Beyond Dissection: Modifying a Traditional Crayfish Dissection Lab to teach Hypothesis Testing, Data Analysis, and Scientific Writing

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Our majors-level introductory biology class includes animal dissections in which students examine anatomical structures to help relate form and function. We wanted to expand the student’s learning experience to include hypothesis testing and data analysis. To do this, we modified a traditional crayfish dissection lab to include information about organism variability and introduce statistical methods to describe and compare this variability. We chose to focus on front claw size, a sexually dimorphic trait in many decapods. This poster will describe how we gave students information from the scientific literature about the function and size of decapod claws in relation to sex. We asked students to interpret this data and form hypotheses about what they might find in their crayfish samples. Students then collected quantitative data from their specimens and statistically analyzed their data to determine if their hypotheses were supported. Students wrote a formal results and discussion section based on this experiment to help them learn principles of scientific writing and to assess understanding of the data analysis activity.

Keywords: hypothesis testing, scientific writing, crayfish dissection

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