

# Implementation of an attitudinal pilot survey in a non-majors biology course

Dr. Stefanie R. DeVito, Brad Williamson, Dr. Trevor Rivers, KU Ecology and Evolutionary Biology

## Attitudinal surveys

- Surveys are given pre and post exposure to new material to gauge where student fall on a range of novice to expert-like opinions on the subject and its connections to other material and the world at large
- Surveys utilize statements that experts in the field agree on
- Students asked to rate the level to which they agree with these statements

## Biology 100

- Biology 100 is a non-majors course for non-science majors at KU
- The goal of the course is to provide an overview of biology
- Students have to take a lab science course, Biology 100 is generally considered the most digestible of the applicable science courses
- Recently, the course has begun to incorporate a more student-centered model

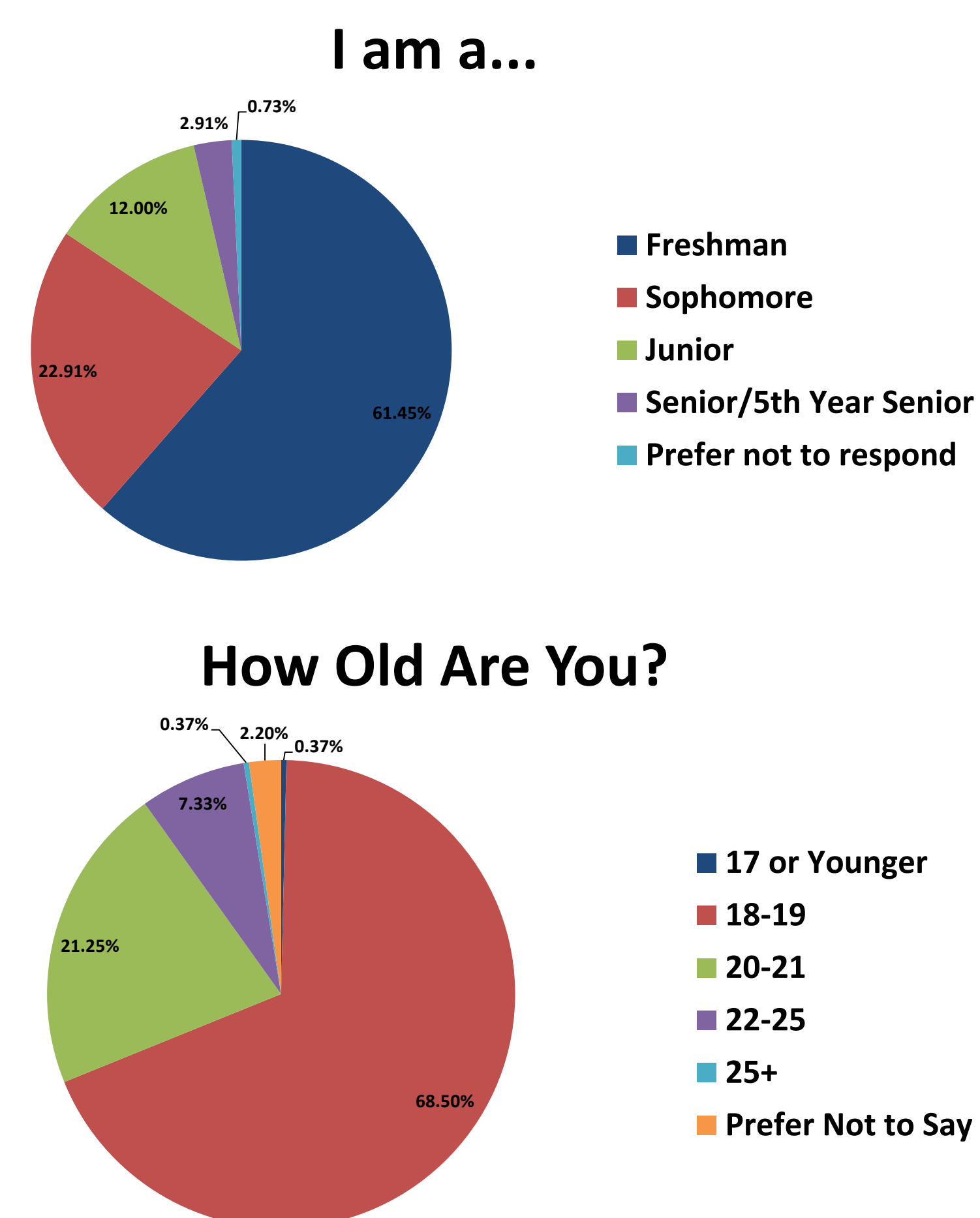


Fig 1. Demographics

## Goals in Biology 100

- Will transitioning the course to a student-centered model increase appreciation of biology?
- Measure student appreciation of biology and differentiate between novice and expert-like opinions
- Can a one semester biology overview course give students an increased appreciation for and/or more expert-like opinions of biology?
- Survey utilized is based on the Colorado Learning Attitudes About Science Survey, all questions are based on general agreement by a panel of professional biologists ([www.colorado.edu/sei/class](http://www.colorado.edu/sei/class))
- Survey is given the first week of classes, and again the last week of classes

## Student Responses

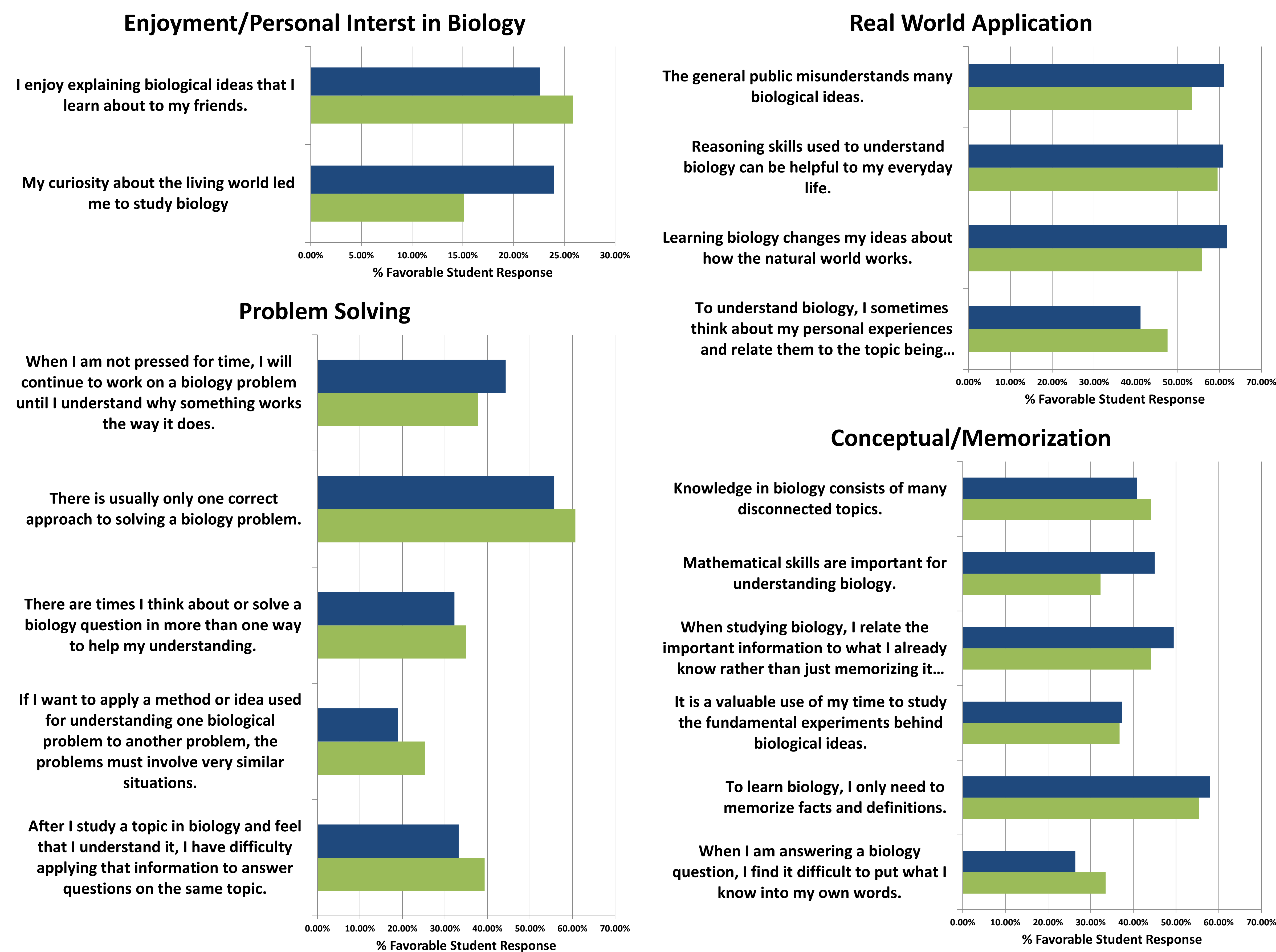


Fig 2. Student Responses The % favorable student responses represent the percentage of students whose responses were in agreement with expert opinions. For pre-course,  $n = 205$ . For post-course,  $n = 270$ .

## Conclusions

- There is a measurable shift in student attitudes over one semester
- We see shifts towards both more novice-like opinions and towards more expert-like opinions
- Observations in the literature have only reported a transition to a more novice-opinion in intro biology courses
- Results can be used to inform future instructional practices in the classroom

## Future Directions

- Extend attitudinal surveys to span the entirety of a biology major
- Pre survey will be administered in Biology 105, an online course that all biology majors are required to take: what aspects of STEM do they identify with, which are the most challenging for them?
- Post survey will be administered at the end of BIOL 350, Principles of Genetics, the last required course for all biology majors: has the pipeline changed their perspectives on what was challenging?
- Can we use the survey to identify the perceived tripping points of students that do not make it through the degree?

## If Dreams Came True

- Colorado survey was designed for scientists and biology majors
- Create a survey with questions specifically tailored to non scientists and non majors for specific use in a non majors course

References. Sesmar K, Knight J, Briol G, Smith MK (2011). The Colorado Learning Attitudes about Science Survey (CLASS) for Use in Biology. *CBE-Life Sci Edu* 10, 268-278.