

Comparison of AFM, Discrete Math, and Precalculus

Summary of Topics from the 2003 NC Standard Course of Study

Note: Highlighting indicates topics common to two or more courses

AFM	Discrete Math	Precalculus
<ul style="list-style-type: none"> • Modeling with functions to solve problems: linear, polynomial, exponential, trigonometric, power, logarithmic, and piecewise-defined functions* • One-variable statistics: collecting data, sample surveys, graphs, measures of central tendency and spread, comparing distributions, and the normal distribution curve • Probability: addition and multiplication rules, permutations and combinations, simulations, expected value, discrete random variables, and the Binomial Theorem • Recursively-defined functions: recursive and explicit representations, sum of a finite sequence, sum of an infinite sequence, and determining whether a series converges or diverges 	<ul style="list-style-type: none"> • Matrices • Graph Theory • One-variable statistics: collecting data, sample surveys, graphs, measures of central tendency and spread, comparing distributions, and the normal distribution curve • Probability: addition and multiplication rules, permutations and combinations, simulations, expected value, discrete random variables, and the Binomial Theorem • Fair outcomes: Apportionment, Election Theory, Voting Power, and Fair Division • Recursively-defined functions: recursive and explicit representations, sum of a finite sequence, sum of an infinite sequence, determining whether a series converges or diverges, and inductive proof 	<ul style="list-style-type: none"> • Transformations of functions • Conic sections • Vectors • Modeling with functions to solve problems: polynomial, exponential, trigonometric, inverse trigonometric, power, logarithmic, piecewise-defined functions, rational, and logistic functions* • Law of Sines and Law of Cosines • Inverse functions • Composition of functions • Polar equations • Parametric equations • Recursively-defined functions: recursive and explicit representations, sum of a finite sequence, sum of an infinite sequence, and determining whether a series converges or diverges • Limit of a function

*The majority of instructional time in the course is devoted to this topic

Example College Majors*

AFM	Discrete Math	Precalculus
<p>Accounting★ Agricultural Business Management★ Agricultural Science Animal Science★ Economics★ Elementary Education (STEM)★ Environmental Technology and Management★ Food Science★ Forest Management★ Horticultural Science Interdisciplinary Studies Nutrition Science★ Plant and Soil Sciences-Agrribusiness★ Plant Biology★ Poultry Science★ Science, Technology, and Society★ Sustainable Materials & Technology★ Technology Education Technology, Engineering & Design Education Turfgrass Science★ Wood Products★</p> <p>These majors do not require more than a Precalculus and/or Elements of Calculus course, but may also include other technical math courses specifically within the major.</p>	<p>Africana Studies Anthropology Agricultural Education Environmental Design in Architecture Art & Design Arts Studies Business and Marketing Education★ Business Administration★ Communication Criminology★ Design Studies English Extension Education French Language and Literature German Studies Graphic Design History Industrial Design International Studies Leadership in the Public Sector Middle Grades Educ. – Lang. Arts & Soc. Studies Parks, Recreation and Tourism Management★ Philosophy Political Science★ Professional Golf Management★ Psychology★ Religious Studies Social Work★ Sociology★ Spanish Language & Literature Sport Management★ Women’s and Gender Studies</p> <p>These majors do not require a Precalculus or calculus-</p>	<p>Aerospace Engineering Agricultural and Environmental Technology★ Applied Mathematics★ Biochemistry★ Biological Sciences Biomedical Engineering★ Bioprocessing Science★ Chemical Engineering Chemistry★ Civil Engineering★ Computer Engineering★ Computer Science★ Construction Engineering & Management Electrical Engineering★ Environmental Engineering★ Environmental Sciences★ Fashion & Textile Design★ Fashion & Textile Management★ Genetics★ Geology Industrial Engineering★ Marine Science★ Materials Science & Engineering Mathematics★ Mathematics Education (MS & HS)★ Mechanical Engineering★ Meteorology★ Microbiology★ Nuclear Engineering Physics★ Polymer and Color Chemistry★ Science Education Statistics★ Textile Engineering★</p>

	based math course, but may include other technical math courses specifically within the major.	Textile Technology★ Zoology★ These majors require one or more semesters of Calculus.
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*Based on information obtained from NC State University Office of Undergraduate Courses & Curricula <http://majorsandcareers.ncsu.edu/>

★ Majors that require a Statistics course