

Welcome!

We will begin at 12:00 pm (ET).

You Have Two Choices for Audio:

Via Audio Broadcast (**Default**)



The Audio Broadcast will connect automatically and the Audio Broadcast panel will appear: Listen through your computer speakers or headset.

Via Telephone or Computer



Select the **phone icon** below the participants list. Connect using computer audio or dial in using 1-866-469-3239, event number, and your **attendee ID**. Alternatively, select for WebEx to call you.

- Phone lines will be muted.
- Send questions to “All Panelists” via the **Q&A** panel.
- This webinar will be recorded.
- To watch the webinar in full screen mode, look for the full screen icon at the upper right of your viewing panel. To return to partial screen mode, use the ESC key or pull down the tab at the top of your screen and select “Return.”

Undergraduate Educator Network Webinar Series

Enhancing the Undergraduate Research Experience for **BOTH** Mentor and Mentee

Sponsored by
FUTURE

(Faculty United for Toxicology Undergraduate
Recruitment and Education)
Committee

March 4, 2020
12:00 Noon (ET)

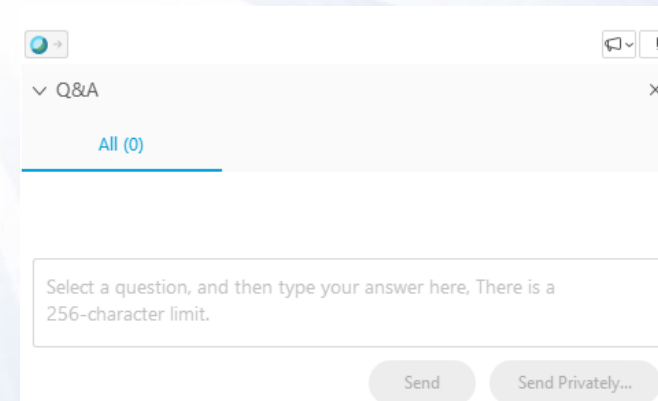
Welcome



Jamie DeWitt, PhD
Moderator and Speaker
East Carolina University

Questions and Comments

- Please participate.
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Overall Objectives

- To share experiences about what works and what doesn't work with undergraduate research students.
- To highlight mentoring tips to ensure that undergraduate research experiences are positive for both the student and the laboratory mentor.
- To examine common misconceptions about undergraduate research student experiences.

Speakers



Jared Brown, What Every Mentor Needs to Know About Mentoring Underrepresented Undergraduate Students in the Lab



Kelly Vaughan, Undergrads in the Lab or Undergrads Are the Lab? Successful Mentoring of Undergraduate Researchers as a Matter of Perspective



Jamie DeWitt, Eight is Not Enough: The Challenges and Joys of the Summer Research Student

What Every Mentor Needs to Know About Mentoring Underrepresented Undergraduates in the Lab



Jared Brown, PhD

Skaggs School of Pharmacy and Pharmaceutical
Sciences

University of Colorado Anschutz Medical
Campus

Colorado Undergraduate Research in Environmental Health Sciences (CUrehs)

- Year long mentoring program for undergraduate students
 - Students from underrepresented populations, disabilities, or disadvantage background
 - Sophomore to senior level
- Full time research during summer, part-time during school year
- Additionally, students receive mentoring on careers, educational opportunities, research conduct, EHS/toxicology concepts
- Overall goal is to provide students the skills and resources to be successful in an EHS career path

Colorado Undergraduate Research in Environmental Health Sciences (CUrehs)

- 6-8 new students per year from a wide range of backgrounds
 - All come from different CU campuses and local universities (none are actually in school on our campus)
- Matched with a mentor based on research interests
- Students are paid...challenge with this...
- Opportunities for presenting research at local and national conferences

What I've Learned from the CUrehs Program

- Challenges and opportunities
 - Mentors
 - Students




Faculty Mentors

- One of the most unexpected challenges in running an undergraduate training program at a medical campus
- Setting expectations and goals
 - These are not graduate students or postdocs
 - Setting goals that are achievable
 - Reinforcing the “big picture” is critical for these students
 - Understanding career development
 - Understanding the challenges these students face
- We require mentoring training
 - Include one-on-one sessions with faculty mentors
 - Mentoring training offered through graduate school



Challenges with Training Underrepresented Undergraduate Students on a Medical Campus

- Most are extremely motivated to participate but...many face unique challenges
- They are in a challenging environment
 - Few undergrads present (particularly URM students)
 - Often trained by grad students or postdocs
 - Unrealistic expectations and goals
- Skills are often lacking
 - Professionalism, communication, leadership, and research
- Fatigue
 - Challenge of coursework and research at two different campuses



Things That Have Worked to Improve Underrepresented Undergraduate Student Training

- Mentoring training for both faculty and grad students/postdocs that are directly involved
 - Understanding these unique challenges
 - Setting realistic expectations
- Establishing peer networks
 - Establish URM student mentors (more senior undergrads who have completed the program or in their second year)
 - Combine activities with other URM training programs on campus
 - Community is absolutely needed in this environment

Things That Have Worked to Improve Underrepresented Undergraduate Student Training continued...

- Provide career development and educational opportunities
 - Workshops on basic career development
 - Expose students to new educational opportunities
 - Work with students on expectations and goals
- Help students develop necessary skills in:
 - Professionalism
 - Communication
 - Leadership and management

Training Underrepresented Undergraduate Students on a Medical Campus....Is It Worth It??

- Absolutely...but many unexpected challenges
- ...but also many unexpected benefits
 - Developed connections to other campuses, faculty, and students
 - Developed lasting relationships with students (see their success from undergrad onwards)
 - Many of our successful students have benefited research programs tremendously
 - Improved mentoring skills and practices of faculty, grad students, and postdocs

Undergrads in the Lab or Undergrads Are the Lab? Successful Mentoring of Undergraduate Researchers as a Matter of Perspective

Kelly Vaughan, PhD

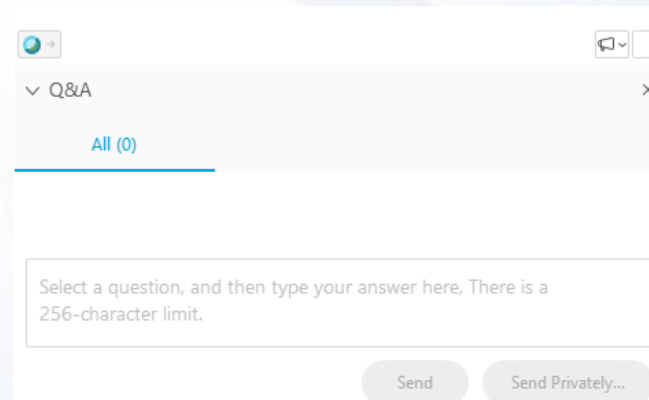
Biology

King University



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Discussion Points

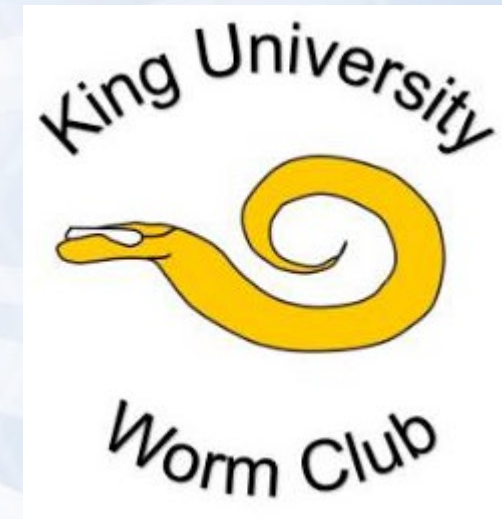
- What does it take to support students over an academic year (or longer)?
- Building– and maintaining– a lab staffed solely by undergraduates.

Recruiting and Retaining Students

- First some context- my students and program
- Start early!
- Target enthusiastic students, not necessarily the top performers
- Set expectations and communicate clearly and often
- Be adaptive & flexible
- Funding helps!
- As does course credit and other incentives

Students Ruining or Running the Lab?

- Some more context—the evolution of my lab
- Encourage ownership
- Require independence
- Establish peer-mentoring
- Push for excellence and celebrate success
- Develop a culture of research



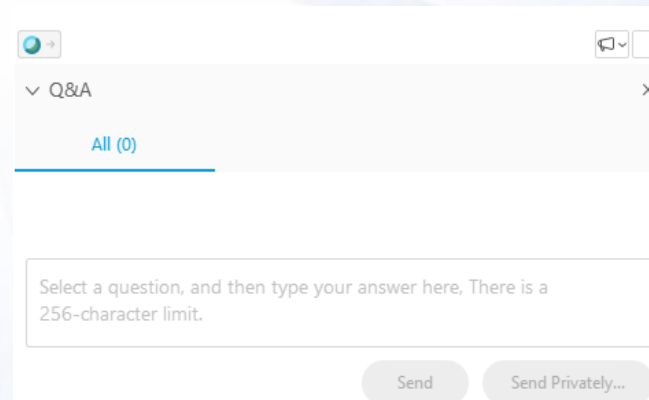
Final Thoughts

- Don't underestimate your undergraduate students!
- Identify your advising style, always be willing to learn from your students, and adapt



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Eight is Not Enough: The Challenges and Joys of the Summer Research Student

Jamie DeWitt, PhD
Pharmacology & Toxicology
Brody School of Medicine
East Carolina University





The Eight Rules of Mentoring Summer Undergraduate Research Students

Or, how to maximize the summer research experience for both the student and the mentor with minimal pain, suffering, and angst!

The Eight Rules of Mentoring Summer Undergraduate Research Students

RULE 1



Eight weeks (or four weeks or 12 weeks) is not enough time for a full-blown research project.

But it is enough time to perform independent research.

The Eight Rules of Mentoring Summer Undergraduate Research Students

RULE 2

You are not alone.

You have a lab of eager helping hands.



The Eight Rules of Mentoring Summer Undergraduate Research Students

RULE 3

Get 'er done ahead of time.



IRB, IACUC, and other approvals can be done before student(s) begin projects.

The Eight Rules of Mentoring Summer Undergraduate Research Students

RULE 4

Build in time for students to read, literature search, and synthesize.

“Doing” research also includes the tedium and joy of literature.



The Eight Rules of Mentoring Summer Undergraduate Research Students

RULE 5

Use archived samples and outdated reagents and supplies as practice.

Don't use precious samples to bring students up to speed on protocols.

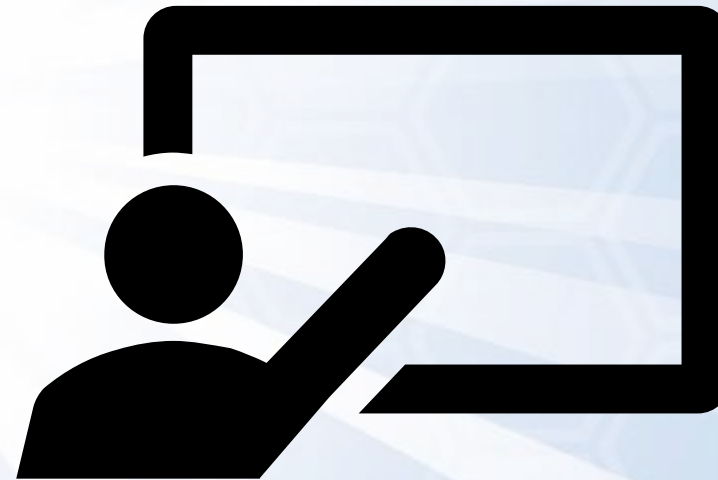


The Eight Rules of Mentoring Summer Undergraduate Research Students

RULE 6

Integrate students into departmental and broader research community activities.

“Doing” research also includes interacting with other scientists.



The Eight Rules of Mentoring Summer Undergraduate Research Students

RULE 7

Allow students to develop independence.

Students who have some ownership over their progress and project will surprise you with their dedication.



The Eight Rules of Mentoring Summer Undergraduate Research Students

RULE 8

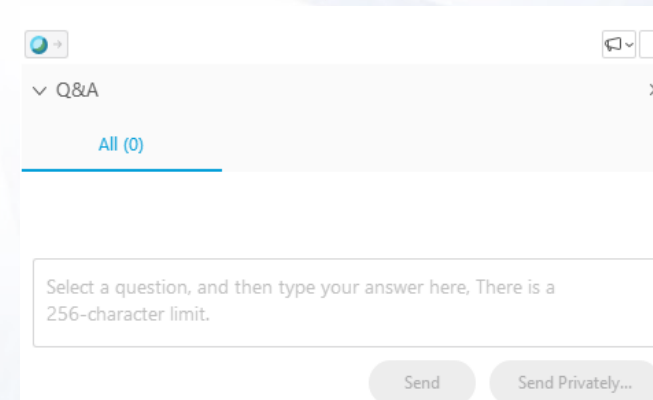
Have fun!

Science is fun! Let students learn the joy of discover and of making (and fixing) mistakes!



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Research Mentoring Resources

For Research Mentors and Students

- *The Science of Effective Mentorship in STEMM* (2019). National Academy of Sciences.
- *Entering Mentoring* (2015). Pfund, Branchaw, and Rediske. Purchase paperback.
- *Entering Mentoring: A Seminar to Train a New Generation of Scientists* PDF (2005). Handelsman, Pfund, Lauffer, Pribbenow
- CIMER: Extensive training modules, including *Entering Mentoring*
- iBiology: *Let's Experiment* (for students)

SOT listing of research mentoring resources is available in ToxChange file library: SOT Reference Files, Career and Communication



ECDC Webinar March 5

Mentoring—What Is It and How SOT Activities Help

Thursday, March 5, 2020

11:00 am to 12:00 noon (ET)

Speakers

- Lauren Aleksunes PharmD, PhD, DABT
Rutgers Ernest Mario School of Pharmacy, Department of
Pharmacology and Toxicology
- Darryl B. Hood, PhD Division of Environmental Health Sciences,
College of Public Health, Ohio State University

SOT Undergraduate Toxicology Curriculum Resources

Creating a Safer and Healthier World by Advancing
the Science and Increasing the Impact of Toxicology

About SOT | Members & Groups | Meetings & Events | Publications & News | Awards & Funding | Careers | Education | Endowment Fund

- CEd-Tox: CE Online
- Presentations & Webinars
- Undergraduate Educators
- K-12 Outreach

Home > Education

Undergraduate Educators



The Society of Toxicology supports the teaching of toxicology to undergraduates and has an active community of undergraduate educators. The Education Committee Undergraduate Subcommittee encourages any SOT member interested in undergraduate instruction to join this Undergraduate Educator Network by subscribing in ToXchange.

[Undergraduate Education Network Newsletter September 2018](#)

Activities related to undergraduates at the SOT Annual Meeting are featured in this [flyer](#), which you can distribute, print, and post.

We encourage [poster abstract submissions](#) for the education, ethical, legal, and social issues topic poster session. [More information](#)

The resources below are available for teaching toxicology, integrating the discipline into other courses, and for outreach activities.

www.toxicology.org/education/edu/resources.asp



SOT Undergraduate Education-Related Events at the 2020 SOT Annual Meeting

Sunday

8:00 am-5:00 pm: Undergraduate Education Program (students)

Tuesday

8:30 am-9:30 am: Undergraduate Educator Network Meeting

10:10 am-10:30 am: FUTURE in ToxExpo Theater

11:00 am-12:20 pm: Education-Career Session—A CURE for the Common Classroom

12:30 am-1:30 pm: Undergraduate Student Meeting (students)

Wednesday

9:00 am-4:30 pm: Education, Ethical, Legal, and Social Issues Poster Session
(author attended 9:00 am-10:45 am)

11:00 am-12:20 pm: Education-Career Session—Innovative Summer Internships

Faculty Grant Applications Due March 27

Search “Awards” at www.toxicology.org

- 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

Thank you for participating today!

Please provide feedback via the
link sent by email.