

PROPOSAL TO THE SENATE EDUCATIONAL POLICY COMMITTEE

PROPOSAL TITLE: Proposal to change the name of the Center for Biophysics and Computational Biology to the Center for Biophysics and Quantitative Biology and rename the M.S. and Ph.D. in Biophysics and Computational Biology to M.S. and Ph.D. in Biophysics and Quantitative Biology.

SPONSORS: Taekjip Ha, Professor, and Director of the Center for Biophysics and Computational Biology, 133 Loomis, 1110 West Green Street, MC-704, Phone: 265-0717, tjha@illinois.edu.

Karen Carney, Associate Dean, College of Liberal Arts and Sciences, 333-1305, kmcarney@illinois.edu

BRIEF DESCRIPTION: The Center for Biophysics and Computational Biology requests that its name be changed to the Center for Biophysics and Quantitative Biology. Further, the M.S. and Ph.D. graduate degrees would be renamed the M.S./Ph.D. in Biophysics and Quantitative Biology. The rubric would remain the same (BIOP).

JUSTIFICATION: The current name of the Center and its PhD program dates back to 1996. Computational Biology was a relatively new but rapidly growing discipline, and combining it with the existing strength of Biophysics was a forward looking move to establish Illinois as the world class university in Biophysics. Existing highly ranked associated units on the Urbana campus have reached these levels of recognition in no small part due to the outstanding graduate students admitted to the Center. Now, however, the field of computational biophysics is well-established and should be considered part of Biophysics. We believe that the new name will help the Center to broaden its scope and to take leadership in coordinating Experimental and Computational Biophysics, Computational Genomics, and Systems and Synthetic Biology on campus. Adding Quantitative Biology to the name of the Center will help bring in outstanding faculty and students in the areas of Computational Genomics, Systems Biology, Quantitative Proteomics, and Synthetic Biology that are not traditionally associated with Biophysics. With the new brand and an expanded faculty that goes beyond traditional biophysics and computational biology, the Center will help lower the barriers for joint educational and hiring initiatives across departments and colleges. We are including several supporting letters from other academic units indicating their full support for the Center to assume the Quantitative Biology name.

BUDGETARY AND STAFF IMPLICATIONS:

The proposed name change has no direct budgetary or staffing implications.

a. Additional staff and dollars needed

Minimal impact anticipated. Costs for the printing of new letterhead and envelopes will be incurred, but those costs should be modest. We anticipate that the more inclusive name and the expanded faculty will attract more graduate applicants to the program and will improve the quality of the applicant pool. Any increase in acceptances would not adversely affect the budget or impact Center staff, as we further anticipate that faculty from departments not currently represented will wish to join the Center. An increase in new faculty should off-set any increase in the student population and their voluntary participation in various Center matters will enable the operation of the Center to remain at the current staffing level.

- b. Internal reallocations (e.g., change in class size, teaching loads, student-faculty ration, etc.)
None. Class sizes will be controlled by setting enrollment limits.
- c. Effect of course enrollment in other departments and explanations of discussions with representative of those departments
None
- d. Impact on the University Library
None
- e. Impact on computer use, laboratory use, equipment, etc.
None

DESIRED EFFECTIVE DATE: upon approval

STATEMENT FOR PROGRAMS OF STUDY CATALOG:

Biophysics and Quantitative Biology

biophysics.illinois.edu

Center Director: Taekjip Ha

179 Loomis

1110 W Green Street

Urbana, IL 61801

Contact: Cindy Dodds

(217) 333-1630

E-mail: biophysics@life.illinois.edu

Major: Biophysics and Quantitative Biology

Degrees offered: M.S. and Ph.D.

Medical Scholars Program: Doctor of Philosophy (Ph.D.) in Biophysics and Quantitative Biology and Doctor of Medicine (M.D.) through the [Medical Scholars Program](#).

Graduate Degree Programs

Biophysics and Quantitative Biology offers a doctor of philosophy degree program. In rare circumstances and with special permission of the director and advisor, a current student may obtain a terminal master's degree after meeting the requirements of the degree. Biophysics students are not admitted initially into the program for a Master's Degree. Opportunity also exists for specializing in computational science and engineering within the department's graduate programs via the [Computational Science and Engineering \(CSE\) Option](#).

Admission

The objective of the program in biophysics is to give students sufficient training in physics, chemistry, and biology to enable them to apply the conceptual, instrumental, and mathematical approaches of the physical sciences for solving biological problems. The curriculum is broadly based and provides sufficient flexibility for students entering with either previous training in the physical sciences or for students with a background in biology and some experience in the physical sciences.

Admission requirements are usually one year of college biology, one year of college physics, chemistry through organic chemistry, and mathematics through calculus; however deficiencies in one of these areas can be corrected during the first two years of study. Most applicants who are accepted into the program have general Graduate Record Examination (GRE) scores in the 70%-90% range. The Biophysics and Quantitative Biology Program does not require the subject GRE for admission. The Test of English as a Foreign Language (TOEFL iBT) or IELTS is required for international applicants.

Please refer to the [Biophysics and Quantitative Biology Admissions](#) web page for additional information and application deadlines.

Degree Requirements

*For additional details and requirements refer to the [department's Student Handbook](#) and the [Graduate College Handbook](#).

Master of Science in Biophysics and Quantitative Biology

Required Courses	Thesis Option-Required Hours	Non-thesis Option-Required Hours
10 hours of 500-level biophysics courses with a minimum GPA of 3.25 (does not include seminar courses and/or research units and can include no more than 2 hours of tutorials). 500-level courses in other departments count towards this 500-level formal course requirement if they are on the approved Biophysics course list.	10	10
BIOP 401 (or equivalent)	3	3
Research/Project Hours (min/max applied toward degree):		min 4
Elective hours approved by Center Director to bring total course work hours to	32	32
Thesis Hours Required– BIOP 599 (min/max applied toward degree):	min 4	
Total Hours	32	32
Minimum 500-level Hours Required Overall:	12	12
Other Requirements:*		
Minimum GPA:	3.0	3.0

Doctor of Philosophy in Biophysics and Quantitative Biology

Required Courses	Required Hours
BIOP 401 (or equivalent), 595A and 595B, 586 and 590	16
MCB 580	1
BIOP 581, 582, 583	6
Two 500-level courses from the pre-approved Biophysics course list	
One computational or experimental lab course – based on the student's research focus	
Thesis Hours Required– BIOP 599 (min/max applied toward degree):	32 max
Total Hours	64
Other Requirements:*	
Students are required to teach for a minimum of one semester during their graduate career	
Minimum GPA:	3.0

Master's Degree Required in Biophysics and Quantitative Biology for Admission to PhD?	No, but Masters level requirements must be met (32 additional hours min)
Qualifying Exam Required	Yes
Preliminary Exam Required	Yes
Final Exam/Dissertation Defense Required	Yes
Dissertation Deposit Required	Yes

The Ph.D. degree is a research degree, and the program is designed with a major emphasis on individual research.

A qualifying examination is offered each spring. This qualifier must be passed by the end of the second year. After formulating a definite research problem, and by the end of the third year, the student takes a preliminary examination where the chosen research topic is presented to the student's faculty committee. The committee also examines the candidate on their chosen general research area. Finally, a thesis is defended at the final examination. The Ph.D. thesis is based on original work of the student. The thesis and the exam must demonstrate a thorough knowledge of theory and techniques in one of the areas of biophysics.

Medical Scholars Program

The Medical Scholars Program permits highly qualified students to integrate the study of medicine with study for a graduate degree in a second discipline, including Biophysics and Quantitative Biology. Students may apply to the Medical Scholars Program prior to beginning graduate school or while in the graduate program. Applicants to the Medical Scholars Program must meet the admissions standards for and be accepted into both the doctoral graduate program and the College of Medicine. Students in the dual degree program must meet the specific requirements for both the medical and graduate degrees. On average, students take eight years to complete both degrees. Further information on this program is available by contacting the Medical Scholars Program, 125 Medical Sciences Building, (217) 333-8146 or at www.med.illinois.edu/msp.

Graduate Teaching Experience

Experience in teaching is considered a vital part of the graduate program and is required as part of the academic work of all Ph.D. candidates in this program. Every biophysics student is required to serve as a teaching assistant for one semester at the quarter time level or higher.

Faculty Research Interests

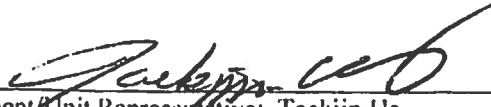
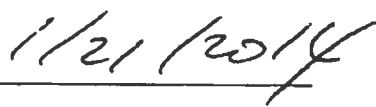
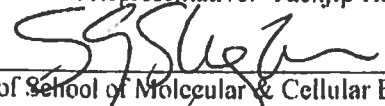
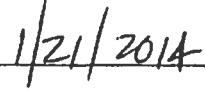
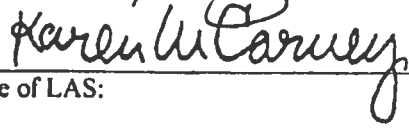
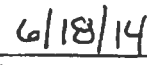
Over 40 faculty members from the Schools of Molecular and Cellular Biology, Chemical Sciences, Medicine, and the College of Engineering are affiliated with the Center for Biophysics and Quantitative Biology. Faculty interests range from experimental biophysics (single molecule spectroscopy, protein and RNA folding, molecular dynamics, cellular biophysics, imaging, etc.) to computational and theoretical biophysics (utilizing a wide range of computer platforms to simulate diverse biological phenomena at many levels as well as bioinformatics). Individual faculty interests can be found on the [Biophysics Website](#).

Facilities and Resources

Center faculty and students have access to world-class research facilities at the University of Illinois, including the Beckman Institute, the Illinois Electron Paramagnetic Resonance Research Center, the Biomedical Imaging Center, the Institute for Genomic Biology, the Biotechnology Center, the National Center for Supercomputing Applications, Blue Waters, and the School of Chemistry Mass Spectroscopy Lab.

Financial Aid

As a rule, all graduate students in biophysics are guaranteed financial support throughout their studies, provided they remain in good standing. This support can be in the form of research assistantships, teaching assistantships, traineeships, or fellowships. After the first semester of study, most students are supported directly by their research advisor in the form of a research assistantship, which continues until graduation.

 Department/Unit Representative: Tackjip Ha	 Date 1/21/2014
 Director of School of Molecular & Cellular Biology: Stephen Sligar	 Date 1/21/2014
 College of LAS:	 Date 6/18/14
Graduate College	Date
Provost's Office	Date

Senate Educational Policy Committee Proposal Check Sheet

PROPOSAL TITLE (Same as on proposal): Proposal to change the name of the Center for Biophysics and Computational Biology to the Center for Biophysics and Quantitative Biology and rename the M.S. and Ph.D. in Biophysics and Computational Biology to M.S. and Ph.D. in Biophysics and Quantitative Biology.

PROPOSAL TYPE (select all that apply below):

- A. ☒ Proposal for a **NEW** or **REVISED** degree program. Please consult the Programs of Study Catalog for official titles of existing degree programs.

1. Degree program level:

☒ Graduate ☐ Professional ☐ Undergraduate

2. ☐ Proposal for a new **degree** (e.g. B.S., M.A. or Ph.D.):

Degree name, “e.g., *Bachelor of Arts or Master of Science*”: _____

3. ☐ Proposal for a new or revised **major, concentration, or minor**:

☐ New or ☐ Revised **Major** in (name of existing or proposed major): _____

☐ New or ☐ Revised **Concentration** in (name of existing or proposed concentration): _____

☐ New or ☐ Revised **Minor** in (name of existing or proposed minor): _____

4. ☒ Proposal to rename an existing major, concentration, or minor:

☒ Major ☐ Concentration ☐ Minor

Current name: M.S. and Ph.D. in Biophysics and Computational Biology

Proposed new name: M.S. and Ph.D. in Biophysics and Quantitative Biology

5. ☐ Proposal to terminate an existing degree, major, concentration, or minor:

☐ Degree ☐ Major ☐ Concentration ☐ Minor

Name of existing degree, major, or concentration: _____

6. ☐ Proposal involving a multi-institutional degree:

☐ New ☐ Revision ☐ Termination

Name of existing Illinois (UIUC) degree: _____

Name of non-Illinois partnering institution: _____

Location of non-Illinois partnering institution:

☐ State of Illinois ☐ US State: _____ ☐ Foreign country: _____

- B. ☐ Proposal to create a new academic unit (college, school, department, program or other academic unit):

Name of proposed new unit: _____

- C. ☒ Proposal to rename an existing academic unit (college, school, department, or other academic unit):

Current name of unit: Center for Biophysics and Computational Biology

Proposed new name of unit: Center for Biophysics and Quantitative Biology

- D. ☐ Proposal to reorganize existing units (colleges, schools, departments, or program):

1. ☐ Proposal to change the status of an existing and approved unit (e.g. change from a program to department)

Name of current unit including status: _____

2. ☐ Proposal to transfer an existing unit:

Current unit's name and home: _____

Proposed new home for the unit: _____

3. ☐ Proposal to merge two or more existing units (e.g., merge department A with department B):

Name and college of unit one to be merged: _____

Name and college of unit two to be merged: _____

Proposed name and college of new (merged) unit: _____

4. ☐ Proposal to terminate an existing unit:

Current unit's name and status: _____

- E. ☐ **Other educational policy proposals** (e.g., academic calendar, grading policies, etc.)

Nature of the proposal: _____

Revised 10/2012