

## November 16, 2020 Education Working Group Call

Attendees: Lisa Haber, Shannon LaDeau, Jason McLachlan, Alyssa Willson, Jody Peters, Diana Dalbotten, Olivia Tabares, Anna Sjodin

Agenda/Notes:

1. Forecasting, Prediction, Projection Manuscript Update (Anna and Gretchen)
  - a. Are there plans for incorporating the Forecasting Vocab Terms the Theory group worked on? Yes! Abby is working on a box for these terms.
  - b. Anna and Gretchen haven't had a chance to work on this. They will get to it when they are able to.
  
2. RCN Education Effort Updates (Jason)
  - a. 5 years of funding
  - b. Core to the RCN grant is the [NEON Ecological Forecasting Challenge](#)
  - c. The Challenges are good conduits for training. There are a number of courses who will be including the Challenge
  - d. Upcoming RCN workshop next summer will have an Education focus. Would like to see if we can use people's experience with the Challenge to create training tools and examples for online material/pedagogy
  - e. Pre-meeting workshop in the spring that will focus on best practices and improve training for a diverse set of students
  - f. Think about a diversity of ways that people can create content to fill the gaps that Alyssa has found (see point 4 below)
  
3. GLEON (Global Lakes Ecological Observatory Network) - will recruit and support one working group for the Challenge
  - a. NEFI will work with the GLEON group to make an educational product that is about their process of coming up with a forecast that follow the Challenge guidelines
  - b. Once we know who that group is - we should get in touch with them to collaborate/synthesize
  - c. Good to brainstorm the way that the Forecast Challenge could tie into a lesson, that uses aquatics, but is not too narrow so it can be broadened outside of aquatics
  
4. Compilation of resources for undergrad education (Alyssa)
  - a. See this document. These are all resource compiled so far and categorized into the forecasting steps
  - b. We have a good set of tools/resources for people who know advanced statistics and can put the pieces together (Mike's book, NEFI videos, etc)

- c. One thing that is lacking is thinking about how to get to this point. If you are a person interested in domain ecology rather than stats. Would like to have material to use in an intro ecology or intro stats course.
  - d. Want to be able to have teaching materials to teach from the method/technical side as well as teaching from the conceptual side - would be good to be able to have materials for both
5. Idea that came up at the end of the Oct call - create document for guidance counselors for what courses to take that are helpful for forecasting
- a. Could come up with a draft that we get input from the larger EFI group
  - b. Emphasize that there is a breadth of approaches to get into forecasting. There isn't a strict sequence of courses
  - c. Stats background that highlights distributions. Doesn't have to be Bayesian, but could be helpful
  - d. Intro to probability would be good
  - e. Background in coding (doesn't have to be a specific language). Tools that help you be efficient and optimizing and pulling systems together
  - f. Disciplinary expertise in the field students are interested in. Need to be able to make a question that is important to people and need to have some expertise. Have a questions and know what the components are to answer that question
  - g. Disciplinary expertise is very important at the undergrad level. But then suggest that students look outside their discipline to look for courses (e.g., for an ecology student - look for other courses rather than Biostats, look for courses in the Stats department)
  - h. Data Science
  - i. [Stats545 example](#) - this was a course Olivia took at UBC on data wrangling, how to use R, how to use GitHub. Don't need strong stats background, but need comfort with computers and coding
  - j. Moving forward - need to write a 1 page defining what a forecast is (like a weather forecast, making a prediction in the future, includes a disciplinary question, some data and a computation/statistical model). Our group has compiled a number of resources and provide a link to it. There is no one way to get to this background. People come in a variety of ways. People often work in teams so no one has to do it all. But if anyone has interests in a specific area of the component of forecasting can participate.
  - k. Invite for feedback from guidance counselors - what is useful, what do they have questions about
  - l. Add a statement to educate guidance counselors about what forecasting is
    - i. Want it to be quick. Short and easy to grasp. With pictures, visuals, graphics
    - ii. Couple of sentences, examples, picture of forecast with uncertainty
    - iii. Students coming to counselors may not be interested in forecasting, but interested in environmental questions

- m. In addition to this 1 pager, make pdf/powerpoint slides that people can use in their lectures. This could tie in with the Forecasting Challenge. Have the code, tools, and helpful slides that instructors can edit and change.
  - n. Ask people in the Challenge to come up with 5 slides. What is their problem, their approach, results.
  - o. Olivia's experience creating a resource for Teaching biostats with R infographic
    - i. Take one step further to include the instructors. It is a learning experience for everyone (including the instructors).
    - ii. It is nice to see an instructor have to troubleshoot when there is an issue
6. Tasks for next call
- a. Guidance counselor list
    - i. Jody will take the notes from today's call and start a draft that the group can work on over the next month
      - Here is the draft
    - ii. Lisa will take a stab at writing the short blurb
  - b. Olivia's R infographic for teaching biostatistics with R
7. Forecasting courses - Mike, Quinn, Carl from EFI and Kai Zhu from UC Santa Barbara will have spring forecasting courses that will use the Forecast Challenge.
8. AGU Town Hall, Dec 9 - Jason will talk about the EFI Education efforts. Diana will talk about DEI efforts.
9. ESA session proposals due Nov 19. Plan is to submit an Inspire session with talks from Forecast Challenge Design Team leads, a recap from the Education RCN meeting, and a talk from the grad group working on a manuscript about 10 Simple Rules for training yourself in an emerging field.