February 9, 2022 Education Working Group Call

January 13, 2022 Education Call Notes HERE

Attendees: Olivia Tabares, Jason McLachlan, Alyssa Willson, Jody Peters, Diana Dalbotten
Regrets: Tadhg Moore

Agenda/Notes:
1. Updates
   a. Modular material utilizing the Forecasting Challenge
      i. Olivia - any updates after thinking about this for your course?
         ● Will use Tick data for Population Ecology class that is for 3rd and 4th year undergrads. Olivia is working on developing exercises. Will make them in Rmd. Will focus on population growth models
         ● Will use the tick targets form the challenge and the environmental covariates
         ● Will get students familiar with the datasets and data wrangling in R
         ● Will go over population growth models and then will include covariate data and perhaps species interactions with the 2 tick species. Then hope to have a final forecasting discussion
         ● From a recent RCN Steering Committee call - A priority is to integrate the RCN Forecasting Challenge into teaching. Everyone is coming at it with students at different levels and different interests. Quinn thought priority is - what are the things that the RCN can do to make it easy for people (especially if you are coming in just knowing how to wrangle data in excel). It would be interesting to identify the stages we think are most important for student learning and the workflow that are really boring/too hard/too time consuming for students and then see if there are ways to automate those steps. Or have explicit instructions for what works.
         ● Come up with a priority list of things that would be nice to have help from the RCN group
         ● Two dashboards to see forecasts that might be useful for Olivia's students
            ○ https://shiny.ecoforecast.org/ - shows forecast submitted by date and by team
            ○ https://projects.ecoforecast.org/neon4cast-dashboard/phenology - shows evaluation summaries and scores of forecasts submitted. The tick panel is not working at this time. Jody will check in with Quinn about it.

- Olivia will take a look at the challenge and will write her exercises on Rmd and run it by the group to get feedback for a broader audience (her students will give her feedback for the course :-)).
- Jody will put Olivia in touch with Quinn and John Foster to keep everyone in the loop

b. Anna - Forecasting, Prediction, Projection Manuscript Update
c. Alyssa - ecoforecasting course compilation project update
   i. Working on manuscript on EFI related education materials. Plan to submit to MDPI Forecasting (due March 1). Compiling courses on forecasting and related courses at US institutions. To compare how well we can teach students the concepts related to forecasting
   ii. Shared figures breaking down what types of courses are available online and what kind of courses are available at different types of institutions (community college, tribal college, R1, etc) and which was awesome!
   iii. Discussion of paper will focus on improving accessibility and inclusivity in forecasting courses and what other groups have done that would be good for EFI to consider
   iv. We might check in with that TEK-focused RCN, so see if there's opportunities for synergy
   v. How can students achieve a forecasting education within the constraints of the degree program? This is another topic that comes up in the paper. There may be a number of courses available within a program, but students may not be able to synthesize across the courses to apply to forecasting.
   vi. A note to add to the methodology is that this is a reflection based on the title of the course (e.g., Olivia's Population Ecology course would be classified as ecology, but will also include intros to data science, coding, modeling, forecasting)
   vii. Did read course descriptions, so do have some of those details.
d. Jason - Sloan-funded education activities
   i. Jason is writing up a 5-10 page summary of ideas incorporating TEK and hydrology modeling and forecasting with the work with Georgia at SKC and possibly Ryan at Duke.
   ii. Diana is getting to know Al Koziki (sp?) through [Native FEWS Alliance](#) - focus is on providing curriculum to tribal colleges - so if we have a description the RCN TEK challenge, this could be something to get into the right hands of the people
   iii. Jason and Helena (grad student at ND) are working with Georgia at SKC to develop R code modules for Georgia's class and plan to get out to visit SKC this semester to meet Georgia's class
   iv. Sloan has an interest in energy - since FEWS has interest in this, there might be opportunities to pitch something

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Diana is just getting started with the Native FEWS Alliance and they are currently working on visioning, but think that in the future there can be opportunities for good connections of EFI with that group
AIHEC.org - network of tribal colleges (and others with native student populations) are part of this. Website has a map so people can see where the tribal colleges participants in the program are located

2. We didn't get to the following topic on today's call

3. Open Book Project to keep in mind and mash up of notes from previous calls
   a. There is potential to use the educational materials developed for the Sloan grant or with Olivia's class to start providing content for this that other EFI members could contribute to.
      i. This is a book you would read before you read Mike's Forecasting book
      ii. If we start to develop modular materials they could be included in such a book
      iii. Running list of who has expressed interest at one time or another
         ● Jason McLachlan, Shannon LaDeau, Elva Escobar
      iv. Has anyone seen the Open Forecasting Textbook (does exist as a paperback as well)
         ● In the Preface this is for a 3rd year undergrad intro master's course
         ● Interesting template. Success in part due to free online and R packages are nicely user friendly
         ● This is a bookdown format where R code is integrated and is a living document
         ● Wouldn't get the credit of something like an AGU Monograph, but would be more broadly available.
         ● Could do something that are RMarkdowns that could be combined as a book
         ● Loop John Zobitz into this. He is also writing a book for his courses. Mike has used some of his chapters in his 300 level course.
         ● Do this in the context of NEON data and walking through all the steps of forecasting. Could get long, but would be a nice resource.
         ● A self-contained book to walk through. Could reference other books.
      v. This sounds like a strong potential for a proposal for NSF Education Directorates, especially if we could bring in an education evaluator who evaluates the open source, collaborative textbook.
         ● If we structured it well it could have a strong educational research component