested through practice in a dynamic environment in ways that can not be replicated in the classroom. The situational context of the backcountry itself has direct transference to the work environment many USNA graduates find themselves in upon graduation.

The lessons from this experiential leadership development program are, however, not peculiar to the unique student body of a federal service academy. The leadership and life-skills that NOLS provides have broad application in a variety of professions and professional settings. The seven leadership skills tested on a NALE include: continually increase competence in all skill areas; display strong expedition behavior by working effectively as a member of a team and serving group goals with a positive attitude; maintain flexibility, commitment and positive attitude in the face of uncertainty and adversity; accurately identify personal strengths and areas for growth; work to understand the leader’s vision and, when appropriate, develop your vision as a leader; employ leadership styles and decision making strategies appropriate to the situation; and effectively communicate ideas and concerns on an individual and group level.

# Session 7e: Integrating Teaching and Research

## **Integrating Teaching and Research: Effects of Peer and Supervisor Rankings, Leadership Grades, and Varsity Athletic Participation on Leadership Development Assessments**

*Rebecca S. Shepherd, U.S. Naval Academy, University of Maryland Eastern Shore; Donald H. Horner, Jr., U.S. Naval Academy, Jacksonville University*

A recent study sought to investigate assessments of undergraduate leadership development as measured by the “aptitude for commission grade” at the United States Naval Academy (USNA). In practical terms, the study provided senior military leaders with a quantitative assessment of leadership development measurements. From a research perspective, the study used a post-industrial leadership model – the leadership identify model (Komives et al, 2005) – and quantitative methods in research on a military population.

The study measured the effects of peer and supervisor rankings, cumulative grade point average, grades in academic leadership courses, and varsity athletic participation on the outcome variable “aptitude for commission grade.”

## **Does Faculty Research Improve Undergraduate Teaching?**

*Michael Prince, Chemical Engineering, Bucknell University; Richard Felder, Chemical Engineering, North Carolina State University; Rebecca Brent, Educational Designs, Inc.*

Academicians have been arguing for decades about whether or not faculty research supports undergraduate instruction. The presentation reviews the literature on the current state of the research-teaching nexus and then examines three specific strategies for integrating teaching and scholarship: bringing research into the classroom, involving undergraduates in research projects, and broadening the definition of scholarship beyond frontier disciplinary research. Finally, ways are suggested to better realize the potential synergies between faculty research and undergraduate education.

## **Crossing Traditional Boundaries – Designing a Laboratory Curriculum to Foster Student Research**

*Debra Dillner, Chemistry, U.S. Naval Academy*

The Chemistry Department at the US Naval Academy recently redesigned its chemistry majors’ laboratory program. To open more opportunities for senior projects and research, we condensed the traditional laboratory courses into a cohesive, eight-credit, four-semester sequence of integrated courses covering the core areas of chemistry. These courses are designed along broader themes with many experiments simultaneously exploring concepts from two or more subdisciplines of chemistry. The program begins in the sophomore year and is completed in the junior year, allowing students to pursue research in their senior year. The integrated laboratory concept offers many attractive benefits, although there are potential difficulties: several of these will be discussed.

# Session 7f: Information Literacy and Technological Competency

## How Did You Know That?: Information Literacy in Major Courses

*Lijuan Xu, Library Instruction Coordinator; Jim Dearworth, Biology; Chris Phillips, English; Terese Heidenwolf, Associate Director for Research & Instructional Services, Lafayette College*

In 2001, the Lafayette College Libraries began offering information literacy grants to encourage faculty members to collaborate with librarians to weave information literacy into upper-level classes. Faculty and librarians working on these courses have developed innovative assignments to provide students with opportunities to critically examine the research process and learn that it provides a way to tap into conversations among scholars. Two such successful collaborations will be highlighted in this presentation.

In spring 2006, assistant professor Jim Dearworth redesigned his Neuroanatomy class with the assistance of librarian Lijuan Xu. They developed two assignments to introduce students to neuroscience research. In the first, students interviewed neuroscientists to find out how they conducted research and shared research findings. In the second project, students located and critiqued primary literature on a particular vertebrate and presented their research to the class.

In spring 2008, assistant professor Chris Phillips and librarian Terese Heidenwolf collaborated on a survey course, American Literature and Its Backgrounds, to find ways to help students integrate the study of literary history with the skills of information literacy. In two major assignments, students wrote a reception history of one of the readings from the course and edited and annotated a mini-anthology. In both classes, the collaboration between faculty member and librarian enhanced the learning experience. In Neuroanatomy, students responded especially well to learning how their own professor conducted research and then talking with other experts in the field. Informal observation suggests that students in the English class have retained a stronger working knowledge of and critical approach to library resources than many of their peers in English major courses.

## Technology Competency Roundtable

*Nancy Frazier, Instructional Services Librarian; Kathleen McQuiston, Assistant Director, Research Services, Bucknell University*

Technology plays an integral role in our students' academic and personal lives. Their ubiquitous use of technology does not mean that they are using it effectively. Join us for a discussion on what should we be teaching students about the appropriate use of technology. How should they use technology effectively to organize, communicate, and present information to support academic work? What skills do students need to succeed in their majors? What technological skills will they need as they pursue careers in that field? How can we foresee those skills when things are changing so quickly? How can we best teach those skills?

# Session 8a: Provost Roundtable: Why and How Universities Should Promote Alternative Pedagogies

*Mick Smyer, Provost, Bucknell University; Wendy Hill, Provost and Dean of the Faculty, Lafayette College; Timothy Austin, Vice President for Academic Affairs and Dean, College of the Holy Cross*

## Session 8b: STEM: Abroad Experiences

### Development of a Cooperative International Undergraduate Research Program

*Joanne Romagni, Director of Sponsored Research, Bucknell University.*

In this report we outline the processes and procedures necessary for a successful international undergraduate research program. The Program is collaboration between Bucknell University (BU) and the University of Cádiz (UCA) funded by the National Science Foundation (NSF). The research program lasts for ten weeks, nine of which are in residence in Cádiz. The students are recruited from a national search across the United States with particular attention given to academic excellence and previous chemistry laboratory experience. This endeavor, while unique in several ways, can also serve as a model for other undergraduate research collaborations.

### Five Years of Short-Term Study Abroad Programs: Engineering in a Global and Societal Context

*Jeff Evans, Richard McGinnis, Civil & Environmental Engineering, Bucknell University*

A 3-week study abroad program for Bucknell University engineering students was offered five times from May 2004 to May 2009. The intent of the program was to provide an alternative for students who could not spend a semester or year abroad, enabling more of our students to gain some international experience before they graduate. The program was delivered in the United Kingdom in 2004 and 2006; Argentina in 2007; Switzerland, Germany and France in 2008; and Norway and Sweden in 2009.

Specific educational outcomes for the program include: 1) The broad education necessary to understand the impact of engineering solutions in a global and societal context, 2) Recognition of the need for, and an ability to engage in, life-long learning, and 3) Knowledge of contemporary issues.

The programs were planned thematically around issues in Transportation and Environment in the UK; Water Resources in Argentina; Energy Production, Utilization, and Policy in Switzerland, Germany and France; and Energy and Sustainability in Norway and Sweden. In the most recent program, students heard a series of presentations on topics such as innovative energy generation and carbon sequestration and traveled on field trips to sites such as waste-to-energy, hydroelectric, and nuclear power plants. The students were in Stockholm, Gothenburg, Trondheim, Bergen and Oslo as the three-week program progressed. Assessment was based upon required class and field trip attendance, a daily journal and a term paper written and submitted after the students returned to the US. The assessment demonstrated a high level of outcome achievement.

# Session 8c: Experiential learning and Immersion Experiences

## **Through the Looking Glass: Exploring Diversity in One-Room Buggy Schools**

*Kathryn E. K. Nottis, Education, Bucknell University*

*Teaching in Diverse Environments* is a unique, hands-on course where students design and teach environmental science and math lessons to children in one-room Amish and Old-Order Mennonite schools. This course seeks to develop a reflective teaching and learning community where participants acquire background knowledge on teaching content as well as on the Amish and Mennonite culture, work together to develop a cohesive program differentiated by grade/age, and co-teach lessons. This presentation will include the development of this course, a discussion of the roles it has provided for student participants, and lessons learned from the local Amish and Old-Order Mennonite schools.

## **Combining Experiential Leadership Education with Community Outreach to Minority Student Populations**

*Donald H. Horner, Jr., Leadership Education, U.S. Naval Academy; Edwin D. Leahy, O.S.B., Saint Benedict's Preparatory School*

For the last four years, the Department of Leadership, Ethics, and Law at the United States Naval Academy (USNA) has conducted "leadership internships" at Saint Benedict's Preparatory School (SBP) in Newark, New Jersey as part of both institutions' commitment to leadership development of their respective students. Execution of these internships is consistent with the experiential learning model and National Society of Experiential Education (NSEE) best practices. These internships provide experiential leadership opportunities for students to apply, test, and hone leadership skills previously discussed in a classroom setting. Faculty mentors from both USNA and SBPS guide students through all phases of the experiential exercise. Significant is that USNA's overrepresented white male population is afforded extended interaction with SBP's overrepresented minority male population – a benefit which accrues to each community. The results have been doubly positive as experiential leadership opportunities have been combined with positive community outreach to minority student populations.

## **D.C. Intersections: A Semester-long Community Reporting Immersion in Washington's Most Diverse Neighborhoods**

*Angie Chuang, Journalism, American University*

Students in Race, Ethnic and Community Reporting embark on a fifteen-week exploration of neighborhoods in the Washington metro area, focusing on identity, culture and demographic shifts, as told through human-interest stories. They form small groups and choose a community to profile for a multimedia class Web site with text, interactive Google maps, audio slideshows and short videos. Throughout the semester, their reporting forays provide experiential learning to contextualize a larger curriculum exploring race in society and journalism, as well as developing techniques for reporting and interviewing across cultures, class and race. Since its inception in 2008, the class has been recognized by the Association for Education in Mass Communication and Journalism's annual Great Ideas for Teachers competition, and has received near-perfect student evaluations.

## Session 8d: Assessment and Teaching

### **Assessment Methods and Best Practices in Interdisciplinary, Project-Based Capstone Courses.**

*John B Ochs, Director, Integrated Product Development Program; Lisa Getzler-Linn, Associate Director, IPD, Lehigh University*

Since 1996 Lehigh has offered a truly unique capstone experience for students from engineering, business and design arts through the award-winning Integrated Product Development (IPD) program. For the 2009 project year, over 160 students from three undergraduate colleges are working in 27 teams to design and fabricate new products or create new manufacturing processes for industrial clients. The two-semester sequence is team taught with faculty and industry sponsors acting as mentors. In this presentation the authors will describe the program, discuss assessment instruments and best practices in teamwork and ethical awareness being developed through an NSF grant with Lehigh, Purdue, IIT and Michigan Tech.

### **Program Assessment Methodology**

*Kenny McDonald, Systems Engineering, U.S. Military Academy*

The Engineering Management program at the United States Military Academy at West Point was recently evaluated by ABET for a maximum six year period. As a young program, the EM program continues to evolve as one of the top EM programs in the US and provides support to our constituents - the Nation, the Army, the Academy and the West Point Community, the Faculty and the Staff and, cadets. In the past three years we conducted a comprehensive self-evaluation and assessment in preparation of the 2009 ABET assessment visit. The results of this preparation were better alignment of our program objectives, program outcomes, courses and lessons. Of particular note was the development of a direct assessment methodology which has ensured our lessons and courses sufficiently guide cadets to achieve our program outcomes. Using a rubric-based assessment system, we capture the performance of all our graduates to assess their learning and guide our future program development. This assessment methodology was recently implemented and has proven to be helpful in garnering insights into our program construction. The system is not perfect and we are working through challenges but as a direct assessment tool it is effective.