

**BOARD OF GOVERNORS
STATE UNIVERSITY SYSTEM OF FLORIDA
NEW DOCTORAL DEGREE PROPOSAL STAFF ANALYSIS**

Program: Ph.D. in Basic Biomedical Sciences

CIP Code: 26.0102

Institution: Florida International University

Proposed Implementation Date: Fall 2012

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Initial Review Date: 09/09/11 **Last Update:** 10/13/11

Estimated Costs:

	Total	% & \$ Current Reallocated	% & \$ New Recurring	% & \$ New Non- Recurring	% & \$ C&G	Cost per FTE	SUS 09-10 Average Cost per FTE
Year 1	\$289,402	23% \$67,665	67% \$193,522	0% \$0	10% \$28,214	\$69,650	\$18,267 26 CIP
Year 5	\$1,834,312	20% \$373,863	30% \$561,019	0% \$0	50% \$899,430	\$49,860	

Projected FTE and Headcount are:

	Student Headcount	Student FTE
First Year	5	3.75
Second Year	10	7.5
Third Year	15	11.25
Fourth Year	20	15
Fifth Year	25	18.75

On March 29, 2007, the Florida Board of Governors approved BOG Regulation 8.011, which sets forth criteria for implementation and authorization of new doctorates by the Board of Governors, as well as criteria for implementation and authorization of Bachelor's, Master's and Specialist degrees by Boards of Trustees. The following staff analysis is an assessment of how well the university meets BOG Accountability and Readiness criteria for implementation of this degree program.

Proposal Page Numbers:

INTRODUCTION		ACCOUNTABILITY		READINESS				
Program Description	System Analysis	Overall	Budget	Mission and Strength	Program Quality	Curriculum	Faculty	Resources
2	2	4	5	0	6	7	7	8

A. Program Description:

Florida International University (FIU) is proposing to offer a Ph.D. degree program in Basic Biomedical Sciences. This program is designed to create a distinctive learning experience for graduate students by offering the introductory basic science portion of the medical curriculum side-by-side with medical students. The core of the Ph.D. Graduate Program will be composed of the Basic Science Departments in the Herbert Wertheim College of Medicine (HWCOM): the Department of Human and Molecular Genetics, the Department of Molecular Microbiology and Infectious Diseases, the Department of Cellular Biology and Pharmacology and the Department of Immunology. According to the proposal, strong programs in these areas are essential to the development of research-based medical school programs and, thus, will strengthen FIU's new medical school and the overall growth of the college and university.

The total number of credit hours required for completion of the proposed program is 81, and a dissertation is required. The curriculum includes required courses fundamental for understanding biomedical and translational sciences, providing elective courses selected in consultation with the dissertation advisor and the Program Director. Graduate students will take core medical courses side-by-side with the medical students, providing a background in and appreciation of biomedical sciences.

B. System-Level Analysis and Evaluation in accordance with BOG Regulation 8.011:

The FIU proposal explains that Basic Biomedical Science is the fundamental basis of preparing graduate students for academic careers in medical research and for the flourishing biotechnology industry of the Miami-Dade region and the State of Florida. In addition, it will contribute to the training of generations of young scientists in the medical features of cell biology, pharmacology, biochemistry, cancer biology, molecular biology, human genetics, pathology, immunology, neurology, medical microbiology and infectious diseases. The proposal makes the argument that the growth of biomedical research on a national level highlights the need for doctoral-level biomedical science programs.

The aim of FIU's proposed Ph.D. in Basic Biomedical Sciences program is to train future scientists who can be independent investigators in either industry or academia. According to the proposal, the doctoral program will directly support the following goals of the State University System Board of Governors Strategic Plan:

- Goal 1: Access to and production of degrees
- Goal 2: Meeting statewide professional and workforce needs
- Goal 3: Building world-class academic programs and research capacity
- Goal 4: Meeting community needs and fulfilling unique institutional responsibilities

According to the FIU proposal, there is a demand for students graduating with a Ph.D. in Basic Biomedical Sciences at the local, state, and national levels. Reporting data from the U.S. Department of Labor (Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2010-11 Edition*, Biological Scientists), the proposal states that projections for growth include a 29.6% growth in job openings for biological scientists by 2018 (with respect to 2008 levels). In addition, the report projected continued growth in positions for post-secondary educators in research and development in the physical, engineering and life sciences (29.6% between 2008 and 2018). Noting that many opportunities exist in academia, hospital systems, biotech and pharmaceutical industries for graduates of biomedical sciences programs in the Miami area, in Florida and in the US, the lack of educational opportunities specifically in the Miami area constitutes the need for this particular program. The proposal included letters of support from local biomedical employers that demonstrate opportunities for the graduates of the doctoral.

Addressing the issue of student demand, the FIU Office of Planning and Institutional Research conducted an internal survey in 2010. Consisting of 5 questions, the electronic survey was sent to registered FIU students in the Departments of Biological Sciences, Chemistry and Biochemistry and Biomedical Engineering. Of the 60 respondents, 78% indicated they would be interested in obtaining a Ph.D. in Basic Biomedical Sciences at FIU.

The proposal addresses the question of program duplication by identifying and comparing the proposed program to similar offerings elsewhere in the state. According to the FIU proposal, the program will be the first program of its kind in South Florida. The University of Central Florida (UCF) and Florida State University (FSU) offer a Ph.D. in Biomedical Sciences (General) under the CIP code 26.0102. The proposal includes a letter of support from FSU's Provost and Executive Vice President, Dr. Garnett S. Stokes. The University of Miami is a private institution and the only other school in the southern part of the state with a Biomedical Sciences degree offered in the School of Medicine. FIU assumes the enrollment projections would be similar to FSU and UCF's current programs. The proposal acknowledges that Florida Agricultural and Mechanical University (FAMU), Florida International University (FIU), University of Florida (UF), University of South Florida (USF), and FSU offer Ph.D. programs in Biomedical/Bioengineering under CIP code 14.0501 (as reported in the State University System Academic Degree Program Inventory). However, these programs are significantly different from the proposed program.

C. Assessment of the University Review Process in accordance with BOG Regulation 8.011:

Due to the system of stair step accountability set in place by the Board of Governors in Regulation 8.011, it is now incumbent upon University Board of Trustees to verify that all doctoral programs coming before the Board of Governors have met the requirements of the regulation. The following is an assessment of the university review process to ensure that all criteria set forth have been considered by the university prior to submission to the Board of Governors office.

ACCOUNTABILITY

Check 'yes' or 'no' box, and make comments beneath criterion as appropriate.

1. Overall - *The proposal is in the correct format, includes all necessary signatures, and contains complete and accurate tables for enrollment projections, faculty effort, and the proposed budget.*

YES NO

The proposal has been approved by the university board of trustees and includes all required signatures.

The Florida International University Board of Trustees approved the initial program proposal on September 8, 2011.

The university has provided a proposal written in the standard State University system format, which addresses new academic program approval criteria outlined in Board of Governors Regulation 8.011.

The Board of Governors new degree program proposal format was used, as expressed in Board of Governors Regulation 8.011.

The university has provided complete and accurate projected enrollment, faculty effort, and budget tables that are in alignment with each other.

The proposal provides information on each of these areas. Detailed tables are provided on projected enrollment (Tables 1-A & 1-B); on faculty effort (Table 4); and on budget (Tables 2 & 3).

The estimated cost per FTE is significantly higher than the average cost per FTE for other SUS doctoral programs within the 26 CIP code as calculated using the SUS Expenditure Analysis. There is no way to use the expenditure analysis to make a direct comparison with other biomedical science programs because it only analyzes data at the two-digit CIP level, which in this case includes all of the biological and biomedical sciences programs. Biomedical sciences programs are typically on the high end of costs within the 26 CIP because of its close affiliation with medical education.

The university has included a statement in the proposal signed by the equity officer as to how this proposal will meet the goals of the university's equity accountability plan.

The program plan for achieving diversity was reviewed and signed by the FIU Equal Opportunity Officer on February 22, 2011.

*2. **Budget** – The proposal presents a complete and realistic budget for the program consistent with university and Board of Governors policy, and shows that any redirection of funding will not have an unjustified negative impact on other needed programs.*

YES NO

The University Board of Trustees has approved the most recent budget for this proposal.

The current budget proposal has been approved by the Academic Policy and Student Affairs Committee of the FIU Board of Trustees, and by the full board on September 8, 2011.

In the event that resources within the institution are redirected to support the new program, the university has identified this redirection and determined that it will not have a negative impact on undergraduate education, or the university has provided a reasonable explanation for any impact of this redirection.

According to the budget description and supporting tables in the FIU proposal, the new program will have no significant negative impact on the existing programs. All research assistants are expected to be funded from new research awards and not from funds redirected from existing programs.

READINESS

Check 'yes' or 'no' box, and make comments beneath criterion as appropriate.

*3. **Program Quality** – The proposal provides evidence that the university planning activities have been sufficient and responses to any recommendations to program reviews or accreditation activities in the discipline pertinent to the proposed program have been addressed.*

YES NO

The university has followed a collaborative planning process for the proposed program in accordance with policies and procedures adopted by the University Board of Trustees.

As described in the proposal, the planning process began in 2009 when the HWCOM recruited basic science scientists with active research programs supported by National Institutes of Health grants. A Graduate Planning Program Committee was established and discussions were begun on the development of a curriculum, and a survey and analysis report. A feasibility study was conducted and was approved in 2011, and developed into a full proposal. The proposal was approved at all levels of university governance.

- An external consultant has reviewed the proposal and supports the department's capability of successfully implementing this new program.**

Dr. Daniel A Walz, Associate Dean for Research and Graduate Programs and Professor of Physiology at Wayne State University School of Medicine, served as external consultant for the new program. Dr. Walz reviewed and analyzed the written proposal and concluded that the program includes all of the necessary elements of an acceptable PhD program in Biomedical Sciences. Dr. Walz stated that the formation of the proposed program is very well designed, is well aligned with the mission of the college and university, and will significantly benefit the students, residents and businesses of the greater Miami area as well as the State of Florida. Dr. Walz also opined that the didactic educational opportunities in the core courses will strengthen relationships and research opportunities.

- The university has found the level of progress that the department has made in implementing the recommendations from program reviews or accreditation activities in the discipline pertinent to the proposed program to be satisfactory.**

The college of medicine was reviewed by LCME in February 2011 and provisional accreditation was approved for the medical school. However, reviewers recommended that FIU implement a research doctorate in association with the medical school as soon as feasible.

- The university has analyzed the feasibility of providing all or a portion of the proposed program through distance learning.**

The program proposal explains that the traditional delivery system on the University's main campus will be followed for the Ph.D. in Basic Biomedical Sciences program. According to the proposal, the program does not require specialized services for delivery and it is not feasible to deliver the program in collaboration with other universities.

4. Curriculum - The proposal provides evidence that the university has evaluated the proposed curriculum and found that it describes an appropriate and sequenced course of study, and that the university has evaluated the appropriateness of specialized accreditation for the program.

YES NO

- The university has reviewed the curriculum and found that the course of study presented is appropriate to meet specific learning outcomes and industry driven competencies discussed in the proposal.**

As presented in the proposal, the curriculum has been designed to ensure that students

gain a firm grounding in Biomedical Sciences while at the same time allowing for exposure to medical core courses side-by-side with medical students.

- The university anticipates seeking accreditation for the proposed doctoral program, or provides a reasonable explanation as to why accreditation is not being sought.**

There is no accrediting agency for programs in Basic Biomedical Sciences at the doctoral level.

5. Faculty – The proposal provides evidence that the university is prepared to ensure a critical mass of faculty will be available to initiate the program based on estimated enrollments, and that faculty in the aggregate have the necessary experience and research activity to sustain a doctoral program.

YES NO

- The university has reviewed the evidence provided and found that there is a critical mass of faculty available to initiate the program based on estimated enrollments.**

There are 11 faculty members (see Table 4 in proposal) from the College of Medicine, College of Engineering and College of Arts and Sciences who have been identified for the proposed doctoral program. At this time, there will be no adjunct faculty positions in the program. FIU anticipates hiring five more faculty members in various medical specializations.

- The university has reviewed the evidence provided and found that the faculty in aggregate has the necessary experience and research activity to sustain the program.**

All 11 faculty members will hold dissertation advisor status. Of the 11 faculty, 9 are tenured and 2 are tenure-earning (see Table 4.) According to the proposal, this will provide ample faculty resources for mentoring, research, and teaching.

- The university has reviewed the evidence provided and found the academic unit(s) associated with this new degree to be productive in teaching, research, and service.**

The proposal provides evidence that the three participating units have been successful in attracting external funding support.

- If appropriate, the university has committed to hiring additional faculty in later years, based on estimated enrollments.**

The proposal provides a stated plan for future hiring of five additional faculty.

6. Resources – The proposal provides evidence that the university has ensured the available library volumes and serials; classroom, teaching laboratory, research laboratory, office space, equipment, clinical and internship sites, fellowships, scholarships, and graduate assistantships will be sufficient to initiate the program, and that if applicable, funding has been secured to make more resources available as students proceed through the program..

YES NO

- The university has provided a signed statement from the Library Director verifying that the library volumes and serials available are sufficient to initiate the program.**

The proposal provides evidence that sufficient library resources are available to implement the program and no additional resources are needed at this time. A statement was signed by the FIU Library Director on February 21, 2011.

- The university has ensured that the physical space necessary for the proposed program, including classrooms, laboratories and office space, is sufficient to initiate the program.**

The proposal provides evidence that there are adequate classrooms and laboratories to accommodate this program.

- The university has ensured that necessary equipment is available to initiate the program.**

The proposal provides evidence that FIU currently has the specialized equipment.

- The university has ensured that fellowships, scholarships, and graduate assistantships are sufficient to initiate the program.**

According to the proposal, the first year support to cover the tuition and stipends will be provided by FIU University Graduate School in the form of four GTAs per year. The second year will be provided by HWCOM funds in the form of GRAs. Core faculty members will be expected to have adequate grant support for stipends, fees and tuition for their graduate students in the remaining years of studies. HWCOM faculty members who will participate in this program are funded through extramural agencies (NIH, DoD, HRSA, EPA, private foundations, etc.) that will provide graduate student support starting

in their third year.

- If applicable, the university has ensured that the department has arranged a suitable number of clinical and internship sites.**

Ph.D. programs in Biomedical Sciences do not require sites for internships or practicum experiences.