

Bachelor of Science – Statistics (STAT BS)

Applied Statistics Track Requirements

64-72 credits (min. 46 upper level credits)

Core Requirements (34 credits)	Pre-requisites	Credits	Semesters Offered*	Semester Taken and Grade
MATH 151 – Calculus and Analytic Geometry I	MATH 150 or Milestone 5 on Math Placement	4	FSZ	
MATH 152 – Calculus and Analytic Geometry II	MATH 151 or MATH155B	4	FSZ	
MATH 221 - Introduction to Linear Algebra	MATH 151 or MATH 155B	3	FSZ	
MATH 251 - Multivariable Calculus	MATH 152	4	FSZ	
STAT 332- Introduction to Data Science Computations	MATH 221	3	F/Z	
STAT 355 - Introduction to Probability and Statistics for Scientists and Engineers	Math 152	4	FWSZ	
STAT 433 - Statistical Computing	STAT 355	3	F	
STAT 451 - Introduction to Probability Theory	MATH 251 & STAT 355	3	S	
STAT 453 - Introduction to Mathematical Statistics	STAT 451 & STAT 332	3	F	
STAT 454 - Applied Statistics	STAT 350, STAT 351, STAT 355, or STAT 453	3	F	
Proficiency in English (6 credits)				
ENGL 393 - Technical Communication	ENGL 100 or ENGL 391	3	FSZ	
A course in SPCH	See catalog	3	varies	
Upper Level Electives (min. 24 credits) – See page 2 for guidance				
STAT ULE	See catalog	3-4		
STAT ULE	See catalog	3-4		
STAT ULE	See catalog	3-4		
STAT ULE	See catalog	3-4		
ULE from either list	See catalog	3-4		
ULE from either list	See catalog	3-4		
ULE from either list	See catalog	3-4		
ULE from either list	See catalog	3-4		

Minimum grade of "C" is required in all courses applied to the major and all courses used as prerequisites for major requirements.

*The "Semesters Offered" column indicates the semester in which that course is typically offered, subject to change by the department that administers the course. Please consult the UMBC Schedule of Classes for current offerings. Key: F = Fall, S = Spring, Z = Summer.

Bachelor of Science – Statistics (STAT BS)

Applied Statistics Track Requirements

Upper Level Electives

Complete EIGHT courses from the following or other approved courses, including a minimum of FOUR courses in Statistics:

Mathematics and Statistics

MATH 300 - Introduction to Mathematical Reasoning (4)	STAT 365 - Financial Mathematics for Actuaries (3)
MATH 301 - Introduction to Mathematical Analysis I (4)	STAT 405 - Survey Sampling (3)
MATH 302 - Introduction to Mathematical Analysis II (3)	STAT 414 - Environmental Statistics (3)
MATH 341 - Computational Methods (3)	STAT 417 - Introduction to Time Series Data Analysis (3)
MATH 355 - Biomathematics (3)	STAT 418 - Applied Multivariate Methods (3)
MATH 380 - Introduction to Optimization for Data Science (3)	STAT 419 - Introduction to Biostatistics (3)
MATH 381 - Linear Methods in Operations Research (3)	STAT 436 - Applied Statistical Learning and Data Science (3)
MATH 385 - Introduction to Mathematical Modeling (3)	STAT 455 - Design of Experiments and Quality Controls (3)
MATH 430 - Matrix Analysis (3)	STAT 490 – Special Topics in Statistics (3)
MATH 441 - Introduction to Numerical Analysis (3)	
MATH 452 - Introduction to Stochastic Processes (3)	

For ONE of the Upper Level STAT electives, a major may bundle together three or more credits from courses carrying one or two credits, from the following or other approved courses:

MATH 426 - Introduction to Math Software Packages: MATLAB (2)	STAT 470 - Probability for Actuarial Science (1)
STAT 432 - Statistical Computer Packages and Their Applications: SAS and R (1)	STAT 496 - Statistics Practicum (1-4)
	STAT 499 - Independent Study in Statistics (1-4)

Other Fields

CMSC 201 - Computer Science I (4) or CMSC 202 - Computer Science II (4)	IS 410 - Introduction to Database Design (3)
CMSC 331 - Principles of Programming Language (3)	IS 420 - Database Application Development (3)
CMSC 341 - Data Structures (3)	IS 427 - Introduction to Artificial Intelligence: Concepts and Applications (3)
ECON 421 - Introduction to Econometrics (3)	PSYC 312 - Research Methods in Psychology II (4)
ECON 422 - Topics in Econometrics (3)	SOCY 419 - Qualitative Methods in Social Research (3)
ECON 423 - Time Series and Forecasting (3)	

Courses on this list may have prerequisite requirements that are not included in the STAT BS major. Please consult the UMBC Undergraduate Catalog for more information on the required preparation for your preferred courses. Not all courses in this list are offered on a regular basis. Always consult the UMBC schedule of classes for course offerings and plan accordingly.

Information regarding specialties in specific fields of mathematics is available on the department website.

Statistics majors with a major or minor in Mathematics must have **two upper-level elective courses of three (or more) credits** for each program, neither of which is being counted simultaneously for both programs.