Laboratory Teaching

Introduction

Making the laboratory experience valuable for students requires goal-setting, planning, and monitoring students’ learning. The sites below offer guidelines and specific strategies for insuring high quality learning in laboratory settings.

General Resources

**Teaching Introductory Laboratory Courses** (University of Virginia, Teaching Resource Center). This site contains practical guidelines for laboratory teaching, from preparing labs at the beginning of the semester to supervising and summarizing students’ work at each class meeting.

**CUES: Connecting Undergraduates to the Enterprise of Science** (University of Missouri, supported by a grant from the National Science Foundation). This project aims to change the present laboratory science format to one of scientific inquiry. The website provides a guidebook for instructors to create their own inquiry-based labs, plus samples of field-tested labs and assessments.
http://cues.missouri.edu/ [2]

“Potential challenges common to a laboratory Teaching Assistantship assignment and some possible solutions,” Harmon D. Maher, Jr. (University of Nebraska). Presents the challenges that may occur in a laboratory setting and offers specific solutions. Covers such topics as lab safety, underprepared students, antipathy to the lab material, and grading.
http://maps.unomaha.edu/Maher/labTAWorkshop.html [3]

“Aims of Laboratory Teaching,” Vijay Gupta, Indian Institute of Technology, Kanpur (In Practical Work, February 2001, Vol.4 No. 1). This article discusses three objectives of laboratory teaching and presents ways to motivate students to engage in the higher-order learning required to meet these goals.

**Teaching and Learning in the Lab** (In Module 3 of Getting Results, an online course for instructors on course development, funded by the National Science Foundation, produced by WGBH in Boston and The League for Innovation). Presents strategies for introducing more active learning into lab experiences to get students more engaged in learning.
Describes research and thinking into the value of laboratory work in the sciences.

Goals of the Introductory Physics Laboratory (American Association of Physics Teachers).
Lists five fundamental goals for laboratory programs in all the scientific disciplines and then discusses each one as it applies to physics education.

Laboratory Instruction (University of Medicine and Dentistry of New Jersey, Center for Teaching Excellence).
Links to thirteen online cites that deal with guidelines and issues in laboratory teaching. Note: A few of these links are out of service, but the others provide excellent information.
http://meg.rbhs.rutgers.edu/cte-home/ [8]

Teaching Laboratory Classes (Vanderbilt University, Center for Teaching).
A condensed guide to leading a lab plus links to other sites with additional material on teaching and facilitating in the laboratory.
http://cft.vanderbilt.edu/guides-sub-pages/lab-classes/ [9]

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