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Predicting Success in Biology Courses

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Abstract

We studied the relationship between students who took the Exploring Life general science course (SCI110) and how those students performed in Human Biology (BIO120). Analysis showed that success (passing with a C or better) in the Exploring Life course predicted success (passing with a C or better in Human Biology some time at the time, lending some support to the argument that the Exploring Life course should be instituted as a requirement prior to taking the Human Biology course. In contrast, when you look at all grades, there seemed to be no strong association between the two courses (r² = 0.3). We also found no strong association between Accuplacer exam score and performance in SCI110 or BIO120.

Methods

Data was collected over seven semesters beginning in the summer semester of 2011 when the Exploring Life course was redesigned to be a 15-week introductory biology course. First grade points were collected for students that had and had not taken the Exploring Life (SCI110) course prior to taking Human Biology (BIO120). Additionally Accuplacer exam scores were also collected. Descriptive statistics were used to describe mean course grades. Inferential statistics, confidence intervals, linear regression analysis and t-tests were employed to analyze relationships among the variables.

Results

Regression analysis comparing grade points earned in SCI110 and subsequent grade points earned in BIO120 show that the association between grade earned in SCI110 and the grade earned in BIO120 is about 30%. The graph also suggests students that earn a higher grade in SCI110 also earn a higher grade in BIO120. The size of the data point indicates the number of students. Red bars represent the average SCI110 grade. (r² = 0.3)

Conclusions

• There is no difference in average grade earned in BIO120 between students that take SCI110 and those that do not.
• Earning a grade of C or better in SCI110 accurately predicts whether a student will earn a C or better in BIO120 when examining the data from Summer 2011 through Summer 2013.
• When foundational prerequisites were added to SCI110, those grade predictions disappear.
• Grade distributions in BIO120 are skewed towards higher grades for students that do not take SCI110 compared to those that do take SCI110.
• There is little association between Accuplacer Math/Algebra scores and performance in BIO120 or SCI110.
• When just looking at final grades, BIO120 grade does not predict success in Anatomy and Physiology I (BIO211).
• The data show the need for a deeper analysis to examine the effects of other variables that might predict success.

References

- Goodwin College Student Catalog. (2013).

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