

THE TEACHING EXCHANGE

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Advancing the Culture of PhD Learning & Scholarship in Biology & Health Sciences

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Despite growing US dependence on an increasingly diverse population, minority students remain disproportionately underrepresented in the sciences. In order to produce more PhDs from groups underrepresented in Biology and Health Sciences, it is imperative to advance the culture of PhD learning and scholarship. In order to do this, it is necessary to implement new strategies to increase opportunities and to strengthen recruitment and training of individuals from these groups. An important part of the training process includes understanding the practice of teaching in the discipline. Investment in diversity will maximize use of our human capital at a critical time when we in the academy must address concerns of a diminishing capacity to sustain national scientific productivity and competitiveness. It inevitably provides solutions to the challenges of representation evident in many academic and non-academic areas.

In order to meet this need, Andrew G. Campbell, Associate Professor, Department of MMI, and Nancy Thompson, Associate Dean for Graduate and Postdoctoral Studies in the Division of Biology and Medicine, received a two-year grant in April 2008 from the National

Institutes of Health (NIH). This grant is part of the NIH Initiative to Maximize Student Diversity (IMSD) Program. There are two main strategic goals for the process undertaken: 1) that scientists and mentors will develop their own skills and benefit from recognizing the talents of trainees traditionally underrepresented in their disciplines and 2) that the strategies will be translatable as best practices across all graduate student and mentor populations.

A key component of the IMSD grant are a series of short and intensive professional development training “Modules” designed to build skills essential to career success that are complimentary and customized for each student’s preparation and scientific training. These modules provide trainees with the necessary supplementary resources to develop and refine skills essential for success in a PhD Program, an understanding of pedagogy, and, ultimately, career success in the larger world beyond Brown. As an integral part of the grant, IMSD trainees have the opportunity to participate in the Sheridan Center Teaching Certificate I program in order to develop their own reflective teaching practice. They will enroll in further Teaching Certificate programs (II and III) as appropriate.

Professional Development Training and Preparatory Modules

The modules comprise a collection of enriching not-for-credit training sessions. Experienced faculty members serving on PhD thesis committees and mentoring PhD students lead the modules. These are intensive and interactive training sessions of 12 student-contact hours, each, which model the need to provide sufficient time for substantive learning, but do not detract from required coursework. Module content is built around specific learning objectives and measurable goals that are made clear to participants at the beginning of each unit. IMSD trainees complete as many as 6 modules (as needed) in the first two years of graduate training.

The first module begins in the middle of August as new graduate students arrive on campus and runs for the two weeks preceding the start of classes. This module focuses on demystifying the graduate experience. The second module (2 hours weekly) is offered in the last six weeks of semester one. Two additional modules run concurrently for two

weeks during the six-week winter intersession. IMSD Scholars' preparation and their specific programs of study determine the modules offered during the intersession. Two additional modules are taught during the summer after the first year and also run concurrently for a two-week period. The availability of a slate of modules (listed below) to choose from allows for an individualized training program where module selection is tailored to each trainee's needs. This practice ensures that individualistic requirements are met on a person-by-person basis. Among the modules offered are:

- Demystifying the PhD Experience: Strategies for Academic & Personal Success in Graduate School.
- Reading Scientific Publications
- Scientific Writing: Abstracts and Proposals
- Essential Lab Calculations and Introduction to Statistical Analysis of Data
- Defending Your Research Proposal and Critiquing Those of Others
- Graphic Presentation of Biological Data
- Beyond the Hypothesis: Experimental Design and Critical Analysis
- Designing and Delivering Effective Scientific Presentations
- Finding and Using Resources and Applications
- Professionalism: Interviewing & Networking - looking and acting the part.

For example, the first module, "Demystifying the PhD Experience," is applicable to all scientific disciplines and spans across all program areas by incorporating the essential elements for early graduate success.

At the conclusion of each module, student trainees complete anonymous on line evaluations in order to build their appreciation of the value of ongoing feedback as an integral part of the learning process. This data, as well as input from faculty and senior scholar co-module leaders, will help refine and improve our training modules. IMSD

trainees who complete the program with exceptional merit will be invited to serve in the role of Senior Scholars who are peer mentors and tutors to new IMSD trainees.

Ed. note: This innovative grant establishes a model for other departments to consider as they build their own discipline-specific professional development programs. If you have questions about the IMSD project, please contact: Andrew.Campbell@Brown.edu or Nancy.Thompson@Brown.edu.