Advanced Math Placement Guide:
For students with 6 hours of Calc BC credit

Registration information for students majoring in one of the following disciplines:

- **Mathematics (majoring or minoring in)**
- **Physics**
- **Economics**
- **Chemistry**
- **Computer Science**

Note:
It is recommended that students check the Mathematics requirements for other departments' majors or future graduate-program requirements.

Math 211: Multivariable Calculus

Description:	This course extends the ideas of differentiation and integration to functions of more than one variable, focusing on computation and integration of the results. It also defines vector-valued functions and investigates the concepts of differentiation and integration in this setting. Applications include optimization of functions of more than one variable and computing the work done by a continuous force field. ***Fall, Spring, and Summer***
Prerequisites:	The prerequisites are: • Six hours of AP credit (a score of 4 or 5 on the AP BC exam) **or** • Math 112 or 112Z
Intended audience:	This course is intended for students majoring in one of the following fields: • Math • Physics • Economics

Math 212: Differential Equations

Description:	This course begins by defining a differential equation with the main objective of the course being to find a solution or set of solutions to a given differential equation. Several families of differential equations are examined and solutions computed when possible. Differential equations are used to model dynamic systems. There will be several applications throughout the course demonstrating how to set up and solve such systems. ***Fall and Spring***
Prerequisites:	The prerequisites are: • Six hours of AP BC credit (a score of 4 or 5 on the AP BC exam) **or** • Math 112 or 112Z
Intended audience:	Math 212 is **required** for students majoring in Applied Math, Applied Math & Stats, and Physics BS degrees.

Math 221: Linear Algebra

Description:	This course begins with the definition of a matrix and some fundamental operations that can be performed on matrices, such as adding or multiplying two matrices together. Vector spaces are also introduced. A connection is then formed by modeling vector spaces using matrices. Advanced topics involving matrices, such as diagonalization and quadratic forms, eigenvalues and eigenvectors, orthogonalization, and the Gram-Schmidt process are examined. ***Fall and Spring***

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Note: It is recommended that students check the Mathematics requirements for other departments' majors or future graduate program requirements.

Math 221: Linear Algebra (continued)	
Prerequisites:	The prerequisites are: • Six hours of AP BC credit, **or** • Math 112 or 112Z
Intended audience:	This course is **required** for students majoring in the Mathematics BA, Applied Math BS, and the Applied Math/Stats BS, as well as the Computer Science BA and BS. **Note:** Other departments, such as Chemistry and Economics, highly recommend that students take one or more of the math classes described above if they plan to pursue graduate school. See your specific department's website or advisors for more details.

Math 275: Honors Linear Algebra and Math 276: Honors Vector Calculus	
Description:	Math 275 and Math 276 provide ambitious math majors with an accelerated pathway into more advanced math courses. Students who complete the full-year sequence fulfill the major requirements for Linear Algebra (Math 221), Multivariable Calculus (Math 211,) and Foundations of Math (Math 250). Math 275 and 276 are more intense than regular versions of these courses, so math majors who elect this route should be ready for a serious challenge. Note: If you complete Math 275 without completing Math 276, you will be given credit for Math 211. You must complete the sequence in order to get credit for all 3 courses listed above. ***Math 275: Fall*** ***Math 276: Spring***
Prerequisites:	Freshmen who have received: • A score of 5 on the AP Calculus BC exam, **or** • A score of 7 on the HL IB exam, **or** • Permission of the instructor, see below: Students, including freshmen, who wish to enroll, must email enroll275@mathcs.emory.edu. Include a screen shot showing your AP or IB text scores.
Intended audience:	Math 275 and 276 are intended for ambitious math majors, including freshmen, who are serious about math and ready for the challenging material covered. When both courses are completed, students will have access into more advanced math courses.