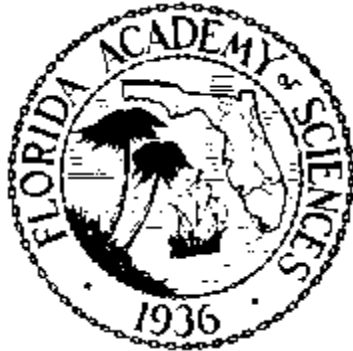


# CALL FOR ABSTRACTS

with an Application Form for the Elizabeth A. Hays Travel Award



The 88<sup>th</sup> Annual Meeting of the  
**FLORIDA ACADEMY OF SCIENCES**

will be held at

**Florida Institute of Technology**  
**Melbourne, Florida**  
**March 21-22, 2025**

*All FAS abstracts must be submitted online at*  
**<https://www.flacademyofsciences.org/submit-abstract/>**  
*Abstract Deadline: Friday, 31 January 2025*  
*Please note that acceptance is not guaranteed.*

**Abstract Topics:** Abstracts on completed research projects (no research proposals please) in any aspect of science or engineering are solicited. You are cordially invited to organize additional sessions or symposia in any area of science, engineering or science education. For further information and procedures, visit the academy's web page located at <https://www.flacademyofsciences.org/> or contact the FAS Program Chair, Dr. David Karlen (Environmental Protection Commission of Hillsborough County) at 813-627-2600 x1202, email [karlen@epchc.org](mailto:karlen@epchc.org).

*The Florida Academy of Sciences (FAS), the only professional STEM organization in Florida, is strongly and decisively dedicated to supporting diversity, equity, inclusion, and justice (DEIJ) in scientific practices and STEM education in the state of Florida. The Academy considers DEIJ values as being crucial to academics and to the advancement of scientific research in Florida. Scientists with distinct and diverse backgrounds and viewpoints are encouraged to participate in our annual meeting and other FAS events, as well as publish in the peer-reviewed journal Florida Scientist.*

## Section Chairs, 2024-2025, Florida Academy of Sciences

- AGR** Agricultural and Natural Resource Sciences: Ms. Julie Boswell, University of Florida, College of Agriculture and Life Sciences, Gainesville, FL 32611, email: julieboswell@ufl.edu
- ANT** Anthropological Sciences: Dr. David Karlen, Environmental Protection Commission of Hillsborough County, 3629 Queen Palm Drive, Tampa, FL 33619, phone: 813-627-2600 x1202, email: karlen@epchc.org
- AOS** Atmospheric and Oceanographic Sciences: Dr. Michael Robinson, Department of Biology, Barry University, 11300 NE 2<sup>nd</sup> Ave, Miami Shores, FL 33161, phone: 305-899-4930, email: mprobinson@mail.barry.edu; and Co-Chair Dr. David Karlen, Environmental Protection Commission of Hillsborough County, 3629 Queen Palm Drive, Tampa, FL 33619, phone: 813-627-2600 x1202, email: karlen@epchc.org
- BIO** Biological Sciences: Ms. Kym Holzward, Southwest Florida Water Management District, 2379 Broad Street, Brooksville, FL 34604, phone: 352-796-7211 x 4295; email: Kym.Holzward@swfwmd.state.fl.us; and Co-Chair Dr. Melba Horton, Southeastern University, Lakeland, FL 33801, phone: 863-667-5542; email: mdhorton@seu.edu
- CMS** Computer/Mathematical Sciences: Dr. Ricardo Jimenez, Department of Math and Computer Science, Barry University, 11300 NE 2<sup>nd</sup> Ave, Miami Shores, FL 33161, phone: 305-899-4945, email: rjimenez@barry.edu
- ENG** Engineering Sciences: Dr. Sessa Srinivasan, email: sessa.srinivasan@gmail.com; and Co-Chair Dr. Muhammad Ullah, Department of Electrical and Computer Engineering Florida Polytechnic University 4700 Research Way, Lakeland, FL, 33805, phone: 863-874-8663, email: mullah@floridapoly.edu
- ENV** Environmental Chemistry and Chemical Sciences: Dr. Jerome Williams, Department of Math and Science, Saint Leo University, 33701 State Road 52, Saint Leo, FL 33574, phone: 352-588-8336, email: Jerome.williams@saintleo.edu
- GEO** Geosciences: Dr. Al Karlin, Dewberry, 1000 North Ashley Drive Suite 801, Tampa, FL 33602, phone: 813-421-8625, email: akarlin@Dewberry.com; and Co-Chair Dr. Bruce W. Nocita, S&ME, Inc. 111 Kelsey Lane, Suite E, Tampa, FL 33619, phone: 813-623-6646, email: bnocita@smeinc.com
- MED** Medical Sciences: Dr. Melissa Borgen, Florida Institute of Technology, 150 W. University Blvd. Melbourne, FL 32901, phone: 321-674-713. email: mborgen@fit.edu
- PSS** Physics and Space Sciences: Dr. Georgui Bourov, Embry-Riddle Aeronautical University, 600 S Clyde Morris Blvd, Daytona Beach, FL 32114, phone: 386-323-8829, email: bourov987@erau.edu; Co-Chair Dr. Emadelden Fouad, Florida Polytechnic University 4700 Research Way, Lakeland, FL, 33805, phone: 386-323-8829, email: efouad@floridapoly.edu
- RES** Florida Committee on Rare & Endangered Plants & Animals: Dr. I. Jack Stout, Department of Biology, University of Central Florida, Department of Biology, 4000 Central Florida Blvd., Orlando, FL 32816-2368, phone: 407-823-2919, email: i.stout@ucf.edu
- SOC** Social Science: Dr. Jennifer Wortham, University of Tampa 401 W. Kennedy Blvd. Tampa, FL 33606, phone: 813-257-1722, email: jwortham@ut.edu
- TCH** Science Teaching: Dr. Tom Arnold, LECOM-Bradenton, 5000 Lakewood Ranch Blvd, Bradenton, FL 34211, phone: 941-782-5672, email: tarnold@lecom.edu
- Local Arrangements Chair:** Richard L. Turner, Professor Emeritus, Department of Ocean Engineering & Marine Sciences, Florida Institute of Technology, 150 W. University Blvd., Melbourne FL 32901-6975, phone: 321-674-8196, email: rturner@fit.edu
- Program Chair:** Dr. David Karlen, Water Management Division, Environmental Protection Commission of Hillsborough County, 3629 Queen Palm Drive, Tampa, FL 33619, phone: 813-627-2600x1202, email: karlen@epchc.org

# FLORIDA ACADEMY OF SCIENCES 88<sup>th</sup> ANNUAL MEETING

## MARCH 21-22, 2025

### MEETING INFORMATION

#### OVERVIEW

The 88<sup>th</sup> Annual Meeting of the Florida Academy of Sciences will be held at the Florida Institute of Technology in Melbourne on 21-22 March 2025. Abstracts on all aspects of science and engineering are solicited for general sessions in all sections of the Academy (list of sections on previous page). Any person or section interested in organizing a special session should contact the appropriate Section Chair or the Program Chair for further information.

#### Florida Institute of Technology, Melbourne

The premier private technological university in the Southeast, Florida Tech is a Tier 1 Best National University (*U.S. News & World Report*) and a Top Technical Institute (*Fiske Guide to Colleges*), as well as a Best Value University (*Forbes*) and a top 100 global university for graduate employability (GEURS). As Florida's STEM University™, Florida Tech is known worldwide for its strengths in aerospace, advanced manufacturing, aviation, autism treatment, biomedical science, cybersecurity and machine-learning, and marine science. Home to the headquarters of the Florida Academy of Sciences, the university offers more than 150 bachelor's, master's and doctoral degrees in engineering, science, computing, aeronautics, business, psychology and the liberal arts. The university is located in the dynamic and innovative city of Melbourne in the heart of the "Space Coast," where students have been watching rocket launches from campus since the dawn of the Space Race. Learn how Florida Tech is making history and shaping the future at [floridatech.edu](http://floridatech.edu). Find stories about our relentless pursuit of greatness at [floridatech.edu/news](http://floridatech.edu/news).

#### DRIVING DIRECTIONS AND PARKING

Florida Institute of Technology is at 150 W. University Blvd., Melbourne FL 32901, about 4.5 miles east of I-95. For GPS guidance, please use the main address. From the north, take I-95 Exit 180 for U.S. 192 and go east 5.2 miles to Babcock Street (SR 507); turning right (south) onto Babcock, travel 1 mile to University Boulevard and turn right (west) into campus on University Boulevard. From the west, take U.S. 192, and follow instructions above for travel from the north. From the south, take I-95 Exit 176 for CR 516 (Palm Bay Road) and go east 2 miles to Babcock Street; turning left (north) onto Babcock, travel 2 miles to University Boulevard and turn left (west) into campus on University Blvd. Once on campus, the best option for parking will be a large lot on the west side of Country Club Road, which marks the west side of campus and intersects University Blvd. Look for signage with the Academy's name, acronym, or logo. Find a map at [www.fit.edu/map](http://www.fit.edu/map).

Parking on campus will be free in designated FAS Meeting parking lots.

#### DAYS, TIMES AND SESSION SCHEDULES

The scheduling is:

- Friday sessions (all Senior Academy): AGR, ANT, AOS, BIO, CMS, ENG, ENV, GEO, MED, PSS, RES, SOC, and TCH. See page 2 for explanation of abbreviations.
- Saturday sessions: Florida Junior Academy of Science

The scheduling details will be finalized in early March 2025.

## **REGISTRATION**

**All presenters and attendees must register and pay the appropriate registration fee.**

Early registration (through 28 February 2025)

Regular member, \$40

Regular non-member, \$55

Student member, \$20

Student non-member, \$25

Late registration (beginning 1 March 2025, including on-site)

Regular member, \$45

Regular non-member, \$60

Student member, \$25

Student non-member, \$30

Payment of 2025 dues is sufficient for classification as a member or student member. Register at:

<https://www.flacademyofsciences.org/registration/>

## **LOCAL ARRANGEMENTS**

The Local Arrangements Chair for the Annual Meeting is Dr. Richard Turner (see contacts, p. 2). He should be consulted for any special meeting needs.

## **LODGING**

No reservations can be made through the Academy. There are several hotels located within minutes of the Florida Tech campus, and they offer special rates for campus visitors. Discounted reservations must be made directly with the hotels by calling their local telephone numbers. Final rate might depend on the time of year, length of stay, and the type of room selected. Be sure to mention that you are visiting Florida Tech. A list of the hotels, contact information, and discount codes is given at <https://www.fit.edu/about/places-to-stay-in-melbourne/>.

## **MEALS**

Breakfast, lunch, dinner, and snacks will be available at several locations on campus during the meeting (<https://www.fit.edu/dining/>). Campus maps and other information at the Registration Desk will direct participants to dining options within 2 miles of campus.

## **MEDALIST SESSION SPEAKER**

The Medalist Address will be given on Friday, March 21st, immediately following the business meeting. The address will be by Dr. Randy K. Avent, President Emeritus, Florida Polytechnic University and 2024 FAS Medalist.

## **FLORIDA JUNIOR ACADEMY OF SCIENCE ANNUAL MEETING**

The Junior Academy will meet with Florida Academy of Sciences at the Annual Meeting. As the student division of FAS, the Florida Junior Academy of Science provides opportunities that encourage middle and high school students in science by allowing them to compete, share, and network with other students and adults having common interests. The focus of this "common bond" among participants is their research activities. The Florida Junior Academy of Science is seeking volunteers to assist in judging and to act as section moderators at its meeting, to be held on Saturday, March 22, 2025. The Junior Academy is also seeking individuals in early February of 2025 to evaluate research papers submitted for this meeting. Persons interested in participating in

this rewarding experience should contact Ms. Leya Joykutty, FJAS Director, email: leyajoykutty@gmail.com

### **NOMINATIONS FOR THE FAS MEDALIST**

The Florida Academy of Sciences encourages its members to submit formal nominations for candidates to be considered as the 2025 Medalist (see p. 6 for a listing of past FAS Medalists).

**Nomination Procedure:** The medal is presented each year at the annual meeting to a resident of the State of Florida who has contributed in an outstanding manner to the promotion of scientific research, to the stimulation of interest in the sciences, or to the diffusion of scientific knowledge. The candidate need not hold the Ph.D. He or she may be a research scientist, a philanthropist, an educator, a journalist, a science fair coordinator, or a member of industry, government, or other organization and who has met the criteria given above. The nominee does not need to be a member of FAS nor do you have to be a member to submit a nomination.

**A nomination form is available on the Academy's website at**

**<https://www.flacademyofsciences.org/fas-medalist/>**

Please email the completed form and any supporting materials as a pdf file to:

Dr. Kelli Hunsucker, Chair FAS Honors Committee, khunsucker@fit.edu

Or mail print materials to Dr. Hunsucker at:

Department of Ocean Engineering and Marine Sciences

Florida Institute of Technology

150 W. University Blvd

Melbourne, FL 32901

Your nomination form must arrive no later than **January 15, 2025**. The Committee might ask you to obtain a copy of your nominee's resume or curriculum vitae.

### **COMMERCIAL AND INSTITUTIONAL EXHIBITS**

Space is available on a first come-first served basis. Exhibits by research institutions or organizations offering programs of an informational nature may be given free space. Parties interested in fee or free spaces should contact the FAS Office for details:

Florida Academy of Sciences

P.O. Box 668

Melbourne, FL 32902

Email: flacademyofsciences@gmail.com

## Florida Academy of Sciences Medalists 1963–2024

1963	Dr. Archie Carr	University of Florida	Biology
1964	Dr. Werner A. Baum	University of Miami	Meteorology
1965	Dr. Alex G. Smith	University of Florida	Astronomy
1966	Dr. Karl Dittmer	Florida State University	Chemistry
1967	Dr. Alfred H. Lawton	University of South Florida	Medicine
1968	Dr. Sidney Fox	University of Miami	Biochemistry
1969	Dr. F. G. Walton Smith	University of Miami	Marine Science
1970	Dr. Pierce Brodkorb	University of Florida	Zoology
1971	Dr. Maurice A. Barton	Mound Park Foundation	Medicine-Teaching
1972	Dr. Lloyd M. Beidler	Florida State University	Physiology-Biophysics
1973	Dr. Ruth S. Breen	Florida State University	Botany
1974	Dr. E. T. York, Jr.	University of Florida	Agriculture
1975	Dr. Alex E. S. Green	University of Florida	Physics
1976	Dr. Robert N. Ginsburg	University of Miami	Geology
1977	Dr. Michael Kasha	Florida State University	Molecular Biophysics
1978	Dr. John Edward Davies	University of Miami	Public Health
1979	Dr. Stanley S. Ballard	University of Florida	Optics
1980	Dr. Thomas D. Carr	University of Florida	Astronomy
1981	Dr. Harold J. Humm	University of South Florida	Marine Biology
1982	Dr. George B. Butler	University of Florida	Chemistry
1983	Dr. Karen Steidinger	Florida Dept. Natural Resources	Biology
1984	Dr. Yngve Ohrne	University of Florida	Chemistry
1985	Dr. William Sears	Florida Atlantic University	Anthropology
1986	Dr. E. Dwight Adams	University of Florida	Physics
1987	Dr. Larry Hench	University of Florida	Engineering
1988	Dr. Gene C. Ness	University of South Florida	Biochemistry
1989	Dr. Frank Bradshaw Wood	University of Florida	Astronomy
1990	Dr. Martin Uman	University of Florida	Electrical Engineering
1991	Dr. Frank Millero	University of Miami	Oceanography
1992	Dr. Gregory Choppin	Florida State University	Chemistry
1993	Dr. D. O. Shah	University of Florida	Chemical Engineering
1994	Mrs. Barbara B. Martin	University of South Florida	Chemistry
1994	Dr. Dean F. Martin	University of South Florida	Chemistry
1995	Dr. James N. Layne	Archbold Biological Station	Zoology
1996	Dr. Leslie Sue Lieberman	University of Florida	Anthropology
1997	Dr. George R. Newkome	University of South Florida	Chemistry
1998	Dr. Joseph J. Krzanowski	University of South Florida	Pharmacology
1999	Dr. Abraham Kandel	University of South Florida	Computer Science
2000	Richard F. Lockey, M.D.	University of South Florida	Medicine
2001	Dr. Clinton J. Dawes	University of South Florida	Biology
2002	Dr. John H. Trefry	Florida Institute of Technology	Marine Science
2003	Dr. Christian A. Clausen	University of Central Florida	Chemistry
2004	Dr. Jerald T. Milanich	University of Florida	Archaeology
2005	Dr. Thomas Crisman	University of Florida	Ecology
2006	Dr. James O'Brien	Florida State University	Climatology
2007	Dr. Robert A. Holton	Florida State University	Chemistry
2008	Dr. John M. Lawrence	University of South Florida	Biology
2009	no medal awarded		
2010	Dr. Terry D. Oswalt	Florida Institute of Technology	Astronomy
2011	Dr. Michael J. Greenberg	University of Florida	Biology
2012	Dr. Bruce J. MacFadden	University of Florida	Paleontology
2013	Dr. Lonnie O. Ingram	University of Florida	Microbiology
2014	Dr. Peter J. Delfyett	University of Central Florida	Photonics
2015	Dr. Paul R. Sanberg	University of South Florida	Medicine
2016	Dr. George A. Maul	Florida Institute of Technology	Oceanography
2017	Dr. Alan G. Marshall	Florida State University	Chemistry
2018	Dr. Richard L. Turner	Florida Institute of Technology	Biology
2019	Dr. Richard A. Yost	University of Florida	Chemistry
2020	Dr. Shyam Mohapatra	University of South Florida	Medicine
2021	Dr. Linda J. Walters	University of Central Florida	Biology
2022	Dr. Wayne B. Hunter	US Department of Agriculture	Entomology
2023	Dr. W. Wayne Price	University of Tampa	Biology
2024	Dr. Randy K. Avent	Florida Polytechnic University	Electrical Engineering

## STUDENT AWARDS

Students presenting papers at the Annual Meeting of the Academy, and who are registered for the Meeting, may be considered for a number of awards. Details are presented below. Students wishing to be considered for one or more of these awards should indicate their interest on the FAS abstract submission website. Dr. Sarah Krejci is the Awards Chair and she can be contacted at: Dr. Sarah Krejci, Bethune-Cookman University, 640 Dr. Mary McLeod Bethune Blvd. Daytona Beach, FL 32114, phone: 386-481-2693, email: krejcis@cookman.edu.

1. Outstanding Student Paper Award - This award is presented by any of the Academy Sections to graduate and undergraduate students for oral and poster presentations.
2. Al Hall Memorial Award (student award in Engineering) – The student shall have the following or must meet the following criteria:
  - Have at least 3.0 GPA (grade point average);
  - Maintain 12 credit hours per semester;
  - Be a Junior/Senior/Graduate Student;
  - Be a FAS student member prior to presenting an oral or poster paper at the Annual Meeting of the Academy.

The award shall be given for an oral paper or poster that judges at the Annual Meeting of the Academy deem outstanding in nature. This award shall be given only to one recipient annually. The winner of the Al Hall Memorial Award receives a monetary gift, plaque, and certificate for the outstanding paper and/or poster presentation at the FAS Annual Meeting.

3. Dr. Elizabeth A. Hays Travel Award: The Florida Academy of Sciences provides travel support for students enrolled at colleges and universities to present papers at its annual meetings. This awards program is supported by an endowed account, the Dr. Elizabeth A. Hays Travel Award Fund. Awards, which are based on demonstrated financial need, may be applied to the costs of travel, lodging, and meals, Academy student membership for the calendar year of the meeting, or the cost of the banquet. The amount of each award is \$100, and the award includes waiver of the meeting registration fee. Instructions for applying are attached. (***SEE THE LAST TWO PAGES OF THIS DOCUMENT***).

FLORIDA ACADEMY OF SCIENCES 88<sup>th</sup> ANNUAL MEETING  
MARCH 21-22, 2025

**INSTRUCTIONS FOR ABSTRACT SUBMISSION**

**ONLINE SUBMISSION**

The abstract online submittal form is available at:

***<https://www.flacademyofsciences.org/abstract-submission/>***

**Abstracts on completed research projects in any aspect of science or engineering are solicited (no research proposals please). All abstract submissions will be reviewed, and authors will be notified of abstract acceptance in February 2025.**

**FAS requests complete names of all authors, addresses (including street addresses and ZIP codes), organizational departments, status if students (undergraduate or graduate) phone numbers, *etc.* Please identify which author will be presenting and if the presenter is a student so they may be considered for a student award.**

**PUBLICATION OF FAS ABSTRACTS**

All accepted and presented abstracts will be published in the *Florida Scientist* (Volume 88).

**DIRECTIONS FOR ABSTRACT PREPARATION**

Abstracts must be typed (or text may be cut-and-pasted) into the appropriate submission window on the website (see URL above). WE ASK ALL AUTHORS TO ADHERE STRICTLY TO THE INSTRUCTIONS SHOWN BELOW IN ORDER TO ACHIEVE UNIFORM PUBLICATION; PLEASE FOLLOW THE DIRECTIONS CAREFULLY. FAILURE TO ADHERE TO THE INSTRUCTIONS WILL DELAY THE ACCEPTANCE OF YOUR ABSTRACT. Sample abstracts follow at the end of this document and are also posted on the online submission URL shown above.

**Abstract Size:** No more than 300 words (***including*** title, authors, affiliations, *etc.*). ***It is crucial for publication that abstracts are kept within this limit...the submission software is designed to truncate abstracts at 300 words.***

**Order of parts:** Title, author(s), affiliation(s), text (including acknowledgment of financial and technical assistance).

**Title:** Upper case 1<sup>st</sup> letter for the 1<sup>st</sup> word of the title, and for 1<sup>st</sup> letter of proper nouns, followed by a period.

**Author(s):** Immediately following title. Author's first and middle (optional) initials and last name in all UPPERCASE letters. If multi-authored, use "and" in lowercase before last author. Use numbers in parenthesis to indicate different author affiliations (please see example abstracts). Author(s) section should be followed with a period.

**Affiliation(s):** Immediately following author(s). Upper and lower case letters. Full address with zip code, and state abbreviation (FL or others). Use standard abbreviations (*e.g.*, Dept., Inst., Univ., Geol.) only if necessary to save space for text, and followed with a period.



**Text:** Immediately following affiliations. According to standard typing of scientific text in respective discipline.

## **POSTERS**

Poster exhibits of scientific studies on any topic are ***strongly encouraged***, and will be displayed during the annual meeting. ***Poster presentations must include an abstract to be submitted online by 14 February 2025.*** All poster abstracts will appear in the Program Issue.

## **POSTER FORMAT**

Maximum size is approximately 3'×4' (a size used commonly at many conferences and meetings). We request posters to be printed/displayed in landscape view.

## **AUDIO VISUAL EQUIPMENT**

The standard presentation format will be PowerPoint slides submitted to the session chair prior to the session meeting. We expect presenters will have their PowerPoint presentations available on their personal thumb-drive/memory-stick devices 15 minutes before the beginning of a session.

Overhead projectors will be available in all meeting rooms. Presenters should ***specially request*** on the abstract online submittal form if they will require any special AV equipment.

## **WHEN TO SUBMIT**

The deadline for abstract submittal is ***Friday, 31 January 2025***, but FAS ***strongly*** encourages early submissions.

## **PLANNING YOUR PRESENTATION**

Each speaker will have 15 minutes for his or her presentation. There will be no exceptions to this rule. It is recommended that your presentation last approximately 12 minutes, so that there will be ample time for questions afterward. Your Section Chair or moderator will give you a signal as the end of your 12 minutes approaches. Please plan on being present when the session in which you are going to speak begins. Your Section Chair may have instructions that speakers need to hear. In addition, if you are going to be using special equipment, such as slide projectors, you should be at the meeting room 15 30 minutes before the start of your session to see that this equipment is working properly.

## **QUESTIONS?**

Contact your Section Chair (page 2), or the Program Chair, Dr. David Karlen at: [karlen@epchc.org](mailto:karlen@epchc.org)

Please check the FAS website for further updates:

***<https://www.flacademyofsciences.org/meeting-overview/>***

**(See next page for sample abstracts.)**

**Abstract sample, one or more than one author from same institution:**

The distribution of *Pyrodinium bahamense* cysts in Old Tampa Bay sediments. David J. Karlen and Melissa A. Miller. Environmental Protection Commission of Hillsborough County 3629 Queen Palm Drive Tampa, Florida 33619. Extensive blooms of the dinoflagellate *Pyrodinium bahamense* have occurred over the summers of 2008 and 2009 in Old Tampa Bay. This species forms resting cysts which remain dormant in the sediments until conditions are favorable for blooms to occur. This pilot study looked at the abundance and distribution of *Pyrodinium bahamense* cysts in Old Tampa Bay sediments collected in May 2010 at the Environmental Protection Commission of Hillsborough County (EPCHC) monthly water quality monitoring stations. The purpose of this study was to 1) map the distribution of *Pyrodinium bahamense* cysts in Old Tampa Bay to provide a baseline for predicting future bloom locations and 2) look at the water quality and sediment characteristics which correspond to the distribution of *Pyrodinium bahamense* cysts in Old Tampa Bay. Additionally, we looked at the monthly population trends of *Pyrodinium bahamense* in Old Tampa Bay from phytoplankton samples collected at the EPCHC water quality monitoring stations from January 2008 through August 2010. The phytoplankton data were compared with corresponding water quality data to look at possible correlations between *Pyrodinium bahamense* blooms and surface hydrographic conditions and nutrient concentrations. The highest cyst densities occurred in the north and western areas of Old Tampa Bay and were correlated with areas of high silt/clay and organic content as well as reduced nitrogen isotopic signatures. These sites also corresponded to areas where past blooms had started. Cyst densities decreased towards the lower section of the bay, possibly due to stronger currents and shorter water residence time. Bloom events during 2008 – 2010 were tied to high water temperatures and decreasing surface salinities. Apparent optimal conditions for blooms had surface water temperature of 30°C and surface salinities around 25‰. Ortho-phosphate had a strong correlation with *P. bahamense* cell counts; however peak concentrations in Ortho-PO<sub>4</sub> occurred approximately one month after peak bloom events. (Funding provided by the Tampa Bay Estuary Program).

**Keywords** Tampa Bay, Harmful algae blooms, Dinoflagellates, cysts, phytoplankton  
Corresponding author: David Karlen, karlen@epchc.org

**Abstract sample, more than one author from two or more institutions:**

Post-restoration recovery of the benthic macrofaunal community at the McKay Bay dredge hole in Tampa Bay. David J. Karlen<sup>(1)</sup>, Kris A. Kaufman<sup>(2)</sup>, Thomas L. Dix<sup>(1)</sup>, Kevin W. Campbell<sup>(1)</sup>, Joette M. Jernigan<sup>(1)</sup>, Sara E. Markham<sup>(1)</sup> and Barbara K. Goetting<sup>(1)</sup>. <sup>(1)</sup> Environmental Protection Commission of Hillsborough County, 3629 Queen Palm Drive, Tampa, FL 33619, <sup>(2)</sup> Southwest Florida Water Management District, 7601 US Hwy 301 N. Tampa, FL 33637. Dredge holes are submerged borrow pits left when sediments are dredged to provide fill for construction projects. The Tampa Bay Estuary Program conducted a study evaluating the habitat quality of dredge holes in Tampa Bay in 2003 and ranked the McKay Bay dredge hole as the worst in terms of poor water and sediment quality and a degraded benthic community. The study recommended that this dredge hole should be filled in order to eliminate hypoxic conditions and allow for the establishment of a healthy benthic community. The Southwest Florida Water Management District provided funding for filling the dredge hole using fill material provided by Port Tampa Bay from the dredging of a new berth and a mitigation project on the McKay Bay peninsula. The Environmental Protection Commission of Hillsborough County conducted pre- and post- restoration benthic monitoring to evaluate the success of the project. A total of 30 sites were sampled in August 2011 prior to restoration and resampled in May 2014 approximately 1 year after the dredge hole was filled. Fifteen sites were within the dredge hole and 15 sites were located outside of the dredge hole as controls. Post-restoration results indicated improvements in bottom dissolved oxygen within the restored area and an increase in benthic species richness. Benthic species composition was also more similar between the dredge hole and control sites indicating the restoration was successful in restoring the benthic community.

**Keywords** Tampa Bay, dredge hole, restoration, benthic infauna, sediment habitats  
Corresponding author: David Karlen, karlen@epchc.org



# Florida Academy of Sciences

## Dr. Elizabeth A. Hays Travel Award

### Application Form for 2025 Annual Meeting

The Florida Academy of Sciences provides travel support for students enrolled at colleges and universities to present papers at its annual meetings. This awards program is supported by an endowed account, the Dr. Elizabeth A. Hays Travel Award Fund. Awards of \$100, which are based on demonstrated financial need, may be used for Academy student membership for the calendar year of the meeting, and the costs of travel, lodging, and meals. In addition, **the registration fee is waived for award recipients.** (Applicants will be informed about awards early enough for them to register for the meeting with or without paying by the early registration deadline.)

A completed application form must be submitted via email or postmarked by **Friday, 14 February 2025** or earlier and be accompanied by (1) a copy of the **abstract** (submitted by the same deadline online at: [flacademyofsciences.org/submit-abstract](http://flacademyofsciences.org/submit-abstract) for an oral or poster presentation at the 88<sup>th</sup> Annual Meeting of the Academy; (2) an **essay** on the significance of the student’s attendance of the annual meeting and on the reasons for financial need; (3) an **itinerary**; and (4) a **letter** of support from the student’s research or academic advisor. If submitting by email, please scan or save all of above documents into a single pdf or MS Word file.

The letter of support must address the student’s **financial need**, not the nature of the research; and it **must certify** that the student is currently enrolled at the institution. In addition, the advisor must indicate whether or not the institution can support the student’s travel by institutional vehicle or other mode of travel if the student requests a subsidy for travel. The advisor’s letter may be sent separately, but it, too, must be emailed by **14 February 2025** or earlier. It is recommended that the student provide the advisor with a copy of this completed application form and the essay to assist the advisor in composing the letter of support.

The application will be reviewed by the Awards Committee of the Academy, and all the information submitted will remain confidential. The abstract will be published in *Florida Scientist* volume 88 as submitted per instructions in the Call-for-Abstracts. Recipients will be announced along with recipients of other student awards made for the annual meeting. This form, the essay, other supporting documentation, and the advisor’s letter should be emailed to:

**Dr. Sarah Krejci**  
**FAS Awards Committee Chair**  
**Email: [krejcis@cookman.edu](mailto:krejcis@cookman.edu)**

In accordance with Academy policy, the Awards Committee does not discriminate against any person on the basis of race, color, national or ethnic origin, sex, sexual orientation, religion, political belief, age, or disabilities.

Name of student: \_\_\_\_\_

Current college or university: \_\_\_\_\_

Currently enrolled (**circle one**):    B.A./B.S.    M.A./M.S.    Ph.D.    Major: \_\_\_\_\_

Undergraduates, current classification (**circle one**):    freshman    sophomore    junior    senior

U.S. Postal address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Email address: \_\_\_\_\_

*(Continue next page)*

	Advisor	Department Chair/Head
Name		
Circle status of advisor	Research      Academic	
Department		
Institution		
Street or other address info.		
City, State, Zip Code		
Telephone		
Email address		

Title of presentation: \_\_\_\_\_  
 \_\_\_\_\_

Format of presentation (**circle one**):                      Oral                      Poster

Authors: \_\_\_\_\_

I am requesting a grant to assist with travel expenses for the 2025 Annual Meeting of Florida Academy of Sciences. In submitting this application and supporting documentation, I recognize that, if granted an award, I must be the presenter of the paper described above and that I will use the funds for their intended purposes or return to Florida Academy of Sciences the funds received and forfeit the waiver of the registration fee.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Email this completed form and supporting material (**abstract, essay, itinerary, advisor’s letter**) to: Dr. Sarah Krejci, FAS Awards Committee Chair, email: krejcis@cookman.edu.  
 If sent separately, have your advisor email the letter of support to the same address. All materials must be received no later than **February 14, 2025**.