Florida Gulf Coast University Board of Trustees  
April 15, 2014

SUBJECT: New Degree Program: B.S. Biochemistry

PROPOSED BOARD ACTION

Approve the Bachelor of Science (B.S.) in Biochemistry new degree program.

BACKGROUND INFORMATION

FGCU is requesting permission to offer a B.S. in Biochemistry as described in the Executive Summary.

Supporting Documentation Included: Executive Summary for B.S. Biochemistry

Prepared by: Associate Vice President for Academic and Curriculum Support Cathy Duff

Legal Review by: General Counsel Vee Leonard (April 1, 2014)

Submitted by: Provost and Vice President for Academic Affairs Ron Toll
Florida Gulf Coast University

March 24, 2014

Executive Summary
B.S. Biochemistry Proposal

Degree: Bachelor of Science (B.S.)
Major: Biochemistry
Concentrations: None
College: Arts & Sciences
Department: Chemistry and Physics
Effective Date: Fall 2014
Proposed Classification of Instructional Programs (CIP) Code: 26.0202

Description

The proposed B.S. Biochemistry program will prepare students for direct employment in any field that utilizes baccalaureate-level scientists including the biomedical, environmental, and defense industries. Graduates will be prepared for positions at government laboratories, grant-funded university research facilities, and industrial and pharmaceutical laboratories. Graduates will also be prepared for entry into biochemistry master's and doctoral programs including medical school.

The biochemistry program is broad; it is not particularly slanted toward one area in biochemistry. There are no concentrations, tracks, or specializations. The program will be offered on the main campus, supplemented by online courses.

The B.S. Biochemistry will be comprised of 120 semester credit hours. The curriculum includes (a) 36 hours of general education coursework, (b) 32 hours of common prerequisites, (c) 21 hours of required courses in the major, (d) 21 hours of electives in the major, (d) 3 hours of IDS 3920 University Colloquium, and (e) additional electives to total 120 hours. An advisory council of faculty and business professionals in the field reviewed and provided comments on the student learning outcomes and curriculum.

The curriculum was approved by the College of Arts and Sciences Undergraduate Curriculum Committee on October 4, 2013, and the university-wide Undergraduate Curriculum Team on February 11, 2014. The program is consistent with Florida Board of Governors Regulation 8.011 Authorization of New Academic Degree Programs and Other Curricular Offerings.

Need and Demand

The Florida Legislature supports the development of a biotechnology industry to diversify the state’s economy and create highly skilled jobs in science, technology, engineering, and math (STEM). Strategic priorities in the State University System (SUS) 2012-2025 Strategic Plan include increasing the number of bachelor’s degrees awarded in STEM from 18 percent of total (9,605) to 25 percent of total (22,500) by 2025. The SUS list of Programs of Strategic Emphasis includes CIP 26 (all biological and medical sciences) under the category of Economic
Development (formerly STEM). In the last few years, FGCU has increased STEM production at the highest rate within the SUS.

According to the U.S. Department of Labor, 15 of the fastest growing jobs will require substantial math and science preparation. According to the Occupational Outlook Handbook, there will be a four percent increase in jobs for chemists between the years 2010 to 2020. The National Research Council report ‘BIO 2010’ recommends that undergraduate programs in the life sciences include a more integrated approach to quantitative and analytical disciplines. The increased development of pharmaceutical and biotechnology industries will require employees who know how to integrate the disciplines of chemistry and biology. The B.S. Biochemistry program includes courses that integrate chemistry with the life sciences (biochemistry, physical chemistry for the life sciences, and a bio-inorganic or medicinal chemistry courses). This integration will make the program unique in Florida.

The SUS Council of Academic Vice Presidents’ Academic Coordinating Workgroup reviewed the B.S. Biochemistry pre-proposal on February 15, 2013. No concerns were noted. The University of Florida and Florida State University offer the B.S. Biochemistry degree in CIP 26.0202. Florida Atlantic University and the University of West Florida offer the B.S. Chemistry degree with a biochemistry track/concentration in a different CIP. Adding the proposed program to the State University System Academic Program Inventory for FGCU will not result in duplication.

To gauge interest in the proposed program, in fall 2011 a survey was distributed to students enrolled in chemistry courses. Over 550 students completed the survey, and approximately 30 percent indicated that they would be interested in a B.S. Biochemistry.

Projected Enrollment

A conservative headcount of 15 is anticipated in Year 1 of the program with growth to approximately 60 in Year 5. The projected growth is based on enrollment patterns in the existing B.A. Chemistry program and growth in similar programs across the United States.

Resources and Budget

The B.S. Biochemistry program will utilize numerous courses already being offered for the B.A. Chemistry program. Thus, projected costs reflect only those costs associated with adding seven new upper-division courses to be offered on a rotating basis and additional sections of General Chemistry I and II to accommodate program growth in later years. The new upper-division courses will also be utilized in the B.A. Chemistry program, thus enhancing overall efficiency.

Year 1 of the program will require approximately $70,943, which includes the following: (a) $49,093 for faculty salaries and benefits from existing Education & General (E&G) funds for faculty whose teaching assignments will be redirected within the Department of Chemistry and Physics to support the new upper-division courses, and (b) $21,850 for Other Personnel Services (OPS) from existing E&G funds for adjuncts and teaching assistants who will support lower-division courses.

By Year 5, projected costs will be approximately $125,313, which includes the following: (a) $81,613 for faculty salaries and benefits from E&G funds for faculty teaching upper-division courses, and (b) $43,700 from E&G funds for adjuncts and teaching assistants teaching lower-
division courses. The source of the funding for Year 5 will be recurring E&G base funds that continue from Years 1-4 into Year 5.

No new library resources, classrooms, laboratories, or administrative space are needed to implement and sustain the program through Year 5. The department has access to specialized equipment and research facilities. Any additional instrumentation is of a small scale (<$2,000) and can be incorporated into year-end funds or small equipment lab fees.

Consistency with University Mission and Strategic Plan

The proposed program relates to FGCU’s Mission and Strategic Plan by providing a degree that will fulfill critical statewide professional and workforce needs in fields such as medical science, emerging technologies, natural science, and technology. Approximately 50 percent of the FGCU student population is local; consequently, the program will expand the academic opportunities available in Southwest Florida and enhance the ability to bring in private and federal research support. These actions will increase FGCU’s national prominence in undergraduate education.

*******************************************************************************