MENTORING & TRAINING PORTFOLIO – HOLLY M. BIK

Experience mentoring trainees from diverse backgrounds. Research shows that diversity is a key factor for scientific innovation (Hofstra et al. 2020, DOI:10.1073/pnas.1915378117). A diversity of viewpoints and lived experiences can spur discussions and insights that would not otherwise occur amongst a non-diverse group. I am a first-generation college student and female faculty member working across several heavily male-dominated fields (bioinformatics, polar science), and thus I have made it a priority to assemble a diverse lab group to combat systemic biases in these scientific disciplines. My current trainees include three Latinx researchers (two of whom are also first-generation college students). I am committed to expanding the recruitment and retention of underrepresented groups in STEM fields, and I am actively involved in community-building initiatives to build networks and mentoring support for early-career trainees who could benefit the most from these frameworks. My goal as a mentor is to help my trainees avoid many of the mistakes that I made early in my career, and raise awareness of systemic bias (both within institutions and scientific disciplines) that may impact their career trajectory. As part of my role as a trainer for the Genetics Department NIH T32 training grant, I have also completed formal mentor training at UGA (a 2-day intensive workshop run by UGA faculty member Erin Dolan in Spring 2021), which has been extremely helpful for establishing and refining formal mentoring frameworks for trainees in my own lab.

Certified trainer for The Carpentries @ UGA: I am a certified instructor and instructor trainer with The Carpentries organization (https://carpentries.org/), a global non-profit with open-source lessons that train diverse learners in scientific programming (helping them acquire skills in Unix, Python, R, etc). I currently spearhead UGA's formal institutional partnership with The Carpentries, helping to organizing local bioinformatics workshops and recruit and train new cohorts of local Carpentries instructors. My long-term goal is to establish a thriving bioinformatics "community of practice" at UGA, defined as "*a small group of researchers who meet regularly to help each other and promote good practices in scientific programming"* (Stevens et al. 2018, DOI:10.1371/journal.pbio.2005561). Our UGA Carpentries events aim to target trainees at all stages (undergraduates, graduate students, postdocs) so that knowledge transfer and informal mentoring can occur via peer learning. I am also working to establish links with the UGA Peach State LSAMP program, so that research-motivated undergraduate students from minoritized backgrounds can develop strong data science skills while being paired with peer- and near-peer mentors. This long-term integration of my lab's mentoring and research goals has been formally recognized through my recent NSF CAREER award.

Training and mentoring diverse students in bioinformatics: As part of two NSF grants (a 2010 RAPID award and a Research Coordination Network grant I spearheaded as PI from 2013-2019) and another GOMRI award, I have led the organization of a number of **"Bioinformatics and Biodiversity" undergraduate workshops** at Auburn University (April 2011), the University of New Hampshire (July 2014 and 2015), and Texas A&M University (January 2017 and 2018). **Diversity was the overarching focus of these workshops**: the participating students came from diverse educational institutes (R1 schools to community colleges) and the majority represented underserved populations in the sciences (most workshops were >50% female, with a significant proportion of Hispanic and African-American students). We also emphasized diversity in the course instructors themselves, with lectures given by faculty mentors Dr. Eyualem Abebe from Elizabeth City State University (a HBCU) and Dr. Jyotsna Sharma from the University of Texas, San Antonio (a Hispanic-serving institution). These workshops have trained >200 participants in command line bioinformatics workflows, emphasizing training across all career stages (undergraduates to full professors). Bioinformatics

training materials developed for these workshops were also published as open-source materials on GitHub and subsequently used for teaching at multiple universities.

Statement from Dr. Rachel Roberts-Galbraith (Assistant Professor, Genetics Dept.): "Dr. Bik is an outstanding teacher-scholar who promotes holistic training of doctoral and postdoctoral trainees. She uses training tools that include individual plans; further her training plans address multidimensional needs of scholars, including training and support for communication, teaching and mentoring, leadership, and research approaches/techniques. Further, Dr. Bik's multi-disciplinary laboratory, with both computational and experimental components, is an excellent training environment for scholars wishing to pursue a wide variety of future research questions. Finally, Dr. Bik's inclusive and individualized training approach is a supportive environment in which trainees can thrive."

Career Outcomes for Prior Trainees:

- Taruna Schuelke (former Bik Lab bioinformatician) – currently a Ph.D. student in Marine Microbiology at the University of California, Santa Barbara

Trainee Recognitions and Achievements (Current Trainees)

Tiago José Pereira, Southeastern Conference (SEC) Emerging Scholars Postdoctoral Award	2022-2023
Alejandro De Santiago Perez, NIH T32 Fellowship (UGA Genetics) and second year fellowship renewal	2021-2023
Mirayana Barros, UGA Outstanding Teaching Assistant Award	Spring 2022
Mirayana Barros, UGA Marine Science Teaching Award	Fall 2020
Alejandro De Santiago Perez, UCR Undergraduate Mini-grant for student research ($700)	Spring 2018

Mentoring and Supervision of Undergraduate Student Research

Kira Davis (UGA)	Fall 2022 – Spring 2023
Jenna Brown (UGA)	Fall 2022 – Spring 2023
Jalen Scott (NSF REU student, UGA Genomics Program)	Summer 2022
Evan Ladd (Thesis Reviewer, HONS 4990R, BS Biology UGA)	Spring 2022
Christian Udealor (UCR)	Fall 2018 – Fall 2019
Samantha Kuong (HMMI SALSA program, UCR)	Summer 2019
Alejandro De Santiago Perez (UCR)	Spring 2017 – Summer 2019
Vanessa Guzman (HMMI SALSA program, UCR)	Summer 2017 – Spring 2018
Amy Hodges (HMMI SALSA program, UCR)	Summer 2017
Alexandra Alexiev (UC Davis)	Spring 2013 – Summer 2014
Jordan Ramsdell (UNH)	Summer 2010 – Fall 2011

Other Trainee Mentoring Activities

Meeting Mentor Program, OSM2018 (Portland, OR)	Spring 2018
Kayla Hinson (undergraduate; ASLO multicultural program, OSM2012 meeting mentor)	Spring 2012
Tamar Dickerson (undergraduate; ASLO multicultural program, OSM2012 meeting mentor)	Spring 2012
Alison Federer (undergraduate, SMBE meeting mentor)	Summer 2011
Evan Dube (High School Student intern, UNH)	Summer 2010

MENTORSHIP & LEADERSHIP TRAINING COURSES COMPLETED

- UGA Leading Large Integrative Research Teams (L2-IRT) Workshop Series (nominated and selected for 2022-23 academic year cohort)
- Software Carpentry Trainer Training Certification (April 2022)
- 2-day Mentor Training Course for NIH T32 Genetics Training Grant at UGA (May 2021)
- UGA Faculty Learning Community, "Building a Culture of Writing" (2020-21 academic year)
- "Creating a Sustainable Writing Practice" training course series (2020-21 academic year)
- CREDITS Team Science Retreat, UCLA Lake Arrowhead Conference Center (Sept 2018)
- Software Carpentry Instructor Training (UC Davis, June 2018)
- Mozilla "Open Leaders" Training – 10 week mentored training program administered by the Mozilla Foundation, globally competitive application process (Spring 2018)
- Advancing Towards Professorship in Biology, Ecology, and Earth Systems Sciences – Oregon State University, Corvallis, OR (April 2012)
- NIGMS Workshop for Postdocs Transitioning to Independent Positions – NIH campus, Bethesda, MD (March 2012)

Training and Mentoring Activities – Scientific Programming

- **"Speeding Up Science" Second Hackathon**, University of California Davis – Instructor and Co-organizer, October 2019 – https://speeding-up-science-workshops.github.io/
- **"Speeding Up Science" First Hackathon**, University of California Davis – Instructor and Co-organizer, May 2019 – Hackathons focused on intermediate bioinformatics users developing rapid data visualization pipelines https://speeding-up-science-workshops.github.io/
- **2nd Benthic Invertebrate Taxonomy, Metagenomics, and Bioinformatics (BITMaB-2) Workshop**, Texas A&M Corpus Christi – Instructor and Co-organizer, January 2018. Open-source course materials on GitHub: https://github.com/BikLab/BITMaB2-Tutorials
- **Benthic Invertebrate Taxonomy, Metagenomics, and Bioinformatics (BITMaB) Workshop**, Texas A&M Corpus Christi – Instructor and Co-organizer, January 2017. BITMaB courses focused on interdisciplinary training in morphological taxonomy (microscopy) and bioinformatics workflows of microbial metazoan taxa. Course participants included undergraduates and researchers of all career stages (graduate students to full professors). Open-source course materials on GitHub: https://github.com/BikLab/BITMaB-workshop
- **Bioinformatics & Biodiversity Undergraduate Workshops** – Instructor and Co-organizer for three workshops (University of New Hampshire – July 2015, July 2014; Auburn University – April 2011) – courses focused on the intersection of taxonomy and high-throughput sequencing methods, in the context of the Deepwater Horizon oil spill.