

MATHEMATICAL BIOLOGY OPTION

This option is offered within the following major(s):

- Mathematics - College of Science (<http://catalog.oregonstate.edu/college-departments/science/mathematics/mathematics-bs-hbs/>)

In addition to the usual required lower-division mathematics courses and the junior core courses, mathematics majors in the Mathematical Biology option have an opportunity to concentrate much of their further course work on applied mathematics, mathematical biology, modeling and computation.

Option Code: 737

A grade of at least C- and a GPA of 2.25 are required in all mathematics courses used to fulfill degree requirements. No course used to fulfill requirements for the mathematics major or any of its options may be taken S/U.

Code	Title	Credits
Lower-Division Requirements		
BI 221 & BI 222 & BI 223	*PRINCIPLES OF BIOLOGY: CELLS and *PRINCIPLES OF BIOLOGY: ORGANISMS and *PRINCIPLES OF BIOLOGY: POPULATIONS	12
MTH 251	*DIFFERENTIAL CALCULUS	4
MTH 252	INTEGRAL CALCULUS	4
MTH 253	INFINITE SERIES AND SEQUENCES	4
MTH 254	VECTOR CALCULUS I	4
MTH 255	VECTOR CALCULUS II	4
MTH 256	APPLIED DIFFERENTIAL EQUATIONS	4
CH 231 & CH 261	GENERAL CHEMISTRY and *LABORATORY FOR CHEMISTRY 231	5
Upper-Division Requirements		
<i>Part A: Required Mathematics Core Courses</i>		
MTH 311	ADVANCED CALCULUS I	4
MTH 312	ADVANCED CALCULUS II	4
MTH 341	LINEAR ALGEBRA I	3
MTH 342	LINEAR ALGEBRA II	4
MTH 343	INTRODUCTION TO MODERN ALGEBRA	4
MTH 355	DISCRETE MATHEMATICS	3
Select one of the following writing intensive courses (WIC):		
MTH 323	*MATHEMATICAL MODELING	3
MTH 333	*FUNDAMENTAL CONCEPTS OF TOPOLOGY	
MTH 338	*NON-EUCLIDEAN GEOMETRY	
<i>Part B: Required Area Course Work in Mathematics and Statistics</i>		
MTH 427	INTRODUCTION TO MATHEMATICAL BIOLOGY	3
MTH 428	STOCHASTIC ELEMENTS IN MATHEMATICAL BIOLOGY	3
MTH 463	PROBABILITY I	3
MTH 480	SYSTEMS OF ORDINARY DIFFERENTIAL EQUATIONS	3
ST 351 or ST 411	INTRODUCTION TO STATISTICAL METHODS METHODS OF DATA ANALYSIS	4
<i>Part C: Directed Electives</i>		
Select one course from the following:		
MTH 419	MULTIVARIABLE ADVANCED CALCULUS	3
MTH 430	METRIC SPACES AND TOPOLOGY	
MTH 483	COMPLEX VARIABLES	
Select one course from the following:		
MTH 420	MODELS AND METHODS OF APPLIED MATHEMATICS	3
MTH 440	COMPUTATIONAL NUMBER THEORY	
MTH 441	APPLIED AND COMPUTATIONAL ALGEBRA	

MTH 464	PROBABILITY II	
MTH 482	APPLIED PARTIAL DIFFERENTIAL EQUATIONS	
Select one course from the following:		3
MTH 351	INTRODUCTION TO NUMERICAL ANALYSIS	
MTH 451	NUMERICAL LINEAR ALGEBRA	
MTH 452	NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS	
Select one of the following or another upper division life science course approved by a mathematics advisor:		3-4
BI 311	GENETICS	
BI 351	MARINE ECOLOGY	
BI 370	ECOLOGY	
BI 445	EVOLUTION	
BOT 341	PLANT ECOLOGY	
BOT 442	PLANT POPULATION ECOLOGY	
BOT 476	INTRODUCTION TO COMPUTING IN THE LIFE SCIENCES	
CS 446	NETWORKS IN COMPUTATIONAL BIOLOGY	
FW 320	INTRODUCTORY POPULATION DYNAMICS	
Total Credits		94-95

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Baccalaureate Core Course (BCC)

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Writing Intensive Course (WIC)

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