



# SMITH COLLEGE

PICKER ENGINEERING PROGRAM  
Northampton, MA 01063

## Memo

16 October 2006

**From:** Andrew J. Guswa

**To:** Committee on Mission and Priorities

**Re:** Postdoctoral Fellowship Program in Science and Engineering at Smith College

This memo outlines my initial ideas for a postdoctoral fellowship program at Smith College to support teaching, training, and research in the sciences and engineering. The ideas for this program derive largely from my experiences as a postdoctoral teaching fellow at Princeton University, informed by the context of Smith College.

### Why:

- **Benefit to the postdoc – awareness and experience of an undergraduate college**  
Ph.D. candidates intending to enter academia are faced with the decision whether to pursue a career at a university or at an undergraduate college. In the sciences and engineering, this represents a substantial decision as the nature of the research process is quite different at each of these types of institutions. By definition, these graduate students have experienced life at a university, but many may be unaware of the context, expectations, and culture of an undergraduate college. A postdoctoral experience would enable the candidates to explore life at an undergraduate college without the full commitment to a faculty position.
- **Benefit to the postdoc – meaningful teaching experience**  
Too often, meaningful teaching experiences for graduate students are limited. It may be that the only opportunities are to assist with graduate-level courses or to carry out only a subset of teaching activities, such as grading and holding office hours. Additionally, due to research demands, graduate students may be advised to put little effort into the limited teaching experiences they do get. By co-teaching a course under the mentorship of a Smith faculty member, the postdoc will have the opportunity to engage with all components of teaching, from course design to classroom interaction to evaluation. Additionally, the postdocs will be plugged in to the many opportunities for teaching development that are available at Smith (e.g., interaction with the education department, teaching arts lunches, etc.)
- **Benefit to the postdoc – research productivity**  
Of course, the primary activity for a postdoctoral fellow is the pursuit of their scholarship. Working with an established scholar from Smith College will enable the postdoc to refine and develop their research skills beyond their graduate-school experiences.
- **Benefit to the research advisor – expertise and commitment to research**  
Research in science and engineering is rarely a solitary endeavor. Rather, the generation of new knowledge in these disciplines often requires individuals that can

**ANDREW J. GUSWA**  
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develop and oversee experiments (whether computational, in the lab, or in the field). Working with a postdoctoral fellow will enable Smith faculty to accelerate their research and to address questions that may be infeasible otherwise.

- **Benefit to teaching and learning at Smith – opportunity for curricular enhancement**  
Too often, innovative curricular and teaching ideas go unimplemented due to lack of time. By co-teaching with a postdoctoral fellow, faculty at Smith will have the opportunity to develop new course components, to revamp or revise outdated material, and/or introduce new pedagogical methods. This resource provides a significant incentive for faculty to take action on new ideas.

- **Benefit to the undergraduate students – scholarly role model**  
In addition to the curricular enhancement mentioned above, the postdoctoral fellows will also provide positive role models for Smith undergraduates carrying out research and independent work in science and engineering. These postdocs should not be viewed as intermediaries between a faculty member and undergraduates, but, rather, as individuals who help make Smith a community of learners.

- **Benefit to undergraduate colleges – an opportunity to attract high quality faculty**  
Currently, taking a faculty position in science or engineering at an undergraduate institution is seen as “stepping off the treadmill,” as an irrevocable decision regarding one’s career trajectory. This alone is enough to keep talented individuals from considering faculty positions at undergraduate colleges, even when such environments are ultimately where they would thrive. The postdoctoral fellowship program will overcome this obstacle by providing an opportunity for capable scholars to experience life at an undergraduate college without the commitment of a faculty position.

**What:**

This fellowship program would support 4-6 postdoctoral fellows each year in the sciences and engineering at Smith College. Each fellow would be appointed for a one-year term, renewable for a total of three years. Thus, 2-3 new postdocs would be hired each year. This would promote a sense of community among the postdocs at Smith and would alleviate some feelings of isolation that go along with being at a liberal arts college.

Each fellow would conduct research under the guidance of one (or more) Smith faculty member(s) in science or engineering. This faculty member would be identified at the time of application, and this sponsorship is critical. Without a strong research mentor and colleague, the postdoc may have difficulty mounting a scholarly program at a liberal arts college. Additionally, each post-doc would co-teach one course per year with a member of the Smith faculty. For the greatest benefit of all (see above), it is critical that the postdoc not be expected to teach a course on his/her own or to co-teach more than one course. In the case of the former, the mentoring relationship would be lost; in the case of the latter, the research productivity of the postdoc would be jeopardized, which would make recruitment far more difficult.

**ANDREW J. GUSWA**  
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**How:**

Each year, Smith will publish a general solicitation for individuals interested in the fellowship program. Each applicant will be required to identify a research advisor with whom they would work and to obtain a letter of support from that individual. Additionally, faculty in science and engineering would be solicited for proposals regarding how a course could be enhanced through collaboration with a postdoctoral fellow. A standing committee will evaluate the applicants, match the fellows to course instructors, and determine (recommend) the hires. With satisfactory progress (determined by the research advisor), the postdoc position will be renewed each year for up to a total of three years.

Potential modification to the above outline:

- Higher priority would be given to courses that bring science and engineering to a general audience. This would have the effect of enhancing those courses intended to draw into science and engineering courses those students who might not otherwise be so inclined.