INTRODUCTION

To complement their classroom training, many undergraduates at the University of California, Irvine conduct original research in a laboratory. Unfortunately, student researchers often struggle to grasp the broader scope of their research project, a major reason for which is the challenging nature of reading the primary literature necessary to place their work into context. Students report that this can lead to a lack of confidence in their ability to understand and perform biological research. In the long run, this may cause students to come away with a negative attitude towards the value of biological research. To satisfy the need to train students in the critical analysis of primary literature, graduate students in the department of Developmental and Cell Biology at UC Irvine have designed a new course, Bio Sci D140: How to Read a Science Paper.

Here, we present:

1. The structure of D140: How to read a science paper.
2. Student assessment of D140 course components.
3. Results of a study on the effects of this course on student confidence.

STUDENT DEMOGRAPHICS

Twenty-eight students were enrolled in D140 during the spring 2014 quarter, divided into two sections of 16 and 12 students each. 22 students consented to be included in the study, and their data is presented above.

EFFECTIVENESS OF COURSE COMPONENTS

Students were asked to rate the following course components based on their effectiveness in helping achieve the student learning outcomes:

- Overall class was effective in teaching primary research articles
- Online quizzes pre- and post-class meetings
- Future Course Offerings - Fall 2014

Survey taken as part of D140 course, and results collected as aggregate data. There were 28 student respondents.

CONCLUSIONS

Bio Sci D140 is a new class developed and taught by UC Irvine graduate students, with faculty course and teaching supervision.

- Twenty-eight students were enrolled in D140 during the spring 2014 quarter, and 22 students consented to participate in the study.
- Majority of D140 students were junior or senior biological sciences majors, and most reported planned careers in medicine and/or research.
- Students reported guest speakers, primary journal articles, and presenting their own article/research to be particularly effective.
- Students reported a significant decrease in the time taken to read a primary article.
- Students reported significant gains in confidence with regards to reading scientific literature, working in a research lab, and explaining biological research.

FUTURE DIRECTIONS

- D140 will be taught again this fall with an expected enrollment of 30 students.
- Modify study to include analysis of students’ ability to evaluate literature.
- Compare D140 student attitudes to those in comparable UCI courses.

ACKNOWLEDGEMENTS

We would like to thank UCI’s Dept. of Developmental and Cell Biology for their support in making this course a reality, as well as our tremendous guest speakers. U.S. Department of Education GAANN (Graduate Assistance in Areas of National Need) (P200A120207) awarded to D. M., and R. L., C. A., V. J., S. M. K., M. M., and C. Y., are GAANN fellows.