

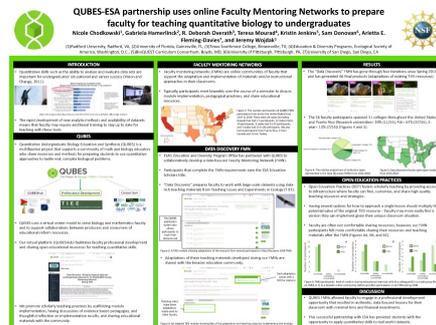


Community Spotlight

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QUBES-ESA partnership uses online Faculty Mentoring Networks to prepare faculty for teaching quantitative biology to undergraduates

By Nicole Chodkowski, Gabriela Hamerlinck, R Deborah Overath, Teresa Mourad, Kristin Jenkins, Sam S Donovan, Arietta Fleming-Davies, and Jeremy M Wojdak



Module Description:

QUBES Faculty Mentoring Networks (FMNs) are online communities of faculty that support the adaptation and implementation of materials and/or instructional approaches in their classrooms. This resource is a poster that provides a quick orientation to FMNs and specifically highlights Ecological Society of America's Data Discovery FMNs. The poster abstract is below.

Background/Question/Methods

Biology graduates are expected to analyze and evaluate data, but many biology courses are developed to deliver content and concepts. Focusing on using data in undergraduate biology classrooms provides a unique opportunity for students to develop and apply quantitative skills to current environmental issues. As datasets become more complex, faculty may require additional training to effectively use data in their classroom. The Quantitative Undergraduate Biology Education and Synthesis (QUBES; www.qubeshub.org) project offers an online platform to facilitate faculty professional development and sharing open educational resources for teaching quantitative skills. ESA's Education and Diversity Program Office has partnered with QUBES to collaboratively develop a data-focused Faculty Mentoring Network (FMN). FMNs are online communities of faculty that support the adaptation and implementation of materials and/or instructional approaches in their classrooms. The "Data Discovery" FMN prepares faculty to work with large-scale datasets. FMN participants use data-rich teaching

materials from [Teaching Issues and Experiments in Ecology \(TIEE\)](#). Adaptations of these teaching materials developed during our FMNs are shared with the broader education community. Here, we present success metrics of the QUBES-ESA partnership by reporting the number of products (i.e. TIEE module adaptations) generated and faculty involvement over four FMNs.

Results/Conclusions

The “Data Discovery” FMN has gone through four iterations since Spring 2016. Our past FMNs have a nearly 100% completion rate, meaning, almost all 38 participants earned the ESA education scholar title after completing the FMN. Participants in the first three “Data Discovery” FMNs generated [63 final products](#), mostly comprised of adaptations or modifications of existing TIEE resources. Having several options for how to approach a single lesson should multiply the potential value of the original TIEE resource – faculty may more easily find a version they can implement given their local constraints. The 38 faculty participants spanned 35 colleges throughout the United States and Puerto Rico (Research universities= 23% (8/35), PUI= 74% (26/35), 2-year= 11% (4/35)). Final results will include the currently running 2018 “Data Discovery” FMN. We expect an additional 14 products will be produced. Overall, the QUBES online platform has reduced time and financial investment barriers to professional development of its faculty participants. This successful partnership with ESA has provided various students with the opportunity to apply quantitative skills to real-world datasets and will continue to help faculty implement authentic, data-focused lessons in the classroom.

Teaching Setting:

FMNs are professional development opportunities for faculty in any teaching setting. There are a variety of FMNs running every semester, each with a unique theme, making it easy to find FMNs that align with your teaching goals.

QUBES Citation:

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Related Materials and Opportunities:

If you missed their poster presentation at the [Ecological Society of America 2018 Conference](#), you can still meet the authors and ask questions in person when they present this poster at the [2018 National Association of Biology Teachers \(NABT\) Conference](#), which is being held in San Diego on Nov. 8-11, 2018.

The following FMNs are currently running during the Fall 2018 semester:

- [DIG into Data for the Biology Classroom FMN](#)
- [HHMI BioInteractive FMN](#)
- [Reducing Barriers to Teaching with R in Undergraduate Biology FMN](#)
- [Amplifying data analytic opportunities in your CURE FMN](#)
- [Building mathematical intuition with online MathBench Biology Modules FMN](#)
- [NEON Data Education Fellows FMN](#)
- [Plants by the Numbers 2: Growing Quantitative Literacy Using Botany FMN](#)

Applications are now open for the Spring 2019 [Ecological Society of America \(ESA\)-sponsored Data Explorers: Using ecological data in undergraduate biology classrooms FMN](#). The application deadline is Nov. 30, 2018.

Several additional FMNs are currently being planned for Spring 2019. Just a few of the potential FMN topics include reducing students' math anxiety, building students' data acumen, teaching with quantitative case studies, and using R in discipline-based education research.

If you are interested in staying up to date on the latest FMN information, be sure to [subscribe to the QUBES newsletter](#).

To learn more about FMNs, please [visit our FMNs page](#) and feel free to contact Deborah Rook at deb.rook "at" bioquest.org with questions.

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