

October 26, 2007

TO: Kaveh Tagavi  
Senate Council  
201 Main Bldg.  
CAMPUS 0032

Dear Dr. Tagavi,

At its meeting on October 25, 2007 the Graduate Council voted to approve the proposals for University Scholars Program MS in Biomedical Engineering and BS in Mechanical Engineering, and Department Name Change from Educational and Counseling Psychology to Educational, School and Counseling Psychology. The Council submits these recommendations for the consideration of the Senate.

Thank you for your attention to this request.

Sincerely Yours,

Jeannine Blackwell, Dean  
The Graduate School

Cc: Sheila Brothers

From: Graduate.Council.Web.Site@www.uky.edu  
Sent: Monday, October 22, 2007 11:30 AM  
To: Nikou, Roshan  
Cc: Price, Cleo  
Subject: Investigator Report

AnyForm User: www.uky.edu  
AnyForm Document: <http://www.research.uky.edu/gc/InvestigatorReport.html>  
AnyForm Server: www.uky.edu (/www/htdocs/AnyFormTurbo/AnyForm.php)  
Client Address: 128.163.153.93

College/Department/Unit: = 0708-P001 Univ. Sch. for Biomed and Mech Eng's

Category:\_ = New

Date\_for\_Council\_Review: = 10/25/07

Recommendation\_is:\_ = Approve

Investigator: = Bill Smith

E-mail\_Address = bsmith@enr.uky.edu

1\_\_Modifications: =

2\_\_Considerations: =

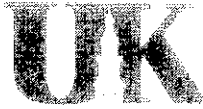
3\_\_Contacts: = Keith Rouch (ME) and David Puleo (Biomed). I did not talk with them.

4\_\_Additional\_Information: = This is pretty much the same proposal as the program set up with the ECE department. That has already been approved and there is no reason this one should not be approved as well.

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January 15, 2006

Dean Jeannine Blackwell  
Graduate School  
Gillis Building

Dear Dean Blackwell:

The College of Engineering supports the University Scholars Program between undergraduates in the Mechanical Engineering program and the Biomedical Engineering masters program.

Please feel free to contact me if you need additional information.

Sincerely,

Donn E. Hancher, Ph.D., P.E.  
Associate Dean for Administration  
and Academic Affairs

sent by Jill Fisher  
June 28  
May 07



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December 8, 2005

The Graduate School  
University of Kentucky  
351 Patterson Office Tower  
Lexington, KY 40546-0027

Dear Dean Blackwell:

This letter provides my support for the proposed University Scholars Program combining the Bachelor of Science in Mechanical Engineering with the Master of Science in Biomedical Engineering. This University Scholars program with Biomedical Engineering would allow our strong undergraduate students who are interested in Biomedical Engineering to select related electives in our curriculum, and provide an increased incentive for them to continue to graduate study in Biomedical Engineering. The ME faculty approved the necessary changes in our elective list in the faculty meeting of November 16, 2005.

This program will be another vehicle to retain our bright young students in Kentucky for graduate school, and help compensate for the lack of an undergraduate program in Biomedical Engineering.

Sincerely,

Keith E. Rouch  
Professor and Chair

Cc: D. Puleo  
G. Huang  
K. Saito  
J. Fisher  
J. Prewitt



UNIVERSITY OF KENTUCKY

**The Graduate School**

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December 12, 2005

MEMORANDUM

To: Jeannine Blackwell  
Dean, The Graduate School

From: David Puleo   
Director, Center for Biomedical Engineering

Re: University Scholars Program

This memo is in support of the proposed University Scholars Program that combines a B.S. in Mechanical Engineering with an M.S. in Biomedical Engineering. The Center's faculty unanimously approved the proposal.

We believe this program will benefit the University by retaining bright undergraduate engineers for graduate studies and allowing them to pursue biomedical engineering in the absence of a B.S. program in the discipline. Furthermore, the University Scholars Program will be of advantage to the Center by facilitating enrollment of strong undergraduate engineers in our graduate program.

## PROPOSAL

### UNIVERSITY SCHOLARS PROGRAM MS IN BIOMEDICAL ENGINEERING AND BS IN MECHANICAL ENGINEERING

#### BACKGROUND

The MS in Biomedical Engineering (MSBME) is a multi-disciplinary graduate program offered by the Center for Biomedical Engineering at the University of Kentucky. The MSBME program is available as a thesis option (Plan A) requiring 26 hours of course work, or as a project option (Plan B) requiring 33 hours of course work. The Biomedical Engineering program is a graduate degree only program: The University of Kentucky does not offer an undergraduate degree in Biomedical Engineering. The University of Kentucky's College of Engineering offers a 4-year, 129 credit-hour Bachelor of Science degree in Mechanical Engineering. The undergraduate program is accredited by the Accreditation Board of Engineering and Technology (ABET). This document proposes the establishment of a University Scholars program for the Biomedical Engineering program for students pursuing the undergraduate degree in Mechanical Engineering. The program is intended to appeal to students who are studying Mechanical Engineering at UK as an undergraduate, and who seek an advanced degree in Biomedical Engineering. It is recognized that programs in Biomedical Engineering at the undergraduate level are receiving increased visibility among students interested in careers in that field, because of the emphasis on health care needs in the nation, and increased funding from the Whitaker Foundation and NIH. The University of Kentucky has decided not to pursue an undergraduate program in Biomedical Engineering, and we believe the University Scholars approach will provide an attractive alternative for undergraduates interested in the biomedical field.

#### PROGRAM STRUCTURE

**Admissions:** A student desiring admission into the MSBME University Scholars program is required to meet the following requirements: 1) The applicant must be an undergraduate pursuing a BS degree in Mechanical Engineering. 2) The applicant should apply for the MSBME University Scholars program at the end of his/her junior year. 3) The applicant must have senior standing (completed at least 90 hours of course work) and have completed all University Studies requirements. 4) The applicant must have an overall grade-point average of 3.2 or above on a 4.0 scale, and a grade-point average of 3.5 or above in the undergraduate major. 5) The applicant must follow the current application procedures for the Graduate School, and must meet the admission standards of the Graduate School and the MSBME program.

#### PROGRAMS OF STUDY

One of the criteria used for admission into the MSBME program is that at least one faculty member in BME agrees to serve as a graduate research advisor for an applicant. Upon admission to the program, the graduate research advisor in the Center for Biomedical Engineering will advise students regarding their participation in the dual degree program and in their graduate coursework. The students' undergraduate departmental advisors will advise on undergraduate coursework. Currently, three technical electives and one supportive elective are required for completion of a BS degree in Mechanical Engineering.

**Dual degree with BS in Mechanical Engineering and MS in Biomedical Engineering:** Under the dual degree program, the total number of credit hours completed for the combined program may be up to twelve (12) hours fewer than the total required for both the bachelor's and the master's degrees. The requirements for the bachelor's and the MSBME degrees remain unchanged, however, prospective students in the dual program will share up to 12 credits for both degrees. In order for these 12 credits to satisfy the requirements of the BS and the MS degrees, a student will select technical electives in the fourth year of study in consultation with the undergraduate advisor in Mechanical Engineering as well as the director of graduate studies in Biomedical Engineering such that the selected electives meet the requirements of both programs.

*Example:* A student in the fourth (senior) year of his/her undergraduate curriculum could choose the following courses as their supportive and technical electives:

| Course  | Credits   |
|---|-----------|
| <b><u>Required Course in ME</u></b>                         |           |
| ME 501 Mechanical Design with Finite Element Methods        | 3         |
| <b><u>Supportive Elective</u></b>                           |           |
| PGY 412G Principals of Human Physiology                     | 4         |
| <b><u>Technical elective</u></b>                            |           |
| 1) BME 530 Biomedical Instrumentation                       | 3         |
| 2) One of the following                                     | 3         |
| BAE 502 Modeling of Bio Systems                             |           |
| ME 506 Mechanics of Composite Materials                     |           |
| ME/MFS 512 Manufacturing Systems                            |           |
| ME 532 Advanced Strength of Materials                       |           |
| MSE 554 Chemical and Physical Processing of Polymer Systems |           |
| <b>Total</b>  | <b>13</b> |

\*Up to twelve of these credits are shared between the undergraduate and the graduate curriculum (three technical electives plus one supportive elective)

In the first semester as a graduate student in the BME program (Fall) the student would take

- |    |   |   |
|----|---|---|
| 1) | BME605 Biomedical Signal Processing I                               | 3 |
| 2) | BME 672 Musculoskeletal Mechanics<br>or BME 670 Bio-solid Mechanics | 3 |
| 3) | BME 661 Biomaterial Science and Engineering                         | 3 |

In the second semester the student would take

- |    |  |   |
|----|--|---|
| 1) | BME 781/699 Special topics/problems in BME | 3 |
| 2) | BME 774 Graduate Biomed Engr Seminar       | 1 |

It is expected that the student will have started working on a thesis in the first semester as a graduate student in BME, with virtually their entire effort focused on completion of the research for thesis in the second and the third semesters. It is the expectation that students in this program may be able to complete the requirements for an MS degree within three semesters and one summer. The plan B option, which is a Master's degree in BME with a project instead of a thesis, will not be offered for students who join the BME program via this University Scholars program.







