

UH Quality Enhancement Plan Committee

Undergraduate Research Subcommittee Concept Paper

Members: Enrique Barbieri -- Steven Craig -- Ted Estess -- Stuart Long

RECEIVED NOV 15 2006

1. What are the institutional and societal challenges the topic would help the University of Houston address?

- Low university persistence and graduation rates
- Flat enrollments in graduate programs
- Low participation in STEM disciplines
- Need for a more highly-skilled workforce
- Support for UH research and scholarship activities
- Augment financial aid for students & reduce outside employment
- Raise academic achievement
- Enhanced recruitment of academically gifted undergraduates

2. What are the possible program activities associated with the topic? And on what scale and at what cost could (or should) the program activities be implemented at UH?Program Activities

- Faculty should be provided with incentives to include undergraduates in their research projects, and to train them sufficiently over time so that they are capable of productively participating by their senior year.
- Research opportunities should be available to students early in the students' career. Incentives for participation greater for sophomores/juniors
- Faculty would have access to a central pool of resources to support students assisting them in their research endeavors.
- Students could receive a stipend/scholarship and possibly one hour of course credit per semester (this increases financial burden).
- By the senior year, external grants could be used to pay for all or part of the student stipend (especially in the sciences, engineering, and technology).
- To ensure sufficient participation, the undergraduate research program should be faculty-driven, not student-driven.
- The program could be piloted in select departments for the QEP, and then expanded as more resources become available.

Possible Activities Related to Graduate Study

- The most talented UH students participating in the undergraduate research program – and elsewhere – should be encouraged to pursue graduate education.
- The university could establish a dossier service to facilitate applications to graduate and professional programs, and graduate fellowships.
- The university could also create fifth year master's programs for undergraduate students, with an academically challenging fourth year that serves as the first year of the master's program.
- The fourth year sequence could also serve as "honors" sections for students in the Honors College, even if they decided not to pursue a master's degree at UH.
- Departments that implement 5 year BS/MS programs will need additional faculty.

Implementation Scale

Goals:

500 centrally funded
at least another 500 sponsored by departments and/or individuals

Establish one new 5-year BS/MS program per year in the first 5 years

Implementation Cost

\$2.25M for 500 students at \$3,500/student and \$1,000 for faculty

3. How would we establish and measure student learning outcomes associated with the program?

Potential areas of interest for student learning objectives and outcomes are listed below. Detailed assessment strategies will be developed to establish achievement of student learning outcomes.

- Improved ability to compile and analyze data
- Development of critical thinking skills
- Ability to communicate more effectively: many programs have Senior Capstone courses already in place that are proven to improve written presentation and oral communication skills
- Valuable work experience: better understanding of teamwork and lifelong learning
- Better understanding of the student's field of study
- Improved preparation for the professional workforce and/or enhanced placement in graduate programs and graduate fellowships and other forms of assistantships
- Accelerated graduate degree progress
- Opportunities for thesis writing in MS programs

4. What would the benefits be to UH and society at large if the topic was selected and the program implemented?

Anticipated Impact on Institution

- Improved preparation for the professional workforce and/or graduate study
- Enhanced academic reputation of UH
- Enhanced recruitment of academically gifted undergraduates
- Supports research efforts of the University
- Benefits Professional Accreditation efforts for some departments/colleges
- Enhanced organized study abroad research opportunities
- Changes in the number of students pursuing graduate and professional degrees
- Increased participation in prestigious university graduate programs
- Enhanced career outcomes for students
- More graduate and professional degrees by students participating in even the fourth year of the five year program (the first advanced year)
- More capable students will participate in national competitions organized by professional societies hence improving the teams' performance, national visibility, and potential for sponsorships.

5. What would be the opportunities for external funding (e.g., from foundations, the federal government, corporations) if the topic were selected and the program implemented?

- Increase opportunities for NSF and other agencies' REU (Research Experiences for Undergraduates) supplements and site grants
- Opportunities for corporate sponsorships if tied into internships