

Meeting 1 Spring 2018

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Participants

Kristin Jenkins
Stacey Kiser
Jillian Miller
Ahrash Bissell
Tony Weisstein
Claudia Neuhauser
Lisa Corwin
Melissa Aikens
Vedham Karpakakunjaram
Christianne Nieuwsma
Suzanne Lenhart
Greg Wiggins
Sondra LoRe

Ann Ho

Lou Gross

Goals:

The goals of this working group are:

- To map out the current needs of CC biology and math faculty to address students' mathematical, quantitative biology and quantitative reasoning skills;
- Develop resources for teaching specific mathematical and quantitative biology skills and provide practice in quantitative reasoning;

- Design professional development for CC biology faculty to encourage and support the inclusion of developmental mathematics, quantitative biology practices and quantitative reasoning in introductory courses.

Goals for this meeting:

- Become familiar with the range of disciplinary expertise in the group, as well as relevant projects
- Discuss survey results, consider next steps on the survey project
- Establish a common awareness of the current & new approaches for dev math in bio, consider how we can leverage this information to achieve our working group goals
- Identify the relevant quantitative skills for bio students at CCs
- Identify projects of interest, plan next steps
- Select the date for the next meeting

Day 1 April 26 Thursday

9:00 Welcome by the organizers, overview of the project

10:00 Introductions: Participants will share information about themselves including their background, relevant resources, skills, and programs and their interest in the project.

12:00 Lunch

1:00 Complete introductions

2:00 Break

2:30pm Report on the survey of community college biology faculty needs and attitudes about teaching quantitative biology skills:

The survey will inform the actions of the working group by identifying the needs of the target population. This project is underway, spearheaded by Stacey Kiser, Lisa Corwin, and Melissa Aikens, and preliminary responses should be available for the first working group meeting. Previous work with four year faculty suggests that many biology faculty feel underprepared to teach quantitative biology skills, and lack information about resources and materials. The goal of this survey is to determine what community college biology faculty identify as their greatest needs in terms of pedagogical preparation and resources.

Kiser, Aikens, and Corwin will report on the status of the project. Working group participants may contribute to the analysis of initial responses, help refine the survey, suggest additional distribution options, and consider additional ways to develop a sense of the needs and attitudes of the target population. The working group participants will use this information to shape the professional development programming, and identify the best resources to share with the community.

4:30pm Break

5:00pm NIMBioS Reception, Followed by Group Dinner

Day 2 April 27 Friday

9:00am Exploring models for developmental math

Bissell, Nieuwsma, and other working group members with expertise in developmental math will lead a discussion of current models for integrating developmental math in biology degrees. The working group will consider these models in relation to the identified needs of the target faculty for professional development. New developmental models are moving away from remedial courses, and trying other options to reduce barriers for students. For example, one option is incorporating programs, such as NROC, for “just in time” learning. In some institutions, mathematics departments are working with other disciplines to develop topical courses, or collaborate on quantitative skills within courses. Faculty need to be aware of these new models, and how to evaluate these options for their situations. Biology faculty need to increase their confidence in identifying student needs to employ the best developmental options in a timely fashion. Mathematics faculty need to be aware of the opportunities quantitative biology presents for teaching quantitative skills.

The working group will consider how to share these models with the audience, what kind of professional development programming would be most effective in helping biology and math faculty evaluate and implement new models in their own classrooms and institutions, and build effective collaborations between math and biology departments. Professional development might include helping both math and biology faculty develop of the pedagogical content knowledge required to teach those skills.

11:00 Group Photo Followed by a Break

11:15 Identifying key quantitative skills in lower level biology courses

Neuhauser, Lenhart, and Kiser will lead a discussion to identify the most relevant quantitative skills in lower level “gatekeeper” biology courses which can derail student success. Neuhauser and Lenhart have both written mathematics textbooks for the life sciences. This discussion will use their expertise to bridge the communications gap to identify common biological applications of quantitative skills. The working group will align basic introductory biology content with supporting quantitative skills, and consider how to communicate this information to both mathematics and biology instructors.

12:30 Lunch

1:00pm Defining our working group’s area of interest and goals

2:00pm Breakout groups to work on work on areas of interest

3:30pm Reconvene to share information

4:00 Break

5:00pm group dinner

Day 3 April 28 Saturday

9:00 Summary and planning for next steps.

Next meeting in August/September? Organize working groups and communication leads.

Miller, Kiser, Jenkins, and Bissell will summarize the previous two days' discussions and lead the group in discussion of next steps. Working group members will decide which aspect of the project they would like to work on between meetings and establish subgroups to work on these components. We will also set the date for the next meeting.

The group will remain in contact between meetings using a group site on the QUBESHub to meet virtually every other week. Miller, Kiser, Jenkins and Bissell will meet with subgroups. The group will also be encouraged to share relevant literature and information via the QUBESHub group site.