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The Amazing Liaison: Innovative Ideas to Engage Diverse Populations with STEM

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THE AMAZING LIAISON:
INNOVATIVE IDEAS TO ENGAGE DIVERSE
POPULATIONS WITH STEM

Craig Amos, Sandy Avila, & Kelly Grove

LEARNING OBJECTIVES



- Gain innovative new ideas for collaborating with local experts and educators to create quality STEM programming
- To learn strategies for engaging faculty, students, and other members of the library community
- To find out about models for successful STEM library programming

A group of people, likely students or professionals, are gathered around a table in a workshop or classroom setting. They are engaged in a collaborative activity, possibly a design or engineering project. The table is covered with various tools and materials, including a green cup, a pair of scissors, a marker, and a smartphone. The text "STEM POPULATIONS" is overlaid in the center of the image in a white, stylized font. The background is slightly blurred, showing other people sitting at tables, suggesting a larger group activity.

STEM POPULATIONS

THE EXPERTS YOU KNOW

Nova Southeastern University (NSU) is a not-for-profit, fully accredited coeducational institution with approx. 24,000 students, including 1381 international students, and approx. 900 faculty.

NSU is the largest private, not-for-profit institution in the United States that meets the U.S. Department of Education's criteria as a Hispanic-Serving Institution Classified by the Carnegie Foundation for the Advancement of Teaching as a research university with "high research activity".

Graduate and undergraduate STEM programs include Biology, Mathematics, Chemistry/Physics, Marine Biology, and Engineering and Computing.

The Alvin Sherman Library is a unique joint-use facility serving the residents of Broward County as well as NSU students, faculty, and staff members. Thanks to an agreement between the Broward County Board of County Commissioners and NSU, the Alvin Sherman Library offers traditional public library services as well as full academic resources.



ALL OF FSU

Faculty = 2,180

Students = 40,086

- The Fall 2017 Freshman Class averaged:
 - High School GPA of 3.9-4.4
 - SAT score of 1230-1340
 - ACT Composite score of 26-30

Degrees Offered

- 104 different Bachelor's degrees
- 110 different Master's degrees
- 71 different Doctoral degrees

FSU'S STEM POPULATION

Faculty = 480

- 13 different departments
 - This excludes research centers and labs

Students

- 13 different departments
- Total Students = 10,174
 - Women = 5,293
 - Men = 4,881
 - Undergraduate = 8,697
 - Graduate = 1,544

UCF BY THE NUMBERS

UNLESS OTHERWISE INDICATED, FIGURES ARE FOR FALL 2017.

Enrollment

TOTAL	66,183
Undergraduate	56,972
Freshman	6,964
Transfer	6,147
Graduate	8,726
Medical Professional	485

Fall Freshman Profile

Average SAT Score	1316
Average ACT Score	28.1
Average High School GPA	4.06

Fall Freshman Profile, The Burnett Honors College

TOTAL	509
Average SAT Score	1450
Average ACT Score	32.1
Average High School GPA (Weighted)	4.43

Degree Programs Degrees Conferred

TOTAL	216	(as of August 2017)	TOTAL	313,234
Bachelor's	95		Bachelor's	257,261
Master's	87		Master's	50,417
Specialist	3		Doctoral	4,533
Research Doctoral	28		Doctoral	4,533
Professional Doctoral	3		Specialist	648
			Professional	375

Cost of Attendance*

IN-STATE	
Tuition and fees	\$ 6,368
Books and supplies	\$ 1,152
Room and board	\$ 9,764
TOTAL	\$ 17,284

OUT-OF-STATE

Nonresident tuition and fees	\$22,466
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*Based on 30 undergraduate credit hours, standard room and dining membership for 2017-18 academic year.

Research Funding

2016-17	\$ 148.7 million
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Endowment Assets

June 30, 2017	\$ 155.9 million
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Operating Budget

2016-17	\$ 1.5 billion
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Employees

TOTAL	12,733
Faculty members	2,481
Staff members	10,252

UCF'S STEM POPULATION

66,000 students total

Two STEM librarians

Over 10,000 students



LIAISON BEST PRACTICES

KEYS TO EXCELLENT OUTREACH

Attend events that are important to your faculty, students, and community, not just to your library.

**Building
Sustainable
Partnerships**

Be informed on what is happening within your programs and stay engaged.

Collaboration

Be the change you want to see in the world.

Networking

BUILDING SUSTAINABLE PARTNERSHIPS

- Programming & outreach
- Engaging with faculty, students, & the community
- Providing relevant resources



Left: Small robots, like this one, called Ozbot and Sphero are part of the science projects.

Lower left: Krunal Patel, left, and Ahjay Bhatia prepare an experiment with Ozbot and Sphero.

Below, right: NSU students Krunal Patel, left, Kristi Njaravelli, and Ahjay Bhatia plan afternoon activities at Nova Blanche Elementary.

Bottom, right: NSU student Guy Merus shows youngsters how the crystals used in a diaper can absorb 800 times their weight.



science experiments. She has been a role model for me to follow in teaching science,”

than 600 parents and children attended the event at the school.

“It was truly awesome,” she said.

Flash forward to 2016. From that one early volunteer effort at Mailman Segal and the spaghetti dinner at Welleby Elementary School, the Science Alive! program has expanded to 17 schools and educational groups including the Boys Scouts, Girl Scouts, and the Boys and Girls Club of Hollywood. An array of NSU professors, undergraduate and graduate students, and alumni from almost every NSU college have been tapped to assist.

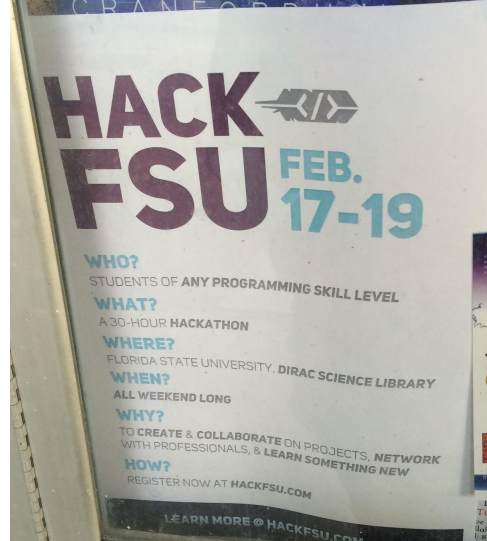
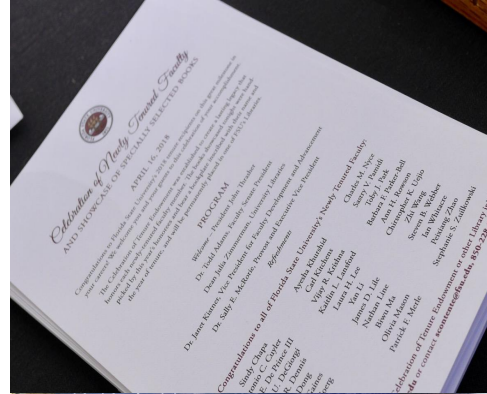
Science Alive! materials are used in some classes at NSU’s University School.

Schmitt Lavin and other professors have now placed more than 450 NSU students in the programs. From that first year of working only with K–5 grade levels, she has expanded work

COLLABORATION

Partnerships can come from anywhere. Think about pairing with:

- Other offices on campus
- Research centers
- Campus committees
- Student organizations
- Community groups
- And of course other library departments



NETWORKING

Vendor relationships

Industry conferences

Making connections and connecting the dots



OUTREACH TO STUDENTS

A hiker with a large red backpack is walking across a suspension bridge that spans a deep valley filled with dense green forest. The bridge is made of metal cables and a mesh floor. In the background, there are rolling mountains under a hazy sky. The overall scene is a lush, natural landscape.

MAD SCIENTIST LAB

We created glow in the dark slim!

With a budget of \$30 we saw 80 people at this event!





We made paper mache volcanoes cool again!

RETRO SCIENCE FAIR

Our contest let students from any background participate. We saw scientific and creative volcanoes. Even a metaphor volcano. All in all a great time for everyone!

WORKSHOPS

THE SAVVY RESEARCHER: BOOT CAMP

for STEM Researchers

A half-day workshop for graduate students and other advanced researchers in FSU'S STEM fields

Wednesday, March 28

Dirac Library | Dirac Conference Room

Please bring a laptop

10-11 a.m.

Search like a Boss

Explore library databases and other search tools to conduct effective research in STEM Disciplines. Highlighted tools will include Web of Science, SciFinder, and others. Advanced search strategies, analyzing search results, and citation mapping are some of the topics explored in this workshop.

12:30-1:15 p.m.

Staying Ahead of the Scholarly Research Curve

In an age of accelerated scientific discovery and dissemination, information outside of traditional peer reviewed journals can be difficult to navigate and evaluate. This workshop explores sources for scientific publications and research data including preprints, research data repositories, patents, and technical literature.

11:15 a.m.-12 p.m.

Tools for Collaborative Research Information Management

With constantly growing folders of PDF files and lists of web links, it can be extremely difficult for researchers to keep track of all their references and citations. Explore research information management tools and strategies provided by FSU Libraries, such as Mendeley, Zotero, and Endnote. Attendees will receive a brief overview of features for the various tools available, as well as practical advice for their own research management needs.

1:30-2:30 p.m.

Primary Source Searching with Special Collections

FSU Libraries Special Collections and Archives faculty will offer expert guidance in using special collections materials at Florida State University and elsewhere. Learn how to locate and evaluate rare books and archival collections relevant to your research, how to request and access materials remotely, how to plan a visit to a repository, and what to expect when you get there.

TOOLS OF THE TRADE:

BOOT CAMP

for STEM Researchers

A half-day workshop for graduate students and other advanced researchers in FSU'S STEM fields

Wednesday, April 11, 2018

Dirac Library | Dirac Conference Room

Please bring a laptop.

10-11 a.m.

Intro to Chem Draw

ChemDraw is a powerful tool that allows users to create and edit chemical structures for use in publications, classroom materials, and research. In this workshop, an introduction to some of the basic features of Chemdraw will be provided. Attendees will learn how to draw simple chemical structures and how to use various tools within Chemdraw to manipulate those structures.

1-1:45 p.m.

Intro to SQL

SQLite Manager is a free tool that helps you put all of that data into a relational database where you can analyze your information without fear of accidentally changing the data. Learn how to improve quality control of data entry, run queries of datasets, and how to aggregate your data. This workshop will include an overview of SQL queries and structure using SQLite Manager.

11:15 a.m.-12:15 p.m.

Exploring the Open Science Framework

The Open Science Framework is a free and open-source collaborative project management platform for scientists to manage their workflow across the entire research lifecycle. This workshop will explore features in the Open Science Framework including management and access control to files and data, connecting the OSF to resources like GoogleDrive and Zotero, as well as OSF Preprints and Preregistrations.

2-3 p.m.

Data Analysis with MatLab

MATLAB is a great programming language for solving problems in various engineering, scientific, and mathematical fields - especially when working with matrices and arrays. This workshop will explore introductory basic concepts including working within the desktop environment, creating and manipulating matrices and arrays, and importing and exporting data. We will also explore tools for data analysis and visualization.



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HIGH IMPACT OUTREACH

Student orientations

Student group
advising & support

Internship
opportunities

Student programs

Instruction



EXPERIENTIAL LEARNING

- Student volunteer work/internships
- Meaningful and engaging programming
- Makerspaces and “STEAM Lab”
- Kits and STEM models



THESIS/DISSERTATION DEFENSES

&

RESEARCH/DESIGN SHOWCASES




UCF's Institutional Repository-
STARS



STAYING RIGHT
THERE ALONG
WITH THEM
THE ENTIRE WAY

SCAFFOLDED LIBRARY INSTRUCTION

SUBJECT SPECIFIC GRADUATE ESSENTIALS WORKSHOPS



OUTREACH
TO
FACULTY AND STAFF

LOCATION BASED OFFICE HOURS

Meet faculty where they are! In FSU's case we have research centers and some departments not located on main campus. We hold weekly office hours in areas easy for them to access.



- Account
- Admin
- Dashboard
- Courses
- Calendar
- Inbox
- Commons
- Help

2017 Fall - 1



Earth, Ocean, and Atmospheric Science Library Tool

- Home
- Announcements
- Syllabus
- Modules
- People
- Library Tools**
- Files
- Pages
- Assignments
- Quizzes
- Discussions
- Collaborations
- Conferences
- Outcomes
- Grade Upload
- Settings



- Library Home
- Find a Database
- OneSearch
- Get Library Help
- Citation Management

Use this introductory guide to find top resources from FSU Libraries for your Earth, Ocean, and Atmospheric Science research and contact information for your subject librarian. Find additional research guides, including the Primary Earth, Ocean, and Atmospheric Science guide, created by your librarians here.

Classroom Instruction
Distance Instruction
Asynchronous Instruction



Kelly Grove

Science Librarian
 kegrove@fsu.edu

Meet with a Librarian of

Top Resources for Earth and Atmospheric Science Research

- Web of Science - Includes the Science Citation Index Expanded and more.
- General Science Full Text - Includes astronomy, biology, botany, chemistry, earth science, environmental issues, mathematics, medicine, physics, and zoology.
- ScienceDirect - Provides full-text of approximately 650 journals primarily in the

Chat with a Librarian

Name (blank=anonymous)

Your Question

Start Chat

[View this email in your browser](#)



STEM News

Supporting your research and instruction



GETTING OUT THERE

Faculty meetings

Awards ceremonies

On-site office visits

Newsletters

Faculty presentations

Program sponsored events

Happy Holidays from NSU Libraries!



MEANINGFUL COLLECTION DEVELOPMENT

Textbooks!

Curriculum centered
models, computer hardware,
& software

Interactive devices, AR, &
3-D Printing



Office of Academic Quality,
Assessment and Accreditation

Faculty Policy Manual

NSU Scholarly Journals

Professional

Professional Memberships

Academic Policies and
Procedures

Provost's Research and
Scholarship

President's Faculty Research
and Development Grant

About the Grant

Application Process

Contact Us

2016 PFRDG AND QOL AWARDS
CEREMONY

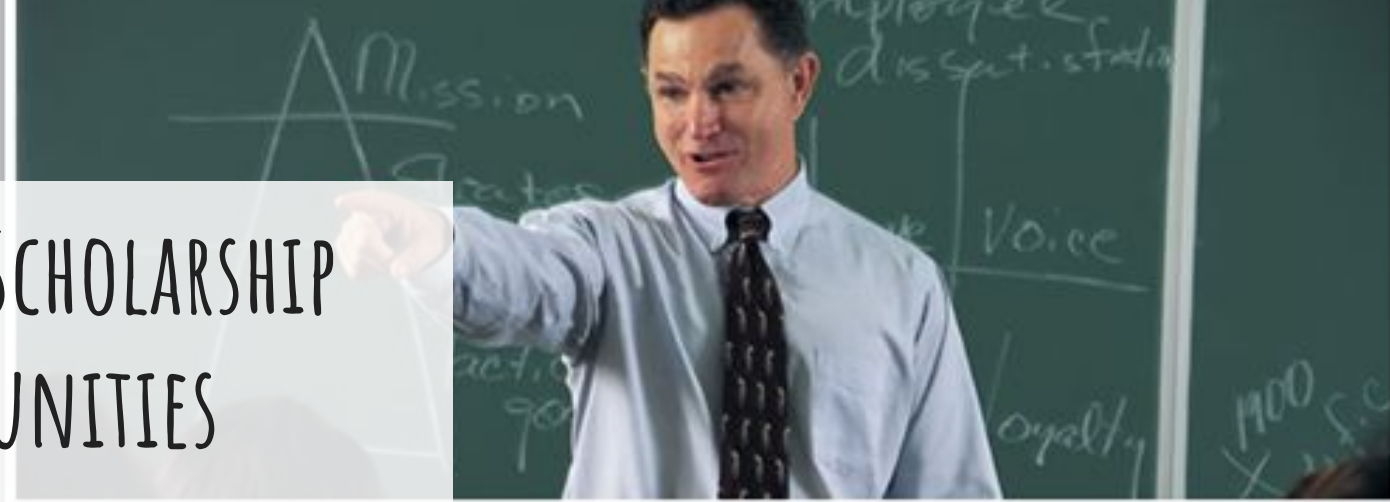


GRANTS & SCHOLARSHIP OPPORTUNITIES

Workshops

Programs

Supporting grant writing
opportunities!



President's Faculty Research & Development Grant

In support of the University's mission, and to recognize and support NSU faculty in their research endeavors, President Ray Ferrer established the President's Faculty Scholarship Award Program in 1999. Early in its inception, the program was renamed the President's Faculty Research and Development Grant (PFRDG) program. Today, PFRDG continues to directly support Vision 2020's research-focused core values and strategic priorities by providing seed money for new research areas for which external funding will be sought, or to move current research initiatives to new levels of competitiveness for external funding. Because PFRDG leverages significant university resources to grow externally funded research activities, the program receives a considerable level of attention and support from the University's administration.

Fifty percent of each PFRDG award is funded from the interest generated from this investment, and the other fifty percent comes directly from the winning faculty members' academic units; these funds represent new allocations for faculty development, and do not diminish existing resources for faculty support in the unit.

Funding is prioritized for work that:

THE LIBRARIAN AS REVIEWER

Be directly engaged with the writing process.

Help find the funding for relevant STEM projects.

- Committees, Councils, and Boards
- Office of Academic Quality, Assessment and Accreditation
- Faculty Policy Manual
- NSU Scholarly Journals
- Professional Journals
- Professional Memberships
- Academic Policies and Procedures
- Provost's Research and Scholarship Award
- President's Faculty Research and Development Grant**
- About the Grant
- Application Review Process
- Contact Us



PFRDG Application Review Process By NSU Librarians

Proposal reviews are provided as an optional service by NSU librarians to assist faculty in the PFRDG proposal preparation process. The purpose of these reviews is to improve the completeness of applications, and to help faculty craft applications that follow PFRDG guidelines.

Please feel free to contact the PFRDG Librarian Volunteers from the list provided below:

NAME	LIBRARY	TITLE
Stacy Allsop	ASL	Reference & Instruction Librarian II
Craig Amos	ASL	Subject Specialist for Science and Technology <ul style="list-style-type: none">• College of Engineering and Computing• Halmos College of Natural Sciences and Oceanography<ul style="list-style-type: none">◦ Department of Biological Sciences◦ Department of Chemistry & Physics◦ Department of Mathematics
Majid Anwar	HPD	Reference and Support Librarian
Pam Beegle	HPD	Reference and Support Librarian

DO NOT LEAVE
ANY STONE UNTURNED
&
NEVER BE CAUGHT
WITHOUT YOUR
BUSINESS CARD

Attend Faculty Center for Teaching
and Learning Workshops

Meet faculty and staff at luncheons
and social gatherings

Attend local conferences based on
YOUR research interests

Look for departmental
seminars/conferences/lecture series



A FRIEND IS
A GIFT YOU
GIVE TO
YOURSELF.



Thank
You

Questions...



Sandy Avila, M.L.I.S

Science Librarian

savila@ucf.edu



Craig Amos, M.S.L.S

Reference/Subject Specialist

Librarian for Science & Technology

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