

# Using Independent Inquiry in a 1-Credit Biochemistry Lab to Improve Student Satisfaction and Interest in Research

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At the St. Louis College of Pharmacy, pre-professional students take a biochemistry course that includes a 1-credit laboratory component. In this lab, students are taught basic laboratory techniques in the first half of the semester by following scripted experimental protocols. In the second half of this 1-credit lab, students may use any of the equipment, reagents, and techniques covered in the first half to complete an independent project. For their independent project, students work in pairs and come up with their own question, hypothesis, experimental design and execution, data analysis, and manuscript. After completing the experiments, students are given a survey assessing their lab experience. Among the results, students indicate they found the independent project to be substantially more enjoyable, yet also more intellectually challenging. Further, compared with students earning high grades in the lecture component, lower achieving students reported a markedly greater change in their desire to do bench research as a result of the independent project. These results have surprised us and suggest that small, independent projects in lab courses may be one way to get weaker students engaged in the material and interested in research.

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