QUBES: An education gateway for professional development, OER sharing, and project support

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QUBES
The Power of Biology × Math × Community

Abstract

The Quantitative Undergraduate Biology Education & Synthesis (QUBES; qubeshub.org) project has adopted a "scientific gateways" model [1] to accelerate undergraduate biology education reform. As such, QUBES provides an accessible and integrated cyberinfrastructure that makes it possible to coordinate and streamline the work of a diverse and distributed community of biology educators. The QUBES services include an online professional development model (faculty mentoring networks – FMNs), an open educational resources publication and versioning platform, diverse types of community hosting, workshop support, and access to cloud-based computational resources. The integration of these functionalities within a single gateway provides important opportunities for both individual faculty and education projects to engage with the professional community and amplify their scholarship. We argue that professional participation through a scientific gateway reflects a more robust and sustainable set of strategies for reforming undergraduate STEM education.

How To Get Involved

- Check out the site qubeshub.org
- Signup to receive newsletters and resource of the week announcements (no account required).
- Apply to participate in a Faculty Mentoring Network.
- Start your own group and move your project (large or small) online.

QUBES is a community of math and biology educators who share resources and methods for preparing students to use quantitative approaches to tackle real, complex, biological problems.

Ideas?

Please leave us a note with any thoughts, comments, ideas, or just your email! We'd love to hear from you.

Acknowledgements & References

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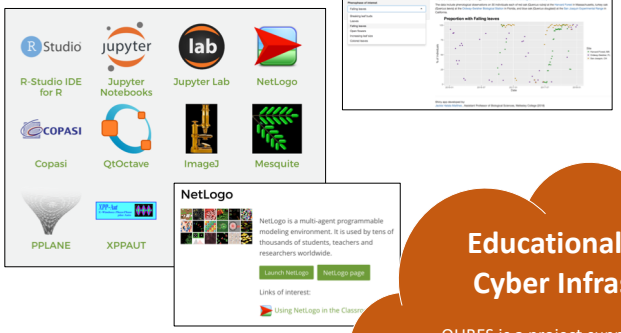
Quantitative / Computational Tools

QUBES hosts software that can be run in the browser without having to worry about any installation or configuration on your local machine. Faculty can now have students run free modeling and statistical software using customized activities and datasets made by you. We also host Shiny apps and various types of notebooks.



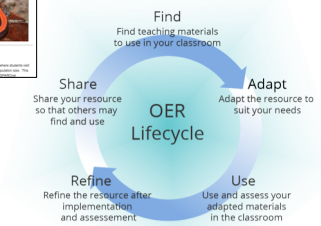
Educational Gateway Cyber Infrastructure

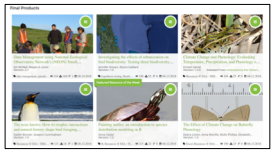
QUBES is a project support system, built by and for STEM educators, designed to provide both a technical infrastructure and a community network. As an online center, QUBES makes it easy to build customized, collaborative spaces for projects, meetings, and workshops.

Open Education Resources Publishing Platform

Sharing teaching resources is a great way to document and track the impact of your teaching scholarship. The QUBES Resource System has the following built-in functionality:

- Tracking and finding your resource with a digital object identifier (DOI)
- Measuring the use of your resource (views, downloads, and adaptations)
- Making it easier to interact with users and receive feedback





Customized Community Workspaces

QUBES supports diverse biology education reform communities by providing an open and inclusive virtual space for sharing classroom activities and resources, discussing teaching and the adaptation of educational materials to specific institutional contexts. We also connect biology educators with reform projects, conferences, and research opportunities to support a scholarly approach to teaching.

Faculty Professional Development

Imagine meeting biweekly over a semester with a small group of educators around a common interest - exploring new ideas or classroom activities, sharing what has worked and what hasn't, and gaining some credit for your teaching scholarship. That is the Faculty Mentoring Network model. By capitalizing on the experience of a mentor and peers, FMNs provide a bridge between pedagogical theory and actionable classroom practice.