QUBES: Building a community to promote undergraduate quantitative biology education

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QUBES Goals
Quantitative skills have been recognized as core competencies for career success in biology, and many faculty are interested in teaching more quantitative biology in their courses. The QUBES project is designed to:
- Improve communication among educators
- Assist faculty in understanding and implementing novel content and teaching strategies in their unique classroom settings
- Create an academic reward system that emphasizes teaching as well as research

To meet these goals, QUBES is building a diverse online community of educators interested in quantitative biology. Science

The QUBES community is diverse

QUBES primarily targets faculty teaching undergraduate biology courses, but users also come from industry, non-profits, and secondary schools. Undergraduate students are welcome to join the QUBES website to use the on-site software. There are no fees to join!

QUBES supports meetings and workshops
Participants in the 2015 Quantitative Biology Education Summit

The QUBESHub website provides tools to increase visibility, collaborations, and follow-up for in-person meetings and workshops. Planning a meeting? Contact us about providing an online collaborative space: qubeshub.org/groups/supportmeetings.

Faculty mentoring networks support faculty adoption of quantitative biology teaching

Faculty mentoring data discovery is:
- Online groups of 10-15 faculty members
- Focused on specific topics
- Led by teams of experts in biology, math, and pedagogy
- Intensive support over a short time period

Examples of Past FMNs
- Ecological data-driven DryadLab teaching modules
- Teaching agent-based modeling with Netlogo, a student-friendly software
- Image analysis as a tool to help students understand math/stats

qubeshub.org/facultymentoringnetworks

Resources help faculty find quantitative biology teaching materials

Resources are:
- Submitted by community members
- Ranked and reviewed by users
- Interactive – users can ask a question
- Tagged with key search words
- Free!

Distribution of resource types currently on QUBES Hub:

QUBES Hub

Computational tools let students run quantitative software on-site

On-site software:
- Students can use cloud-based software
- Features many popular programs like RStudio, FastQC, Netlogo
- Faculty can upload data files for student use

qubeshub.org/resources/software

Partner pages help promote faculty projects and materials

Partner pages:
- Bring faculty projects directly to the target audience
- Encourage community interaction with materials
- Use the project’s own look and branding
- Can support a customized site for a textbook, short course, or outreach component of a grant

qubeshub.org/projectpartnership

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