
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	0-4
Discovery Learning Experience	3
Three credits in an approved course or courses stressing multi-cultural, ethnic, and/or gender-related course content.....	3

College Requirements

Writing (minimum grade C-)	3
Second writing course taken after completion of 60 credit hours.	

Breadth Requirements

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 Section

BISC 207 Introduction to Biology I	4
BISC 208 Introduction to Biology II	4
Three of the following three-credit (CORE BIO) 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 two-credit (CORE BIO LAB) laboratory classes	2
BISC 312 General Ecology Laboratory	
BISC 315 Experimental Cell Biology	
BISC 316 Experimental Physiology	
BISC 411 Experimental Molecular Biology	
BISC 413 Advanced Genetics Laboratory	

Computer and Information Sciences Section

Either CISC 105 or CISC 106 (for those with no previous equivalent experience), or CISC 181 Introduction to Computer Science	3
---	---

Chemistry Section

One of the following options (A, B or C, 8–12 credits total)

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 Section

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 535 Introduction to Partial Differential Equations	3
MATH 460 Introduction to Systems Biology	3

Physics Section

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

Other Requirements

Two one-credit integrative seminars2
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 Sciences9

Credits to total a minimum of 124

For more information on this major, visit the web page

www.math.udel.edu/programs/ugrad/

Sample Curriculum — BSQB

Freshman Year

BISC 207 Intro to Biology I	(4)	BISC 208 Intro to Biology II	(4)
CHEM 103 General Chemistry	(4)	CHEM 104 General Chemistry	(4)
ENGL 110 Crit Read/Write	(3)	MATH 210 Discrete Math I	(3)
MATH 241 Calculus A	(4)	MATH 242 Calculus B	(4)
UD First Year Experience	(1)		

Total	16	Total	15
--------------	-----------	--------------	-----------

Sophomore Year

CHEM 321 Organic Chemistry	(4)	CHEM 322 Organic Chemistry	(4)
CORE BIO	(3)	CORE BIO	(3)
MATH 243 Calculus C	(4)	CISC 181 Intro Comp Sci	(3)
MATH 349 Linear Algebra	(3)	MATH 302 Diff Equations	(3)
Breadth Group C	(3)	MATH 260 Integrative Sem	(1)

Total	17	Total	14
--------------	-----------	--------------	-----------

Junior Year

CORE BIO	(3)	CHEM 527 Intro to Biochem	(3)
MATH 350 Probab & Simul	(3)	MATH 450 Math Stat	(3)
MATH 426 Num Computing	(3)	MATH 535 Intro to PDEs	(3)
PHYS 207 Physics I	(4)	PHYS 208 Physics II	(4)
Integrative Elective	(3)	MATH 260 Integrative Sem	(1)
		Breadth Group A / MC	(3)

Total	16	Total	17
--------------	-----------	--------------	-----------

Senior Year

CORE BIO LAB	(2)	Bioethics Group A	(3)
MATH 460 Intro Sys Biology	(3)	Integrative Elective	(3)
Breadth Group B	(3)	Breadth Group B	(3)
Integrative Elective	(3)	Breadth Group C	(3)
Research I	(3)	Research II	(3)

Total	14	Total	15
--------------	-----------	--------------	-----------

Total number of credits: 124