

APPLIED MATHEMATICS MAJOR CHECKLIST

Major Advisor: Professor Samuel Graff (sgraff@jjay.cuny.edu)

Prerequisites: MAT 141 Pre-Calculus may be required depending on mathematics placement

CORE (17 CREDITS)

Required courses:	Comments
☐ CSCI 171 - The Nature of Computers and Computing (Python I)	
☐ CSCI 172 - Introduction to Data Science (Python II)	
☐ MAT 151- Calculus I	
☐ MAT 152 - Calculus II	
☐ MAT 265 - Elements of Mathematical Proof	

MATHEMATICS CORE (19 CREDITS)

Required courses:	Comments
☐ MAT 253 - Calculus III	
☐ MAT 301 - Mathematical Probability & Statistics I	
☐ MAT 302 - Mathematical Probability & Statistics II	
☐ MAT 310 - Linear Algebra	
☐ MAT 341 - Advanced Calculus	
☐ MAT 351 - Ordinary Differential Equations	

CONCENTRATION (9 CREDITS): Choose Cryptography or Data Science

CRYPTOGRAPHY	DATA SCIENCE
Required courses:	Required courses:
☐ CSCI 360 - Cryptography and Cryptanalysis	☐ CSCI 362 - Data Base and Data Mining
☐ MAT 410 - Abstract Algebra	☐ MAT 367 - Multivariate Analysis
☐ MAT 460 - Mathematical Cryptography <i>(Capstone)</i>	☐ MAT 455 - Data Analysis <i>(Capstone)</i>

(Capstone)

ELECTIVES (6 CREDITS)

Choose two courses:	
☐ CSCI 358 - Machine Learning	
☐ CSCI 376 - Artificial Intelligence	
☐ CSCI 377 - Computer Algorithms	<i>Cryptography Concentration ONLY:</i>
☐ CSCI 421 - Quantum Computing	☐ CSCI 362 - Data Base and Data Mining
☐ MAT 352 - Applied Differential Equations	☐ MAT 367 - Multivariate Analysis
☐ MAT 354 - Multiple Regression Analysis	☐ MAT 455 - Data Analysis
☐ MAT 361 - Introduction to Functions of a Complex Variable	
☐ MAT 365 - Signal Processes	
☐ MAT 371 - Numerical Analysis	<i>Data Science Concentration ONLY:</i>
☐ MAT 3xx - Stochastic Processes	☐ CSCI 360 - Cryptography and Cryptanalysis

☐ MAT 380 - Selected Topics in Mathematics	☐ MAT 410 - Abstract Algebra
☐ MAT 385 - Faculty Mentored Research	☐ MAT 460 - Mathematical Cryptography
☐ MAT 411 - Abstract Algebra II	
☐ MAT 442 - Advanced Calculus II	
☐ MAT 4xx - Game Theory	
☐ MAT 4xx - Internship	

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