Interdisciplinary Center for Ongoing Research/ Education

A Partnership Program

University of Florida
Summer Institute: June 10 – June 22, 2012
JSEHS: January, 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 2012 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 10-22) 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 in-service training to other school and district teachers; share progress with ICORE program participants and coordinators.
- Present the interim results of Action Proposals at the annual Florida Junior Science, Engineering and Humanities Symposium (JSEHS) held at UF (January, 2013)
- Prepare a final written report detailing the outcomes of the Action Proposal (April, 2013)

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
- Student field trip to UF
- 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
- Three tuition-free graduate credits towards a Certificate in Biotechnology Education, further graduate studies, and/or Florida teacher recertification.

Funding support provided by:

HHMI

UF University of Florida

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.
2012 PARTICIPANT MAP

Heather Dean
Cynthia Murphy
Miriam Sawyer

Lloyd Wade

Angela Hunter
Jacqueline Insalaco
Megan Faliero
Samuel Kunkle

Alicia Wood
Dr. Kathryn Kehoe

Lloyd Wade

Karen Collins Smith
Jennifer Guillard
Inga Pinnix

Angela Hunter

Alicia Wood
Dr. Kathryn Kehoe

Karen Collins Smith
Jennifer Guillard
Inga Pinnix

Shari Foster-Henninghan
Vanessa Lopez
Venusha Moodley

Jacqueline Insalaco

Kenneth Gill

Jeneane Maddaloni
Deborah Vasconi
Megan Faliero
Samuel Kunkle

Larry Hickman
Maria Whalen

Jennifer Marsico
Lorna O’Conner

Javeshnev Rivera Azua
Julia Roblyer

John Hernandez

Denisse Conway
Ailyn Barrios

2012 ICORE Summer Institute
Participant Distribution Map

Denise Clayton

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2012 Participant Information

Ms. Ailyn Barrios
Palm Beach Central High
Palm Beach
Environmental Science(9), Biology (10)

Mrs. Denise Clayton
Hamilton County High School
Hamilton
Zoology(9)

Ms. Karen Collins Smith
LaVilla School of the ARTS
Duval
6th-8th Grade Science

Mrs. Denise Conway
Palm Beach Central High School
Palm Beach
Hon. Biology and Biology (9-10)

Ms. Heather Dean
Pensacola High School
Escambia
Biology(10), Marine Science(11)

Dr. Megan Faliero
Durant High School
Hillsborough
AP Biology (9-12)

Mrs. Shari Foster-Hennighan
Cypress Creek High School
Orange
AP Biology(11), IB Biology(11-12)
Anatomy & Physiology(10-12)

Mr. Kenneth Gill
Port St. Lucie High School
St. Lucie
IB Biology(11), Marine Science(10-12)

Ms. Jennifer Guillard
Mandarin High School
Duval
Pre-AICE Biology(9), AICE Biology(12)

Mr. John Hernandez
North Miami Senior High School
Miami-Dade
Research III, Chemistry

Mr. Larry Hickman
Lakewood Ranch High School
Manatee
Marine Science(11-12), Biology(10)

Mrs. Angela Hunter
Baker County Senior High School
Baker
Chemistry, Hon. Chemistry,
AP Chemistry (10-12)

Ms. Jacqueline Insalaco
Rockledge High School
Brevard
AICE Biology, AICE Psychology(11-12)

Dr. Kathryn Kehoe
Ponte Vedra High School
St. Johns
Biology, Hon. Biology

Ms. Vanessa Lopez
Cypress Creek High School
Orange
Hon. and standard
Anatomy & Physiology (10-12)

Ms. Jeneane Maddaloni
Pasco High School
Pasco
Hon. Biology, Marine Science

Ms. Jennifer Marisco
PACE Center for Girls, Lee County
Lee
Comprehensive Science(6-8), Biology,
Integrated Science, Environmental Science

Ms. Venusha Moodley
Cyprus Creek High School
Orange
AP Biology, Hon. Biology,
Hon. Chemistry(9-12)

Ms. Jennifer Marisco
J.M Tate High School
Escambia
Biology (10)

Dr. Inga Pinnix
Sandalwood High School
Duval County
Chemistry(10-11), Biology(10), Dual
Enrollment Biology(11-12)

Mrs. Javeshnev Rivera Azua
West Broward High School
Broward
Biology, Anatomy & Physiology

Ms. Julia Roblyer
Northeast High School
Broward
Biology(10), Anatomy & Physiology(11-12)

Mrs. Miriam Sawyer
J.M. Tate High School
Escambia
Physical/Chemical Science (9)

Mrs. Deborah Vasconi
Tarpon Springs High School
Pinellas
AP Biology, AP Environmental Science, Pre-
AICE Biology

Mr. Lloyd Wade
Walton High School
Walton
Biology, Earth Science(9-12)

Mrs. Maria Whalen
Lakewood Ranch High School
Manatee
Biology (10)

Ms. Alicia Wood
Oakleaf High School
Clay
Biology
PARTICIPANTS

Ms. Ailyn Barrios, Palm Beach Central High

Biographical Sketch: I attended Palm Beach Atlantic University, where I received a bachelor’s degree in Secondary Education/ Biology. I have been teaching for two years at Palm Beach Central High School. I currently teach Environmental Science and Biology to Ninth and Tenth Grade students. In 2010, I was a finalist for the Beginning Teacher of the Year Award in Palm Beach County.

Being an educator has always been my goal in life. When I stepped into my first field experience classroom in college, I knew this was what I was meant to do. This profession is challenging yet, extremely rewarding. I am privileged to have the opportunity to shape future scientists.

Personal Statement: I am extremely willing and eager to learn about emerging pathogens. It is up to us educators to stay current with the information that we teach our students. This professional development opportunity would be great for all my students; Environmental Science and Biology.

Unbound by the restrictions that the End of Course Exam brings to Environmental Science, I would be able to integrate lessons learned from ICORE into my Environmental Science Courses without difficulty. Current events, such as climate change, can easily cause pathogens in particular regions to appear. The cause and effects of these pathogens due to the Earth’s Climate change can easily be integrated into the curriculum while providing hands on experiences. Likewise, I would be able to tie the emerging pathogens into nearly any section of the biology curriculum from natural selection to the human body systems. I would love to expose my students to all of the fun and interesting things science has to offer. This program will give me a better understating of different pathogens, so that I can easily relay the information back to my very eager to learn high school students.

Abstract: This action plan is designed to expose 10th grade students in a curriculum unit that focuses on emerging pathogens and biotechnology in the real world. This is designed to be a unit that encompasses prior knowledge and newly acquired information to discover the problematic issue of pathogens in agriculture. The action plan will take place in six 50 minute classes, where differentiated instruction will be used to motivate all learners. They will also participate in various labs identifying microbes. At the conclusion of this unit, students will create a brochure or video to present to the local farmers market informing the public on pathogens that require the use of genetically modified foods. Without genetically modified agriculture, expenses on insecticides and pesticides would be on the rise for most crops. Many fields would not be salvageable once the insect has invaded the field. Finding a gene in these plants that can deter the pathogen from invading, would be most cost efficient and beneficial in saving that plant.
Mrs. Denise Clayton, Hamilton County High School

Biographical Sketch: I am a graduate of the University of Florida with a degree in Agriculture, majoring in Animal Science. I have been teaching at Hamilton County High School the first ten years as a physical science teacher. This year I am teaching Zoology as a pre-requisite to Biology in hopes of setting a stronger foundation for students entering biology. The goal of this course is to allow the biology teacher to dive deeper into the heart of the end of course materials so that we have a high percentage of students passing the end of course exam. This is the first year this course has been offered in many years and I believe that in the end it will pay off.

Personal Statement: I would like to see us do a class project or something dealing with emerging pathogens in water supplies, pond water, retention ponds, rivers, creeks and lakes. We have this awesome new probeware technology that is great for gathering data electronically through a handheld device that can translate the data into graphs, and charts onto a lap top when we get back to the school. I can see us doing a community wide research project and maybe having a community fair where we invite the public to come check out our findings and or publish it in our local paper.

Abstract: This action plan is designed to incorporate the biotechnology skills obtained during the ICORE 2012 Summer Institute Training into my 9th grade Zoology classroom. I would like to introduce this technology in the context of a real question that many members in this community have on their minds; “Is this water safe?” Hamilton County’s largest employer,“ with 900 employees”(1), is a phosphate mine. They reclaim the land when they are through mining it usually in the form of fishing ponds and lakes. Many people fish from these ponds and lakes and have asked the question “Are these fish safe to eat?”, and “How safe is this water?”

In this module students will collect water samples throughout the county that are affected by this phosphate mine. We will use the biotechnology skills and apparatus’ learned these last two weeks. Students will then put their data together in the form of a Science Fair project. I will invite the community in for a discussion with the students and their findings. There will be a question and answer session and a brochure available for the community to take with them that we put together with all of our data for them to share at a later date.
Mrs. Denisse Conway, Palm Beach Central High School

Biographical Sketch: In 2005, I graduated from Florida Atlantic University where I majored in Biology with a concentration in microbiology, biotechnology and molecular biology. For the past six years I have taught biology at Palm Beach Central High School in Wellington.

During my time in college I explored the possibility of becoming an educator by working for High Touch High Tech. HTHT provides an “in-school” science field trip experience based upon a “hands on” model. It was designed to make science fun yet still aligned experiments with national and state science standards. It was during this time I realized my passion for teaching science and as a result have been able to make lab activities central to my teaching methodology.

My experience in using labs with kindergarten and elementary age students taught me a wide range of techniques that I find very effective at the high school level. Everyone likes to have fun and high school students sometimes forget that they are learning when they get caught up in an experiment.

Personal Statement: I would love to be able to incorporate emerging pathogens into just about any lesson. My students laugh when I tell them that I love studying bacteria, especially the “gross” kind as they call it. Through this opportunity my students would be able to recognize my eagerness to learn new things and I hope that in modeling my pursuit of knowledge that my students will learn to treasure discovering science and the scientific method. Also, I have always thought that my love for teaching is derived from my passion of biology. My students notice when I am really excited about a specific topic and appreciate the lecture or lesson more. I believe this enthusiasm is contagious.

Abstract: Many high school students are not currently exposed to biotechnology in the classroom. This action proposal will emphasize the application and limitations of equipment, resources and adequate teacher knowledge of current biotechnology. It will also grant students access to scientific equipment, various lab skills and techniques which can be applied in a college setting or the workforce.

Students will then learn about viruses, the means by which they are transmitted and how the immune system launches a response to the invasion. Students will learn various biotechnology techniques such as dot blot, ELISA and gel electrophoresis. As an extension of the above labs, the mosquito life cycle will be examined.

I would like to expose my students to the multiple applications scientists use to verify their results. For example, it is common practice to use a test strip, such as an immunostrip out in the field. The immunostrips are a quick, easy and inexpensive diagnostic tool; however it can be inaccurate at times. To ensure accurate results the sample would have to be further tested.
Ms. Heather Dean, Pensacola High School

Biographical Sketch: I have been teaching science for 22 years and I am particularly interested in pathogens and would like to learn more.

Personal Statement: I am willing to link students with their community to address local issues.

Dr. Megan Faliero, Durant High School

Biographical Sketch: I have been in the field of education for 14 years and I have had many rewarding and diverse experiences within this time. I have taught middle school, been an assistant principal for instruction and curriculum, taught AP biology in Silicon Valley, and now teach AP biology in rural east Tampa. I love teaching and constantly search for new ways to expand my knowledge base and the ability to teach and give my students as many opportunities and experiences as possible. I look forward to making many new connections with the University of Florida.

Personal Statement: I love teaching and constantly search for new ways to expand my knowledge base to pass on new information to my students. I am excited about this opportunity to learn new techniques for my classroom to give my students as many opportunities as possible to experience real-world application of biology. I feel that students can make more informed decisions about their career path, if given exposure to exciting fields of study such as biotechnology. This program will hopefully help me make connections to the community and allow my students a chance to practice what we learn in the classroom and apply it.

Abstract: This project will target my AP Biology students who are mostly upperclassmen and getting close to college and feeling the pressure of choosing a college major. As I cover the unit of biotechnology, I will teach the students lab protocol and diagnostic skills that will help them in lab. However, I will also continue to highlight careers or degree pathways in which these techniques are important.

Biotechnology is a wonderfully growing field and an exciting field now and in the future. Students with interest in agriculture and agronomy, microbiology, virology, aquatic pathobiology, public health, or the food industry, just to name a few, can all find exciting possibilities with this wide field. A degree in this field can also then lead into the medical, dental, or veterinary schools in that is the interest.
Mrs. Shari Foster-Hennighan, Cypress High School

Biographical Sketch: I am originally from Upstate New York and moved to Florida in 1995. I have been teaching at Cypress Creek High School in Orlando, Florida since that time. I am currently the Science department chairperson and teach AP and IB Biology and Honors Anatomy and Physiology. Other than academics, I also coach both girl’s lacrosse and wrestling. I have a Bachelors degree in Biology from Salisbury University and a master’s degree in Science Education from UCF.

Personal Statement: As a teacher of Biology and Anatomy and Physiology I find that pathogens and the immune system are topics that the students have many misconceptions about. For my IB students that are required to incorporate internationalism and community involvement as a part of the curriculum, I believe that the information and resources from this course will provide me with ideas that will aid my students in not only understanding this topic, but will also foster them to incorporate it into their internal assessment and community service projects. For my Anatomy and Physiology students, many being interested in the medical field, we try to incorporate current events and projects that utilize the curriculum concepts with relevant community issues. I hope to be able to learn about new labs and activities in this course that will help my students gain a better understanding of pathogens and motivate them to be active learners in the classroom and community.

Abstract: The purpose of this action plan is to enable 12th grade IB Biology students to learn new biotechnology skills and utilize them to create and execute scientific research on the topic of emerging pathogens, specifically Dengue Fever. The unit will incorporate the student’s previous knowledge of biology along with new knowledge and skills in biotechnology and emerging pathogens. The students will utilize their knowledge of the structure and function of viruses, prokaryotes and eukaryotes and apply it to the disease Dengue Fever. In gaining a better understanding of the interactions between human host and pathogen they will investigate the life cycle of the mosquito by finding water sources with mosquito larva, the presence of the pathogen by doing gel electrophoresis and ELISA tests, the transmission pattern of the virus and the global impacts by gathering and assessing current information, and how to test a factor that can affect egg hatching by designing and conducting an experiment.

Mr. Kenneth Gill, Port St. Lucie High School

Biographical Sketch: I was a research biologist at U. of Miami Marine School for 12 years before taking a year off to go blue water sailing into the Caribbean. Spent 4 yrs running a B&B in the British Virgin Island before returning to US and becoming a teacher. Also spent a year in Peru overseeing a shrimp hatchery. I play guitar and sing professionally on the side for the last 35 years.

Personal Statement: I would like to encourage my International Baccalaureate students to pursue careers in science and medicine and I see this program as a way to get them more interested in a life of service. Part of their program involves self-chosen outreach to the community and this program could give them the tools to direct that outreach in the direction of emerging pathogen.

Abstract: The drainage basin of the St. Lucie River in Martin and St. Lucie Counties has been greatly modified in one of its two major branches to allow for flood control and greatly expanded land usage for agriculture and residential use. One effect of these modifications has been repeated eutrophication events often in conjunction with high coliform bacterial counts. The aim of this project would be to use coliform detection broth to test for the presence of both total coliform and E.coli bacteria. The north fork runs predominantly through residential land and the south fork runs through predominantly agricultural land and so for different reasons might both be subject to contamination by coliform bacteria, but of potentially differing strains. Samples would be taken during the rainy season and coliform counts would be compared to meteorological data.
Ms. Jennifer Guillard, Mandarin High School

Biographical Sketch: I graduated from Clemson University with a BS in Biological Sciences and MS in Zoology. I have taught in South Carolina and Pennsylvania, finally spending the last 10 years in Jacksonville, Fl. I teach biology in the AICE program (out of Cambridge) to freshmen and seniors. I am gifted endorsed and started a gifted program at my high school. I am nationally board certified in adolescent biology. Last year I was a Princeton scholar and got to take an art course on their campus as part of it.

Personal Statement: My high school has a medical magnet program and is in the third year of developing community relationships with the local hospital. I would like to see that grow, particularly in dealing with current issues such as emerging pathogens. Currently, that program focuses on introducing students to technical fields of the medical profession. In addition, my AICE curriculum covers many pathogens/diseases that our normal American curricula do not. This class will provide me with information and resources to enhance their experiences.

Abstract: This unit will focus on the major infectious diseases that are covered in the AICE curriculum: cholera, AIDS, and malaria. Students will be instructed on the prevalence, symptoms, vectors, risk factors, and treatment of these pathogens as well as the biotechnology procedures used to identify them in environmental and patient samples. Instruction will include power point presentations created by University of Florida professors, discussions, Internet database research, working together in lab teams, and answering lab-based questions. The unit will include use of UF equipment lockers and will culminate in a visit to UF and lab activities at that facility (TBD).

Mr. John Hernandez, North Miami Senior High School

Biographical Sketch: Hi, my name is John J. Hernandez. I currently teach research III and chemistry at North Miami Senior High. I grew up in Chicago but I've already been living 8 years in Florida. Science is my passion but I also enjoy history, music, and literature. I love playing sports such as tennis and basketball as well. I started teaching science in middle school my first year and I've been teaching science for two years in high school. I had also the opportunity to teach a lab course at Barry University after graduation.

Personal Statement: I truly believe that all students in my high school should be aware of the magnitude of the problem when it comes to emerging pathogens. Therefore, students must be educated on preventive measures, the symptomatology of the illnesses caused by these emerging pathogens, and the responsibility of every member of the community to stop the recurring emergence of these pathogens. In order to accomplish this, community members must be made aware of their key roles fighting these emerging pathogens. This can be done by the creation of community awareness groups, which should be planned and organized by the students. I would also have a student competition in which each student would design an informational brochure, including extensive information about emerging pathogens, oriented to the members of their specific communities.

Abstract:
Mr. Larry Hickman, Lakewood Ranch High School

Biographical Sketch: I was born/raised in the Chicago area, moved to Arizona at age 13 through age 25. Graduated from Arizona State with a BS in Biology. Returned to Chicago where I worked for an equine vet for 3 yrs, then wholesale pet industry for 18 yrs. Moved to Florida in 2000 where I started teaching my career. I have taught at Lakewood Ranch High School for all 12 yrs of my teaching career, starting out teaching ESE for 2 yrs, then teaching Biology, Anatomy/Physiology, Integrated Science, and Marine Science for the last 10 yrs.

Personal Statement: I would like to incorporate the knowledge/information that I learn and obtain in this workshop and relate it to the subject areas I teach, both marine science and biology and how it relates to the students lives on a daily basis not only in their education process but its connection to their daily lives in their local community as well as the world as a whole.

Abstract:

Mrs. Angela Hunter, Baker County Senior High School

Biographical Sketch: I’m a Florida native that loves running & the ocean: boating, diving, fishing, swimming. I live in St. Augustine with my husband & dog, but work an hour away in Baker County (yes, 2 hrs of driving a day!). I have been teaching science at BCHS for 4 years, & department head the last 2 yrs. I have a degree in Secondary Chemistry Education, which was not my first plan when I went to college as a Chem. Major. After 40+ hours a week in the lab alone, I realized I needed people & science, thus Education. I LOVE teaching, and finding ways to connect content to real-life experiences. I have been able to greatly improve the science department at BCHS by incorporating labs, STEM, inquiry based lessons, AP Chem., & technology. I continue to drive 2 hours a day because I believe my teaching style is truly needed in Baker County.

Personal Statement: I believe that the advanced students in Baker County are greatly underserved as focus is based on the bottom quartile. I feel that this experience will help me better serve the academic & intellectual needs of my advanced students as they prepare for college in the fields of math & science. With a large agricultural community in Baker County, there is an interest in emerging plant & animal pathogens, but limited topic development at the high school level. I look forward to taking the skills learned during this program back to my classroom where I can continue to make connections between topics in class and practical application in the agricultural industry of Baker County.

Abstract:

Ms. Jacqueline Insalaco, Rockledge High School

Biographical Sketch: I have the honor and privilege of teaching the high level of motivated students in our school. The AICE curriculum has been here since 2007 (our first grad) in some form and our school population is now at about 50% AICE. I am a more proficient psychology teacher than biology, but with the training from UF and CIE, I feel like I am on the alternative route to being highly proficient in biotech ed.

Personal Statement: A large part of our AICE bio curriculum is infectious diseases and the immune system response. I am now at the level of confidence that I can take a number of the CPET experiences and intertwine them into the curriculum. We are located about 100 yards from the Indian River Lagoon and this provides an incredible lab experience for us. We have the technology to monitor the rivers health and can look at how the communities
effect the health of the river and can draw a correlation of how communities also affect our health.

Abstract: So you just stick a seed in the ground, give it some water and watch it grow, right?!? That was about all I knew about plants before teaching the AICE Level Biology, and now I have to make sure my students understand transport in plants! So this year I will be adding to my incredibly boring power point lesson that I simply created from the book and standards. I will be modifying Living Trees, from Project Learning Tree, the curricula presented by Dr. Martha Monroe and creating “Feel the Flow from Hair to Air” to help students understand transport in plants. In this manner, I will be able to incorporate more of the AICE Bio standards into this living lesson, make the lesson more ‘real world experience’, and in the end, both the students and I will appreciate Transport Systems in Plants a little better than we did in the beginning. We will be doing both a monocot and dicot plants to show the tissue distribution differences.

Dr. Kathryn Kehoe, Ponte Vedra High School

Biographical Sketch: My name is Kathryn Kehoe and I teach Biotechnology at Ponte Vedra High School. I began a teaching career in the late 1970’s with very accomplished students at a prestigious independent school. Inspired, I returned to graduate school to obtain a MS and PhD in toxicology. I remained in academic medical research, completing post doctoral programs in gene regulation at the Universities of Michigan and Minnesota. I came to Florida in the mid-1990’s as an assistant professor at Jacksonville University, but left (with tenure) to get additional training in cell biology at Mayo Clinic Jacksonville. In 2004, I decided to return to my original career choice and took a position in St. Johns County teaching first at Nease High School (during the Tebow years), Bartram Trail and then moving to Ponte Vedra High in 2008 as founding teacher in the Academy of Biotechnology and Medical Research. I currently teach over 100 students in Biotech 1 through 3 and Experimental Science. I have two wonderful daughters who have chosen careers in finance and accounting and one (getting old) precious dog still at home.

Personal Statement: I am very interested in learning more about curriculum that can be easily adapted to high school students regarding emerging pathogens. Gaining workshop experience and resources has become the cornerstone of the three year curriculum in biotechnology that I have developed at Ponte Vedra High School. As students dedicated to medical search, the Ponte Vedra students are excited to learn about cutting edge topics and procedures.

Abstract: While an important tool in molecular biology and biotechnology is the model organism E. coli, certain strains of this microbe have the ability to sicken and kill. This proposal details a unit of study focusing on the dichotomy that exists for microbes in general. Third year biotechnology students will learn of the” good and bad “of microorganisms. An important goal is to provide open ended activities that are considered authentic research. The central experiment will be to study the effect of mutagenic UV exposure on a Serratia marcescens electrophoretic protein profile by the sequencing of differential peptides. As a class project this should be interesting, but also demonstrates a technique that could be applied in individual student projects. Students will be assessed using traditional pre and post tests and guided lab reporting. The ultimate assessment is the number of students returning for a fourth year research experience.
Mr. Samuel Kunkle, Henry B. Plant High School

Biographical Sketch: I grew up in Western Pennsylvania, and went to Westmoreland County Community College where I majored in Electronics Engineering. I then attended Slippery Rock University where I majored in Biology and minored in Chemistry. I started teaching high school in 2005 and moved to Florida in 2006 where I taught middle school for four years. During this time I earned my M.Ed in Ed. Leadership. Two years ago I began teaching high school. I am currently working on my Ed.D in Curriculum and Instruction at UF.

Personal Statement: Every year I teach sections on pathogens that would lend themselves to incorporating emerging pathogens. I would enjoy the challenge of expanding this to connect with community issues. I believe that my service club, Delphi would be particularly interested in raising community awareness.

Abstract: Lectures adapted from ICORE lectures will be used to introduce content in module. Students will be provided with examples of major pathogen groups and their effects in populations. Following the lecture each module will include a hands-on activity for students to model a characteristic of pathogens. The unit will end with a viewing of the movie Contagion and a discussion of the relationship of the movie to what the students have learned about pathogens during the module.

Ms. Vanessa Lopez, Cypress Creek High School

Biographical Sketch: Greetings everyone, I’m Vanessa and I’m guilty of being in love with science. After finishing up my bachelor’s degree in molecular and microbiology, I wanted a break from school. A friend suggested teaching to serve as that break. I know, I can hear you all laughing. Anyway, I took the chance and am glad I did! I’ve rediscovered my love of science and have been inspired by my students every year. Currently I teach anatomy and physiology to the wonderful upperclassmen at Cypress Creek High School. Some of my favorite topics in science are microbiology, neuroscience and anything relating to the human body.

Personal Statement: Upon completing this program, I plan on bringing the information back into the classroom in an effort to stop many of the misconceptions the community has. We have a large Hispanic population at my school and often the students have heard many myths about various topics in health stemming from their culture. Bringing the latest information to my students will hopefully help alleviate the continuation of said myths. Outside of the classroom, I will provide information and guidance to our students who have shown interest in starting a public health club. This club will focus on getting up to date information relating to health and science out to our community.

Abstract: Biotechnology is a rapidly growing field that can provide researchers one way to identify and study the various pathogens that may emerge amongst the world’s species. Students should feel comfortable with the use of basic lab equipment and understand basic science principles in order to keep up with the advances in both academia and public health. With the use of various classroom methods students will not only comprehend biology standards but become more aware of the idea of science being an important field that they may want to actively participate in whether as a possible career or as a better informed citizen.
Ms. Jeneane Maddaloni, Pasco High School

Biographical Sketch: My name is Jeneane Maddaloni, and I did not start out teaching. Currently, I am teaching at Pasco High School, Dade City, Florida in a Science position (9-12). Before that, I was teaching Life Science (7) at Chestnut Oaks Middle School in Sumter, SC. While teaching, I have earned my professional certificate and Masters Degree. Prior to teaching, I was in Forestry and worked in several state positions. While being a Forester, I was a volunteer EMT and firefighter. My interest in medicine/healthcare stems from the volunteer work.

Personal Statement: Community/Real Life situations always capture my students’ interests. Pathogens are mysterious because we cannot see them. Signs and symptoms are like mysteries to solve. I believe I can incorporate a well-made/developed emerging pathogen unit into my Biology Honors classes.

Abstract: Students have a difficult time visualizing the microbial world as being real. This new Action Module will help Pasco High School’s Marine Science students (11th and 12th graders) to immerse themselves in the world of water quality and marine pathogens with three luxurious, real-life inspired labs and a presentation showcase of career options in biotechnical science fields. The Action Module will encompass 14 days of various learning pedagogies to enrich and engage the students into the microbial world of water quality and marine pathogens. Projects include a career focused research presentation, water quality-testing lab, and multiple water-borne pathogen scenarios and labs.

Ms. Jennifer Marisco, PACE Center for Girls, Lee County

Biographical Sketch: Jennifer Marsico holds a Bachelor of Science degree in Environmental Health from Salisbury University in Salisbury, MD. She worked for several years in public health and in industrial hygiene consulting in Pennsylvania where she was responsible for safety-related trainings. After moving to Florida, Marsico earned her Master’s degree in Curriculum and Instruction from Florida Gulf Coast University. She has enjoyed the challenges and fulfillment of teaching middle and high school students for the past six years. Currently, Marsico is the only science teacher a PACE Center for Girls of Lee County, a non-residential juvenile delinquency intervention and prevention program dedicated to helping abused, neglected and abandoned teenage girls. At PACE, she engages the girls, grades 6-12, in a wide range of sciences while applying the program’s gender responsive, strength-based philosophy. In addition, she is also an adjunct instructor in the Arts and Sciences Department at Southwest Florida College in Fort Myers, FL.

Personal Statement: My experiences in this program would have a far-reaching effect. Many of my students are interested in the medical field, and I believe that lessons in emerging pathogens will reinforce their interests in the field and expose them to additional career opportunities they might not have considered while increasing their knowledge of the biological sciences. After teaching my Action Proposal lessons, I would provide a workshop for the Lee County School District science teachers, who teach the over 80,000 students in the county. I would be willing to reach out to local health agencies to partner with our students by volunteering as guest speakers or provide a workshop or learning experiences for the girls at the school to support my lessons. In addition, we could take field trips to agencies and institutions in Lee County. Visiting local health agencies or hospitals after learning about emerging pathogens will reinforce concepts learned in the classroom. In the past, I have taken courses in foodborne illnesses and taught the concepts to my students and emerging pathogens would build off their experiences in microbiology with foodborne bacteria.
Biographical Sketch: Born in South Africa, Venusha moved to Florida at the age of 10 and has been living in the state since then. During her time as an undergraduate at the University of Miami, Venusha began working with a longitudinal research program looking into the effects of prenatal cocaine exposure in a low socioeconomic status population. Upon completion of her Bachelor’s degree, her involvement in the research program motivated her to enroll in a Master’s in Public Health Program. The graduate degree helped shape her thoughts on the necessity of prevention and the promotion of health and well-being for all individuals in a community. As the graduate program drew to a close, Venusha felt the need to do more than just research the effects of negative, avoidable issues. During the past five years, she has tried applying her public health knowledge within a classroom setting by teaching AP Biology, Honors Chemistry, Honors Biology, and Integrated Science classes. It is her goal to reach through to students despite the personal barriers they may have in place and instill a similar love of science in her students.

Personal Statement: Over the past five years, I have had the opportunity to see how much influence a teacher can truly have on the lives of students. It is because of my past experiences that I feel more prepared to teach students in a way that fulfills their needs beyond the subject areas of chemistry and biology. During my undergraduate degree, I spent several weeks on rounds in the NICU with my research supervisor and mentor. I gained an appreciation for the complexities of pregnancy and how neonatal outcome is adversely affected by a variety of diseases and preventable issues. Later on while completing my Master’s degree, I gained insight into large-scale research projects, the importance of prevention for improved health, and the various needs of communities. As part of my graduate program, while working on group assignments, I learned to facilitate group members towards the goal of achieving success. I now feel secure in my knowledge to lead others in a public health mindset. Through my participation in ICORE, I hope to engage my students in knowledge that reaches beyond my classroom and out into their daily lives to interactions with family members, friends and other individuals in the community.

Abstract: As part of the chemistry benchmarks, a unit on biotechnology and human impact on the environment is included but rarely highlighted. I will place an emphasis on the environmental component by teaching students about the spread of pathogens while incorporating various biotechnology skills. I will begin by using some basic lab procedures and continue with my bigger focus during the unit on acids and bases in the fourth quarter. I will teach the benchmarks about human effects on the environment using the simulation kit for Medical Mystery of Epidemic Proportions because it shows how humans are involved in the spread of disease while being based on an understanding of neutralization reactions, buffers, and indicators. By the end of the unit, students will understand how water quality is affected by human activities and pathogens while also gaining an understanding of how chemistry is applied outside of classroom settings.
Ms. Lorna O’Connor, Island Coast High School


Synergistic Activities: As a Department of Energy ORNL ACTS participant, I’ve had several years of authentic research experience (working in the laboratory of Dr. Jerry Tuskan and Lee Gunter), an excellent range of professional development short-courses and workshops, and exposure to current scientific topics through technical seminars by ORNL leading-edge scientists. I have presented scientific posters in the following areas at ORNL and the National High Magnetic Field Laboratory; Oakridge National Laboratory in association with The Department of Energy’s Bioenergy Science Center; DNA quantification of three hybrid poplar pedigrees for validation and discovery of single nucleotide polymorphisms (SNP) associated with recalcitrance in the production of lignocellulosic biofuels; Establishment of a genetic map in Populus to overcome recalcitrance of lignocellulosic biomass for the production of biofuels; National High Magnetic Field Laboratory- Dr. Vincent Salters, mentor; Laser-ablation ICP-MS analysis of olivine phenocysts, sulfides, and MORB glasses from the Central Indian Ridge, and the East Pacific and Mid Cayman Rises; As an extension of my research experiences for teachers (RET) programs, I have created the Eurekalert.org protocol to increase science literacy for high school students. I have instituted the protocol, collected and analyzed data for three years with over 300 students participating and another 300 in the control groups.

Leadership: I have presented and taught the protocol to other ACTS teachers and teachers funded by a grant from the Seimens Corporation; For the Lee County School District I have been a district presenter for “Writing across the curriculum.” I have also served on the textbook selection, the academic plan, and the end of course test development committees.

Personal Statement: Cape Coral Florida is about an hour’s drive from Immokolee which is a major agricultural center for southwest Florida. One of the main crops coming from this area is tomatoes. An emerging pathogen in my area would then be one of the oomycetes, Pyhytophthora infestans or late blight. I would like to involve my genetics students in some kind of authentic research maybe in conjunction with the UF extension service there. I have written grants and have some biotechnology equipment, but we are still lacking a thermocycler and ELISA apparatus. I would like to design an experiment and/or continue gathering data for an ongoing experiment in this field. Students can enrich their biotechnology skills while participating in authentic research.

Abstract: The purpose of this research is to empower students in their personal decision making in regards to personal health and reproductive success, educational and career choices, and to understand they are citizens of the world and to act upon it. The work will be accomplished through lectures, labs, guest speakers and fundraising centered on the connection between sickle cell disease, malaria, evolution, genetic screening, and low cost prevention measures. Data will be measured qualitatively via open ended pre and post questionnaires.
Dr. Inga Pinnix, Sandalwood High School

Biographical Sketch: I was raised in Greensboro, North Carolina and attended NC State University and Emory University, earning degrees in Biochemistry. I currently work at Sandalwood High School in Jacksonville, Florida and have taught various levels of Chemistry and Biology for 8 years. I am also the advisor for two clubs, the Junior Academy of Sciences Club and the Sandalwood Medical Leaders of America Club. One of my professional goals is to make science an exciting course for all students for showing them real-life applications, including those who would tell you that they are uninterested. Prior to working at Sandalwood, I spent several years as a post-doctoral researcher at Mayo Clinic Jacksonville and Emory University in the areas of genetic neuroscience and cellular biochemistry. I am married, have 3 children, and enjoy reading, gardening, cooking, crafting, and volunteering in the community.

Personal Statement: I am looking forward to expanding my knowledge of emerging pathogens, which is a dynamic and important area of medical and biological research for this decade and in the future. Students may be familiar with HIV and possibly even Ebola from reading The Hot Zone or seeing movies such as “Outbreak”. However, they need to have more awareness of the growing threats from our environment to human health, to the food chain that sustains us, and to organisms within the world’s ecosystems. After completing this workshop, I will be eager to share what I will learn with both standard and advanced students as well as other teachers and adults so that they will be better prepared for the challenges to come. Perhaps there will be one or more students who will be motivated to pursue this area as a future career, since many students interested in Biology limit themselves to considering just becoming a physician or a nurse rather than exploring the many other possibilities available.

Abstract: AVID Biology students at Sandalwood High School will become members of a forensics team charged with learning about the pathogens found in water. An overall goal is initial student engagement and improved student attention and performance. Biotechnology lab activities and subsequent analysis will support practical, real-world applications for measurement, using the scientific method, examining genetic variation, characterizing proteins, and monitoring environmental factors. Each type of information will be applied to understanding the mechanism, transmission, and therapeutic intervention for several diseases caused by emerging pathogens. By the end of the forensic investigation, students should be equipped to solve scientific problems with greater confidence and a greater awareness of connections between Biology learned in class and real-world applications. Assessments will include pre- and post-test data, grading of an AVID Interactive notebook, accurate completion of lab workpages, item analysis of test questions, and adequate progress on an individually chosen project.
Ms. Javeshnev Rivera Azua, West Broward High School

Biographical Sketch: My name is Javeshnev Aimee Rivera Azua, and I have been teaching 9-12th grade students for the last five years. I am a huge proponent and implement differentiated instruction across all my curriculum. I have taught Biology, Chemistry, and Anatomy & Physiology since I began in the school system, and am currently facilitating Biology Honors and Anatomy & Physiology Honors at West Broward High School.

Regards,
Ms. Azua, M.S. & M.A.Ed

Personal Statement: I want to go to this program in order to gather more information, data, strategies, and resources to better enhance the social, emotional, and ethical issues discussed across our vast myriad of concepts (particularly genetic engineering, biomedical issues, evolutionary theory, etc.). Personally I feel that to teach you must relate to real-life applications, and break things down into small chunks that make sense to the student. I particularly love to teach with the "Shock and Awe" method, where you shock them with real-life things, and then awe them with the concept behind it. I hope to glean more information from this very informative school.

Abstract: The purpose of this guided three day Unit is to introduce students within Biology courses to the structure and function of DNA, the impact of biotechnology on individuals, society, environment, medical and ethical implications that impact the law and politics. It also serves the purpose of exposing students to the impact on public health by pathogens, and how they can be utilized as a method of bioterrorism, all the while teaching them about pathogen prevention, detection, and possible treatments.
Ms. Julia Roblyer, Northeast High School

Biographical Sketch: I am a first year science teacher. My interest has always been to use my knowledge and skills for the betterment of the community, from public health to education. After receiving a Bachelor’s degree in Nutritional Science from UF, I worked as a freelance science writer and a Nutrition Educator for the WIC program of the FL Department of Health. WIC provides nutritional counseling and food assistance to low-income women, infants and children. Having taught in one way or another since tutoring Algebra in high school, and with my mother who had been an educator for 35 years, I knew for a long time that teaching was a career I wanted to try. So far, it has been the best job I have ever had. June will mark the end of my first year of teaching. I hope to teach for many more years and want to become the absolute best teacher I can be. I want to inspire even the most de-motivated students to be interested in the infinitely ongoing body of knowledge and exploration that is Science, and the ways it can be used to bolster and nourish humanity and the ecosystem.

Personal Statement: Knowledge of and familiarity with environmental pathogens by the population is a huge step in the right direction towards improved public health. If we can introduce this kind of knowledge to students as early as possible, eventually it will permeate the community. Having worked for the Department of Health, the importance of public education is very real to me. I aim to further my scientific knowledge of pathogens and the methods by which the scientific community investigates pathogens. I have had little exposure to research beyond reading research papers and I think this experience at UF will allow me to provide insight to students based upon hands-on experience and practical knowledge.

Mrs. Miriam Sawyer, J.M. Tate High School

Biographical Sketch: I received by B.A. degree later in life. I am certified in middle level science/math and biology along with ed leadership. I spent six years teaching 7th grade integrated science. I have spent the last six years at Tate High teaching biology and integrated science. This past year I taught 9th grade integrated/physical science only. I love science and the endless hands-on possibilities that grab students and turn them on to science!

Personal Statement: I would love to initiate an effort to link students with information on emerging pathogens. There are so many benefits to turning kids on to this subject as they are now becoming so social and should be aware of risks and dangers due to pathogens and how to protect against them as some are as easy to avoid as washing your hands and others more difficult through ways such as abstinence. Knowledge is empowerment!!!

Abstract: I will integrate three labs in with the scientific method unit. It will instill relevant information about sterility and safety, use of science equipment, and the scientific method through the three following labs: 1. hand-washing, 2. learning to use pipettes, and a lab utilizing the scientific method to get real world data on the water that is around them in Escambia County. They will gain practice in science safety, (hand washing/sterility), using pipettes, writing out a hypothesis, carrying out an actual lab and making meaning out of the real life data collected, in addition to providing an overall conclusion that ties their hypothesis in with the actual lab results.
Mrs. Deborah Vasconi, Tarpon Spring High School

Biographical Sketch: Growing up in Florida, the family being in the state since the 1850's, I was a little bit of a "tomboy", so my parents thought they would send me to Wesleyan College to become more "cultured". I majored in Biology and loved being a field biologist but got into education when I was turned down for a lab job because I would want to have a family; so much for the culture part and thankfully women aren't treated that way anymore. I am currently the Science Dept Chair at Tarpon Springs High School, teaching AP Biology, AP Environmental Science and Pre-AICE in the Cambridge program. I have had the greatest students this year and had the wonderful opportunity to have equipment from the UF Equipment Locker after participating in Bench to Bedside 2011. I learned so much last summer and look forward to learning more this summer.

Personal Statement: As Science Dept. Chair, I am in the position to pursue the integration of our Culinary and Veterinary Science Academies into the development of a biotechnology course to investigate the significance and control of emerging pathogens.

Abstract: This action plan proposes that students to use prior knowledge and interests related to the case to construct new knowledge, use critical thinking skills and lab skills. They will put their learning into context, in the format of a case study, expanding independent and cooperative learning skills with the analysis of data collected through experimentation to solve a problem occurring in their community.

Mr. Lloyd Wade, Walton High School

Biographical Sketch: My name is Alvin Wade and I currently teach biology and Earth Science at Walton High School. This year I have pursued professional development in the areas of lesson study, CPalms training, and bioscopes. Last summer I became certified in AP Environmental Science and this summer I plan to pursue AP Biology training. Myself and my wife live on a small family farm where we enjoy a close link with nature. Our farm consists of livestock, chickens, fields and pastures, a swamp and a small pond. We attempt to preserve the natural resources through careful conservation practices. In my spare time, I enjoy woodworking, electronics experimenting, and integration of solar technology.

Personal Statement: One of my chief concerns for my students is their careless disregard for critical health related issues. On one hand, my students are careful to cough or sneeze into the bend of their arms to prevent the spread of viruses. Curiously enough, students faithful to this type of health practice, it is common to see students pass a soft drink from student to student. They say that it is alright because they are "friends" and "friends" share everything.

One of the most beneficial additions to biology curriculum would be a study of emerging pathogens. With the development of antibiotic resistant strains of viruses, crucial personal health decisions need to be informed. I have already made it my mission to help my students to understand their need for healthy, responsible lifestyles.
Mrs. Maria Whalen, Lakewood Ranch High School

Biographical Sketch: I am a Florida native and graduate of the University of South Florida. Over the last thirteen years I have been teaching in Manatee County. Previously, I worked as a veterinary technician. While I currently teach Biology to tenth graders, I have also taught math. I am the Public Service & Health Academy leader and HOSA (Health Occupations Students of America) advisor at Lakewood Ranch High School. My passion is inspiring students about life science by sharing my experiences in the veterinary field. On a personal note, I live in the country with my husband and eleven year old son. My husband and I are also 4-H leaders and directors of the Upward Sports program at our church. My students say that I have a weird music selection on my iPod, while I prefer to call it eclectic, which includes everything from Christian contemporary music, classical, country, rock and almost everything in between.

Personal Statement: I am excited about the opportunity to use the information in this workshop to help my biology and HOSA students get involved in addressing local issues concerning emerging pathogens. I know that my HOSA students are looking forward to learning more about how they can work with the community and promote health awareness. They have the opportunity to compete in epidemiology and community awareness events, which will support relevant emerging pathogen research.

Abstract: This action proposal is intended to inspire and facilitate student exploration of career opportunities in the health field. It will span the entire school year and involve students from 5th through 12th grades. Health Occupations Students of America (HOSA) members at the high school will participate in a variety of hands-on activities to allow them to make informed decisions about the options available beyond high school. They will culminate the project by sharing with the community through highly engaging interactive events, which will educate other students on the endless possibilities that are available and strive to inspire them to “think outside the box” when choosing their career in the health field.
Ms. Alicia Wood, Oakleaf High School

Biographical Sketch: I currently teach biology at Oakleaf High School in Clay County. I am looking to further my knowledge of pathogens as I find it a very interesting subject how they come about, travel, and some "die out." My students read "The Hot Zone" every year and we do a study of Ebola and other pathogens. I've always thought it would be a great experience to work in a lab setting and see how research is completed on the different pathogens. Next year I will be part of the Plant Biotechnology Academy and am hoping in the future to work with the health science teacher, who teaches students interested in nursing. I am hoping to learn about pathogens that effect humans, animals, and plants in this course.

Personal Statement: I would like to help students be more involved in their community. I will work with the Plant Biotechnology Academy on informing and teaching the community about pathogens that are found in plants. We have a greenhouse, vegetable garden, and butterfly garden that the students maintain that are in the agriscience class. I hope to work with the FFA club and inform and teach them about pathogens in animals. My school has had goats and pigs which we have raised and then sold. I would like to use my information gained with my Youth in Government club to help them develop mock bills about the funding for and research of pathogens. The more we know about pathogens, how they immerge, how they spread, and how to stop them the better informed both the medical and non-medical communities can become about them.

Abstract: This action proposal will immerse 11th grade environmental science students in an intensive, hands-on, biotechnology based curriculum unit focused on emerging pathogens and their use in bioterrorism with the intention to generate learning gains and allow students to gain knowledge of and interest in science. The action proposal will take place over the course of nine weeks or until fully completed. Multiple learning styles will be used over the course of the action plan. The students will participate in a variety of activities, ranging from lectures, hands-on labs, and student involvement in multiple simulations of what would happen in a true outbreak of a pathogen. As learning process continues, students will research and debate the ethics that goes along with researching a virus or bacteria that could be used as a bioterrorism weapon. As a hopeful final extension my students will Skype with students in Broward County to complete a full simulation of a mystery infection, which is the result of a bioterrorist act.

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  
Laboratory Teaching Specialist  
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
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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.

Katie Meese
Program Assistant
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Katie joined the CPET team in early 2011, and is involved with many of our programs, particularly dual enrollment and Science Quest. She graduated from the University of Texas at Dallas with a B.S. in Chemistry and Cognitive Science, but also participated in the theatre. She then moved to Gainesville, got married and completed her M.S. in Teaching with the Chemistry department. Katie and her husband (also a chemist) have 2 cats and enjoy cooking with friends.

Bo Idsardi
Student Assistant
Email: boidsardi@cpet.ufl.edu
Bo recently graduated with a B.S. in zoology at UF and in the fall will start a M.S. program in entomology with a minor in extension education. Afterwards he plans to pursue a Ph.D. degree before starting a career in academic research and education. Bo got married last summer and has a beagle dachshund mix who loves getting into trouble. Out of school he enjoys ultimate Frisbee, hunting, and hanging out with friends.

Angela McCall
Student Assistant
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Angela is a recent graduate of UF, with a B.S. in Biochemistry and Molecular Biology. She will be starting graduate studies at UF in the Interdisciplinary Program in Biosciences this fall. After which she plans to have a career in education. Angela was a participant in Science Quest and the Student Science Training Program, and has worked with Science Quest for several years.

Charles D. Lawrence, MPH, Ph.D.
UF CPET Educational, Multimedia & Web Designer
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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.
ICORE PRESENTERS

**Gordon Burleigh, Ph.D.**  
Assistant Professor  
Department of Biology, College of Liberal Arts and Sciences  
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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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http://www.biology.ufl.edu/People/faculty/cv/schen.pdf  
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.

**Gary Clark, Ph.D.**  
Research Leader  
Mosquito and Fly Research Unit, Agricultural Research Service, USDA  
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Dr. Clark’s research focuses on mosquito-borne viral diseases, particularly Dengue and West Nile virus transmission in the Caribbean and Latin America. He works on all aspects of these diseases, including the social science and health communications to the public about these vector-borne viruses.

**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  
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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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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.

Tracy Irani, Ph.D.
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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, which focuses on science education, critical thinking and problem solving, and evaluation.

Judith Johnson, Ph.D.
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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.

Fiona Maunsell, Ph.D., DACVIM
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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
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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
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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.

Juliet Pulliam, Ph.D
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Dr. Pulliam’s research focuses on quantitative approaches to understanding the determinants and dynamics of viral host jumps and on the interactions between human, domestic animal, and wildlife health. Much of Dr. Pulliam’s research has focused on the processes driving Nipah virus emergence in Malaysia. She also teaches annual courses on data-driven modeling and infectious disease dynamics at the African Institute of Mathematical Sciences in South Africa.

Diane Rowland, Ph.D.
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Dr. Rowland’s professional research is focused on the physiological mechanisms which determine stress response in crops. Emphasis is placed on quantifying water use and water-use efficiency under different irrigation methods and scheduling schemes, and in conservation and conventional tillage systems. She also conducts research into physiological traits involved in the tolerance to crop diseases and pathogens and the variation among tolerant and susceptible genotypes, including Tomato spotted wilt virus and aflatoxin in peanut and zebra chip disease in potato.
Marco Salemi, Ph.D.
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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.

Jason Smith, Ph.D.
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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.

Max Teplitski, Ph.D.
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Dr. Teplitski studies bacterial cell-to-cell communication and its role in structuring of microbial communities and interactions with eukaryotic hosts. His group also focus on the biochemical strategies that eukaryotes use to disrupt gene regulation in environmental and pathogenic bacteria.

Lori Wojciechowski
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Ms. Wojciechowski is the Coordinator of Education and training at the University of Florida's Center of Excellence for Regenerative Health Biotechnology. After completing a BS in Bacteriology from the University of Wisconsin, she moved to Gainesville for graduate school. Lori has an extensive background in academic research with an emphasis on bacterial pathogenicity and antibiotic production.

Janet Yamamoto, Ph.D.
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Dr. Yamamoto’s major research interests are to identify cellular immune functions that are essential for T-cell based vaccines, to develop immunotherapeutic drugs for infectious diseases and cancers, and to design computational models for major histocompatibility complex (MHC)-related diseases and therapeutics. Her laboratory has successfully produced semi-inbred cats to evaluate the role that MHC plays in vaccine prophylaxis and immunotherapeutics. Due to close homology between human and feline MHC, the semi-inbred cats are not only useful for veterinary medicine but serve as an excellent small animal model for designing human vaccines and immuotherapeutics.