

Instructor Notes

Implementation of “Global temperature change in the 21st century” at Del Mar College

Instructor: R. Deborah Overath

Course info: This module was implemented in a section of BIOL 1407 (BIOLOGICAL CONCEPTS II - EVOLUTION, DIVERSITY, STRUCTURE, FUNCTION AND ENVIRONMENT)/ Lecture & Lab at Del Mar College, an independent community college. The course is intended for biology majors but may be taken as a science course for the core curriculum requirement.

The section in which this module was implemented was reserved for biology majors because it is part of Del Mar’s participation in the HHMI SEA-PHAGES program (seaphages.org).

Implementation: I altered the global temperature module by doing a scaled-down version of the module, and tied this module directly to the phenology module by framing it as a continuation of that exercise “looking into the future.” First, we only worked with a small subset of the data (3 latitudes) representing the latitude of our location (27°N) and two others (40°N representing northern US cities such as New York City or Chicago and 63°N representing a near-arctic city, such as Fairbanks, AK). This idea is based on a modification of this module by Dr. Brandon Noel of Bethune-Cookman University. Additionally, I had a group of 4-6 students working on each latitude and then broke those groups into two subgroups that were assigned two of the climate scenarios. I then had all the groups post the predicted rate of temperature change (degrees C per year) and total temperature change predicted over the next century on the board, which we then used as the basis for a discussion. We also discussed these predictions in light of what we learned from the phenology module earlier in the week. Students were prompted for the discussion by a few questions added to the end of the module.

Students were able to complete this “stripped down” version of the exercise, including the additional questions, in one 2 hour and 50 minute lab period. The experience working with Excel with the previous module (phenology) was essential because it gave students more confidence in their ability to navigate Excel.

Assessment:

I checked students’ graphs as they worked. Students received lab participation points for their graphs and contributions to the discussion as one grade for both this module and the phenology module that preceded it.