

The background of the page is a faded, light-colored photograph of a university building. The most prominent feature is a tall, multi-story tower with a Gothic-style architectural design, featuring arched windows and decorative stonework. The tower is set against a clear blue sky. In the foreground, there are green trees and bushes, and a portion of a red-roofed building is visible to the right of the tower.

*Interdisciplinary Center for
Ongoing Research / Education*

ICORE

A Partnership Program

University of Florida

June 16 – 27, 2008

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Welcome to the UF HHMI ICORE Summer Institute! We are so excited to have the opportunity to work with fantastic high school science teachers from across the state of Florida in this inaugural partnership. We hope that you gain many new experiences during your time at the University and are able to translate the current research into your classroom curriculum.

As partners, your feedback is absolutely essential. The program will continue to grow with a new cohort of teachers each year for the next four years, and we hope to improve the program each time. Your comments will help make that happen.

We look forward to our two-weeks together this summer, and also to continued communications with you as we collaborate to enrich science teaching and learning and to better prepare and inspire our young students for the diverse array of career opportunities in science and technology.

Go Gators!
The CPET Staff

INTERDISCIPLINARY CENTER FOR ONGOING RESEARCH / EDUCATION

The Interdisciplinary Center for Ongoing Research/Education (ICORE) Partnership is an exciting new opportunity for high school teachers, funded by a grant from the Howard Hughes Medical Institute, to engage in innovative and continuing professional development. The theme for the 2008 program is *Emerging Pathogens*, an area of cutting-edge and active research with 'real world' implications for Florida residents. Teachers will perform hands-on research with scientists involved in the identification, understanding, and management of emerging pathogens; incorporate these ideas into classroom-ready modules; and present the results of their experiences to colleagues at professional meetings. ICORE also offers continuing university partnership support to teachers throughout the academic year and beyond.

Program Overview:

The ICORE partnership program offers outcome-oriented professional development for high school teachers through collaborations with researchers across Florida. The initial program is organized around studies of *Emerging Pathogens*, a topic of major importance to the health and economy of Florida and the nation. The ICORE Partnership is designed to provide long-term collaborations, experiences, and resources to assist teachers in improving science education, and to offer ongoing opportunities and incentives for teachers to engage in laboratory workshops and earn graduate credit towards a Certificate in Biotechnology Education.

Teacher responsibilities:

- Attend the two-week HHMI ICORE Institute at UF (June 15-27) and create an Action Proposal, incorporating current research focused on emerging pathogens into a classroom-ready unit
- Implement Action Proposals in classroom with graduate student assistance; provide inservice training to other school and district teachers; share progress with ICORE program participants and coordinators.
- Present the outcome of Action Proposals at the annual Junior Science and Humanities Symposium (JSEHS) held at UF (February 2009)

Upon completion of the ICORE program, teachers will receive:

- Access to biotechnology equipment lockers and professional support for classroom activities
- A \$200 grant to implement action proposals
- A student field trip to UF (SETS), Florida Atlantic University (FAU), or the Fort Lauderdale Research & Education Center
- Continued communication and assistance from UF and FAU partners (grad students, staff, researchers)
- Expertise and support in modifying curricula aligned with national and state standards
- Priority seating in teacher workshops offered by the UF Center for Precollegiate Education and Training (CPET)
- Opportunity to participate in summer research internships in laboratories at UF, FAU, and industrial sites
- Three credits towards a Graduate Certificate in Biotechnology Education, further graduate studies, and/or Florida teacher recertification.

Funding support provided by:

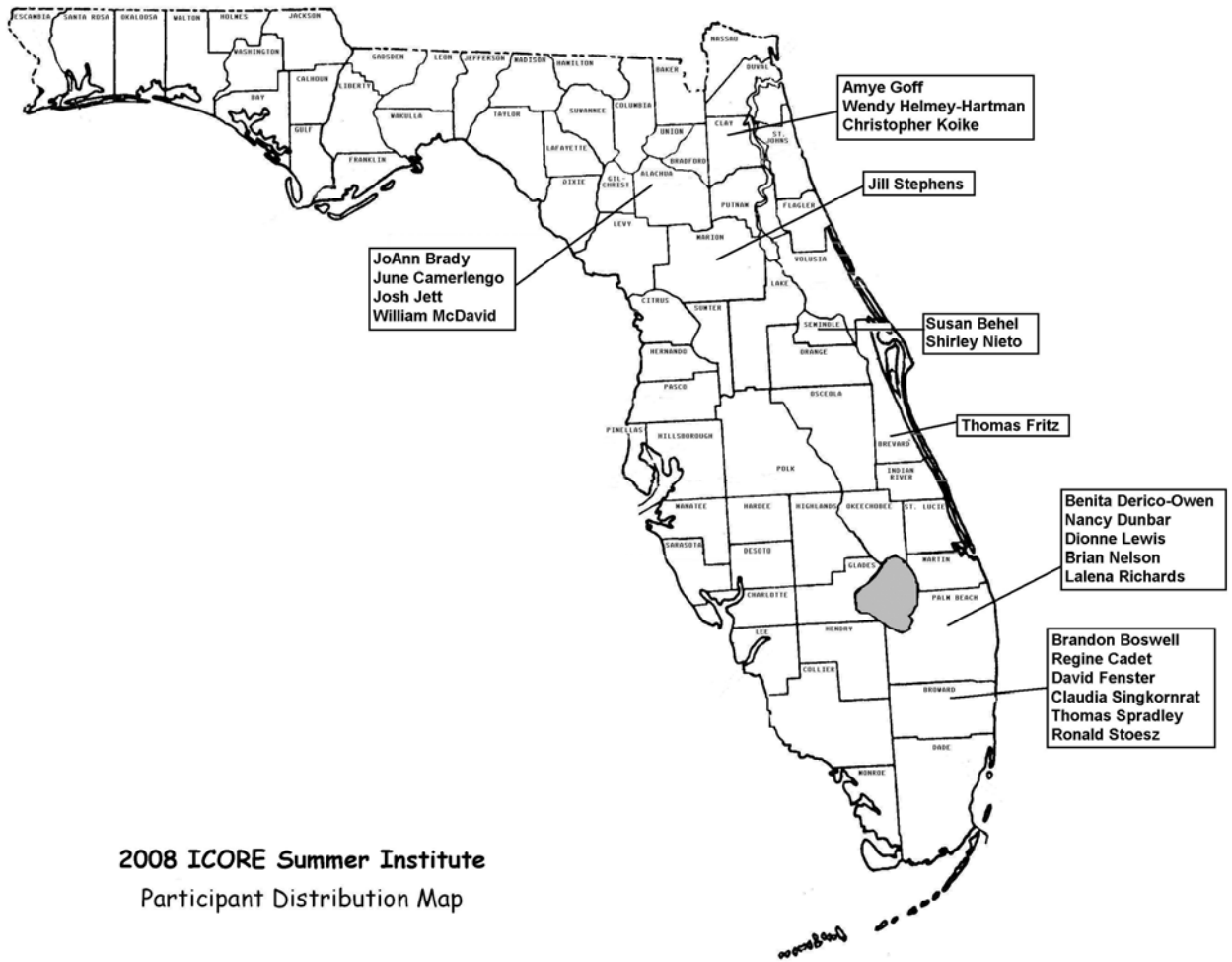


UNIVERSITY OF FLORIDA CENTER FOR PRECOLLEGIATE EDUCATION AND TRAINING

UF CPET is the University of Florida's "umbrella" for the articulation and transfer of current science, technology, engineering and mathematics (STEM) by linking research faculty and students with K-12 school teachers and students through a variety of campus and statewide programs. For almost half a century, CPET has offered discovery-based learning opportunities for secondary school students and, in more recent years, for teachers. The infrastructure of this University Center allows efficient and effective use of resources to administer programs on campus and throughout Florida. Its programs incorporate bridging activities that include teachers, researchers and industry professionals in preparing and delivering effective STEM education and career opportunities from middle school through graduate school. National and state science education standards govern CPET instructional programs. Activities are designed around National Research Council and Florida criteria for students to learn skills and acquire knowledge, and for developing curricula.

As a Center in Academic Affairs, CPET involves more than 300 UF scientists and engineers annually in its outreach programs. CPET also has an established history of collaborations with local, regional and state schools, and with educational and scientific professional societies. Professional development programs supported by HHMI, NIEHS, NSF, Woodrow Wilson Foundation and the University of Florida expand the content knowledge, skills, resources, and enthusiasm of in-service teachers. They also forge long-term relationships with researchers that result in converting new expertise into measurably successful new learning modules for students.

PARTICIPANT INFORMATION



2008 ICORE Summer Institute
Participant Distribution Map

PARTICIPANT INFORMATION

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Mr. Ronald Stoesz
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PARTICIPANT STATEMENTS

Statements regarding willingness to initiate or extend efforts to link students with their community to address local issues concerning emerging pathogens.

Dr. Susan Behel, Lake Brantley High School

Some of my students participate in the Young Epidemiology Scholars competition. I had one of the 40 finalists last year in the National competition. I intend to use the material and lab skills learned to help my research students pursue topics in emerging pathogens and will add this to the unit I already teach on this topic in my Biotech II classes.

Mr. Brandon Boswell, Cypress Bay High School

As an undergraduate at the University of Miami, I studied Philosophy and was Pre-Med. Following my undergraduate work, I pursued a degree in Epidemiology. Specifically, my area of research was HIV/AIDS. We investigated parameters for adherence to anti-retroviral therapy. I also contributed to a paper produced in the Department of Psychiatry on Clozaril prescription in Schizophrenic patients.

Last year, while at lunch with my former roommate from college, I met the principal from Cypress Bay. I was interested in returning to the classroom as a teacher and he presented a golden opportunity: to teach AP Biology. Accordingly, I moved up from Miami to Weston in order to teach at Cypress Bay High School.

My future goals are still a bit obfuscated; however it seems likely that they will include a return to graduate study or possibly attendance at a professional school within the next 2-3 years. My interest clearly lies in Genetics and Pharmacogenetics. There is so much going on in this field that I can not help but desire to be involved in it, either in basic science or in developing commercial applications of these emerging technologies.

Ms. JoAnn Brady, Santa Fe High School

This workshop would enable me to develop lesson plans that would directly apply to my classes of veterinary assisting, animal science, and horticultural science. Our program is presently constructing a green house with the intent of having agriscience students to develop and conduct science projects. The FFA Agriscience Fair enables students to expose the public to current research. Our FFA Chapter members are always concerned about the environment and the effect agriculture has on our community. Students have a direct link to our community to educate the public.

Ms. Regine Cadet, Coconut Creek High

Ms. June Camerlengo, Santa Fe High School

I am very interested and willing to initiate and extend every effort to link students to our community and to local issues concerning emerging pathogens. As the Biotechnology Instructor/Coordinator for Santa Fe High School I have recently begun to connect students to the research community through events at our school and field trips to the Center of Excellence for Regenerative Health and Biotechnology and other centers. I am very interested in learning about emergent pathogens as a topic that I can share with the students with considerably more knowledge, and to learn and create hands-on activities to present to the students to create interest in biotechnology.

Ms. Veronica Crespo, Forest Hill High School

I am a teacher in a low income area, and I find that many of my students, as well as their families are disconnected from science. The subject area of emerging pathogens is highly relevant to every person's life, and the training provided within this workshop would help me to educate my students, who in turn could help to inform their families and communities. With issues such as the development of new strains of HIV and aids, as well as the new presence of MRSA in school, every individual needs a solid knowledge base so they know how to handle these situations.

I am a very hands-on teacher. I utilize as many labs and kinesthetic activities as possible, and would love to incorporate what this program has to offer into my lessons.

Mrs. Benita Derico-Owen, Glades County Community High School

I teach at Glades Central Community High in a small town named Belle Glade. Belle Glade sits in the far west corner of Palm Beach County next to Lake Okeechobee. This community's economic drive is primarily Agriculture. Being the only high school in the area, this is the primary source of education for the community. That being said, I am always search for opportunities to learn helpful information that will enhance or improve life for its citizens. I am sure that attending ICORE summer institute will provide me with yet another opportunity to infuse and impart valuable information into this community.

Ms. Nancy Dunbar, Park Vista Community High School

The opportunity to attend the ICORE summer institute will enable me to extend my efforts to have my students use their knowledge to help the local community understand health issues. In addition to integrating the current research on emerging pathogens into my honors curricula for Anatomy & Physiology, I would like to have my students participate in an extracurricular "pre-med" club to assist the community. I have proposed an Honors Biology II course for the 2009 school year because so many students have expressed an interest in microbiology and biotechnology. This summer institute would help me get the course approved and started. I want to bring more to the classroom.

Mr. David Fenster, Coconut Creek High School

I have created a successful project which involves the partnership of Coconut Creek High School with Konpay/JDS and HALO: the Haitian-American Professional Association. Through our partnerships with these organizations, CCHS Haitian students will build scholarship-worthy community service portfolios by demonstrating scholarship and leadership, in part through community-based biology research opportunities. Although my students will have the luxury of assaying their data using state-of-the-art technology, they will engage in priceless dialogue with their friends in Jacmel, Haiti who, even without this technology, can research the ELISA Online and apply knowledge gained from their online research to their work and predict potential outcomes as if they had the opportunity to apply this technology to their projects.

Mr. Thomas Fritz, West Shore High School

I am willing to work with both my Biology and Anatomy & Physiology students to provide experiences in the community with emerging pathogens. Part of our school program is to have students perform a senior project. These students must design, plan, implement, conduct research and present to the community, a project of their choosing. This presents a major challenge for them. I cannot promise that a student will take on a project relating to emerging pathogens, but I can say that after presenting interesting and important information gained from this experience, it would be likely that a student will take on a related project. Volunteer hours will provide another great opportunity to engage students in projects related to emerging pathogens. I will work to promote these important issues with the students.

Ms. Amye Goff, Keystone Heights High School

I would like to have my students survey their community and see what trends are emerging. I would have them come up with solutions or possible treatments for the emerging pathogens. I would also have them collect samples from the water sources available to them to see what pathogens could be found in the water.

Ms. Wendy Helmey-Hartman, Keystone Heights Junior/Senior High School

I believe that a strong connection with the community is vital for many students to succeed. Education should help to provide children with the skills necessary to become responsible citizens. The knowledge I gain through this workshop can be used to increase this connection between my students and their community.

In my classes, I continuously try to help my students make practical connections between the scientific concepts and theories they learn in class and real-world scenarios and examples. Emerging pathogens are an extremely relevant topic that all of them will have to deal with on some level during their lives. I am eager to get my students more involved in the local area. For example, I would like to get all my students involved in water quality testing. We also have a significant number of students who live on farms and are familiar with diseases of livestock and crops. I think these conditions will serve as excellent resources to involve my students in local issues concerning emerging pathogens.

Mr. Josh Jett, Santa Fe High School

The topic of emerging pathogens is one that potentially affects everyone. On our very campus earlier this year, several students were infected with MRSA. As other pathogens continue to emerge and become widespread, it is important for students and citizens to be aware of the risks, symptoms, methods of treatment and precautions that can be taken to prevent infection. So many emergent pathogens infect people because of life style decisions or ignorance of their modes of transmission. By becoming more educated about the details of emergent pathogens, I can begin to incorporate this information into my biology and environmental science curricula. As students gain knowledge in regard to emergent pathogens, they can make better choices and be able to minimize potential risks. As students share this information with parents, friends, and other in the community, hopefully more of us can become proactive in prevention of the further emergence of current or future pathogens.

Ms. Diane Johannes-Schwab, Fort Myers High School

I truly enjoy teaching Biology. To keep my students intrigued with subject matter, I share medical news that effect people, places, and things. There are always stories about pathogens infecting our society be that human, plant or animal. Each kind of infection possibly resulting in devastating consequences always catches the students' interest. My goal is to create investigations to further our understanding of emerging pathogens. I would like my students to assimilate how infection in one part of the world will influence our lives, especially with our growing global economy. This course will provide me with information for developing curriculum supplementing our core content. My district would allow me to share this with other science professionals.

Mr. Christopher Koike, Keystone Heights High School

As a small community we have felt the effects of drought and the declining levels of our lakes. It is critical that we not disenfranchise the members of our community here by not educating our students to be able to address and participate in the process of protecting the environment. The student body here is critical to the success of the town and simply needs the skills and decision making paradigms to create change. The study of emergent pathogens is indicative of some of the most challenging problems facing Florida as the climate continues to change. The study of some of our key problems including the decimation of the bee population must quickly be addressed by this generation of youth. We will be purposeless as educators if we are unable to convey the seriousness of our situation.

Mrs. Dionne Lewis, Palm Beach Lakes Community High School

Being an educator for the past seven years has provided me an opportunity to mold minds and build foundations for students. I hope most pursue a career in the science field. So it is only natural for me to have a desire to continue my efforts to link students with knowledge that affects the world around them.

Mr. William McDavid, Santa Fe High School

As a member of the Santa Fe High School science department, my colleagues and I are in the process of initiating a biotechnology magnet program. The ICORE summer program about emerging pathogens will help provide knowledge that directly relates to our new program of study.

I am willing to link my students with their community and address local emerging pathogens. I believe we should strive to protect our communities from harm, and I am aware of some of the dangers that certain pathogens may bring to our community. Prior training from the U.S. Navy has provided me with some background knowledge of biological health hazards. I am looking forward to your summer program in increase my knowledge and to improve understanding among community members.

Mr. Brian Nelson, Wellington High School

I've been teaching secondary science and chemistry for the past five years and I can honestly say that I've had a greater positive influence on my community and my country than I had in the eleven years I spent in the US Coast Guard. I want to bring the most current and relevant science applications to my students and the ICORE institute on emerging pathogens couldn't have come at a better time.

I've been active in helping plan the chemistry curriculum in the Palm Beach District for several years. The advanced education I will gain from this summer's institute will be multiplied as I assist more of my fellow teachers by enhancing the quality of their lessons. I have ample opportunities to involve my students and colleagues in activities to address local issues such as mosquito control, water quality management, and animal disease. I look forward to the institute as a source of expert knowledge and advice.

Ms. Shirley Nieto, Lake Brantley High School

I enjoy learning new things and sharing new experiences thus I find cutting edge technology fascinating. I'll bet many sci-fi writers and filmmakers also look at "old" sci-fi adventure flicks and see prototypes of current day engineered equipment. As I say this, Dr. McCoy of Star Trek comes to mind and a scene where he uses a technologically advanced syringe that didn't break the skin. As an educator, I want to inspire and propel my high school students into creative adventures that require them to be better problem solvers. I believe it is necessary for them to develop scientific attitudes as they prepare to engage in the science and technology challenges of the future.

Let's face it, the USA needs to turnout many more scientists and medical practitioners than in the past. As a newbie in Biotech Education, I expect this ICORE program to connect me with seasoned educators that can help me lay out a plan to link students with busy, successful, local community professionals.

Ms. Lalena Richards, Park Vista Community High School

Here in South Florida there are many opportunities for student involvement in the field of emerging pathogens and I am willing to encourage the students at Park Vista to support the community efforts in this area. Park Vista's research class is always looking for current "hot topics" in science. I will mentor students interested in researching emerging pathogens in and around Palm Beach County. These students would present their research at the county science fair.

Dr. Claudia Singkornrat, Pompano Beach High School

I envision using the knowledge gained during this program to encourage students to research and experiment with emergent pathogens. Then students would present their findings to the school's science department and to local groups (such as environmental groups, city and council meetings, etc). Also, students could present local issues and action plans to students at our local middle and elementary schools. I am open to other suggestions and I am committed to sharing the knowledge, and to involve students in the process.

Dr. Thomas Spradley, Dillard High School

There are three pathogens that would be of great concern for South Florida residents. The first and most significant to the population here in Fort Lauderdale is HIV/AIDS. I would have research-project based assignments in which students could take what they have learned and educate community members. In addition, student initiatives would include campus based awareness projects in order to educate fellow classmates.

The second emerging pathogen would include avian flu virus. Historical topics discussing world pandemics such as the Spanish flu and *Y. pestis* would be the focus for this topic. The virulence of super pathogens, which kills tens of millions and epidemiology of such horrific epidemics, would also be addressed.

The third emerging pathogen would be those which affect agriculture. These are pathogens such as citrus canker, grape Phylloxera, potato blight, prions, and other agricultural pathogens. These pathogens do not directly infect humans, but do have a direct impact on world health and would result in world famine and food shortages and indirectly cause millions of deaths due to economic hardship and starvation.

Ms. Jill Stephens, North Marion High School

As I began to prepare a brief statement regarding my willingness to initiate or extend student links to the community in the area of emerging pathogens, I started thinking about several new ideas to add into my instruction next school year! As far as my willingness to get involved and have my students involved with local pathogen concerns, I'm ready.

Over the past several years, I have been involved in developing a biotechnology magnet program at the high school where I currently teach. There have been many obstacles to overcome, but it appears that all of the hard work is about to pay off this coming school year. Our reasoning for developing this program was to provide our students with a head start in the emerging field of biotechnology.

Mr. Ronald Stoesz, Boyd Anderson High School

I am willing to link students with their community to address local issues concerning emerging pathogens. In our biology courses we discuss pathogens as well as our immune systems. Our school has AP classes, IB, and Health and Wellness Academies and we are privileged to have three medical doctors on staff. We are planning on expanding our efforts in preparing our students for careers in the "real world." Biotechnology is an additional area that we are planning on expanding in the next year.

UF CPET FACULTY AND STAFF INFORMATION

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Mary Jo is Director of the University of Florida Center for Precollegiate Education and Training (UF CPET) and a faculty member in the Department of Biochemistry and Molecular Biology in the College of Medicine. She served on the faculties of Bryn Mawr College and Harvard Medical School before coming to UF in 1979. Her research interests and publications are in the area of cell regulation, membrane biochemistry, and science education. From 1989 - 1994, she served as the founding director of the Education and Training Program of the UF Interdisciplinary Center for Biotechnology Research, a laboratory-based workshop program to teach new concepts and techniques of DNA science to scientists and physicians, graduate and medical students, secondary school teachers, and non-science professionals. She continues to teach undergraduate and graduate courses, directs the Biochemistry and Molecular Biology course for medical students, and serves on numerous education committees on campus and throughout Florida. Since 1995, she has led UF CPET in science, math and technology programs that link UF research faculty and graduate students with inservice teachers and their motivated students in grades six through twelve. She welcomes new collaborations in basic and applied science outreach with universities and businesses, with UF faculty and students, and with Florida's K-14 educators and students.

Julie Bokor

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Julie joined CPET in May of 2001. She received her Bachelor's Degrees in Zoology and Microbiology and Cell Science from the University of Florida. Julie has worked in both industrial and academic molecular biology laboratories. Her responsibilities include the development and implementation of workshops and educational opportunities designed to update high school and middle school science, math, and technology teachers on recent developments in their content area. Julie coordinates all of the CPET programs for teachers including Mini Medical School, Teachers as Scholars, ICORE, and the Summer Science Institutes. With the growing number of teacher programs, she turned the helm of Science Quest over this summer after six summers. Julie also arranges for teachers to return to UF with their students as part of the SETS program.

Erin Kelso, Ph.D.

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Erin Kelso is a postdoctoral fellow at the Center for Precollegiate Education and Training at UF. She has a Ph.D. in evolutionary biology from Indiana University, a M.S. in zoology from Washington State

University, and a B.S. from the University of California at Davis. Erin is responsible for Science Quest, CPET's one-week residential science program for rising 10th grade students, and she also assists with CPET's content-rich professional development programs for teachers. Erin will be the liaison for ICORE teachers during the school year, and will assist with implementation of Action Plans that include equipment loans, classroom support, and class visits to research facilities at UF, UF-IFAS Fort Lauderdale Research and Education Center, or FAU.

Charles Lawrence, MPH, Ph.D.

UF CPET Educational Designer

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Chuck is a Ph.D. Ecologist with M.S. degrees in Environmental Health and Zoology. He is an experienced high school teacher and describes himself as "addicted to science and technology." At CPET, he produces resource books and develops CD and Internet multimedia learning tools and teaching modules for CPET's teacher outreach programs. He is the author of "The Science Project Encyclopedia", creator and custodian of the Science Information for Teachers (SIFT) educational service and producer of the Excursions in Science CD-ROM series which can be viewed online.

Steve Everett, M.S., M.Ed.

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Steve teaches Ecology and AP Environmental Science at Eastside High School in Gainesville, and is adjunct faculty at Santa Fe Community College, teaching Emergency Medical Care. He holds a B.S. in Zoology (UF), an M.Ed in Science Education (UF), and a M.S. in Environmental Engineering Sciences-Wetlands Ecology (UF). Steve was a CPET-TRUE participant in 1999. Since then, he has returned each summer to instruct in CPET programs including the *Environmental Health Partnership*, *Gator Lab*, *Science Quest*, *Save the Earth's Environment Through Knowledge*, and the *Summer Science Institutes*. He was named Teacher of the Year in 2002 by the University of Florida Society of Research Scientists.

Susan Behel, Ph.D.

Faculty, Seminole Community College and Lake Brantley High School

CPET Visiting Instructor

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Dr. Behel is a veteran teacher at both the precollege and college level. With a doctorate in Microbiology, Master's and Bachelor's in Science Education, she is well suited to teach. She has been instrumental in initiating new programs in her school and district, keeping students abreast of current research and discoveries and nurturing their interest in scientific research. Dr. Behel has been the Science Fair Director for Seminole County schools and also is part of the National Advisory Board for JSBS (Junior Science Humanities Symposium.)

Nick Andrews

CPET Student Assistant

Nick joined the CPET staff in Spring 2008 and has assisted in the office as well as with laboratory experiments for visiting middle and high school students. He is a fourth year Microbiology and Cell Science student and hopes to attend medical school. In addition to working at CPET and being an undergraduate, Nick is also part of an active research laboratory in the College of Medicine.

ICORE PRESENTERS

Anthony Barbet, Ph.D.

Professor

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Dr. Barbet's research interests include defining the mechanisms that bacteria use for pathogenesis coupled with the development of recombinant vaccines and improved methods of diagnosis.

David Bloom, Ph.D.

Associate Professor

Molecular Genetics and Microbiology, College of Medicine

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Dr. Bloom's research is focused on discovering the genetics behind the activation of dormant *Herpes Simplex Virus*. A second goal of his lab is to determine the transcription mechanisms that throw this virus into its latent state. The final focus of Dr. Bloom's lab is to use *Herpes Simplex Virus* as a vector for delivering gene therapy to certain areas such as to the eye for the treatment of recurrent stromal keratitis.

Luciano Brocchieri, Ph.D.

Assistant Professor

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Dr. Brocchieri is currently participating in a wide variety of research areas including: determining phylogenetic relationships with DNA sequencing data, investigating determinants in the evolution of proteins and DNA, studying the evolution of chaperones in eukaryotic and prokaryotic organisms, and researching the genetics of the herpes viruses.

Daniel Brown, Ph.D.

Associate Professor

Department of Infectious Diseases and Pathology, College of Veterinary Medicine

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Dr. Brown's research interests include focusing on host cell responses elicited by interactions with microorganisms. He has ongoing research on new bacterial pathogens and commensal organisms, bacterial genome sequencing, studying bacterial virulence mechanisms, and predicting pathogen evolution.

Richard Condit, Ph.D.

Professor

Molecular Genetics and Microbiology, College of Medicine

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Dr. Condit's research involves the large double stranded DNA-containing poxvirus called *Vaccinia* that replicates in the cytoplasm of infected cells. The focus of his research is to understand how transcription in the virus is controlled and to characterize the lethal mutants of the *Vaccinia* virus.

Roxanne Connelly, Ph.D.

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Dr. Connelly's research is based on improving predictions of arboviral outbreaks in Florida using surveillance to determine human risk, develop an understanding of West Nile Virus transmission, and provide improved tools for surveillance to mosquito control and health departments. Her other research includes providing more effective and efficient environmentally proper mosquito control.

John Dame, Ph.D.

Professor and Chair

Department of Infectious Diseases and Pathology, College of Veterinary Medicine

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http://patho.vetmed.ufl.edu/faculty_dame.htm

Dr. Dame's research involves emerging and re-emerging pathogens of animals and man, molecular biology of the malaria parasite, drug target identification in *Plasmodium falciparum* (a protozoan parasite that causes malaria in humans), and developing novel diagnostics approaches for emerging diseases.

Dean W. Gabriel, Ph.D.

Professor

Plant Pathology, College of Agriculture and Life Sciences

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http://plantpath.ifas.ufl.edu/People/Faculty/Gabriel/gabriel_1.htm

Dr. Gabriel's current research is in the virulence genes of citrus canker disease, cotton blight, and common bean blight. His lab is currently working on methods to block pathogen signal molecules from being transferred to the plant nucleus. Other research projects include engineering resistance to bacterial pathogens and insect pests, and taxonomy, population structure, and detection of *Xanthomonas*. (A genus of proteobacteria responsible for many plant diseases)

Paul Gibbs, BVSc, Ph.D., FRCVS

Professor

Department of Infectious Diseases and Pathology, College of Veterinary Medicine

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Dr. Gibb's career has focused on the epidemiology and control of emerging viral diseases and their relationship to human and wildlife populations. Working with his team, recent research has focused on the evaluation of a recombinant vaccine to protect horses from West Nile infections and the discovery of canine influenza.

Maria Gallo, Ph.D.

Associate Professor

Department of Agronomy, Plant Molecular and Cellular Biology Program

Genetics Institute and Institute of Food and Agricultural Science

Co-PI, ICORE grant

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<http://agronomy.ifas.ufl.edu/faculty/gallo.shtml>

Dr. Gallo is responsible for the molecular genetics of peanut and other agronomic crops of importance to Florida. The central research theme of the Gallo lab is the use of molecular approaches to create novel genotypes, and to gain a better understanding of mechanisms which regulate gene function. Dr. Gallo is also a Co-Director of the STEP program.

Paul Gulig, Ph.D.

Professor

Molecular Genetics and Microbiology, College of Medicine

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<http://www.mgm.ufl.edu/faculty/pgulig.htm>

Dr. Gulig is interested in a particular bacterial disease named *Vibrio vulnificus*. The infection from this organism causes significant tissue damage after ingestion of raw oysters or contamination of wounds. The focus of the research is to find out how this bacteria replicates so quickly, how it avoids host defenses, and how it causes damage in such a short period of time.

Lisa Hightower

Coordinator, STEP Program

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Ms. Hightower has been working for the past three years as the Scientific Thinking & Educational Partnership (STEP) program coordinator. In that role she has developed educational materials geared toward middle school and high school science teachers to encourage their students to become interested in the sciences. Ms. Hightower is working on research focusing on the use of iPods in undergraduate science classes to improve student motivation.

Marjorie A. Hoy, Ph.D.

Eminent Scholar

Entomology and Nematology Department

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<http://cta.ufl.edu/pdfs/aff-bios/UF-CTA-Bio-Marjorie-Hoy.pdf>

Dr. Hoy's research areas focus on the biological control of invasive pests of citrus. Pests that have been researched include: the citrus leafminer, the Asian citrus psyllid, and the brown citrus aphid. More recently she has begun research into the control of the red palm mite, an invasive pest in Caribbean and Florida. Also, her research includes the diversity of microbial symbionts in a predatory mite and its prey, the two spotted spider mite.

Tracy Irani, Ph.D.

Associate Professor

Agricultural Education and Communication, College of Agricultural and Life Sciences

CoPI, ICORE grant

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Dr. Irani is currently a part of the Education Initiative on Agricultural Biotechnology for Florida Consumers and Educators. This team is a group of scientists whose goal is to objectively educate the public on agricultural biotechnology and genetically modified foods. She is also a Co-Director of the STEP program: Scientific Thinking and Education Partnership, focusing on science education, critical thinking and problem solving, and evaluation.

Andrew Kane, Ph.D.

Associate Director, Emerging Pathogens Institute

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Dr. Kane's research interests include environmental pathology and toxicology of aquatic and marine organisms with emphasis on Chesapeake Bay fauna and captive fish species. His research delves into the indicators of contaminants and water quality deterioration effects on fish species. In addition, he has considerable experience in conducting grants-writing workshops.

Robert M. Lawrence, M.D.

Clinical Associate Professor
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Dr. Lawrence is a pediatrician who specializes in pediatric infectious disease. His current research topics include pre-adolescent HIV, tuberculosis, and breast-feeding medications and infections.

Alexandra Lucas, M.D.

Professor
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College of Medicine
Director Vascular Research, Malcom Randall VA Medical Center
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Dr. Lucas has just moved to the University of Florida from the Robarts Research Institute and University of Western Ontario in London Ontario Canada where she has been a principal investigator studying of monocytes and T lymphocytes in vascular disease. Dr. Lucas is also co-inventor and co-founding scientist for Viron Therapeutics, Inc., a Biotechnology company that is now in clinical trial analyzing viral anti-inflammatory proteins as a new class of therapeutic agents. Dr. Lucas is a practicing interventional cardiologist. Dr Lucas runs an active basic research lab in vascular inflammatory research.

Mavis Agbandje-McKenna, Ph.D.

Associate Professor
Department of Biochemistry and Molecular Biology, College of Medicine
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Dr. McKenna's research involves the study of members of the ssDNA virus families: *Microviridae*, *Geminiviridae*, *Circoviridae* and *Parvoviridae*, which infect bacteria, plants and mammals. The research is focused on the role of the viral capsid and capsid protein in the biological process of the viral life cycle. Her research is also interested in understanding how the capsid adaptations control interactions with the host cell machinery.

Robert McKenna, Ph.D.

Associate Professor
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Dr. McKenna's research includes studying the structure of biological molecules using advanced techniques such as X-ray crystallography and electron microscopy incorporated with computer modeling to generate a three-dimensional model. Once the model is created, the biochemical properties of the molecule are coupled with the genetics of the molecule in order to create a structural map of the molecule. This very detailed structural map is essential to understanding how the molecule performs its operations. This technique is currently being used to study adenoviruses and carbonic anhydrase.

Grant McFadden, Ph.D.

Professor
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<http://www.mgm.ufl.edu/faculty/GMcFadden.htm>

Dr. Grant McFadden's scientific expertise is on the nature of how viral pathogens interact with the host immune system. Over the past two decades his lab has studied a variety of strategies that poxviruses in particular have evolved to evade, subvert, suppress or micro-manipulate the various host defense pathways. The McFadden lab has also studied what attracts viruses to their host species and is developing viruses for the treatment of human cancers.

J. Glenn Morris, M.D., M.P.H.

Director, Emerging Pathogens Institute
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Dr. Morris is the director of the new Emerging Pathogens Institute which will develop outreach, education, and research capabilities to prevent or contain diseases that threaten tourism, health, and agriculture in the state of Florida. He recently served as interim dean of the School of Public Health at the University of Maryland Baltimore, and he plans to bring together researchers from across UF to build the institution's research program.

Richard Moyer, Ph.D.

Senior Associate Dean for Research Development and Professor
Department of Molecular Genetics and Microbiology, College of Medicine
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Dr. Moyer's research is focused on identifying and characterizing the genes that cause pathogenesis and disease in their hosts. The genes that are currently under investigation all control some aspect of the host response to the viral infection whether it be inflammation, chemotaxis, or apoptosis (programmed cell death). Mutations that are being studied in the particular genes have shown signs of decreasing the virulence of the virus and helping the outcome of the viral infection.

Brian Myers, Ph.D.

Assistant Professor
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Dr. Myers specializes in laboratory instructional methods. He has published on the topic in both peer-reviewed research journals and practitioner based publications. Brian has taught numerous undergraduate and graduate courses in teaching methods, program planning, and curriculum development as well as supervised student teachers. He has also delivered several professional development programs across the country focusing on integrating science, math, and reading into the agricultural education curriculum. Prior to his experience at the university level, Dr. Myers taught agriscience and Tech Prep courses. His efforts as an agricultural education teacher and FFA advisor have been recognized by numerous organizations.

Gigi Ostrow, Ph.D.

Scientific Manager
Gene Expression Core, Interdisciplinary Center for Biotechnology Research
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Dr. Ostrow heads the core facility that offers total support for custom microarray development beginning with DNA sequence analysis, ORF finding, and sequence annotation, through microarray fabrication using Agilent's "SurePrint" technology. The core also has facilities for complete processing of the most recently available high-density Affymetrix GeneChips.

Kenneth Rand, M.D.

Professor
Department of Pathology, Immunology, and Laboratory Medicine, College of Medicine
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Dr. Rand's research is involved in using microarrays for viral discovery. In addition, he is interested in the mechanism of synergy between two antibacterial drugs daptomycin and rifampin against rifampin-resistant and vancomycin-resistant *E. faecium*.

Carlos Romero, DVM, Ph.D.

Research Professor

Department of Infectious Diseases and Pathology, College of Veterinary Medicine

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Over the last decade, Dr. Romero's research has concentrated on the development of molecular assays for the early detection and characterization of viruses of livestock and poultry. He has also been involved in the development of genetically engineered recombinant DNA viruses and DNA molecules with potential vaccine use in poultry and livestock. More recently, he has concentrated on the development of diagnostic assays to identify novel viruses of marine mammals that may be associated with disease.

Troy Sadler, Ph.D.

Assistant Professor

School of Teaching and Learning, College of Education

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Dr. Sadler's research agenda relates to understanding how people learn science and what approaches to teaching facilitate learning. He has an ongoing project related to student discourse and argumentation in classrooms. Dr. Sadler is investigating how students learn about science and technology through the social negotiation of experiments and their findings. He teaches courses related to science education and teacher preparation and conducts research in the areas of socioscientific issues, scientific argumentation, and situativity theory.

Barbara Sheppard, DVM, Ph.D.

Clinical Associate Professor

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Dr. Sheppard's laboratory investigates the potential of brevetoxins, which are the toxins produced by dinoflagellate alga during red tides, to cause DNA mutagenesis, alter cell cycle, and influence cell death in normal and neoplastic human lung cells. She also studies species-dependent environmental relationships in different levels of toxin sensitivity and resistance in aquatic invertebrates compared to marine mammals.

Richard Snyder, Ph.D.

Assistant Professor

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Director, Center of Excellence in Regenerative Health Biotechnology

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Dr. Snyder's research involves adeno-associated viruses. The first goal of the lab is to find out how the nucleic acid is inserted into the capsid of the virus. The second goal is to understand adeno-associated virion assembly and specific capsid subunit interactions using computer modeling techniques. Dr. Snyder currently serves both as the director of the Center of Excellence of Regenerative Health Biotechnology (CERHB) and the director of Human Applications within the Powell Gene Therapy Center.

Bruce Torbett, Ph.D., MSPH

Associate Professor

Departments of Molecular and Experimental Medicine and Immunology

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Dr. Torbett's research is focused on the defining a particular transcription factor that is responsible for normal and abnormal differentiation of myeloid cells. Torbett also focuses on studying why some HIV-1 variants develop resistance to protease inhibitors. Viral protease is responsible for processing the viral proteins that lead to viral infection.

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