Description

The “Investigating the footprint of climate change on phenology and ecological interactions” was used in the majors introductory non-lab biology course. The purpose of this course is to introduce potential biology majors to the process of science and to understand that all the science information they read in their textbooks comes from people doing work and analyzing information. The class meets for 90 minutes twice a week. I used the module at the end of the semester as a culminating experience to track their Excel and data interpretation skills. The module was done in class with class discussions of the results interspersed throughout the module. The module was used as written except I removed the cherry picking section because we had discussed cherry picking at the beginning of the module. On the final exam they had a question that required them to use a different dataset but similar scenario of ecological interactions and climate change to test their data interpretation skills.

Instructor Notes

I used the module as written in class with no modifications to the material except for removing the cherry picking section. The module took two class periods (180 minutes total). On day one I provided an introduction about phenology and we went outside since it was spring to see some of the phenological changes (~15-20 minutes). The students were assigned to groups but most of them worked independently and just relied on their partner if they got stumped with Excel. Each pair was given two different climate regions to work with for questions 1-8. They could continue working through the first 12 questions but once everyone was done with 1-8 I stopped the work and had the students write their results on the board. We discussed what the numbers means (positive and negative). The students were surprised to see the differences between the regions in just one state. Since each group was doing two climate regions, the first 8 questions plus graphing took about 20 minutes. The discussion afterwards was around 10 minutes. They then finished up through question 12 in pairs and we again discussed their results and answers, taking about 20 minutes total. We stopped here for the first class period.

In the second class period the students got started right away with the flowering time section questions 13-17 which took about 30 minutes because they needed to make more graphs. We did not stop to discuss the data because I wanted them to be drawing their own conclusions, so they continued on through question 19 which took another 20 minutes because they were having to think through the data provided. Afterwards we had a great discussion for about 40 minutes regarding their interpretation of the data. Since this module came near the end of the semester the students brought up connections to earlier material and were really able to tie the information together.