

# Faculty Mentoring Networks For Botany Faculty Professional Development

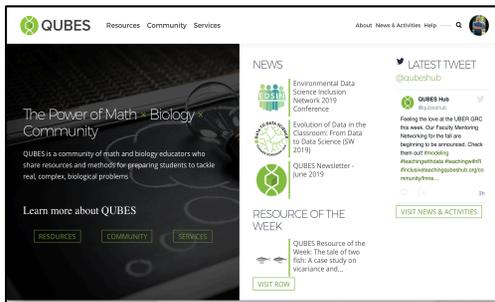
J. Phil Gibson, PhD

Department of Biology, Department of Microbiology and Plant Biology, University of Oklahoma

jpgibson@ou.edu

**Background:** A variety of obstacles can limit professional development opportunities for STEM faculty in higher education. Faculty Mentoring Networks (FMN's) can circumvent these problems and meet the diverse needs of faculty teaching courses at different academic levels in a range of institution types.

In 2018, BSA partnered with QUBES<sup>1</sup> to sponsor two, semester-long FMN's. QUBES hosts virtual communities of biology and math educators that focus on quantitative biology education through FMN's, workshops, OER's, and other resources to support professional development of educators to better teach quantitative skills to biology students.



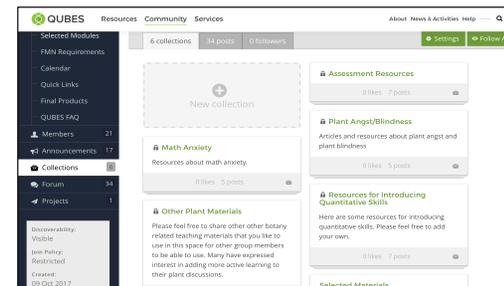
FMN's are virtual, peer-mentoring communities that provide professional development through exploration of modern pedagogical theory and implementation of classroom practices that promote meaningful change in STEM educators and their classrooms.

**Botany by the Numbers FMN's:** Eleven participants were chosen for the Spring 2018 FMN and eight were chosen for the Fall 2018 FMN.

Modules for the FMN included significant botanical and quantitative components. Participants chose from the following six modules:

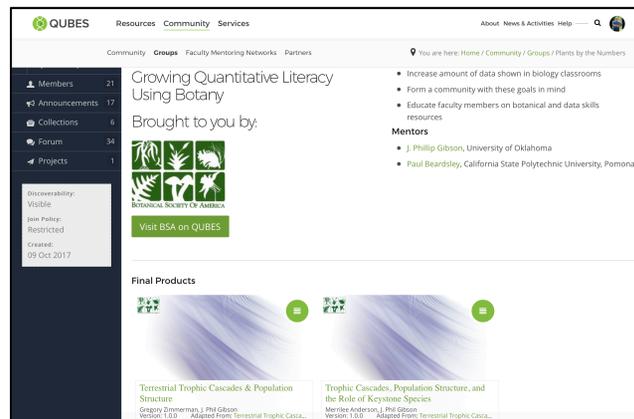
- Food Chain Dynamics In A Simple Ecosystem
- Morphological and Molecular Analysis of Plant Phylogeny and Diversity
- A Structured Inquiry Approach to Cotyledon Phenotyping
- Seed Dispersal in Tropical Forests
- Terrestrial Trophic Cascades & Population Structure
- Transpiration Comparison of C<sub>3</sub> and C<sub>4</sub> Plants

Participants also read and discussed literature on different aspects of teaching quantitative skills and incorporating quantitative content into botany courses.



**FMN participants who completed the following activities earned a BSA Education Scholar certificate:**

1. Active participant for the entirety of the network by
  - attending all working group meetings
  - posting responses to assignment prompts in the forum
  - posting reflections of implementation
  - facilitate for a working group meeting
2. Implement materials into at least two class periods during the semester
3. Share teacher notes, curriculum materials, assessments, etc. on QUBES Hub (www.qubeshub.org).



**Outcomes:** Fourteen resource modifications were produced by the Spring 2018 FMN participants, and seven were produced by the fall 2018 participants. All of these products were published on QUBES Hub and assigned a DOI identifier. Two have been featured as QUBES Resources of the Week. Nine of the participants in Spring 2018 and five of the participants in Fall 2018 received the BSA Education Scholar certification. One participant later served as a moderator for another FMN. All participants reported favorable impressions and benefits of participating in the FMN, a greater likelihood of implementing existing and developing their own active learning modules into their courses, and greater confidence with addressing botanical and quantitative topics in their courses.

Plants by the Numbers

Calendar

Participant Facilitator Roles and Responsibilities

Date	Topic	Due before next meeting	Fall's Group Facilitator	Spring's Group Facilitator
January 25 4 - 5pm EST	Recall Meeting	None	NA	NA
Week of Feb. 5	Implementing quantitative plant	Check out one of the resources provided and prepare a 10-15 min presentation to share with the group	NA	NA
Week of Feb. 19	Engaging quantitative plant	Plan to give an oral or digital presentation and prepare a 10-15 min presentation to share with the group	Gregory	Chris
Week of March 5	Math Anxiety	Share comments or questions regarding the resources provided and prepare a 10-15 min presentation to share with the group	Craig	Emily
Week of March 19	Plant Anger	Share your assessment materials, presentation, and feedback questions on a 10-15 min presentation to share with the group	Marissa	Marissa

**With Much Thanks To:** D. Rook, K. Jenkins, C. Adams, P. Beardsley, G. Hamerlinck, S. Donovan, D. LaMar

**Further Information:**

<sup>1</sup>Donovan, S., Eaton, C.D., Gower, S.T., Jenkins, K.P., LaMar, M.D., Poli, D., Sheehy, R. and Wojdak, J.M., 2015. "QUBES: a community focused on supporting teaching and learning in quantitative biology." *Letters in Biomathematics*, **2(1)**, pp.46-55.

