Math Major Requirements  
Catalog Year: 2015-16  
Degree: Bachelor of Arts  
Credit Hours: 36+

“PR” indicates a pre-requisite. “CO” indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.cofc.edu/general-edu for more information.

**Required Courses**

- **MATH 120** Introductory Calculus (4)  **PR**: Placement or a C- or better in MATH 111
- **MATH 203** Linear Algebra (3)  **PR**: MATH 120 or instructor permission
- **MATH 220** Calculus II (4)  **PR**: MATH 120 or HONS 115
- **MATH 221** Calculus III (4)  **PR**: MATH 220
- **MATH 295** Introduction to Abstract Mathematics (3)  **PR**: MATH 203 or 221
- **MATH 303** Abstract Algebra I (3)  **PR**: MATH 203 and MATH 295
- **MATH 311** Advanced Calculus I (3)  **PR**: MATH 221 and MATH 295
- **MATH 315** Introduction to Complex Variables (3)  **PR**: MATH 221 with a minimum grade of C or better

Select one of the following courses:

- **MATH 403** Abstract Algebra II (3)  **PR**: MATH 303
- **MATH 411** Advanced Calculus II (3)  **PR**: MATH 203 and MATH 311

Complete one of the following options:

**Option 1**: Select 6 credit hours from the following 300 and 400-level MATH courses of which at least 3 credit hours must be at the 400-level or above:

- **MATH 305** Elementary Number Theory (3)  **PR**: MATH 295 or instructor permission
- **MATH 307** Discrete Structures II (3)  **PR**: MATH 207 or MATH 295 or instructor permission
- **MATH 320** History of Mathematics (3)  **PR**: MATH 295
- **MATH 323** Differential Equations (3)  **PR**: MATH 221 and MATH 203 or instructor permission
- **MATH 340** Axiomatic Geometry (3)  **PR**: MATH 295 or instructor permission
- **MATH 350** Statistical Methods II (3)  **PR**: MATH 120 and MATH 250
- **MATH 399** Tutorial (3; repeatable up to 12 credit hours)  **PR**: Junior standing; tutor and department chair permission
- **MATH 401** Intro Point Set Topology (3)  **PR**: MATH 311
- **MATH 402** Advanced Linear Algebra (3)  **PR**: MATH 203 and MATH 303 or MATH 311
- **MATH 403** Abstract Algebra II (3)  **PR**: MATH 303
- **MATH 411** Advanced Calculus II (3)  **PR**: MATH 203 and MATH 311
MATH 415  Complex Analysis (3) PR: MATH 311
MATH 417  Reading and Research (3) PR: Senior standing; instructor and department chair permission
MATH 418  Reading and Research (3) PR: Senior standing; instructor and department chair permission
MATH 421  Vector and Tensor Analysis (3) PR: MATH 311
MATH 423  Introduction to partial Differential Equations (3) PR: MATH 221 and MATH 323
MATH 430  Mathematical Statistics I (3) PR: MATH 221
MATH 431  Mathematical Statistics II (3) PR: MATH 430
MATH 440  Statistical Learning I (3) PR: MATH 203 and MATH 220 and MATH 350
MATH 441  Statistical Learning II (3) PR: MATH 440
MATH 445  Numerical Analysis (3) PR: MATH 203 and MATH 245 and MATH 323
MATH 449  Linear Models (3) PR: MATH 203 and MATH 350
MATH 451  Linear Programming and Optimization (3) PR: MATH 203 and MATH 221 and CSCI 220 or MATH 245 or instructor permission
MATH 452  Operations Research (3) PR: MATH 203 and MATH 430 and CSCI 220 or MATH 245
MATH 455  Bayesian Statistical Methods (3) PR: MATH 430
MATH 460  Stochastic Processes (3) PR: MATH 430
MATH 461  Time Series (3) PR: MATH 430
MATH 470  Mathematical Modeling (3) PR: MATH 203 and MATH 323 and MATH 246 or CSCI 220 or instructor permission
MATH 475  Statistical Consulting (3) PR: MATH 350 and one of the following: MATH 440, MATH 441, MATH 451, MATH 452, or CSCI 334
MATH 480  Topics in Applied Mathematics (3) PR: Instructor permission
MATH 485  Topics in Pure Mathematics (3) PR: Instructor permission
MATH 490  Practicum in Mathematics (3) PR: Senior standing; instructor and department chair permission
MATH 495  Capstone in Mathematics (3) PR: Completion of other core courses and senior standing or permission of the department chair
MATH 499  Bachelor's Essay (3) PR: Instructor and department chair permission

Option II: Complete 6 credit hours from the following:

☐ MATH 499  Bachelor's Essay (6) PR: Instructor and department chair permission