



THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY,
NY 12234

To: The Honorable the Members of the Board of Regents

From: Valerie Grey

Subject: Master Plan Amendment: Clarkson University, Doctor of Philosophy (Ph.D.), Interdisciplinary Bioscience and Biotechnology

Date: July 5, 2011

Authorizations:

SUMMARY

Issue for Decision (Consent Agenda)

Should the Board of Regents approve a master plan amendment for Clarkson University to authorize the University to offer its first doctoral program in the biological sciences disciplinary area, a Doctor of Philosophy (Ph.D.) in Interdisciplinary Bioscience and Biotechnology?

Reason(s) for Consideration

Required by State regulation.

Proposed Handling

The question will come before the full Board for consideration at its July 2011 meeting, where it will be voted on and action taken.

Background Information

Clarkson University (Potsdam) seeks Regents approval of a master plan amendment to authorize it to offer a Doctor of Philosophy (Ph.D.) program in Interdisciplinary Bioscience and Biotechnology. Master plan amendment is needed because the proposed program would be the institution's first doctoral program in the biological sciences disciplinary area. It has bachelor's and master's programs in that area, and its existing Ph.D. programs include Chemical Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, Engineering Science,

Mechanical Engineering, Environmental Science and Engineering, Chemistry, Mathematics, Materials Science, and Physics.

Program Purpose: The goal of the proposed program is to graduate Ph.D. students with both depth of specialized knowledge in a major field of biology and the technical skills to work with interdisciplinary teams of biotechnologists in academic, corporate, and government research settings. The proposed program would leverage the growing research activities of Clarkson's faculty and complement existing programs.

Curriculum: The program requires a minimum of 90 credits. Students would be able to complete the program in a minimum of three years, with a maximum of seven years allowed. Based on areas of faculty expertise, students could specialize in one of four interdisciplinary subfields: molecular bioscience and biotechnology; biomedical sciences and neuroscience; computational biology and bioinformatics; or ecology, evolution and the environment. Specific requirements include molecular biotechnology and advanced cell biology courses, molecular biology or biochemistry and biotechnology lab, two specialization electives from one of the four noted subfields, a free elective course from one of the subfields, at least one computational biology course, a bioethics course, bioscience seminars, and ongoing thesis research. Candidates would produce an original thesis research project submitted as a written dissertation defended orally and approved by a committee of five Ph.D. faculty members.

Academic Resources: The library contains more than 600,000 print and microfilm items and subscribes to over 2,000 print and electronic journals. Access to more than 23,000 periodicals is provided via 76 electronic databases, and interlibrary loan and other partnerships further expand library resources. Recently renovated bioscience teaching laboratories accommodate laboratory courses in ecology, molecular biology, biochemistry and biotechnology, microbiology and other areas. Departmental and faculty research laboratories have specialized equipment to complement the program's various interdisciplinary concentrations.

Faculty and Students: University faculty with a doctoral degree and who have published original research in a field relevant to the biosciences may affiliate with the proposed program. A total of 37 Ph.D. faculty members from 9 different primary departments have agreed to serve as faculty research advisors, members of qualifying exam and thesis committees, and course instructors.

Applicants would need a baccalaureate degree in biology or a relevant science major (e.g., biochemistry, biophysics, biochemistry, environmental science), including minimum college preparation in such areas as biology, chemistry, physics, and mathematics. The University anticipates that the majority of program students would come from the northeastern U.S., along with some international students. It projects enrollment of three Ph.D. students in the first year of operation, growing to 15 by the fifth year (contingent primarily on grant funding).

Need: As the program would be the first Ph.D. in biotechnology in the North Country, it would support the development and growth of the region's biotechnology industry. The bioscience industry employs over 80,000 workers in New York State, and

expenditures in the commercial biomedical/bioengineering research and development sector are growing rapidly. Clarkson believes the job market for qualified scientists in the biotechnology field will remain strong, as will the need to train future scientists and engineers using interdisciplinary teamwork in STEM areas. Graduates of the program are expected to work on interdisciplinary scientific teams in the biotechnology industry, governmental and private research institutes, and universities.

Canvass Results: The Department canvassed degree-granting institutions in the North Country region as well as all doctoral-granting institutions statewide. Six institutions responded; none objected to the proposed program.

Department Review: The Department has determined that the proposed program meets the standards for registration set forth in the Regulations of the Commissioner of Education.

Recommendation

It is recommended that the Board of Regents approve a master plan amendment for Clarkson University to authorize the University to offer its first doctoral program in the biological sciences disciplinary area, a Doctor of Philosophy (Ph.D.) program in Interdisciplinary Bioscience and Biotechnology. The amendment will be effective until July 31, 2012, unless the Department registers the program prior to that date, in which case master plan amendment will be without term.