



**Montclair State University
Department of Applied Mathematics and Statistics
BS Applied Mathematics and Statistics**

<p>I. GenEd Requirement 32-36 sh</p> <p>A. New Student Seminar 1 C. Communication 9 C1. Writing C2. Literature C3. Communication D. Fine and Performing Arts 3 F. Humanities 6 F1. Great Works and Their Influences F2. Philosophical and Religious Perspectives G. Computer Science CSIT 104 (0) H. Mathematics AMAT 120 (0) I. Natural Science Laboratory * 0-4 J. Physical Education 1 K. Social Science 9 K1. American and European History K2. Global Cultural Perspectives K3. Social Science Perspectives L. Interdisciplinary Studies 3</p> <p>*Can be satisfied through the application-area sequence.</p>	<p>C. Specialized Courses (15 or 18 sh) <i>Choose one track</i></p> <p>Applied Mathematics Track (15 sh) AMAT 360 Numerical Computing 3 <i>Choose one of AMAT 368/AMAT 472</i> 3 AMAT 368 Mathematical Biology I AMAT 472 Dynamics and Bifurcation AMAT 430 Applied Analysis 3 AMAT 450 Applied Mathematics II 3 <i>Choose one of AMAT 497/AMAT 499</i> 3 AMAT 497 Applied Mathematics Research I AMAT 499 Co-Op in Applied Mathematics</p> <p>Statistics Track (15 sh) STAT 341 Statistical Computing 3 STAT 442 Fundamentals of Modern Stats II 3 STAT 443 Theory of Statistics 3 STAT 481 Intro. to Statistical Data Mining 3 <i>Choose one of STAT 497/STAT 499</i> 3 STAT 497 Statistical Science Research I STAT 499 Co-Op in Statistics</p> <p>Mathematics of Finance Track (18 sh) <i>Choose one of AMAT 360/STAT 341</i> 3 AMAT 360 Numerical Computing STAT 341 Statistical Computing AMAT 364 Mathematics of Finance I 3 AMAT 430 Applied Analysis 3 AMAT 460 Mathematics of Portfolio Theory 3 AMAT 464 Mathematics of Finance II 3 <i>Choose one of AMAT 497/AMAT 499</i> 3 AMAT 497 Applied Mathematics Research I AMAT 499 Co-Op in Applied Mathematics</p>
<p>II. World Languages and Cultures Requirement 3-9 sh</p> <p>A. World Languages 3-6 B. World Cultures 0-3 (Some World Cultures courses may fulfill Gen Ed requirements.)</p>	<p>D. Major Electives (0 or 3 sh) Students in the applied mathematics and statistics track will choose one elective, not already counted above, from AMAT 360,364,368,430,450,460,466,468,472,490, 495, 497,498; BIOL 112,113,213; CHEM 120,121,220, 230; CSIT 213,230,270,356, 359,456; MATH 323, 368,431,433,451,461,485,487; PHYS 191,192,210, 220,230,325,368,461; STAT 341,442,443,471,472, 481,486,487, 490, 495, 497,498.</p>
<p>III. Major Requirements 64-65 sh</p> <p>A. Common Courses (32 sh) AMAT 120 Applied Calculus A 4 AMAT 220 Applied Calculus B 4 MATH 222 Calculus III 4 AMAT 240 Introduction to Linear Algebra 4 STAT 230 Data Science and Statistics 3 STAT 330 Fundamentals of Modern Stats. I 4 AMAT 345 Applied Probability 3 AMAT 350 Applied Mathematics I 3 AMAT 356 Mathematical Modeling 3</p> <p>B. Collateral Requirements (14-15 sh) CSIT 104 Computational Concepts 3 CSIT 114 Python Programming 3 Application-Area Sequence 8-9 Choose one of the following sequences: *BIOL 112/113 (8 sh); *CHEM 120/121 (8 sh); CSIT 213/270/357 (9 sh); CSIT 213/356/456 (9 sh); *EAES 101/201 (8 sh); ECON 101/ACCT 204/FINC 221 (9 sh); *PHYS 191/192 (8 sh).</p>	<p>IV. Free Electives 10 - 21 sh</p> <p>Minimum total required for graduation 120 sh</p>

Suggested Four-Year Sequence for Applied Mathematics Track

First Year

Fall	Total: 15cr	Spring	Total: 14cr
AMAT 120 Applied Calculus A (4)		AMAT 220 Applied Calculus B (4)	
AMAT 240 Introduction to Linear Algebra (4)		STAT 230 Data Science and Stats (3)	
General Education Course (C1) (3)		General Education Course (C2) (3)	
CSIT 104 Computational Concepts (3)		CSIT 114 Python Programming (3)	
GNED 199 New Student Experience (1)		Physical Education Requirement (1)	

Second Year

Fall	Total: 15cr	Spring	Total: 16cr
MATH 222 Calculus III (4)		AMAT 345 Applied Probability (3)	
STAT 330 Fund. Modern Stats I (4)		Language requirement (3)	
General Education Course (C3) (3)		General Education course (3)	
Application-Area Sequence Course (4)		Application-Area Sequence Course (4)	
		World Cultures (3)	

Third Year

Fall	Total: 15cr	Spring	Total: 15cr
AMAT 350 Applied Mathematics I (3)		AMAT 356 Mathematical Modeling (3)	
AMAT 360 Numerical Computing (3)		AMAT 368 or AMAT 472 (3)	
Major elective (3)		AMAT 450 Applied Mathematics II (3)	
General Education Course (3)		General Education Course (3)	
General Education course (3)		Language requirement (3)	

Fourth Year

Fall	Total: 16cr	Spring	Total: 14cr
AMAT 430 Applied Analysis (3)		AMAT 497 or AMAT 499 (3)	
General Education Course (3)		General Education Course (3)	
General Education Course (3)		Free elective (4)	
Free elective (4)		Free elective (4)	
Free elective (3)			