THE GRADUATE SCHOOLUNIVERSITY of WASHINGTON

January 25, 2012

- To: Matt O'Donnell, Dean, College of Engineering John Slattery, Vice Dean, Research and Graduate Education, School of Medicine
- From: Gerald Baldasty, Vice Provost and Dean James Antony, Associate Vice Provost and Associate Dean for Academic Affairs

Re: Department of Bioengineering 2010-2011 Review

This memorandum outlines the recommendations for the Department of Bioengineering academic program review. Detailed comments can be found in the documents that were a part of the following formal review proceedings:

- Charge meeting between review committee, department, and administrators (October 20, 2010)
- Department self-study (December 1, 2010)
- Site Visit (February 10-11, 2011)
- Review committee report (March 11, 2011)
- GPSS report (March 22, 2011
- Department response to the review committee report (April 15, 2011)
- Graduate School Council consideration of review (November 10, 2011)

The review committee consisted of the following faculty:

Judith Ramey, Professor, UW Department of Human Centered Design and Engineering (Committee Chair)
Stanley Fields, Professor, UW Department of Genome Sciences and Department of Medicine
James Anderson, Professor, Department of Pathology, Case Western University, Allan Stephan, CEO, Stratos Group, LLC, Seattle, WA
Jennifer West, Professor and Chair, Department of Bioengineering, Rice University

A subcommittee of the Graduate School Council presented findings and recommendations to the full Council at its meeting on November 10, 2011. Following are the specific comments and recommendations regarding the department and its degree programs. The Department offers the Bachelor of Science (BS) in Bioengineering, Master of Science (MS) in Bioengineering, a combined BS/MS program, two fee-based programs which are the Master of Medical Engineering (MME), the Master of Pharmaceutical Bioengineering (MPharBE), and the Doctor of Philosophy (PhD).

Program Strengths

• Quality of Research Program and Faculty: The faculty research is outstanding including their ability to raise research support and the quality of publications. They have excellent

interdisciplinary collaborations with faculty in the College of Engineering, School of Medicine, College of Arts and Sciences and the Foster School of Business. It has done a "superb" job of recruiting faculty from highly ranked programs.

- PhD Program: This is the department's core graduate program which provides a high quality education for students, including research experience. The success of the program is demonstrated by their ability to recruit students from top universities and the success of graduates, most of whom are pursuing careers in industry. The review committee suggested developing a greater balance of students interested in both academic careers and industry since this would be beneficial to the long-term reputation of the department.
- Undergraduate Program: The undergraduate BS program, which began in 2001, is now ranked among the top 10 such programs. Courses for the program are taught equally by faculty in Engineering and Medicine. The review committee commended the department for its high quality undergraduate major and its responsiveness to student input. Concerning the issue of increasing enrollment in the major, the committee recommended that an increase occur only if additional resources are provided to maintain the program quality.
- GPSS Report. Overall, the 17 students who attended the GPSS interview were satisfied with the program and the quality of the faculty. They felt that the overall department climate is positive, and the rotation in different labs was valuable.

Challenges and Risks

- Master's Programs: The department offers four Master's degree programs, including two professional Master's programs, and is considering a fifth program. The department needs to more clearly define the role of these programs, including both their economic benefit and educational value, in the context of its overall vision. In particular, the potential effect of expanding these programs on classroom instruction and laboratory experiences needs to be evaluated.
- Faculty Development: It is critical that the department develop a formal mentoring program for junior faculty and a succession plan for the next generation of leaders. In addition, an Awards Committee is needed to nominate faculty for national and international awards.
- Enhancing Financial Security of the Department: This is a major challenge that requires cultivating and nurturing a sustainable donor base, coordinating with other fund raising efforts in the College of Engineering and the School of Medicine, establishing an Affiliates Program with corporations, as well as convening an External Advisory Board.
- A major recommendation of the review committee was that the department needs to engage in "rigorous strategic planning" to address the challenges listed above. Considerations in this process need to include that growth into new areas should be balanced with maintaining excellence in the department's more established fields, identifying opportunities to hire new faculty, and establishing industrial partners. Overall, this process needs to provide a unified plan for moving the department forward.
- GPSS Report: Two areas of concern include that the majority of courses taken by students are outside of the department, and they would prefer more courses taught by Bioengineering faculty. Second, the students need more extensive advice on how to obtain jobs outside of faculty positions.

Areas of Concurrence

- In its April 15, 2011 Response to the Review Committee Report, the department addressed each of the committee's recommendations, many as works-in progress.
- Strategic Plan: The department has committed to develop short- and long-term strategic goals and implementation plans, with bi-annual reevaluation of an annual faculty retreat.
- A "BIOE Affiliates Programs" was launched in March 2011 with the key aim of finding internships and jobs for students and graduates.
- Communications activities have been improved to include the following:
 - An Alumni Survey has been distributed and its results will feed the strategic planning process.
 - Web site improvements to increase student visibility, with program profiles identifying student "themes of research, humanitarian activities and lifestyles"
- Revisions are being made to the External Advisory Board, to include a subcommittee with industrial vs. academic focus, longer and more frequent meetings with the intent of capturing changes in the field, curricular and research impact, and recommendations for academic program changes.
- Future increases in undergraduate enrollment will be linked to resources.
- Faculty Development: The department will convene a committee to decide on the kind of formal mentoring to be made available, including leadership opportunities as a prelude to promotion as well as an awards nomination and recognition process.

Graduate School Council Recommendations

- The Council recommended continuing status of the undergraduate and graduate degree programs with the next review to be in ten years—the 2020-2021 academic year.
- Because the strategic plan is critical to the future of the department, and since many of the review committee's recommendations remain to be implemented, the Council recommends that the department submit an interim report in 3 years, specifically by Spring Quarter, 2014. The interim report should provide detailed progress on issues raised in the review and to include the following:
 - Strategic Plan: Provide evidence that the strategic plan has been implemented.
 - The strategic plan should indicate how and when the department has or will take action on the core issues the committee identified, and how progress is being measured on these issues.

We concur with the Council's comments and recommendations.

 c: Douglas Wadden, Executive Vice Provost, Office of the Provost Janice DeCosmo, Associate Dean, Undergraduate Academic Affairs Paul Yager, Professor and Chair, Department of Bioengineering Michael Regnier, Professor and Vice Chair, Department of Bioengineering Members of the Bioengineering Review Committee Graduate School Council GPSS President Augustine McCaffery, Senior Academic Program Specialist, The Graduate School