Polar environments are undergoing climatic changes that include rising temperatures and associated sea ice loss, and with them altered trophic dynamics, species distributions, and shifts in phenology that cascade through human experience. The challenge for educators is to communicate the interdependent scope, magnitude and human relevance of these issues given the inaccessibility of polar regions. These issues, however, are not always black and white – more commonly they are filled with shades of grey. The media routinely covers climate change through the lens of the Poles, most often in conjunction with a new piece of data just released by the scientific community. But in a rapid news cycle, how well does the media represent the nuances of Polar science data?

To this end, in 2016 the National Science Foundation's Office of Polar Programs funded the project ***Polar (NSF 15-114): Using Polar Science Data to Evaluate Media Claims in the Undergraduate Classroom*** to develop and deliver a university course where scientific data being stored in digital repositories is used by undergraduate non-science majors to evaluate media claims concerning polar science. This course has been taught at the University of Delaware using a student-centered, active-learning pedagogy. To evaluate media claims on climate, ecosystems, and geopolitics, students work directly with polar data in an introductory R-based programing framework. Students learn to code and explore polar data sets using "paired programming". They then respond to media claims based on these data in a letter-to-the-editor format, while developing interactive graphics that support their claims. Initial results suggest that this active learning approach is successful in teaching undergraduate non-science majors about coding, data, and polar science.

Interestingly, we have found that coding in R does not present a major roadblock to success of undergraduate non-science majors in our course. We attribute this in part to the approach of delivering example code to students by video. As a precursor to working on story modules in the course, students engaged with the following videos to learn the basics of R Studio.

Video #1: general overview of R Studio.
https://www.youtube.com/watch?v=n79fN1g1iXY
Video #2: general overview of how to use R Studio as a calculator.
https://www.youtube.com/watch?v=kF608MZ3sr8
Video #3: general overview of how to create vectors and objects in R Studio.
https://www.youtube.com/watch?v=CBueHBi-ezw
Video #4: general overview of how to create and use matrices in R Studio.
https://www.youtube.com/watch?v=Q4B2G6K95Es
Video #5: general overview of how to create simple line plots in R Studio.
https://www.youtube.com/watch?v=AKwaCfjo5vc

The materials collected here focus on the story modules drawn from this course. We encourage your feedback to continue improving them.

Matthew Oliver (moliver@udel.edu) & Jonathan Cohen (jhcohen@udel.edu)