

Key Undergraduate Mentoring Resources

The following is a list of resources that UROP feels are good materials to consult when starting out as a mentor for undergraduate researchers in all research areas. They are available from the UROP library, GT Library, or on-line. UROP library materials can be checked out by coming to the UROP office. Please contact [UROP](#) for availability.

* **Advisor, Teacher, Role Model, Friend. On Being a Mentor to Students in Science and Engineering.** 6th ed. Washington, D.C.: National Academy Press, 2005.

This is a guide for those who are likely to be mentoring someone - whether it's students, post-docs, junior faculty, or grad students. It offers different ways to be a good mentor with examples for specific situations at the different levels of undergrad, grad student, post doc, and junior faculty. While some are obvious, some are not - which is what makes it a valuable book for mentors. The book is divided into chapters explaining the different roles of a mentor and how to tailor the mentor's behavior based on that particular function. There are chapters on being a faculty advisor, acting as a career advisor, as a teacher of skills, and as a role model. In the chapter on mentor as a career advisor, tips on writing letters of recommendation are presented. The resources section at the end of the book has several good mentoring references listed, arranged by topic. This is another great starting book for those who are just starting to be a mentor and who need a little more focused guidance on what the roles of a mentor are and how to apply them. While this short guide is published by the National Academies Press with a focus on being an effective mentor in science and engineering, it contains mentoring help that is applicable to all disciplines.

Available From: UROP Office

* Craig, Norman C. "**The Joys and Trials of Doing Research with Undergraduates.**" Journal of Chemical Education Vol. 76 Iss. 5 (1999): pp. 595-598.

Practical advice is given for doing research with undergraduates by the author based on his forty years of experience. This advice is illustrated with examples from the author's work and organized under a number of headings: seize the summers, prefer and enjoy the laboratory, insist on well-written reports, carve out niches, seek first-class instrumentation, welcome professional cooperation, avoid the Nobel Prize syndrome, damn the loose ends- full speed ahead, express enthusiasm, and honor your students. A chemistry professor expresses what he has found to be the benefits and trials of working with undergraduate researchers based on his 41 years of mentoring and guiding undergraduate researchers. Despite being written for a chemistry education journal, his words of wisdom will resonate with all mentors regardless of field. Some of his suggestions that he expounds on are the need for expressing enthusiasm and honoring your student researchers, avoiding the "Nobel Prize Syndrome", insisting upon well-written reports from your undergraduates, and find significant niches that student researchers will be able to contribute significantly.

<http://jchemed.chem.wisc.edu/www.library.gatech.edu:2048/Journal/Issues/1999/May/abs595.html>

* Handelsman, Jo, et al. **Entering Mentoring: A Seminar to Train a New Generation of Scientists.** First (paperback edition) ed: Itchy Cat Press (paperback edition), 2005.

This seminar and curriculum maintains the belief that effective mentoring can be learned, but not taught. Good mentors discover their own objectives, methods, and style by mentoring. Most faculty learn to mentor by experimenting and analyzing success and failure. The goal of the seminar outlined in this curriculum is to accelerate the process of learning to be a mentor. The seminar provides mentors with an intellectual framework to guide them, an opportunity to experiment with various methods, and a forum in which to solve mentoring dilemmas with the help of their peers. Discussing mentoring issues during the seminar provides every mentor with experiences of working with diverse students, tackling a range of mentoring challenges, and considering a myriad of possible solutions. UROP encourages working through this curriculum either individually or through the formation of groups.

Available From: UROP Office, Online

www.hhmi.org/grants/pdf/labmanagement/entering_mentoring.pdf

* Merkel, Carolyn A., and Baker, Shenda M. **How to Mentor Undergraduate Research**. Washington, DC: Council on Undergraduate Research (CUR), 2002.

This booklet from the Council on Undergraduate Research (CUR) offers a brief, but thorough, overview of mentoring undergraduate student research. This is a great first resource to look at when getting started with undergraduate researchers. Some of the topics discussed are expectations of the student and what the mentors should expect from their students. In addition, the basic tenets of undergraduate research mentoring are discussed - the value of undergraduate research, the differences between summer and school year research, and what mentoring should involve. Finally, there are practical bullet-point guides to make introducing your UG student to your and his/her research project and research group.

Available From: UROP Office

* Mickley, G. Andrew, Kenmuir, Cynthia, and Remmers-Roeber, Dawn. "**Mentoring Undergraduate Students in Neuroscience Research: A Model System at Baldwin-Wallace College**." The Journal of Undergraduate Neuroscience Education (JUNE) Vol. 1 Iss. 2 (2003): pp. A28-A35.

While this article is entitled for neuroscience research, it is equally relevant for all science and engineering labs in establishing an undergraduate research lab experience. Most helpful is the appendix where the authors provide their guidelines/rules for working in the laboratory. Especially to note is how the list is written in the positive and not a list of "Do NOT do" rules.

<http://www.funjournal.org/downloads/MickleyA28.pdf>
<http://www.funjournal.org>

* Wadkins, Theresa, and Miller, Richard L. "**Bending Twigs: The Act of Mentoring Undergraduate Student Research**." Developing, Promoting, & Sustaining the Undergraduate Research Experience in Psychology. Eds. Richard L. Miller, et al. Syracuse, NY: Society for the Teaching of Psychology, 2008. 209-214.

This is an article that briefly covers important mentoring topics that typically new mentors struggle with. Topics include important mentor characteristics, expectations of the mentor and the student, and various challenges of mentoring: selecting students, managing efforts, choosing research topics, research ethics, and handling disappointment. While published in a psychology journal, this article is relevant for all faculty mentors in all research disciplines.

<http://teachpsych.org/resources/e-books/ur2008/5-1%20Wadkins%20&%20Miller.pdf>

* Whiteside, Ursula, et al. "**Initial Suggestions for Supervising and Mentoring Undergraduate Research Assistants at Large Research Universities**." International Journal of Teaching and Learning in Higher Education Vol. 19 Iss. 3 (2007): pp. 325 - 330.

This article specifically addresses undergraduate students attending large research universities who often have the opportunity to participate in the design, conduct, analysis, and dissemination of research initiated by faculty, postdoctoral fellows, and graduate students. To date, guidelines for the conduct of this specific type of relationship – that of an academic researcher to an undergraduate research volunteer in a large team based research laboratory – remain absent from the peer-reviewed education literature. Included in this article are specific suggestions for success in facilitating this relationship within the context of a large, research-oriented university department.

<http://www.isetl.org/ijtlhe/pdf/IJTLHE280.pdf>