

Broadening Access to STEM Workshop

Selective liberal arts colleges (SLACs) face particular challenges in the recruitment, retention, and graduation of under-represented minorities (URMs) in science, technology, engineering, and math (STEM) fields. These start with issues of small absolute numbers of URM students, making it difficult to reach initial "critical mass" vital for peer support and a "culture of excellence". With many of these colleges located far from diverse urban settings, geographical location and social and campus climates conspire to reduce campus and nearby community diversity. Further, the contrast with the typical background of students at SLACs can give those from under-resourced educational backgrounds (particularly URMs) significant adjustment issues (academic and social).

However, SLACs share perspectives on the educational experience we want for students, and the kinds of scientists we want to and have been able to produce in the past. National Science Foundation data on the baccalaureate origins of science PhDs shows that SLACs are a significant source of STEM PhD candidates - but mostly for Caucasian students. We clearly have work to do in extending our successes to URMs.

SLACs have been involved with recent national initiatives on URMs in STEM fields. Williams College has led the [Diversity in the Sciences Symposia](#) and its related data project, funded by the Howard Hughes Medical Institute. Many Mellon 23 colleges also belong to the Sloan Foundation [study on migration in and out of STEM fields](#). We have individually worked to *adapt* emerging best practices, recognizing that what works locally depends critically on campus culture and context. Some of our efforts have included cohort and bridge programs, engaged pedagogies in introductory science courses and beyond, focused mentoring, undergraduate research, and peer mentoring. We continue to piece these efforts together in our own contexts.

Faculty from Mellon 23 colleges have interacted, on an *ad hoc* basis, around projects organized by others. Working closely - and *intentionally* - together with Mellon 23 colleagues would allow us to take our work to the next level. We propose a two-day workshop, *Broadening Access to STEM*, to be held at Carleton in summer 2009. The workshop will be active and hands-on, with the goal of producing a concrete list of "next steps" for each institutional team. Mellon 23 faculty will share information on challenges, successes, failures, and lessons learned for their institutional projects. We plan to invite someone of national stature to provide an opening talk and consulting services while at the workshop. Most importantly, more than half the time will be spent in clusters of institutional teams, around common themes, working on plans for "next steps". This pedagogical model was used successfully at the [first Mellon 23 Assembly](#) and at many [Project Kaleidoscope](#) workshops. Carleton's [Science Education Resource Center](#) will host a workshop web site with collaborative space and a record of the workshop and its products ([example](#)). We will gather retention data and information on institutional programs, challenges, and aspirations prior to the workshop. This information (shared online) will form the basis of our work together in clusters.

Faculty Workshop Leaders

The following have agreed to be workshop planners and facilitators:

- Carleton College (lead): Arjendu Pattanayak (Physics/Astronomy, Co-Director of [CISMI](#)), Trish Ferrett (Chemistry, Co-Director of [CISMI](#))
- Smith College: Kate Queeney (Chemistry, Co-Director of [AEMES Program](#))
- Grinnell College: Jim Swartz (Chemistry, ex-Dean of the College, lead on PKAL's [Pedagogies of Engagement Project](#))

Broadening Access to STEM

- Williams College: Wendy Raymond (Biology, Associate Dean for Institutional Diversity, leader of [Diversity in the Sciences Symposia](#))
- Haverford College: Jeff Tecosky-Feldman (Mathematics, Director of [Multicultural Scholars Program](#) and [Summer Science Institute](#))

Others who will assist in planning and implementation:

- Cathy Manduca (Director, Carleton's [Science Education Resource Center](#))
- Mary Drew (Carleton Administrative Assistant for [CISMI](#))

Workshop Liaison

Arjendu Pattanayak (Associate Professor)
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 Co-Director of Carleton's Interdisciplinary Math & Science Initiative (CISMI)
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Preliminary Budget

The following budget is for 18 workshop participants from 9 colleges (in teams of two) plus a prominent outside speaker. We will ask Mellon 23 Deans outside the planning group to sponsor up to 4 teams of two, with *institutional funds supporting one of their team members* (* this budget will pay for their other team member). This will allow up to 13 Mellon 23 institutions to participate and will lead to a total workshop size of about 26 participants. Other Mellon 23 faculty can participate if their Deans agree to use institutional funds to pay for workshop travel and local expenses.

1. Workshop organizer stipends (share among 5 institutions)	\$1,000
2. Travel and accommodation costs for faculty participants (airfare, lodging, local expenses, meals)	
• for 2 participants each from 4 lead colleges other than Carleton (\$1,000 ea)	\$8,000
• * for 8 other Mellon 23 participants (teams of 2, \$1,000/person)	\$8,000
3. Travel/accommodation/other costs for prominent outside speaker/consultant	\$1,000
4. Honorarium for prominent outside speaker/consultant (institutions may need to supplement honorarium, depending on person)	\$1,000
5. Staff support for workshop logistics	Carleton will provide
6. Administrative expenses	Carleton will provide
7. SERC costs for workshop planning, evaluation, and web site	\$1,000
TOTAL	\$20,000