

The Alfred E. Mann Innovation in Engineering Doctoral Fellowships

In October 2008, the Alfred E. Mann Institute for Biomedical Engineering at the University of Southern California (AMI-USC) agreed to fund three new Ph.D. fellowships at the USC Viterbi School of Engineering. The Alfred E. Mann Innovation in Engineering Fellowships are intended to support engineering doctoral students conducting innovative research that is interdisciplinary (biology; medicine; and engineering) or relevant to biology and medicine. Each fellowship will provide an annual stipend of \$33,000 for one to three years. Tuition will be covered by the USC Viterbi School of Engineering.

Innovation:

- Is a change in the thought process for doing something or "new stuff that is made useful." (*Barras, Technical Change Centre, UK*)
- Is an incremental, emergent or radical and revolutionary change(s) in thinking, products, processes, or organizations. (*Wikipedia*)
- Is the complex process of introducing novel ideas into use or practice. (*Lemelson/MIT*)
- Occurs at the intersection of invention and insight; it's about application of invention. (*Council on Competitiveness*)
- Is knowledge applied to tasks that are new and different. (*Peter Drucker*)

The application, review and selection process are summarized below.

The Application Process

Qualified engineering doctoral students are eligible for consideration.

1. Candidates must have selected a research advisor.
2. Each candidate must be nominated by their respective engineering department.
3. The candidate is required to submit the following documents:
 - a. Research plan (8 page maximum) that addresses the following areas.
 - i. Background and Significance
 1. Address the potential medical needs or issues that can benefit from the proposed research.
 - ii. Specific Aims
 - iii. Experimental Design and Research Plan
 - iv. Relevance/Application of the proposed research to healthcare or biomedical engineering
 - v. The research plan must be fully written by the candidate
 - b. Resources available to the applicant (e.g., equipment, lab space, and supplies)
 - c. Resume/Curriculum Vitae
4. Letter(s) of Recommendation
 - a. Required letter from the research advisor.
 - i. The letter from the advisor must include a section on the research facilities and resources available to the applicant.
 - b. At least one more additional letter of recommendation from a second professor. These additional letters can be from non-USC professors especially if the proposed research is inter-institutional.
5. Current academic status report
 - a. Will be provided by Director of Doctoral Programs.

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The Review and Selection Process

Review of the applicants and the selection of the Mann Innovation in Engineering Fellows will be made by a Committee consisting of the Executive Vice Dean of the Viterbi School of Engineering and representatives from AMI-USC.

Committee members will consider the candidate's "potential for a productive career, the candidate's need for the proposed training and the degree to which the research training proposal, the advisor and the academic environment will satisfy those needs". The quote is taken directly from a National Institutes of Health document entitled "Review Criteria for NRSA individual predoctoral fellowships". The criteria for review are based on the NIH criteria for review of individual predoctoral fellowship applicants.

1. Is the applicant's academic record of high quality?
2. Does the applicant have the potential to develop as an independent, innovative and productive engineer/researcher?
3. Is the research plan innovative and of high scientific quality?
4. Does the research plan address:
 - a. Potential impact on health?
 - b. Scientific and clinical significance?
 - c. Feasibility?
5. Are the research facilities and resources available to the applicant adequate and appropriate?

Reviewers will also assess whether the research training that is inherent in the proposal presents advantages to the applicant through the use of talent (advisor) and resources.