

# Learning from the Trees: Incorporating Project Budburst in an Introductory Biology Laboratory

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While science programs across the country are moving to incorporate CURE courses, students must be prepared for the science investigative skills involved in CUREs. We developed a pre-CURE module for Undergraduates in their first year using the citizen science project, Project Budburst. During the ecology lab, student groups of four design a project that requires data collection from the field and the Budburst database. Each group develops a question based on tree phenology (e.g. first bud, leaf senescence) for Greenville NC, and another location throughout the country incorporating one abiotic variable (e.g. temperature, rain fall). Students then collect local data and pull data from databases that meets their research question needs. The data are analyzed and graphs are developed using the provided R markdown files in RStudio. Finally, each group presented their findings with a group scientific poster and individual scientific paper. This allowed higher order thinking with the students learning how actual research occurs, and the trials and tribulations of working in groups, and collecting field- and web-based data. This poster will present the steps to setup this type of curriculum, lessons learned from the students as well as implementation for graduate teaching assistants.

**Keywords:** pre-CURE module, Project Budburst, tree phenology, RStudio

**Link to Original Poster:** <http://www.ableweb.org/volumes/vol-40/poster?art=64>

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