

**UNIVERSITY OF FLORIDA
CENTER FOR PRECOLLEGIATE
EDUCATION AND TRAINING
UF-CPET**

www.cpet.ufl.edu

Research-Education Partnerships: University – K-12 Collaborations

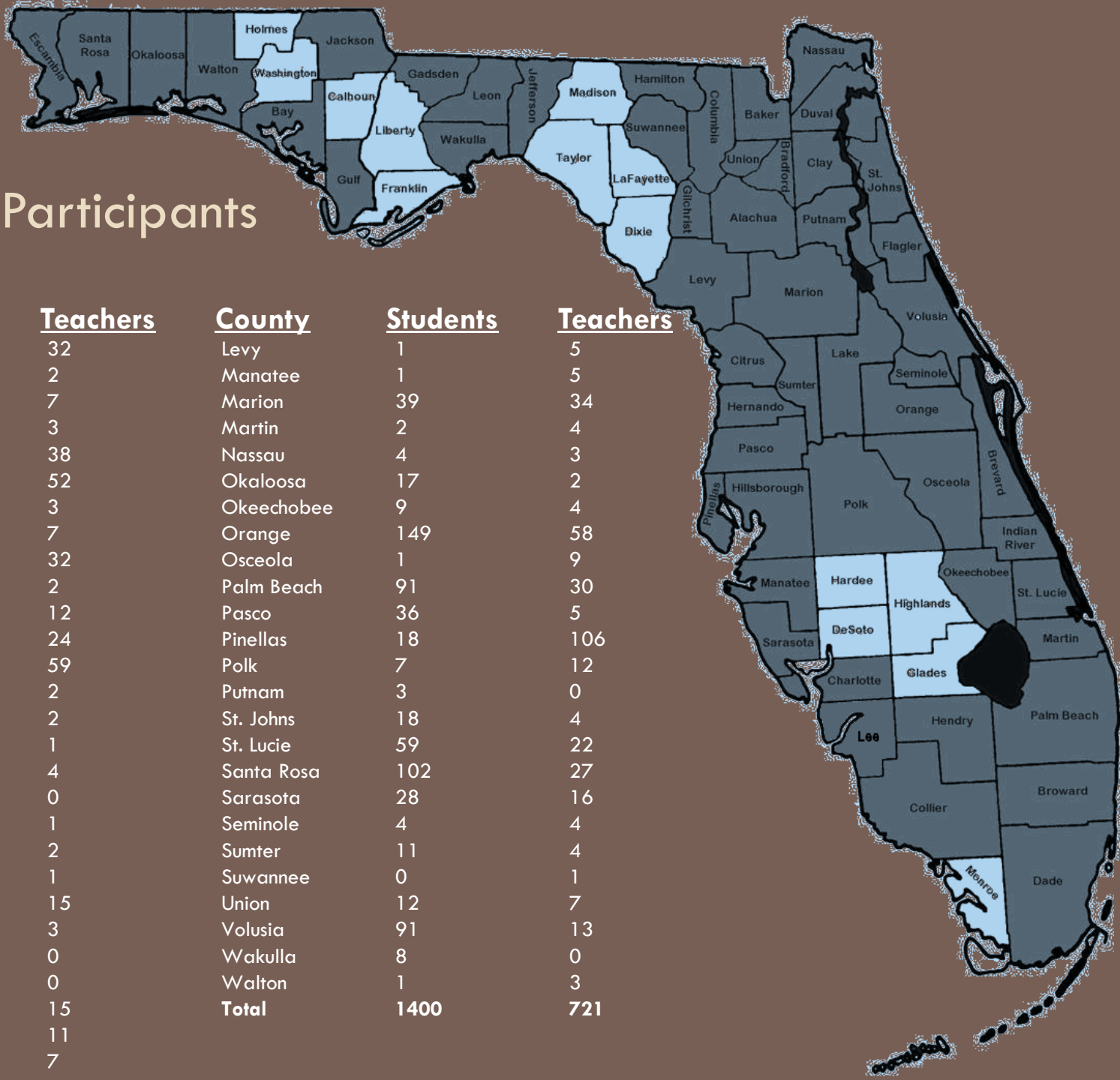
Mission

- partner with **researchers** to articulate and transfer current STEM knowledge and skills to teachers and motivated students
- partner with **educators** to design and offer effective, enriching professional development and life-long learning opportunities
- partner with **teachers** to improve science education and career exploration
- provide **graduate students** with interdisciplinary teaching and mentoring experiences
- assist **faculty** with broadening the impacts of their research

UF-CPET Collaborations

- UF Research Faculty and Graduate Students from STEM Departments, Centers and Institutes
 - Interdisciplinary, socio-scientific themes
 - Infrastructure adaptable to faculty expertise and goals
 - Ongoing partnerships/networks
 - Program emphasis on high poverty schools and students
- Other Universities, Regional Colleges, Industry
- Professional Societies of Scientists and of Educators
- Education Consortia, School Districts, and Teachers
- Talented/Motivated Secondary School Students
- 350 Faculty Collaborators per year
- >200 Graduate Student Volunteers per year

2009-2011 Participants



<u>County</u>	<u>Students</u>	<u>Teachers</u>	<u>County</u>	<u>Students</u>	<u>Teachers</u>
Alachua	95	32	Levy	1	5
Baker	0	2	Manatee	1	5
Bay	14	7	Marion	39	34
Bradford	0	3	Martin	2	4
Brevard	45	38	Nassau	4	3
Broward	172	52	Okaloosa	17	2
Charlotte	1	3	Okeechobee	9	4
Citrus	19	7	Orange	149	58
Clay	104	32	Osceola	1	9
Collier	6	2	Palm Beach	91	30
Columbia	12	12	Pasco	36	5
Dade	24	24	Pinellas	18	106
Duval	15	59	Polk	7	12
Escambia	12	2	Putnam	3	0
Flagler	7	2	St. Johns	18	4
Gadsden	4	1	St. Lucie	59	22
Gilchrist	0	4	Santa Rosa	102	27
Gulf	1	0	Sarasota	28	16
Hamilton	0	1	Seminole	4	4
Hendry	13	2	Sumter	11	4
Hernando	10	1	Suwannee	0	1
Hillsborough	31	15	Union	12	7
Indian River	11	3	Volusia	91	13
Jackson	2	0	Wakulla	8	0
Jefferson	1	0	Walton	1	3
Lake	26	15	Total	1400	721
Lee	33	11			
Leon	30	7			

Benefits to UF

- Research Grants (NIH, NSF, HHMI, Foundations)
- Public awareness of the research that UF faculty members do, and how and why they do it
- Recruit and retain diverse and better-prepared future scientists and engineers
- Increase science literacy and knowledge about STEM jobs/academic paths/careers
- Improve teaching, mentoring, communication, and cross-disciplinary opportunities for graduate students
- Encourage and support an ongoing culture of school and community engagement for research faculty and students

Programs for Teachers



- **Interdisciplinary Center for Ongoing Research/Education (ICORE) Partnerships: Emerging Pathogens**
 - Howard Hughes Medical Institute (HHMI), 2007-2012
- **Biomedical Explorations: Bench to Bedside**
 - National Institutes of Health (NIH SEPA), 2009-2012
- **Summer Science Institutes in Biotechnology, Environmental Sciences, etc.**
 - Helios Foundation and school districts, 2005-present
- **Mini Medical School**
 - UF Medical Guild, Shands HealthCare, 2001-present
- **Science Partners in Inquiry-based Collaborative Education (SPICE)**
 - National Science Foundation (NSF GK-12), 2003-present
- **NSF Broader Impact Research**
 - 2006-present

ICORE and Bench to Bedside

- 2-week summer institute
 - ▣ Inquiry Labs
 - ▣ Faculty Presentations and Labs
 - ▣ Pedagogical development
- Action Research
- Biotechnology equipment loans
- Post-doc visits to classroom
- Student visits to research facilities
- Tuition-free graduate credits
- Research opportunities for teachers and students
- 180 teachers and their 21,000 students



Teacher Program Outcomes

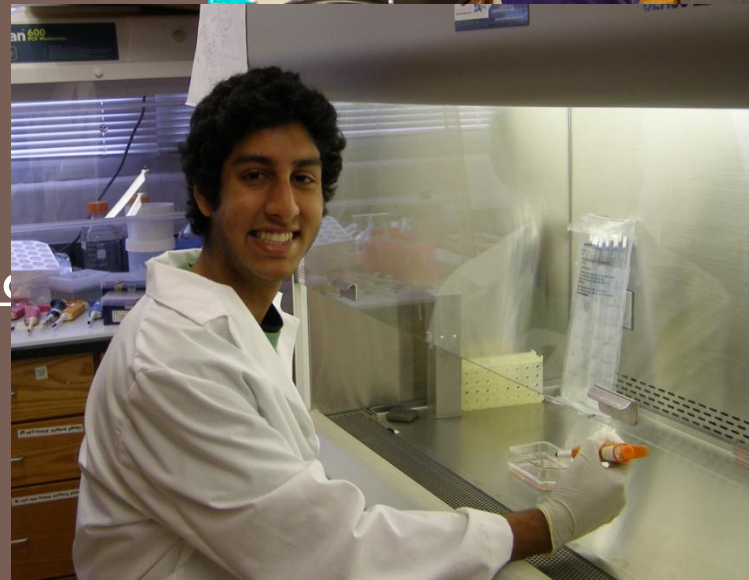
- Enhanced learning for ~100 students/year/teacher:
3,000 teachers reach 300,000 secondary school students
- New standards-aligned “discovery/ inquiry-based” curricular components using in-class and Internet activities
- Increased opportunities for research projects, competitions, E-mail partners, mentoring programs, and access to University resources
- Successful school fundraising via grants and novel science-based school/community partnerships
- New collaborations among educators, and extended partnerships with UF
- In-service workshops at district, regional and national levels
- Enhanced recognition, empowerment and leadership opportunities for teachers in school/district environment
- Increased opportunities for research faculty and students to communicate with public about current science and applications
- A highly successful recruitment tool for college and career paths in science

Teacher Resources

- Excursions in Science
- Science Information for Teachers (SIFT)
- Best Practices
- Action Proposals and Outcomes
- NSF OUTBREAK: Mission Biotechnology Game Platform
- Biomedical Curriculum Series
- Equipment Locker Loan Program
- Simulations
- Science Experiences for Teachers and Students (SETS)

Programs for Precollege Students

- **Florida Junior Science, Engineering and Humanities Symposium (FL-JSEHS)**
 - High School Students and Teachers, 1963-present
 - Florida STEM Research Competition
 - Lab Visits, Keynote Speakers, Humanities Presentation
- **Student Science Training Program (SSTP)**
 - Talented High School Seniors, 1959-present
 - Research Mentorship
- **Science Quest**
 - Rising 10th graders, 2002-present
 - Interdisciplinary Science Exploration Program
- **Duke University Talent Identification Program**
 - 7th Grade Students, 1990-2011
- **Dual-Credit Enrollment for UF**
 - Motivated High School Students



Student Science Training Program (SSTP)

54th Annual SSTP: June 10 – July 28, 2012

- >4,000 SSTP alumni
- Up to 100 students from throughout Florida
~10% out of state, and 2% international students
- Socially, culturally, and socioeconomically diverse
In 2011, >\$75,000 in scholarships
- 28 hrs/week in mentor's research lab
32 Departments within 6 UF Colleges
- Honors Seminar taught by 28 graduate students
14 Departments within 6 UF Colleges
- Daily lectures by faculty on topics ranging from current research, to ethics, to technical writing.
- Service learning through community volunteering
- 6 dual-enrollment credits



Courses Directed by CPET

- IDH 2931: *Interdisciplinary Honors Seminar in Scientific Inquiry*
 - ▣ 8 socio-scientific themed sections; ~100 students; ~85% dual enroll for 3 college credits
- IDH 3931: *Independent Laboratory Research*
 - ▣ ~100 students; ~50% dual enroll for 3 college credits
- GMS 7002: *Practicum in Biomedical Sciences*
 - ▣ variable credit; Graduate students instruct in educational outreach course IDH 2931, various topics
- New HHMI ICORE graduate-level courses
 - ▣ Emerging Pathogens for UF graduate students across campus
 - ▣ ICORE graduate courses for teachers

Future Directions

- UF Unites Teachers to Reform Education in Science (U-FUTuRES)
 - ▣ National Science Foundation, 2011
- Collaborations with Humanities faculty
- Broader Impacts
- Increase opportunities for ALL students



SUMMARY



UF CPET would be pleased to collaborate with you
to inspire and recruit future scholars
and
to engage and empower teachers
to translate
the content, impact, and excitement of your research
into classrooms and communities throughout Florida

Staff

- Director: Mary Jo Koroly, Ph.D.
- Assistant Director, Teacher Programs: Julie Bokor, MAE
- Assistant Director, Student Programs: Deborah Paulin
- Educational Designer: Charles Lawrence, MPH, Ph.D.
- Postdoctoral Fellow: Houda Darwiche, Ph.D.
- Coordinator, Teacher Programs: Drew Joseph, MST
- Coordinator, Student Programs: Christy Steinway-Rodkin
- Coordinator, Dual Enrollment: Katie Meese, MST
- Computer Specialist: Mike Anthony
- Fiscal Manager: Harriet Ganious
- SPICE Coordinator: Ginger Stanford