

Math Major with Pure Track Requirements

Catalog Year: 2015-16

Degree: Bachelor of Science

Credit Hours: 46+

"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 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

Select one of the following tracks (**Actuarial**, **Applied**, **Pure**, or **Statistics**):

Pure Track

- MATH 295 Introduction to Abstract Mathematics (3) PR: MATH 203 or MATH 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 grade of C or better
- 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

Select one of the following course/lab pairings:

- _____ _____ lab

CSCI 220 Computer Programming I (3) PR: CSCI 120 or CSCI 180 or MATH 111 or higher or department permission
CSCI 220L Computer Programming I Lab (1) PR or CO: CSCI 220

OR

MATH 245 Numerical Methods and Mathematical Computing (3) PR: MATH 203 or MATH 220 or instructor permission; CO: MATH 246
MATH 246 Mathematical Computing and Programming Lab (1) PR: MATH 220 or instructor permission

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

Select 6 credit hours from the following 400-level MATH courses:

- _____ _____

MATH 401 Intro Point Set Topology (3) PR: MATH 311

MATH 402 Advanced Linear Algebra (3) PR: MATH 203, and MATH 303 and/or MATH 311

MATH 403 Abstract Algebra II (3) PR: MATH 303

MATH 411	Advanced Calculus II (3) <i>PR: MATH 203 and MATH 311</i>
MATH 415	Complex Analysis (3) <i>PR: MATH 311</i>
MATH 417	Reading and Research (1-3) <i>PR: Senior standing; instructor and department chair permission</i>
MATH 418	Reading and Research (1-3) <i>PR: Senior standing; instructor and department chair permission</i>
MATH 421	Vector and Tensor Analysis (3) <i>PR: MATH 311</i>
MATH 423	Introduction to Partial Differential Equations (3) <i>PR: MATH 221 and MATH 323</i>
MATH 430	Mathematical Statistics I (3) <i>PR: MATH 221</i>
MATH 431	Mathematical Statistics II (3) <i>PR: MATH 430</i>
MATH 440	Statistical Learning I (3) <i>PR: MATH 203 and MATH 220 and MATH 350</i>
MATH 441	Statistical Learning II (3) <i>PR: MATH 440</i>
MATH 445	Numerical Analysis (3) <i>PR: MATH 203 and MATH 245 and MATH 323</i>
MATH 449	Linear Models (3) <i>PR: MATH 203 and MATH 350</i>
MATH 451	Linear Programming and Optimization (3) <i>PR: MATH 203 and MATH 221, and CSCI 220 or MATH 245, or instructor permission</i>
MATH 452	Operations Research (3) <i>PR: MATH 203 and MATH 430, and CSCI 220 or MATH 245</i>
MATH 455	Bayesian Statistical Methods (3) <i>PR: MATH 430</i>
MATH 460	Stochastic Processes (3) <i>PR: MATH 430</i>
MATH 461	Time Series (3) <i>PR: MATH 430</i>
MATH 470	Mathematical Modeling (3) <i>PR: MATH 203 and MATH 323, and MATH 246 or CSCI 220, or instructor permission</i>
MATH 475	Statistical Consulting (3) <i>PR: MATH 350 and one of the following: MATH 440, MATH 441, MATH 451, MATH 452, or CSCI 334</i>
MATH 480	Topics in Applied Mathematics (3; repeatable) <i>PR: Instructor permission</i>
MATH 485	Topics in Pure Mathematics (3) <i>PR: Instructor permission</i>
MATH 490	Practicum in Mathematics (3) <i>PR: Senior standing; instructor and department chair permission</i>
MATH 495	Capstone in Mathematics (3) <i>PR: Completion of other core courses and senior standing or permission of the department</i>
MATH 499	Bachelor's Essay (3) <i>PR: Instructor and department chair permission</i>