UNIVERSITY FACULTY SENATE FORMS

Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: _Louis Rossi_____phone number__831-1880_____

Department: _Mathematical Sciences_____email address_rossi@math.udel.edu

Date: _4 October 2012_____

Action: **Revise BS Quantitative Biology Major_____**
(Example: add major/minor/concentration, delete major/minor/concentration, revise major/minor/concentration, academic unit name change, request for permanent status, policy change, etc.)

Effective term__13F_____
(use format 04F, 05W)

Current degree__BS_____
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change leads to the degree of: __BS_____
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name:__BS in Quantitative Biology_____
Proposed new name for revised or new major / minor / concentration / academic unit (if applicable)

Revising or Deleting:

Undergraduate major / Concentration:_BS Quantitative Biology_____
(Example: Applied Music – Instrumental degree BMAS)

Undergraduate minor:_____
(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change:_____
(**Must attach** your Graduate Program Policy Statement)

Graduate Program of Study:_____
(Example: Animal Science: MS Animal Science: PHD Economics: MA Economics: PHD)

Graduate minor / concentration:_____

Note: all graduate studies proposals must include an electronic copy of the Graduate Program Policy Document, highlighting the changes made to the original policy document.

List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations)?
(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter "None")

None.

Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education: http://www.ugs.udel.edu/gened/

Identify other units affected by the proposed changes:
(Attach permission from the affected units. If no other unit is affected, enter "None")

None.

Describe the rationale for the proposed program change(s):
(Explain your reasons for creating, revising, or deleting the curriculum or program.)

We are requesting a minor revision to the Bachelor of Science in Quantitative Biology degree. We would like to change the CISC requirement from "Either CISC 106 or CISC 108 or CISC 181" to "CISC 106". Our rationale is that the CISC courses have evolved over time. CISC 181 now requires CISC 106 or CISC 108 so the existing requirement no longer makes sense. CISC 106 offers some instruction in programming using Python and Matlab. CISC 108 offers instruction in programming using Dr. Racket. The faculty believe that CISC 106 is the most appropriate course for our majors to take.

Program Requirements:
(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and **include a side-by-side comparison** of the credit distribution before and after the proposed change.)

See attached.

ROUTING AND AUTHORIZATION: (Please do not remove supporting documentation.)

Department Chairperson _____ Date_____

Dean of College_____ Date_____

Chairperson, College Curriculum Committee_____ Date_____

Chairperson, Senate Com. on UG or GR Studies_____ Date_____

Chairperson, Senate Coordinating Com._____ Date_____

Secretary, Faculty Senate_____ Date_____

Date of Senate Resolution_____ Date to be Effective_____

Registrar _____ Program Code_____ Date_____

Vice Provost for Academic Affairs & International Programs_____ Date_____

Provost _____ Date_____

Board of Trustee Notification _____ Date_____

Revised 02/09/2009 /khs

Academic Year: 2012-2013

[17704]
2012-2013 UD Catalog -->
2012-2013 Undergraduate Programs -->
College of Arts and Sciences -->
Mathematical Sciences -->
BACHELOR OF SCIENCE:
QUANTITATIVE BIOLOGY

DEGREE: BACHELOR OF SCIENCE
MAJOR: QUANTITATIVE BIOLOGY

The College of Arts and Sciences administers an interdisciplinary major program in Quantitative Biology leading to the Bachelor of Science degree. The major provides a strong background in mathematics, biology, chemistry and physics appropriate for students who wish to pursue a career or graduate studies in biomedical and life sciences.

CURRICULUM		CREDITS
UNIVERSITY REQUIREMENTS		
ENGL 110	Critical Reading and Writing (minimum grade C-)	3
First Year Experience (FYE)		0-4
University Breadth Requirement (minimum grade C-)	Up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements.	12
Discovery Learning Experience (DLE)		3
Multi-cultural Course		3
COLLEGE REQUIREMENTS		

PROPOSED REVISION

Academic Year: 2012-2013

[17704]
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Multi-cultural Course		3
COLLEGE REQUIREMENTS		

Writing (minimum grade C-)		3

A second writing course involving significant writing experience including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content. This course must be taken after completion of 60 credit hours

BREADTH REQUIREMENTS (minimum grade C-)
Eighteen credits from Groups A, B and C with a minimum of six credits from each group. One of the courses should be in the area of Bioethics

Group A		6
Group B		6
Group C		6

MAJOR REQUIREMENTS
A grade of C- or better is required for major courses and related work.

Biology

BISC 207	Introduction to Biology I	4
BISC 208	Introduction to Biology II	4
Three of the following three-credit courses		9
BISC 302	General Ecology	
BISC 305	Cell Physiology	
BISC 306	General Physiology	
BISC 401	Molecular Biology of the Cell	
BISC 403	Genetic and Evolutionary Biology	
One of the following three-credit laboratory classes		3
BISC 312	General Ecology Laboratory	
BISC 315	Experimental Cell Biology	
BISC 316	Experimental Physiology	
BISC 411	Experimental Molecular Biology	
BISC 413	Advanced Genetics Laboratory	
BISC 484	Computer Based Genetics Laboratory	

Either **CISC 106** or **CISC 108** (for those with no previous equivalent experience),or **CISC 181** 3

Chemistry

One of the following options (A, B or C)		8-12
Option A		
CHEM 103	General Chemistry	4
CHEM 104	General Chemistry	4
Option B		
CHEM 111	General Chemistry	3
CHEM 112	General Chemistry	3
CHEM 119	Quantitative Chemistry I	3
CHEM 120	Quantitative Chemistry II	3
Option C		
CHEM 111	General Chemistry	3

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BISC 484	Computer Based Genetics Laboratory	

~~Either **CISC 106** or **CISC 108** (for those with no previous equivalent experience),or **CISC 181**~~ 3

Chemistry

One of the following options (A, B or C)		8-12
Option A		
CHEM 103	General Chemistry	4
CHEM 104	General Chemistry	4
Option B		
CHEM 111	General Chemistry	3
CHEM 112	General Chemistry	3
CHEM 119	Quantitative Chemistry I	3
CHEM 120	Quantitative Chemistry II	3
Option C		
CHEM 111	General Chemistry	3

CHEM 112	General Chemistry	3
CHEM 220	Quantitative Analysis	3
CHEM 221	Quantitative Laboratory	1
CHEM 321	Organic Chemistry	4
CHEM 322	Organic Chemistry	4
CHEM 527	Introductory Biochemistry	3

Mathematics

MATH 210	Discrete Mathematics I	3
MATH 241	Analytic Geometry and Calculus A	4
MATH 242	Analytic Geometry and Calculus B	4
MATH 243	Analytic Geometry and Calculus C	4
MATH 302	Ordinary Differential Equations	3
MATH 349	Elementary Linear Algebra	3
MATH 350	Probability Theory and Simulation Methods	3
MATH 426	Introduction to Numerical Analysis and Algorithmic Computation	3
MATH 450	Mathematical Statistics	3
MATH 460	Introduction to Systems Biology	3
MATH 535	Introduction to Partial Differential Equations	3

Physics

PHYS 207	Fundamentals of Physics I	4
PHYS 208	Fundamentals of Physics II	4

OTHER REQUIREMENTS

Two one-credit integrative seminars		2
MATH 260	Integrative Seminar	
Three integrative or technical electives, 6 credits of which should be integrative electives from a list maintained by the Department of Mathematical Sciences. In addition, undergraduate research is strongly recommended.		9

CREDITS TO TOTAL A MINIMUM OF **125**

Although every effort has been made to assure the accuracy of the information in the Catalog, students others who use the Catalog should note that the policies, rules, regulations, requirements for graduatic offerings, and other materials reproduced in the Catalog change from time-to-time and that these chan alter the information contained in this Catalog. see ***Legal Statement***

10/15/12 UD Online Catalog

CHEM 112 General Chemistry 3
CHEM 220 Quantitative Analysis 3
CHEM 221 Quantitative Laboratory 1
CHEM 321 Organic Chemistry 4
CHEM 322 Organic Chemistry 4
CHEM 527 Introductory Biochemistry 3

Mathematics
MATH 210 Discrete Mathematics I 3
MATH 241 Analytic Geometry and Calculus A 4
MATH 242 Analytic Geometry and Calculus B 4
MATH 243 Analytic Geometry and Calculus C 4
MATH 302 Ordinary Differential Equations 3
MATH 349 Elementary Linear Algebra 3
MATH 350 Probability Theory and Simulation Methods 3
MATH 426 Introduction to Numerical Analysis and Algorithmic Computation 3
MATH 450 Mathematical Statistics 3
MATH 460 Introduction to Systems Biology 3
MATH 535 Introduction to Partial Differential Equations 3

Physics
PHYS 207 Fundamentals of Physics I 4
PHYS 208 Fundamentals of Physics II 4

OTHER REQUIREMENTS
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Checklist for Curriculum Proposals

_X_. 1. Are all **signatures on the hard copy of the proposal?**

_X_. 2. Is the **effective date** correct?

_X_. 3. Is the **rationale** for the proposal consistent with the changes proposed?

_X_. 4. Does the proposed **number of credits** match the stated number?

_X_. 5. Have affected units been identified and contacted? Are required **support letters** attached?

N/A. 6. Is a **resolution** necessary? If so, is it attached?

(Necessary for: establishing a major; disestablishing a major; a name change to any program with permanent status; a name change to a department or college; a transfer or creation of any department; request for permanent status).

_X_. 7. Are all **courses (required or referenced)** in the UDSIS Inventory or in the approval process?

_X_. 8. Are all **university requirements** correctly specified?

_X_. A. Breadth requirements.

_X_. B. Multicultural requirement.

_X_. C. Writing requirement.

_X_. D. DLE requirement.

_X_. 9. Are all **college requirements** correctly specified?

X. 9. Is a **side-by-side comparison** provided?