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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
STEM Populations
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.
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’s STEM Population

66,000 students total
Two STEM librarians
Over 10,000 students
### Keys to excellent outreach

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<td>Attend events that are important to your faculty, students, and community, not just to your library.</td>
<td>Be informed on what is happening within your programs and stay engaged.</td>
<td>Be the change you want to see in the world.</td>
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Building Sustainable Partnerships

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

Science experiments. She has been a role model for me to follow in teaching science,” said one of the assistants.

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 to middle school and high school levels.
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
**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!

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!
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 EndNote, Zotero, and Mendeley. Attendees will receive a brief overview of features for the various tools available, as well as practical advice for their own research management needs.

1:15-2:30 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. See how to request and access materials remotely, how to plan a visit to a repository, and what to expect when you get there.

10-11 a.m.
Intro to ChemDraw
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.

11:15 a.m.-12:15 p.m.
Exploring the Open Science Framework
The Open Science Framework is a set of tools and best practices for scientific research that promotes the sharing of data and code. In this workshop, attendees will learn how to use the Open Science Framework to manage and share their research data.

2-3 p.m.
Data Analysis with MatLab
MatLab is a powerful programming language for solving problems in various engineering, scientific, and mathematical fields. It is especially useful when working with matrices and arrays. This workshop will explore basic concepts, including working within the desktop environment, creating and manipulating matrices and arrays, and importing and exporting data. Attendees will learn how to use MatLab for data analysis and visualization.

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Libraries fsu.edu

(continued)
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
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.
Library Instruction

Classroom Instruction

Distance Instruction

Asynchronous 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
Grants & Scholarship Opportunities

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 Ferraro initiated the President’s Faculty Research and Development Grant (PFRDG) 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 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.
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...
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