ICORE PROGRAM BOOK
Interdisciplinary Center for Ongoing Research/Education

A Partnership Program

University of Florida
Summer Institute: June 9 – June 21, 2013

Funded by a precollege award from:

HHMI

With additional support provided by:

UF Center for Precollegiate Education and Training
UNIVERSITY of FLORIDA
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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 partnership. We hope that you gain many new experiences during your time at the University and will 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 next year, and we hope to improve the program each time. Your comments will help make that happen.

We’re looking forward to our two weeks together this summer, as well as our continued communications and collaborations to both 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
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 2013 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 9-21) and create an Action Proposal, incorporating current research focused on emerging pathogens into a classroom-ready unit
- Implement Action Proposals in classroom with CPET staff assistance; provide in-service training to other school and district teachers; share progress with ICORE program participants and coordinators.
- Provide regular updates on the use of ICORE components in the classroom
- Prepare a final written report detailing the outcomes of the Action Proposal (December, 2013)

Upon completion of the ICORE program, teachers will receive:

- Access to biotechnology equipment lockers and professional support for classroom activities
- Opportunity to apply for a $500 mini grant toward the implementation of your Action Proposal
- Student field trip to UF Special Explorations for Teachers and Students (SETS)
- Continued communication and assistance from UF and institution 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
- Opportunity to participate in summer research internships in laboratories at UF and industrial sites

Funding support provided by:

HHMI

UF

The Foundation for the Gator Nation
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 more than 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 350 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.
2013 PARTICIPANT MAP

2013 ICORE Summer Institute
Participant Distribution Map
2013 Participant
Information

Ms. Diane Bassett
Riverview High School
Sarasota
Pre IB Biology I, IB Biology II, Hon. Marine Science (9-11)

Mr. Jon Breedlove
Palm Beach Lakes High School
Palm Beach
Biology (9-10), Biotechnology (9-12)

Mr. Jeffrey Kelly
Southwest Middle School
Brevard
7th Grade Science II Advanced, 7th-8th Grade Science Research

Ms. Ashlynn Maher
Palm Harbor Middle School
Pinellas
6th Grade Science/Integrated

Ms. Casey Portnoy
Fort Lauderdale High School
Broward
Anatomy/Physiology/Pathology, Nutrition, Public Health

Ms. FNU Shahar Banu Shahana
First Coast High School
Duval
Chemistry, Earth Space Science

Mr. Brett Stubbs
Suncoast Community High School
Palm Beach
Hon. Biology (9)

Ms. Suzanne Bliss
University High School
Orange
Biology (9-10)

Ms. Rachel Gerhard-Sterner
Palm Beach Lakes Community High School
Palm Beach
Biology (10), Biotechnology I (9), Biotechnology II (10)

Ms. Amanda Jackson
Bartow Senior High
Polk
Biology (9-12)

Mr. Joseph Mallon
Island Coast High School
Lee
Biotechnology, Environmental Resources, Agricultural Science (9-12)

Mr. Michael Rudy
Vanguard High School
Marion
Biology and Physical Science (9-12)

Ms. Susan Shepard
Jupiter Community High School
Palm Beach
Hon. Biology (9)

Ms. Leah Bobula
Atlantic Coast High School
Duval
Hon. Chemistry (10), Forensic Science (11-12)

Ms. Adele Geyer
Jesuit High School
Hillsborough
Biology (9)

Ms. Hermione Joseph-Orelus
Atlantic Community High School
Palm Beach
Biology (10)

Mr. David Lockart
Palmetto High School
Manatee
Physical Science, Chemistry

Ms. Teresa Nick
Merritt Island High School
Brevard
Biology, Hon. Biology, Integrated Science II

Ms. Nicole Sasnett
Dunnellon High School
Marion
Earth Science (9-12)

Ms. Karen Smith-Elvie
J P Taravella High School
Broward
Chemistry, Forensic, Anatomy (10-12)
PARTICIPANTS

Ms. Diane Bassett, Riverview High School

Biographical Sketch: I am a native Floridian and returned to teach in Florida public schools, going on 28 years. I am currently teaching in the IB program at Riverview High in Sarasota. I look forward to school every day, because I LOVE my job! I lead teacher in-service workshops and present at State professional conferences, where I always learn something new. I look forward to networking with others.

Personal Statement: I am always willing to incorporate new and cutting edge knowledge and labs! Networking with other science teachers and professionals around the State (and beyond) has been invaluable to me. My IB students need to have a global perspective and I look forward to implementing what I've learned.

Ms. Suzanne Bliss, University High School

Biographical Sketch: I have the best job! I presently teach 9th and 10th graders biology at University High School in Orange County Public Schools. Our school is part of the International Baccalaureate Programme. Each year I have about 150 energetic teenagers. Students have a natural curiosity of how things work, and it is my job to foster that curiosity. Therefore, I offer my students the opportunity to participate in “hands on” science investigations. I enjoy learning new ways of teaching and activities that I can incorporate in my lessons. I change my classroom activities every year, so I have 28 years of experience --28 years teaching of a variety of activities, not the same ones year after year.

Personal Statement: I am always willing to incorporate new and cutting edge knowledge and labs! Networking with other science teachers and professionals around the State (and beyond) has been invaluable to me. My IB students need to have a global perspective and I look forward to implementing what I’ve learned.

Ms. Leah Bobula, Atlantic Coast High School

Biographical Sketch: Leah Bobula was born and raised in Harrisburg, Pennsylvania. She attended Duquesne University in Pittsburgh, Pennsylvania. In 2008 she graduated with a BS in Biology with a minor in Biochemistry. In 2009 she graduated from Duquesne with a MS in Forensic Science and Law. After moving to Jacksonville she began working part-time at Douglas Anderson School of the Arts and earning her teacher certification through UNF's EPI program. She now works full-time at Atlantic Coast High School teaching Honors Chemistry and Forensic Science. Leah serves as the Science department coordinator as well as the sponsor for the SGA, Student Government Association.

Personal Statement: This program will enable science teachers to push their students to perform at a higher level. By providing the knowledge to teachers about creating more inquiry-based labs and activities about emerging pathogens, the students will benefit in all academic classes. I work with other academic departments for cross-curriculum opportunities. One example would be how emerging pathogens can easily be incorporated with a government and economics class to discuss how these pathogens will affect our country and our economy. As department coordinator I have the ability to reach all of the teachers at my school as well as at the district level. This will help ensure students are well-prepared for college as well as real world problems that can and will arise. With a world-class hospital like the Mayo Clinic in our city, our students have unique internship or shadowing opportunities. Digging into a topic like emerging pathogens may help some students recognize their passion for science and be able to apply it in the real world. I am willing to help them find these opportunities and to embrace them.
Mr. Jon Breedlove, Palm Beach Lakes High School

Biographical Sketch: I have been a teacher for over 8 years and have worked primarily with Title I schools focusing on student achievement and closing the achievement gaps with struggling students. I hold a belief that all students can achieve success and want to assist each of my students to become life-long learners and also loves of science. I try to engage my students with hands-on learning and assist them with tying science to their “real-world” so they will become problem solvers and critical thinkers. I encourage each student to be the best they can be and assist them to find the right college and program for them, even if it is not in the field of science. I do try to promote the areas of science as much as I can and have taken students to various field trips this year to expose them to world-class research facilities such as Max Plank Institute and Scripps Florida, and support the STEM initiative by encouraging women and minorities to major in the fields of science, Mathematics, Engineering, or Technology. From classroom to college is my mantra!

Personal Statement: Having taken my students on several fieldtrips this year already, I firmly believe in exposing students to real-world applications of the many standards they will be exposed to in my classes. It is this foundational belief that would ensure that I bring the experience of the Pathogens institute to my classroom and set up activities with local organizations to further the awareness and assist with educating the students and community alike. Emerging pathogens, drug resistant pathogens, and radically mutated pathogens are becoming a public threat and it is very important for me to assist in the awareness and education for prevention and precaution to very real potentials in these areas. Our school is blessed to be located near some healthcare centers and forums that would allow us to address these issues with our local community. Another teammate from my school is also applying and as a team, we hope to work on this initiative together!

Ms. Rachel Gerhard-Sterner, Palm Beach Lakes Community High School

Biographical Sketch: I started my teaching career 11 years ago in Baltimore, MD as an ESE teacher specializing in Science. Currently, I teach 2 regular biology classes, 2 inclusion biology classes, and 2 magnet Biotechnology classes. My professional goals include making science fun, hands-on and engaging for all my students and to be able to give them the skills and strategies they need to be successful in today’s varied society.

Personal Statement: I am 100% committed to using the skills and strategies I will learn with my students and partners in the community. In the biotechnology program we are always looking for new ways and innovative techniques to incorporate our emerging skills into real life and practical situations. I am very excited to learn another aspect of that field and challenge my students beyond their current thinking.

Ms. Adele Geyer, Jesuit High School

Biographical Sketch: I am currently teaching at Jesuit High School, Tampa. Jesuit is an all male program, which brings with it special challenges! I have also worked in an all girls school as well as co ed high schools. This is my 23rd year teaching science, mostly biology. I am a proud UF graduate and have taught in public and private schools in the Atlanta area and in the Tampa Bay area. I am married and the mother of 3 adult children - two of which chose to study at the University of Florida.

Personal Statement: I look forward to learning more about emerging pathogens. This is a subject that is fascinating to me and always of high interest to the students. I would love to be able to pass on cutting edge information to my students and encourage them to bring that information into their homes and community.
Ms. Amanda Jackson, Bartow Senior High

Biographical Sketch: I graduated from the University of Florida with a Telecommunications degree in the summer of 2008. After returning home, I started continuing my education at Polk State College with biological sciences, chemistry and physics. I started teaching biology at Bartow Senior High just this school year, August 20th 2012. I'm enjoying this challenging career and I have been invited back to teach next year. There is still so much more I want to learn in the field of biological sciences, though. I want to take advantage of any science workshop that will contribute to the scope and depth of my understanding for my own study and for the richness of class instruction.

Personal Statement: The best cure is prevention. Awareness is key to prevention. The majority of people are not aware of how potentially formidable of a threat pathogenic microbes are. I have only scratched the surface of my understanding of them. I will use my position as a high school teacher and my active role in my own community to enlighten others to the ubiquitous nature of these microorganisms. Our understanding of how we interact with the microscopic community can potentially change emerging dangers into less of a threat and maybe one day a positive symbiosis.

Ms. Hermione Joseph-Orelus, Atlantic Community High School

Biographical Sketch: A science teacher who seeks to reach all students however possible, not neglecting the joy of teaching. I love to discover new ways to teach science as well as learn with my students. I have taught science for twelve years and every year I acquire something new to try. If it works, it is placed in my repertoire. If it does not, I try it another way or reject it. In the path to improve my teaching, students are welcomed to give their feedback throughout the school year on the knowledge they have acquired. They are also given an opportunity to let me know what they liked and disliked about my method of teaching and present another way to deliver the information. They are part of a smaller community in the classroom.

Personal Statement: I would love to be one of those science teachers that students remember that made science cool. A repetitive statement that I usually year at the beginning of every year is that science a hard subject, but it was fun in elementary school. I want to make science fun again. Involving students with their community and local issues concerning pathogens would make it more real. They know that science is relevant, but being involved in research with pathogens, which has real life implications would be a fun learning experience.

Mr. Jeffrey Kelly, Southwest Middle School

Biographical Sketch: I’m a science teacher at the great Southwest Middle School in Brevard County. I teach the Gifted and Advanced Science classes for seventh grade as well as Science Research. I’m also active in the technology club and class at my school. My road to the classroom was fairly indirect. Prior to my 2 years of teaching science at the middle school level, I worked for: the U.S. Air Force, Brevard County Environmentally Endangered Lands Program, a marathon photography company, and eventually found my way into police academy. I enjoy incorporating my experiences into the classroom and bringing in the outside world to really engage students in science. My current interests in the field are increasing levels of engagement in my classroom and school security. In my spare time I do photography, study and teach martial arts, and read.

Personal Statement: I am very interested in developing a connection between my students and the community (both city and county) to address emerging pathogens. I feel that this would be easy to incorporate into my classes with the existing curriculum as well as being potential material for student research projects in my Science Research class. I also feel that I’m in a unique position working closely with our Technology Student Association as they examine a variety of topics in very broad areas, to define problems and attempt to develop and prototype solutions to existing or future problems. I feel this is also of key importance in getting our students to recognize that they are members of the community and actions they take or start now will have a lasting impact on the whole of society that they are a part of.
**Mr. David Lockart, Palmetto High School**

**Biographical Sketch:** In 2000, I earned a B.S. from the University of South Florida in Secondary English Education with a minor in British and American Literature. After graduating from USF, I taught English at Lake Region High School in Polk County for eight years. For the past four years, I have taught various science courses at Palmetto High School in Manatee County, where I also serve as the Gifted Coordinator. Aside from English, I am certified to teach Earth/Space Science, Biology, Chemistry, and Social Science, all at the 6-12 level, and I hold ESOL, Gifted, and Reading education endorsements. In my spare time, I enjoy working on classic cars and collecting antiques.

**Personal Statement:** During my Biology courses, my students get an in-depth look at various pathogens and the diseases they cause. In the past, we have studied HIV and Hepatitis strains A, B, and C, as well as others. I am also currently involved in teaching a blood borne pathogens course to tattoo artists in the state of Florida, which gives me a greater understanding of these pathogens.

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**Ms. Ashlynn Maher, Palm Harbor Middle School**

**Biographical Sketch:** I am originally from Lithonia, GA, and am a graduate of The University of Georgia. I have a Bachelor of Science in Agriculture; Major in Horticulture. Seventeen years ago I moved to Tampa Bay and followed my career path in Landscape Management. Four years ago I earned my Middle Grades Science Florida Educator’s Certificate through St. Petersburg Junior College. I have been teaching middle school science for 3 years in Pinellas County. I am now teaching at Palm Harbor Middle School, where I have started a new 4H Club. This club focuses on water conservation, alternative energy, and Florida’s ecosystems. In 2010 and 2011 I attended the UF SSI Aquatic Systems - Emerging Problems and Creative Solutions through The Lastinger Center. These Professional Development opportunities at UF inspired me to create a teacher inquiry and become an Inquiry Facilitator for my school. These trainings also motivated me to create an outdoor garden for the school where I was teaching. This outdoor garden is still used today as an outdoor classroom at that school.

**Personal Statement:** The ICORE Emerging Pathogens Summer Institute is an excellent outreach program that will allow me to connect my classroom and students to real-world science. Making these connections will enable my students to use and understand evidence-based scientific processes, and to use these processes to make positive contributions to their communities. Students will gain a better understanding of how emerging pathogens affect Florida’s agricultural and natural resource industries, as well as effects on Florida’s tourism and development. Bringing current research and laboratory experiences into the classroom allows students to gain a deeper understanding into how science affects our global health and economy, and hopefully will encourage students to actively address these issues. Students who experience these real-world skills also stand to gain an appreciation for life-long learning, and they are exposed to a variety of different career paths in science. Allowing students to research and experience this type of science will open up opportunities for them to become active participants in solving local and global issues.
Mr. Joseph Mallon, Island Coast High School

Biographical Sketch: I was born in Sea Isle City New Jersey. Upon completing HS I worked as a welder, then received training as a commercial diver/underwater welder. I worked around the world diving for 10 years and took early retirement at 30 years old. Numerous divorces ended such retirement and I went to college so that my daughter would know that secondary education is an expectation. Though some bizarre twists and turns I became a teacher and tracked her through her educational experience. Along the way I helped create the Academy of Natural Resources at ICHS which is a CAPE academy with a focus on aquaculture, aquaponics, alternative energies, and environmental stewardship.

Personal Statement: I will bring what I learn back to classroom to inform my students as to how pathogens effect the local community personally and economically. This can be demonstrated in terms of how fresh water releases with high nutrient loads from Lake Okeechobee can have detrimental effects on our local environment and subsequently our local economy. Other pathogens such as red tide also effect the local environments thus influencing the local fishing in which most of my students enjoy on a regular basis. Red tide recently has been the cause of over 142 manatee deaths so far this year, which also has an effect on our local eco-tourism, not to mention the respiratory health issues it has, particularly in our elder citizens that make up much of our seasonal residents.

Ms. Teresa Nick, Merritt Island High School

Biographical Sketch: I received a Bachelor of Science degree in Biology (concentration in marine science) and a minor in science education from Florida Institute of Technology, Melbourne, FL. I have been working in Brevard county schools for the past five years. I teach 9th grade Biology 1, honors and regular and 10th /11th grade Integrated Science at Merritt Island High School. I enjoy being active in my school and community and engross myself in everything that is science related. I love spending time with my family and strive to live a healthy life style. In my free time, I care for a 55 gallon saltwater reef fish tank.

Personal Statement: My continual goal is to further my education in any way possible and to share my knowledge with my students and the surrounding community. I try to stay actively involved in my school and community through teaching, volunteering and community outreach. I am very passionate about helping others. I have been working with UNICEF (I am the Key Club Advisor) through Key Club, I have been helping raise funds for the ELIMINATE project (preventing death from maternal and neonatal tetanus). I hope to bring knowledge about emerging pathogen back into my classroom and the Space Coast community. By becoming more knowledgeable about emerging pathogens I will be able to spread my knowledge through many different outlets.

Ms. Casey Portnoy, Fort Lauderdale High School

Biographical Sketch: I was a PA in forensic pathology, performing several thousand autopsies. I entered the school system as a career change. I teach at the high school level because that has the greatest impact for changes on personal life and career choices. Epidemiology and mechanism of diseases are a great part of our upper level life sciences.

Personal Statement: FLHS is a Cambridge and Law/Public Service magnet high school. We are deeply involved with partnering with county officials, Universities and Colleges. Our belief is that in order to have rigor and relevance, the community must be interwoven in our education delivery. I was the first STEM department chair in the district and we are the 5th largest district in the nation. We have been a trial/new programs school, which creates an atmosphere of forward thinking-cutting edge. The community has to be involved in order for this approach to be successful.
Mr. Michael Rudy, Vanguard High School


Personal Statement: I plan to initiate contact and community service programs for juniors and seniors with the department of health and department of natural resources. These students would be activists for environmental and health issues in the community. They would earn service related credits and participate with the education of specific issues affecting the community regarding emerging pathogens on human, animal and plant life.

Ms. Nicole Sasnett, Dunnellon High School

Biographical Sketch: My name is Nicole Sasnett. I have taught for 8 years. I enjoy teaching high school students. It is a lot of fun. I currently teach 9-12 at Dunnellon High School. I previously taught 9th graders at Columbia High School. I enjoy being involved in professional development that will enhance my skill and open new worlds for my students.

Personal Statement: I love the opportunity to introduce student to a new world and new opportunities. I believe allowing real world experiences is vital for student engagement and application of knowledge.

Ms. FNU Shahar Banu Shahan, First Coast High School

Biographical Sketch: I am Shahar Banu Shahan science teacher. I completed masters with Major in Biology and minor in Chemistry. Maximum teaching assignment was Biology. I always wanted to sponsor a biology club. By doing this workshop I will get the required resources and training for it.

Personal Statement: I will create lesson plans, creative research based activities to bring awareness about the new pathogens for after school session. Guide the students through research and their research can be show cased in family nights.
Ms. Susan Shepard, Jupiter Community High School

Biographical Sketch: Growing up in Miami, I loved Florida's tropical climate but was delighted to head "north" to Emory University in Atlanta. There, I engaged in neuroscience research at the end of my freshman year and thinking I would be a research scientist, earned a B.S. degree and enrolled in a doctoral program in anatomy at Emory. After staring at cells under a microscope one day too many, I decided that I prefer working with live humans, earned an M.A.T. in science education, and headed into the classroom. I have taught many different levels of students and many different subjects including anatomy, biology, AP biology, and earth science at the middle school and high school levels. I also taught at the college level in Miami and at FAU in Palm Beach Gardens. Currently, my schedule revolves around 9th grade honors biology classes at Jupiter High School. I love the opportunity to spend vacations traveling and have 3 adult children who often work and study overseas. One will be studying in Taiwan and one will be working in Vietnam beginning in September. In response to their big moves, my next planned trip will be to visit Asia in December 2013.

Personal Statement: Emerging pathogens captured my son’s vivid imagination when he was a freshman in high school and I hope to engage my students in a similar way. In class, we study viral and bacterial diseases and the immune system. Students are intrigued, especially with the simulation activity in which we transmit a “pathogen” and try to identify the source. Additionally, a student-directed research project engages students as they learn about pathogens and create a lab book to share with others during peer review sessions. This project has been very successful and I intend to expand the project incorporating new information from the summer workshop. Beyond the classroom, our school hosts a monthly lecture series bringing scientists to speak about their own research. I intend to enhance this program by including speakers whose research focuses on emerging pathogens. Further, I am involved with a district project utilizing a Polycom to virtually connect with other teachers. I hope to use the Polycom to allow me to connect my students with others around the country and the world in developing their understanding of emerging pathogens. With contacts in Asia, comparative studies over two continents may become our focus.

Ms. Karen Smith-Elvie, J P Taravella High School

Biographical Sketch: I am a native of Jamaica and I immigrated to Florida in 1992. I completed my high education at Boyd Anderson High and my undergraduate and graduate at Florida Atlantic University. I currently teach science at J P Taravella high school.

Personal Statement: I am willing to share the information that I will be learning with my students by integrating it into the curriculum and will work towards formulating an assignment that will require students actively share the information in the community, starting with their own family members.

Mr. Brett Stubbs, Suncoast Community High School

Biographical Sketch: I am a new teacher who works at his alma mater high school. I attended undergrad and graduate school at UF over a 5 year span. I played rugby for the university for during those 5 years as well. I am light hearted teacher who enjoys interacting with students. I want my classroom to be relevant and interactive to foster a love for science within my students. In my spare time, I love to experiment and cook in the kitchen and continue beating up my body in rugby matches despite my families’ requests.

Personal Statement: I believe science has become a subject where inquiry and laboratory skills have become undervalued. Many students have become disenfranchised with the mystery and discovery that lies at the heart of the scientific process. The focus to them has become memorization and they do not see the relevance of the subject within their lives. As a result, the scientific literacy and ability of our country has fallen. I think that reincorporating these skills will help develop greater, young scientific minds. These young adults will spearhead a new culture which embraces science and its applications. This program will allow me to expand my pedagogy and learn how to generate knowledge within my students about a pressing environmental issue. Our dependence and abuse of modern medicine has created new resistant pathogens that our threatening outbreak. Our students must begin preparing themselves for this obstacle so that they will be prepared to overcome it. The combination of scientific inquiry and awareness of possible dangers is the reason I am interested in this teacher development program.
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 in-service teachers and their motivated students in grades 6-12. 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.

Drew Joseph
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ICORE Program Liaison and Coordinator
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Drew joined CPET as the ICORE Coordinator in May of 2011. She has a Master of Science in Teaching in Botany from the University of Florida, and received her Bachelor’s degree in Biology and Italian from Mount Holyoke College. Drew has worked in curriculum development in the biological sciences, in addition to her experience as a high school and undergraduate biology instructor. She is particularly interested in bringing inquiry-based science curricula into underserved schools. As ICORE Coordinator, Drew will assist with the summer teacher institute, and will act as the liaison with teachers during the school year to support the implementation of their Action Research Proposals.

Julie Bokor
UF CPET Assistant Director
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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 as well as a Master’s in Science Education. 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 Bench to Bedside, ICORE, Mini Medical School, and the Summer Science Institutes.
Houda Darwiche, Ph.D.
Bench to Bedside Program Coordinator and Post-doc
Email: houdad@cpet.ufl.edu
Houda is responsible for overseeing CPET’s Biomedical Explorations: Bench to Bedside Program, which is a professional development program for science teachers that focuses on increasing student interest in science and biotechnology careers. She has a Ph.D. from UF in Biomedical Sciences that focused on Molecular Cell Biology, and was a double major in Chemistry and Biology at Florida Southern College in Lakeland. Houda will be the liaison for B2B teachers during the school year, and will assist with implementation of Action Plans that include equipment loans and classroom support for teachers implementing biotechnology curricula into their day-to-day classes.

Charles D. Lawrence, MPH, Ph.D.
UF CPET Educational, Multimedia & Web Designer
Email: lawrence@cpet.ufl.edu
Chuck Lawrence is a Ph.D. Ecologist (Indiana University) with M.S. degrees in Environmental Health (University of Oklahoma) and Zoology (Indiana University) and a Bachelor’s degree in Environmental Biology (University of Colorado). 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, keeper of The Sifters Guide to Everything (Science) and producer of the Excursions in Science online and CD-ROM.

Nicholas Daughenbaugh
Student Assistant
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Nicholas Daughenbaugh is a 23 year old who is a student assistant for the College of Precollegiate Education and Training. He just recently graduated from the University of Florida with a Bachelor’s Degree in Biology and he plans to apply to Veterinary School at UF and Ohio State this coming October. He is an active member of the Baptist Collegiate Ministries here at UF. In his spare time he likes to go bowling, play video games, basketball, tennis, and hang out with his friends. Some his favorite bands include Switchfoot, Relient K, and yes, he even enjoys some Nickelback songs.

Cathleen Huynh
Student Assistant
Email: cahuynh@cpet.ufl.edu
Cathleen is an undergraduate student at UF from Fairfax, Virginia who is working towards her B.S. in Health Science. She hopes to pursue a career in epidemiology and dreams of working with the CDC to save the world from deadly infectious pathogens. She is a member of the Baptist Collegiate Ministries and enjoys singing in the worship band and everywhere else she goes. In her spare time, she enjoys watching Community, making parodies of songs, and poisoning her friends with her exotic cooking.

Yasmin Kamkar
Student Assistant
Email: @cpet.ufl.edu
Yasmin is a student assistant with CPET and an undergraduate student studying Chemical Engineering from Sarasota, Florida. She enjoys getting involved in her community, especially when it comes to working with and educating children. In her free time she likes to read, do crafts, and spend time with friends and family.
ICORE PRESENTERS

Jonathan Benskin
CPET Curriculum Fellow and AP Biology Teacher
Boca Raton Community High School
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Mr. Benskin has participated in CPET's two main teacher programs, Bench to Bedside, and ICORE, in addition to his work on developing a curriculum module on HIV for AP Biology students. He joins us from Palm Beach County to discuss how he has, for the past 2 years, incorporated protein extraction and peptide identification using mass spectrometry in his classroom.

Patti Breedlove, M.S.
Director
UF Sid Martin Biotechnology Development Institute
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Ms. Breedlove is the director of the Sid Martin Biotechnology Development Institute to assist biotechnology startup companies in their establishment.

Gordon Burleigh, Ph.D.
Assistant Professor
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http://web.botany.ufl.edu/people/index.html
Dr. Burleigh’s research interests are Phylogenetics/Systematics, Bioinformatics, Molecular Evolution, and Genomics. He is developing computational and statistical methods to infer evolutionary relationships among organisms. His current work with other researchers is “reconciling gene trees and species trees to resolve the eukaryote tree of life.” This work has a lot of implications for understanding the evolution of complex cells and genomes.

Sixue Chen, Ph.D.
Assistant Professor
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Dr. Chen’s long term goal is to understand the signaling and metabolic networks underlying plant growth, development and interactions with the environment using large-scale functional genomics approaches as well as biochemistry, molecular biology and genetics tools. Only through a thorough understanding of how the plant system works, will it be possible to effectively utilize the plant biofactory for the benefits of humanity and the environment. Because of the success in microorganisms and the ease to perturb specific plant metabolism, his lab has started to implement systems approaches including proteomics and metabolomics in constructing plant molecular networks. He uses guard cell hormone signaling and glucosinolate metabolism as two model systems.

Roxanne Connelly, Ph.D.
Associate Professor
Medical Entomology Laboratory, Institute of Food and Agricultural Sciences
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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.
Ben M. Dunn, Ph.D.
Professor
Department of Biochemistry and Molecular Biology, College of Medicine
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http://biochem.med.ufl.edu/facultytemp.php?lastname=Dunn&firstname=Ben+M.
Dr. Dunn’s research is focused on understanding the specificity of the aspartic proteinase family. He utilizes site-specific mutagenesis as well as domain exchange to ascertain the effect on catalysis, and obtain structural information via crystallography or NMR. His work on active site specificity has proved valuable in the process of drug design for targets involved in infectious disease.

Dean Gabriel, Ph.D.
Professor
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Research in Dr. Gabriel’s lab is in the areas of genetics, physiology and molecular biology of plant/microbe interactions. His lab is currently working on the structure, function and expression of cloned pathogen virulence genes, especially those involving citrus canker disease, cotton blight and common bean blight. His lab is working on methods to block pathogen signal molecules transferred to the plant nucleus. He and his lab have research projects to engineer resistance to bacterial pathogens and insect pests. Other projects involve research on the population structure, epidemiology, taxonomy, and detection of *Xanthomonas*.

Linda Green
Director of Cellomics and Hybridoma
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http://www.biotech.ufl.edu/staff.html#g
Linda’s work at the Cellomics division of ICBR is interested in assisting investigators in the study of cell structure, function and generation and application of cellular products. Linda works with the Hybridoma Research Laboratory. This laboratory’s primary service is the development of new monoclonal antibodies. Monoclonal antibodies are used in many areas of basic scientific research, industry, human and animal medicine and agriculture.

Judith Johnson, Ph.D.
Professor and lab director of Core Services
Emerging Pathogens Institute
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http://www.epi.ufl.edu/?q=node/125
Dr. Johnson researches microbial pathogenesis, antibiotic resistance, and pathways of transmission of bacterial species and genes within and between clinical, community and agricultural settings. She specializes in the bacterial genera *Vibrio* and *Staphylococcus*. Dr. Johnson’s work investigates the causes of bacterial pathogenicity, and she specializes in researching the many different expressions and compositions of the polysaccharide surfaces that coat bacteria. Dr. Johnson’s work extends from the lab to the real world, where she investigates microbial ecology, how bacteria travel in surface water, and how this movement interfaces with soil and vegetation.
Andrew Kane, Ph.D.
Associate Professor
Department of Environmental and Global Health
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Dr. Andrew Kane researches environmental pathology and toxicology of freshwater and marine organisms. While in the past he has focused on the Chesapeake Bay region, he is expanding his focus to Florida’s numerous waterways where he seeks to understand the effects of chemical or environmental stressors upon aquatic species, and to use these species as proxies for interpreting environmental impact and potential effects upon human health and well-being. He has worked on issues related to Mycobacterium (a gram-positive, rod-shaped bacteria) colonies in the Chesapeake Bay, and he is beginning to explore Mycobacteria in Florida. This genus of bacteria can infect fishes and humans, and includes the species that causes Tuberculosis, as well as other pulmonary diseases. These bacteria are thought to grow in dark waters that are rich in dissolved organic carbon and natural acids, such as tannins.

Phillip Kaufman, Ph.D.
Associate Professor
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Dr. Kaufman’s research program focuses on the development of new pest management tools for Florida’s livestock operators. Beef cattle, dairy cattle and horses are the predominant livestock in Florida and are the focus of this program. Insecticide resistance and control failures are commonplace for many of the fly pests; therefore, innovative systems are needed to assist in their management. However, to successfully manage these pests, studies investigating their biology and ecology are needed. The role that biological control can play in assisting with pest control is another research avenue. Producer pesticide selection and the resultant impacts on non-target, beneficial arthropods in grazing systems are of particular interest.

Fiona Maunsell, Ph.D., DACVIM
Assistant Research Professor
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Dr. Maunsell’s clinical and research interests include general bovine medicine, infectious diseases of calves and mycoplasma infections of cattle and small ruminants, especially Mycoplasma bovis infections. She works in a collaborative research and diagnostic group on mycoplasmal infections as well as with researchers in the Emerging Pathogens Institute on the epidemiology of production animal diseases with public health significance.

Grant McFadden, Ph.D.
Professor
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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
College of Public Health and Health Professions
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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.

Nick Polfer, Ph.D
Assistant Professor
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Dr. Polfer’s group works to develop techniques in mass spectrometry to increase the structural information available on biomolecules, including developing techniques in infrared spectroscopy, ion mobility, hydrogen/deuterium exchange and electron transfer dissociation.

Richard Rheingans, Ph.D.
Associate Professor
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Dr. Rheingans’ research focuses on a social science perspective of analyzing water-borne pathogens. In particular, he is interested in the effectiveness, sustainability and scaleability of school-based water and sanitation interventions, determinants of disparities in water quality and sanitation in peri-urban areas, impact and cost-effectiveness of diarrheal control strategies in low-income countries, impact of water and sanitation on psycho-social stress, equity and distributional effects of vaccination in low-income countries, and temporal patterns in vaccination disparities in low- to middle-income countries.

Marco Salemi, Ph.D.
Assistant Professor
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Dr. Salemi’s research focuses on the genetic origins of HIV-associated with Dementia. He is also a member of a UF evolutionary biology group that has joined other world experts in investigating the genetic origins of the current flu outbreak.

Kathy Savage
CPET Curriculum Fellow and Bioscience Teacher
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Ms. Savage has participated in both of CPET’s main teacher programs, Bench to Bedside, and ICORE, in addition to her work over two summers as a curriculum fellow, writing modules on stem cells, and alpha-1 antitrypsin deficiency. On top of her work with CPET, Ms. Savage has been instrumental in her county’s establishment of a bioscience program.
Amy Simonne, Ph.D.
Professor
Family, Youth, and Community Sciences
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Dr. Simonne’s research program addresses chemical, microbial food safety, with specific emphasis on ethnic foods and fresh produce. She also develops many extension educational programs in the areas of safe food handling, safe produce handling, and worker health and hygiene training. Her extension program in food safety and quality serves both food professionals and consumers. Specific research projects are searchable at the USDA/Current Research Information System (http://cris.csrees.usda.gov/search.html).

Jason Smith, Ph.D.
Assistant Professor
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Dr. Smith’s research focuses on forest pathology, specifically host-pathogen interactions, disease resistance mechanisms, disease diagnosis and etiology, and development and selection of disease-resistant trees.

Stephanie Staras, Ph.D.
Assistant Professor
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Dr. Staras’ research program focuses on improving the understanding of the interactions between alcohol use, partner selection, and HIV/STD risk in order to improve prevention efforts. As part of her NIH NIAAA K01 entitled “HIV Risk among Racially-Diverse, Minority Youth: Alcohol and Partner Selection,” she is investigating the contextual influence (partner and alcohol activities) on sexual risk-taking among a cohort of urban adolescents in Chicago. Additionally, she is collaborating with researchers at University of Florida, Planned Parenthood of Greater Orlando, and Orlando Health to increase understanding of how girls select sexual partners. Both of these efforts will lead to development of an alcohol-related HIV preventive intervention focused on modifying partner selection.
Dr. Staras also studies factors associated with Florida low-income adolescents’ receipt of a clinically available STD preventive measure, the human papillomavirus (HPV) vaccine. In collaboration with Moffitt Cancer Center researchers, Dr. Staras’ team assessed HPV vaccine use with a Medicaid claims review and analysis; a Medicaid provider survey with a 67% response rate; a telephone survey of approximately 800 adolescents and their parents; and a mail-based, non-responder survey to over 6,000 Florida families.

Robert Swett, Ph.D.
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Dr. Swett and Boating and Waterway Planning Program staff and students provide science-based information, resource management applications and models, and innovative tools and methods that incorporate geographic information technologies designed to balance use of Florida’s waterways with resource sustainability. An important component of their programmatic efforts is the application of geographic information technologies (GIT), such as geographic information systems, global positioning systems, geographic information science, and remote sensing.
Thomas A. Weppelmann, MPH, CPH
Ph.D. Candidate and Researcher
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Mr. Weppelmann, a doctoral student of Dr. Afsar Ali, in the Emerging Pathogens Institute, was instrumental in the creation of the activity, *Cholera Conundrum*, a simulated cholera outbreak in Port-au-Prince, Haiti, based on his research in the area.

Anita Wright, Ph.D.
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Dr. Wright’s research focuses on pathogens that are relevant to the seafood industry. In particular, she is interested in gram-negative bacteria of the genus *Vibrio* which inhabit estuarine environments and are associated with popular seafood species such as oysters, clams, crabs and shrimp. Dr. Wright’s laboratory uses molecular diagnostic systems to measure the effectiveness of different post-harvest treatments at eliminating *Vibrios* from oysters. She is also involved with monitoring oysters in their natural estuarine habitat, and is exploring the pathways through which *Vibrios* infect shellfish and cause disease.