

Learning Data Analysis Skills in Intro Biology Labs with R

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Having students utilize data visualization and statistical analyses skills in introductory classes (with their own data) allows students to quickly develop an appreciation for digital skills. Our simple, step-wise introduction to the free, data analysis packages R and R-Studio was effective in encouraging students to feel that they can use a coding language program to analyze and graphically display their data. Our approach was 1) students collect data in four separate labs covering different biological concepts; 2) students analyze their collected data using R; and 3) each lab builds on previous R code. We used server-based access to R-Studio to eliminate difficulties with installation on personal computers and allowing access anywhere. Data analysis topics covered in one semester of Intro Biology included how to organize data (long vs wide format); create boxplots, scatterplots, and line graphs; and include and understand error bars, t-test, and best fit linear regression.

Keywords: data analysis, statistics, R, R-Studio

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