Welcome!
We will begin at 12:30 pm (ET)

Undergraduate Educator Network Webinar Series

Programs Supporting Underrepresented Undergraduate Students in STEM
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Programs Supporting Underrepresented Undergraduate Students in STEM

Sponsored by Faculty United for Toxicology Undergraduate Recruitment and Education (FUTURE) Committee

March 3, 2023
12:30 PM (ET)
Welcome

Robin Bright, PhD
Moderator
Fort Valley State University

Courtney Roper, PhD
University of Mississippi
Webinar Objectives

- Highlight examples of federally funded programs that recruit and support underrepresented students in science and research
- Discuss experiences in navigating the application and recruitment processes
- Describe lessons learned from these programs and models that can be implemented.
Speakers

Prakash Nagarkatti, PhD
University of South Carolina

Celia Dodd, PhD
Fort Valley State University
Federal Funding Opportunities for Underrepresented Minority Undergraduate Students in Research

Prakash Nagarkatti, PhD
Senior Research Advisor to the President
Carolina Distinguished Professor
University of South Carolina
Columbia, SC
Importance of Undergraduate Research

- Think critically, develop a hypothesis, and discover something new
- It stimulates a culture of intellectual curiosity
- Helps in communication, problem-solving, project management, and writing research proposals
- It boosts student confidence and professionalism
- It enriches student resumes for future graduate work or career advancement irrespective of career path

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Federal Agencies that Support Undergraduate Research

- Federal agencies spend almost $50 Billion to support research at Universities
- Federal Programs for Undergraduate Research in Biomedical and Environmental Sciences
  - National Institutes of Health (NIH)
  - National Science Foundation (NSF)
Federal Programs that Support Undergraduate Research

- NSF: Research Experience for Undergraduate Students (REUs)
  - University site: ten or so undergraduates work on research programs
  - Search NSF website:

- College of Charleston
  REU Site: Response of Marine Organisms to Environmental Change
  Biology, Grice Marine Laboratory
NSF: The Louis Stokes South Carolina Alliance for Minority Participation (LS-SCAMP)

- Supports undergraduate underrepresented students to pursue graduate studies
- LS-SCAMP is made up of South Carolina State University in collaboration with six HBCUs, five technical colleges and three research institutions in South Carolina
- Natural and Environmental Sciences
Federal Programs that Support Undergraduate Research

- NIH: Summer Internship Program
  - Undergrads can spend a summer working at the NIH with leading scientists
  - Available at NIEHS for Toxicology type of work
  - ~ $2,560 per month stipend
  - You can apply online
National Institute on Aging (NIA): Carolina Center on Alzheimer’s Disease and Minority Research (CCADMR)

- One of 18 NIA-funded Resource Centers for Minority and Aging Research
  PI: Dr. Sue Levkoff
- USC collaborates with three Historically Black Colleges and Universities (HBCUs) (Claflin University, South Carolina State University, and Allen University)
- Goal is to increase the capacity of underrepresented minority researchers in Alzheimer’s disease
- Resource Centers for Minority Aging Research (RCMAR)
NIH-Funded Postbaccalaureate Research Education Program

- Helps undergrads to get into PhD programs through mentoring
  PI: Dr. Bert Ely
- Supports underrepresented students
- Supports opportunity to work for a year in a biomedical research laboratory while preparing for graduate school in biomedical science
- Receive a stipend of ~$28,000 per year
- 60 of 79 PREP Scholars entered PhD programs: 22 have completed their PhD degree, 33 are continuing in PhD programs
SUMMARY

- There are several federally-funded Undergraduate Research Programs for URM students
- These are available at your university, or a university located nearby
- There are also opportunities to carry out summer research at certain NIH institutes
- For students who are interested in pursuing PhD, there are also programs that prepare you for graduate education and research
URLs for More Information

- Summer Internship Program in Biomedical Research
  https://www.training.nih.gov/programs/sip
- Research Experiences for Undergraduates (REU)
  https://beta.nsf.gov/funding/opportunities/research-experiences-undergraduates-reu
- The Louis Stokes South Carolina Alliance for Minority Participation (LS-SCAMP)
  https://www.lspacmodels.org/louis-stokes-alliance-for-minority-participation-institutions
- Resource Centers for Minority Aging Research
  https://www.nia.nih.gov/research/dbsr/resource-centers-minority-aging-research-rcmar
URLs for More Information

- Postbaccalaureate Research Education Program (PREP) (R25): https://nigms.nih.gov/training/PREP
- Summer Undergraduate Research Programs: AAMC https://www.aamc.org/career-development/affinity-groups/great/summer-undergrad-research-programs
Questions and Comments

- Please participate
- Send messages via chat
- Raise hand icon to be recognized
Creating Opportunity: Launching Careers in Toxicology

Celia Dodd, PhD
Director of Undergraduate Research
Associate Professor of Biology
Fort Valley State University
Fort Valley, GA
doddc@fvsu.edu
Objectives

- Illustrate how toxicology curriculum and research was introduced to students at Fort Valley State University (FVSU)
- Identify potential funding sources for program support
- Identify key take homes from this experience
First Comes Funding

- National Science Foundation
  - **HBCU-UP, Targeted Infusion Project**: (TIP), support to achieve a well-defined goal for improving the quality of undergraduate STEM education at HBCU’s
  - **Improving Undergraduate STEM Education**: (IUSE: EHR) support projects that have high potential for broader societal impacts, including improved diversity of students and instructors participating in STEM education
First Comes Funding

- National Science Foundation
  - Scholarships in Science, Technology, Engineering, and Mathematics: (S-STEM), Supports institutions of higher education to fund scholarships for academically talented low-income students and to study and implement a program of activities that support their recruitment, retention and graduation in STEM
First Comes Funding

- Department of Education
  - **McNair Postbaccalaureate Achievement Program**: funds are awarded to institutions of higher education to prepare eligible participants for doctoral studies through involvement in research and other scholarly activities
  - **Minority Science and Engineering Improvement Program**: program assists predominantly minority institutions in effecting long-range improvement in science and engineering education programs
First Comes Funding

- National Institutes of Health
  - **Maximizing Access to Research Careers:** (MARC, T34) provides support to develop and implement effective, evidence-informed approaches to biomedical research training and mentoring. Limited to research intensive institutions
  - **Undergraduate Research Initiative for Student Enhancement:** (URISE) supports the training of research-oriented undergraduates earning a baccalaureate degree at research-active institutions, who are planning to earn a research-focused higher degree (e.g., PhD or MD/PhD)
Infusion of Toxicology into the Biology and Chemistry Programs at FVSU

- Developed Courses
  - Principles of Toxicology, Investigations in Toxicology

- Developed Toxicology Teaching Lab
  - Purchased Major Equipment and General Supplies

- Developed Summer Undergraduate Research Experiences in Toxicology
  - Provided Funds for faculty and students at FVSU
  - Provided Funds for FVSU students at partner institutions
Infusion of Toxicology into the Biology and Chemistry Programs at FVSU

● Courses
  o Principles of Toxicology
    ▪ General principles, textbook and case studies
    ▪ Applications of Toxicology, introduce careers
    ▪ Environmental Justice, Fort Valley Woolfork Chemical Superfund Site
  o Investigations in Toxicology
    ▪ Laboratory course
    ▪ Literature review, identify knowledge gaps, generate research project

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Infusion of Toxicology into the Biology and Chemistry Programs at FVSU

- Summer Research
  - FVSU, 6 faculty mentors
  - UGA, 4 faculty mentors
  - USDA, ARS 1 mentor
  - Training in science communication
  - Travel and presentation at national conferences
    - Emerging Researchers National, Annual Biomedical Research Conference for Minoritized Scientists, Society of Toxicology
Infusion of Toxicology into the Biology and Chemistry Programs at FVSU

- **Invited Speakers**
  - Toxicologists from academia, industry, and government
  - FVSU Research Day and General classes

- **Hosted the Southeastern Regional Society of Toxicology Annual Meeting**
  - Invited Students from all HBCUs in GA
  - Career Panel and Student Travel supported by SOT

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Graduate and Professional Programs attended by Summer Research Participants

- Augusta University, Dental College of Georgia (DMD)
- **Clark Atlanta University** (PhD, Chemistry)
- Creighton University School of Dentistry (DMD)
- Emory University (MPH, Epidemiology)
- Florida State University College of Medicine (PhD, Biomedical Sciences)
- **Fort Valley State University** (MPH, Environment Health)
- Georgia Southern University (MS, Pharmacy Sciences)
- Louisiana State University (PhD, Pharmacology, Toxicology, and Neuroscience)
- **Meharry Medical College** (MD, PhD, Biomedical Sciences)
- **Morehouse School of Medicine** (MS, Physician Assistant)
- St. George’s University School of Veterinary Medicine (DVM)
- **Tuskegee University College of Veterinary Medicine** (DVM)
- University of Colorado at Boulder (PhD, Cellular, Molecular, and Developmental Biology)
- University of Michigan (MS, Environment and Sustainability)
Want to Engage Members of Historically Marginalized Communities in Toxicology Research?

- Start by removing the barriers:
  - GPA doesn’t matter, the “best” and the brightest will get the opportunity
  - Meet students where they are
  - Provide significant monetary support
  - Engage students early (freshman/sophomore)

Create equitable access to opportunities
Want to Engage Members of Historically Marginalized Communities in Toxicology Research?

- Mentoring MATTERS, students need to know you care
  - Listen
  - Set reasonable goals/expectations

Create equitable access to opportunities
Undergraduate Educator Network Webinar

Want to Engage Members of Historically Marginalized Communities in Toxicology Research?

- Continued support is a must
  - Establish collaborations
  - Source funds from university
    - Undergraduate Research
    - Louis Stokes for Minority Participation
    - McNair Scholars

Create equitable access to opportunities

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Summary

- Funding from NSF HBCU-UP enabled FVSU to develop the infrastructure necessary to complete toxicology related research with undergraduates.
- Continued support for summer research training was leveraged from programs already established on campus.
- In house summer research programs prepare students for other opportunities outside of their home institution.
- Providing equitable opportunities is key to supporting students from historically marginalized groups in STEM.
Thanks!

- Society of Toxicology Undergraduate Educators Network
- Dr. Marion Ehrich, Past President SOT, Professor Emeritus VMRCVM
- Dr. Vanessa Fitsanakis, Robson Forensics
- Dr. Robin Bright, Professor of Chemistry FVSU
- NSF Award #1533498
Questions and Comments

- Please participate
- Send messages via chat
- Raise hand icon to be recognized
Discussion
SOT Annual Meeting Activities

Relevant to Undergraduate Faculty

- Undergraduate Educator Network Meeting
  Monday, March 20, 4:30 pm-5:30 pm
- Education, Ethical, Legal, and Social Issues Poster Session
  Tuesday, author attended 2:30 pm-4:30 pm
- ToxMSDT e-Learning Meeting
  Monday, March 20, 5:30 pm-6:30 pm
- Other scientific and poster sessions
- Networking
Ideas for 2024 SOT Education Session?

- Discuss with your colleagues
- Share with members of FUTURE
SOT Annual Meeting Activities

Relevant to Undergraduate Students

- Complementary Registration!!
- Undergraduate Education Program
  Sunday, 8:00 am-5:00 pm
  - Broad introduction to toxicology
  - Focus on graduate school preparation
  - Meet with academic program representatives
  - Career breakout session
  - In mentoring groups
- Student/Postdoctoral Mixer Sunday 7:30 pm-9:00 pm
- Undergrad Gab with a Grad over Grub Tuesday 12:30 pm-1:30 pm
Faculty Grant Applications

Due April 7, 2023

- **Undergraduate Faculty Research Grant**
  - Up to $1500 for undergraduate student research

- **Undergraduate Faculty Development Grant**
  - Up to $1500 to support a professional development experience that will support recruitment of undergraduate students to toxicology
Undergraduate Educator Network Webinars

- Approaching Scientific Controversies in Toxicology and Public Health
- Publishing Teaching Resources for the Toxicology Professor
- Enhancing the Undergraduate Research Experience for BOTH Mentor and Mentee
- Adopting the Undergraduate Toxicology Learning Framework
- Using Non-Vertebrate Model Organisms to Illustrate Toxicology Principles in Undergraduate Lab Classes
- Using Fish to Illustrate Toxicology Principles in Undergraduate Lab Classes

…and more!

www.toxicology.org/education/edu/ugWebinars.asp
Undergraduate Educator Network Webinars

Thank you for participating today!

Please provide feedback via the link that will appear as the webinar ends


Questions? Contact bettye@toxicology.org.