In this newsletter:

**QUBES News**
- Featured QUBES Partner of the Month: High-throughput Discovery Science & Inquiry-based Case Studies for Today’s Students (HITS)
- Applications are open for Spring 2020 Faculty Mentoring Networks. Special announcement coming soon!
- Social media love: Tweets about QUBES
- Gateway design features for undergraduate education communities: A case study
- HHMI BioInteractive’s Educator Voices highlights the QUBES system for sharing Open Education Resources
- Learn about the outcomes of the Sustainability Challenges for Open Resources to promote an Equitable Undergraduate Biology Education (SCORE-UBE) Summit
- QUBES announces beginnings of new inclusive pedagogy platform: BUILDS

**News from QUBES Partners**
- ASM Education announces several teaching-related professional development opportunities
- Job Opportunity: Associate/Full Professor of Digital and Computational Studies at Bates College
- Accelerating Systemic Change Network (ASCN) Webinar —Envisioning the Future of STEM Education: The National Academies’ Roundtable on Systemic Change in Undergraduate STEM Education

---

**ROW Recap**
Each week we feature an outstanding educational resource. All resources featured in the Resource of the Week (ROW) have been plucked from the large and growing collection of open education resources (OER) that are freely available on QUBES. Most resources have open licenses, allowing you to easily find, use, and adapt the materials.

Subscribe to the ROW; You do not need a QUBES account to subscribe!
Browse all past ROWs
Browse the entire OER Collection

---

**Earth Analytics in Python Course**
By Earl Maack, Jamie Holowaychuk, Chris Holmgren

An intermediate, multidisciplinary course that addresses major questions in Earth science and teaches students to use the analytical tools necessary to undertake exploration of heterogeneous scientific data.

---

**Featured QUBES Partner of the Month: High-throughput Discovery Science & Inquiry-based Case Studies for Today’s Students (HITS)**
QUBES partners with organizations and groups who are doing exciting things in undergraduate education. Every so often we select one of these partners to feature in our newsletter to raise awareness of their work, celebrate recent activities, and announce upcoming opportunities.

This month’s featured QUBES partner is High-throughput Discovery Science & Inquiry-based Case Studies for Today’s Students (HITS), an NSF RCN-UBE that seeks to improve student quantitative skills and participation in high-throughput discovery. Researchers and teaching fellows in the network will learn about high-throughput technologies and work together to create novel case studies that will demystify high-throughput approaches and promote discovery science to reinforce cornerstone STEM concepts and quantitative skills in the college classroom.

There are a several ways QUBES users can engage with HITS:

Join the HITS group on QUBES!

Join the HITS group on QUBES to (virtually) meet members of the network. You can follow along as exciting new high-throughput cases are developed, or better yet, help create, adapt, and improve HITS resources by submitting a membership request to join one of their many project groups.

Apply now to become a HITS Case Fellow!

The effective design, implementation, and analysis of high-throughput (HT) research require fundamental quantitative skills. The NSF-RCN UBE: HITS seeks to improve student quantitative skills and participation in high-throughput discovery by creating novel case studies that demystify HT approaches and promote discovery science to reinforce cornerstone STEM concepts and quantitative skills in the college classroom. Faculty and postdoctoral fellows devoted to the use of case studies and problem-based learning pedagogies are encouraged to apply to become HITS Case Fellows. Apply by February 14th, 2019. Learn more and apply here.

Beta test HITS teaching resources!

HITS is seeking beta testers for its newest resources. If you are interested in implementing high-throughput cases in your classroom and could contribute feedback to improve the resources, please contact Carlos Goller at ccgoller@ncsu.edu. Groups are developing cases using high-throughput environmental, sequencing, and microscopy data, for example. Join the HITS group to connect, explore, and design cases that teach students how to analyze authentic HT datasets!
Applications are open for Spring 2020 Faculty Mentoring Networks. Special announcement coming soon!

QUBES offers professional development opportunities for educators called Faculty Mentoring Networks (FMNs). FMNs are a great way to receive support and guidance before, during, and after implementation of a new teaching module or technique. A special edition of the QUBES Newsletter will be sent out later this week announcing the Spring 2020 Faculty Mentoring Networks (FMNs). Be sure to subscribe to the QUBES Newsletter in order to receive it! And if you just can’t wait, you can head over to the QUBES Blog right now where several Spring 2020 FMNs have been announced.
Social media love: Tweets about QUBES

Periodically we will be highlighting one or more Tweets that show how people are using QUBES. If you have a Twitter account, you can follow us @qubeshub.

This month’s featured tweets are from Sara Scanga, a professor at Utica College, who describes how educators can take advantage of QUBES resources and services to incorporate more quantitative skills into their teaching and easily find, adapt, and share teaching materials on QUBES. Sara references this useful guide for getting started with Open Education Resources (OER). She also shows an example search for OER on QUBES and shows how easy it is to access and adapt teaching materials that are available on QUBES. See what Sara has to say about QUBES and contribute to the conversation by sharing your experience with QUBES.

View the entire Twitter thread.
An article titled, “Gateway design features for undergraduate education communities: A case study” is now available on Open Science Framework. This article written by QUBES PIs Drew LaMar and Sam Donovan draws parallels between science and education gateways and describes the design of QUBES’s core services in the context of the role of education gateways in science education reform. The article’s abstract is below. View the full article on Open Science Framework.

Like science gateways, an education gateway should provide research and management support for a community of practitioners working collaboratively to solve a set of challenging problems. While the technical aspects of the cyberinfrastructure play an important role in the utility of a gateway, they are not sufficient to attract users who are new to collaborative, online scholarship. Over the course of the development of the Quantitative Undergraduate Biology Education and Synthesis (QUBES) gateway we have learned to adapt our services and messaging to reach out to our target audience and recruit their participation. Part of this process has involved aligning our services with common project management challenges and being aware of the opportunities and constraints faced by teaching faculty. Adopting a client-centered approach has made it possible not only to build our user base, but to foster important conversations among users around promoting a shared culture that supports scholarly approaches to teaching.
Kristine Grayson, an assistant professor in the Biology Department at the University of Richmond, has been featured in HHMI BioInteractive’s Educator Voices. In the video post, she discusses the benefits of finding and sharing resources on QUBES and describes the HHMI BioInteractive Educator Publications Portal, which contains adaptations of HHMI BioInteractive teaching materials that have been customized for different teaching settings or supplemented with extension activities. Click here to check out Kristine Grayson’s post.

Learn about the outcomes of the Sustainability Challenges for Open Resources to promote an Equitable Undergraduate Biology Education (SCORE-UBE) Summit

Sustainability Challenges for Open Resources to promote an Equitable Undergraduate Biology Education (SCORE-UBE) is an RCN-UBE Incubator led by Carrie Diaz Eaton and Co-PIs Jeremy Wojdak, Michelle Smith, Kaitlin Bonner, and Jason Douma. SCORE-UBE explores the promise of equity and the realistic challenges of sustainability assumed by open educational resources (OER) in undergraduate biology education. SCORE-UBE held a Network Meeting last month at Bates College in Lewiston, ME. Learn more about the outcomes of the SCORE-UBE Summit in this blog post and explore posters and presentations from this meeting.
QUBES announces beginnings of new inclusive pedagogy platform: BUILDS

In an effort to combat exclusive pedagogy within the STEM sciences, QUBES is announcing their new open education community, BUILDS: Biological, Universal, and Inclusive Learning in Data Science. BUILDS is a community for the exchange of ideas and resources supporting biological and environmental data science education, grounded in practices of universal design for learning and inclusive pedagogy. This new platform works to further inclusive pedagogy with the help of a new QUBES inclusive pedagogy tagging ontology, developed by Sharon Rivera, a QUBES-EDSIN OEC Fellow and Brian Dewsbury, a QUBES-EDSIN OEC Mentor. The QUBES-EDSIN Open Education Community Fellows (OEC) program is a leadership program for life sciences, math, biology, statistics, and ecoinformatics educators interested in inclusive data science education. This is the first of a series of new ontologies to be released for QUBES from the OEC Fellows and their mentors.

BUILDS is a network of educators committed to providing accessible, affordable, student-driven education that connects learners to a larger world outside of their classrooms and inspire them to be transformative; we promote the creation and use of Open Educational Resources (openly licensed learning materials) and the incorporation of open pedagogy and open science into our teaching practices. We encourage all educators to submit a resource to BUILDS with the new tagging ontology to help other educators find classroom innovations that create a more inclusive space!

ASM Education announces several teaching-related professional development opportunities

Please find a message below from Rachel Horak, an Education Specialist at the American Society for Microbiology (ASM).

I would like to announce a few teaching-related professional development opportunities for members who teach undergraduates. ASM Education offers a variety of resources and events to help you on your teaching journey!
We are ready to help you advance your career with as little as a few minutes. Or take the plunge and register for a multi-week webinar series to really dive into hot topics in undergraduate education.

Do you have only a few minutes? Check out a recent article about Backward Design in the Microbiology Classroom or follow the #ASMCUE hashtag on Twitter!

Do you have lots of questions about active learning? Join us for an upcoming webinar (live event and on-demand viewing available) about active learning for biology and microbiology classrooms. The presenters will be able to address questions about your own classroom or experiences!

- On December 9, Phil Mixter and Jen Herzog will discuss "Active Learning: Creating Connections Between Students and Knowledge." In this webinar, you will have new activities to engage your students for any classroom environment, face-to-face, hybrid, or online, and you will be able to assess the impact of your activities on student learning.

Ready to really dig into learning about undergraduate teaching? Join us for two exciting webinar series in the Winter/Spring 2020 season. Registration is available for individual webinars within the series or register for the entire series for a 6-webinar package discount with package-only benefits that include one-on-one mentoring at 2020 ASMCUE.

1. Teaching Undergraduate Biology, a 6-webinar series led by Loretta Brancaccio-Taras. This series introduces the fundamental concepts of evidence-based teaching as well as career development tips for undergraduate educators. Topics include inclusive teaching, curriculum design, and active learning techniques. January – April, 2020.


Don’t forget to mark your calendar for ASMCUE, July 9-12, 2020 in Bellevue WA! ASMCUE is the premier conference for biology and microbiology undergraduate educators to learn best practices, consider new classroom strategies, and hear biology education research updates. Come learn from your peers and network with educators who teach the same courses you teach. New this year: additional networking opportunities and test-drive an active learning technique in the Activity Test Kitchen. Submission portal for sessions, posters, microbrews will open in early November 2019.

Please contact me, Rachel Horak, education@asmusa.org, with any questions about these programs.
Job Opportunity: Associate/Full Professor of Digital and Computational Studies at Bates College

Bates College invites applications for an emerging or established leader in computing for its newly established Digital and Computational Studies [DCS] Program. Review of applications begins on 1 December 2019.

Learn more about the Bates College job opportunity in this blog post by QUBES PI and Associate Professor of DCS at Bates College, Carrie Diaz Eaton.

Click here to apply for the Bates College position.

Accelerating Systemic Change Network (ASCN) Webinar—Envisioning the Future of STEM Education: The National Academies' Roundtable on Systemic Change in Undergraduate STEM Education

Wednesday, December 4, 2019
1:00 pm PT | 2:00 pm MT | 3:00 pm CT | 4:00 pm ET

Presenters: Ann E. Austin (Michigan State University), Noah Finkelstein (University of Colorado Boulder), Kerry Brenner (National Academies)

The Roundtable on Systemic Change in Undergraduate STEM Education is a group of the National Academies of Sciences, Engineering, and Medicine that brings together national experts and thought leaders representing the full spectrum of stakeholders in higher education. They coordinate and catalyze actions that advance the common goal of improving undergraduate STEM learning experiences. Linking existing reform efforts in science, technology, engineering, and mathematics (STEM) education allows reformers to learn from each other and leverage each other's work. Using evidence-based approaches and building on successful reform efforts, the roundtable works to expand access, increase equity, and support quality learning experiences for all learners. Their work examines changes in technology, workforce, demographics, and society to determine optimal ways for the system of higher education to respond to the current and future needs of the nation to have a scientifically literate population.
This webinar will highlight forces the Roundtable sees impacting the future of undergraduate STEM education, present information on some of the key themes the Roundtable has identified as central to progress in improving undergraduate STEM education, and invite input from webinar participants on their own related initiatives and their suggestions for future Roundtable work.

This webinar is designed for individuals involved in STEM education reform initiatives or who are interested in change efforts and avenues for connecting to a national agenda. We welcome current faculty as well as future STEM faculty; academic and administrative leaders at 2- and 4-year colleges and universities; and leaders and staff of non-profit organizations, professional societies and disciplinary associations, and funding organizations.

Click here to register for the Envisioning the Future of STEM Education webinar. The registration deadline is Monday, December 2.