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### **Building Scholars One Mistake at a Time**

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To be successful in research, a scientist must be able to integrate analytical, computational and experimental skills as needed while tackling a problem. However, the traditional physics curriculum tends to treat these skills in isolation. Since students seldom have the opportunity to integrate their skills in an instructional environment, it should come as no surprise that they struggle when faced with real problems in a research setting. Over the past decade we have reworked our curriculum to provide low-stakes opportunities for students to build skills and gain confidence as they investigate open-ended questions. These opportunities take place in a sophomore level Methods of Experimental Physics course as well as through laboratory homework instilled in E & M and theoretical mechanics. The Methods course introduces students to research techniques while they investigate a single complex problem for the entire semester. While teaching skills systematically in a collaborative manner, the course provides a path between introductory physics and the upper-level curriculum and research. Laboratory homework hones students skills as they design simple investigations of the analytical and computational models developed in the courses. Along with the methods course and laboratory homework, topics have been added into the modern physics and optics courses that directly tie into faculty research. This prepares students for collaborative research with the faculty and has significantly impacted summer research productivity. Overall, these curricular changes have resulted in students who are far better prepared for the independence of a research setting, be it in academics or industry.