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## COURSE DESCRIPTIONS BY COURSE DISCIPLINE PREFIX

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### MAT MATHEMATICS

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<b>MAT-003</b>	<b>Transition Math</b>	<b>3 (0-6)</b>	<b>Fall Spring Summer</b>
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**Prerequisites:** None

**Corequisites:** ACA-090<sup>L</sup>

This course provides an opportunity to customize foundational math content in specific math areas and will include developing a growth mindset. Topics include developing the academic habits, learning strategies, social skills, and growth mindset necessary to be successful in mathematics. Upon completion, students should be able to build a stronger foundation for success in their gateway level math courses by obtaining skills through a variety of instructional strategies with emphasis placed on the most essential prerequisite knowledge.(2018 FA)

<b>MAT-010</b>	<b>Math Measurement &amp; Literacy Su</b>	<b>1 (0-2)</b>	<b>Fall</b>
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**Prerequisites:** None

**Corequisites:** MAT-110<sup>L</sup>

This course provides an opportunity to customize foundational math content specific to Math Measurement & Literacy. Topics include developing the academic habits, learning strategies, social skills, and growth mindset necessary to be successful in mathematics. Upon completion, students should be able to build a stronger foundation for success in Math Measurement & Literacy by obtaining skills through a variety of instructional strategies with emphasis placed on the most essential prerequisite knowledge.(2018 FA)

<b>MAT-021</b>	<b>Algebra/Trigonometry I Support</b>	<b>2 (1-2)</b>	<b>Spring Summer</b>
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**Prerequisites:** None

**Corequisites:** MAT-121<sup>L</sup>

This course provides an opportunity to customize foundational math content specific to Algebra and Trigonometry I. Topics include developing the academic habits, learning strategies, social skills, and growth mindset necessary to be successful in mathematics. Upon completion, students should be able to build a stronger foundation for success in Algebra/Trigonometry I by obtaining skills through a variety of instructional strategies with emphasis placed on the most essential prerequisite knowledge.(2018 FA)

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<b>MAT-043</b>	<b>Quantitative Literacy Support</b>	<b>2 (1-2)</b>	<b>Fall Spring Summer</b>
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**Prerequisites:** None

**Corequisites:** MAT-143<sup>L</sup>

This course provides an opportunity to customize foundational math content specific to Quantitative Literacy. Topics include developing the academic habits, learning strategies, social skills, and growth mindset necessary to be successful in mathematics. Upon completion, students should be able to build a stronger foundation for success in Quantitative Literacy by obtaining skills through a variety of instructional strategies with emphasis placed on the most essential prerequisite knowledge.(2018 FA)

<b>MAT-052</b>	<b>Statistical Methods I Support</b>	<b>2 (1-2)</b>	<b>Fall Spring</b>
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**Prerequisites:** None

**Corequisites:** MAT-152<sup>L</sup>

This course provides an opportunity to customize foundational math content specific to Statistical Methods I. Topics include developing the academic habits, learning strategies, social skills, and growth mindset necessary to be successful in mathematics. Upon completion, students should be able to build a stronger foundation for success in Statistical Methods I by obtaining skills through a variety of instructional strategies with emphasis placed on the most essential prerequisite knowledge.(2018 FA)

<b>MAT-071</b>	<b>Precalculus Algebra Support</b>	<b>2 (0-4)</b>	<b>Fall Spring</b>
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**Prerequisites:** None

**Corequisites:** MAT-171<sup>L</sup>

This course provides an opportunity to customize foundational math content specific to Precalculus Algebra. Topics include developing the academic habits, learning strategies, social skills, and growth mindset necessary to be successful in mathematics. Upon completion, students should be able to build a stronger foundation for success in Precalculus Algebra by obtaining skills through a variety of instructional strategies with emphasis placed on the most essential prerequisite knowledge.(2018 FA)

<b>MAT-110</b>	<b>Math Measurement &amp; Literacy</b>	<b>3 (2-2)</b>	<b>Fall</b>
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**Prerequisites:** MAT-003<sup>S</sup> or BSP-4003<sup>S</sup>

**Corequisites:** MAT-010<sup>S</sup>

This course provides an activity-based approach that develops measurement skills and mathematical literacy using technology to solve problems for non-math intensive programs. Topics include unit conversions and estimation within a variety of measurement systems ratio and proportion basic geometric concepts financial literacy and statistics including measures of central tendency, dispersion, and charting of data. Upon completion, students should be able to demonstrate the use of mathematics and technology to solve practical problems, and to analyze and communicate results.(2020 FA)

## COURSE DESCRIPTIONS

<b>MAT-121</b>	<b>Algebra/Trigonometry I</b>	<b>3 (2-2)</b>	<b>Spring Summer</b>
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**Prerequisites:** MAT-003<sup>S</sup> or BSP-4003<sup>S</sup>, minimum grade P2S

**Corequisites:** MAT-021<sup>S</sup>

This course provides an integrated approach to technology and the skills required to manipulate, display, and interpret mathematical functions and formulas used in problem solving. Topics include the properties of plane and solid geometry, area and volume, and basic proportion applications simplification, evaluation, and solving of algebraic equations and inequalities and radical functions complex numbers right triangle trigonometry and systems of equations. Upon completion, students will be able to demonstrate the ability to use mathematics and technology for problem-solving, analyzing and communicating results.(2020 FA) This course has been approved to satisfy the following requirement(s):

- Mathematics Gen. Ed. course for A.A.S. and A.G.E.

<b>MAT-143</b>	<b>Quantitative Literacy</b>	<b>3 (2-2)</b>	<b>Fall Spring Summer</b>
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**Prerequisites:** MAT-003<sup>S</sup> or BSP-4003<sup>S</sup>; ENG-002<sup>S</sup> or BSP-4002<sup>S</sup>

**Corequisites:** MAT-043<sup>S</sup>

This course is designed to engage students in complex and realistic situations involving the mathematical phenomena of quantity, change and relationship, and uncertainty through project- and activity-based assessment. Emphasis is placed on authentic contexts which will introduce the concepts of numeracy, proportional reasoning, dimensional analysis, rates of growth, personal finance, consumer statistics, practical probabilities, and mathematics for citizenship. Upon completion, students should be able to utilize quantitative information as consumers and to make personal, professional, and civic decisions by decoding, interpreting, using, and communicating quantitative information found in modern media and encountered in everyday life.(2020 FA) This course has been approved to satisfy the following requirement(s):

- UGETC course for A.A., A.A. Teacher Preparation, and A.F.A.
- Mathematics Gen. Ed. course for A.S. and A.S. Teacher Preparation
- Mathematics Gen. Ed. course for A.A.S. and A.G.E.

<b>MAT-152</b>	<b>Statistical Methods I</b>	<b>4 (3-2)</b>	<b>Fall Spring Summer</b>
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**Prerequisites:** MAT-003<sup>S</sup> or BSP-4003<sup>S</sup>; ENG-002<sup>S</sup> or BSP-4002<sup>S</sup>

**Corequisites:** MAT-052<sup>S</sup>

This course provides a project-based approach to introductory statistics with an emphasis on using real-world data and statistical literacy. Topics include descriptive statistics, correlation and regression, basic probability, discrete and continuous probability distributions, confidence intervals and hypothesis testing. Upon completion, students should be able to use appropriate technology to describe important characteristics of a data set, draw inferences about a population from sample data, and interpret and communicate results.(2020 FA) This course has been approved to satisfy the following requirement(s):

- UGETC course for A.A., A.A. Teacher Preparation and A.F.A. (visual arts and theatre)
- Mathematics Gen. Ed. course for A.S. and A.S. Teacher Preparation
- Mathematics Gen. Ed. course for A.A.S. and A.G.E.

<b>MAT-171</b>	<b>Precalculus Algebra</b>	<b>4 (3-2)</b>	<b>Fall Spring Summer</b>
<b>Prerequisites:</b> MAT-003 <sup>S</sup> or BSP-4003 <sup>S</sup> , minimum grade P2S or MAT-121, minimum grade CS <b>Corequisites:</b> MAT-071 <sup>S</sup> This course is designed to develop topics which are fundamental to the study of Calculus. Emphasis is placed on solving equations and inequalities, solving systems of equations and inequalities, and analysis of functions (absolute value, radical, polynomial, rational, exponential, and logarithmic) in multiple representations. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to algebra-related problems with and without technology.(2020 FA) This course has been approved to satisfy the following requirement(s): <ul style="list-style-type: none"> <li>• UGETC course for A.A., A.A. Teacher Preparation, A.F.A. (visual arts and theatre), A.S. and A.S. Teacher Preparation</li> <li>• Mathematics Gen. Ed. course for A.A.S. and A.G.E.</li> </ul>			
<b>MAT-172</b>	<b>Precalculus Trigonometry</b>	<b>4 (3-2)</b>	<b>Fall Spring Summer</b>
<b>Prerequisites:</b> MAT-171 <sup>S</sup> , minimum grade CL <b>Corequisites:</b> None This course is designed to develop an understanding of topics which are fundamental to the study of Calculus. Emphasis is placed on the analysis of trigonometric functions in multiple representations, right and oblique triangles, vectors, polar coordinates, conic sections, and parametric equations. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to trigonometry-related problems with and without technology.(2014 FA) This course has been approved to satisfy the following requirement(s): <ul style="list-style-type: none"> <li>• UGETC course for A.S. and A.S. Teacher Preparation</li> <li>• Mathematics Gen. Ed. course for A.A. and A.A. Teacher Preparation</li> </ul>			
<b>MAT-263</b>	<b>Brief Calculus</b>	<b>4 (3-2)</b>	<b>Fall Spring Summer</b>
<b>Prerequisites:</b> MAT-171 <sup>S</sup> , minimum grade CL <b>Corequisites:</b> None This course is designed to introduce concepts of differentiation and integration and their applications to solving problems. Topics include graphing, differentiation, and integration with emphasis on applications drawn from business, economics, and biological and behavioral sciences. Upon completion, students should be able to demonstrate an understanding of the use of basic calculus and technology to solve problems and to analyze and communicate results.(2014 FA) This course has been approved to satisfy the following requirement(s): <ul style="list-style-type: none"> <li>• UGETC course for A.S. and A.S. Teacher Preparation</li> <li>• Mathematics Gen. Ed. course for A.A. and A.A. Teacher Preparation</li> </ul>			

## COURSE DESCRIPTIONS

<b>MAT-271</b>	<b>Calculus I</b>	<b>4 (3-2)</b>	<b>Fall Spring Summer</b>
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**Prerequisites:** MAT-172<sup>S</sup>, minimum grade CL

**Corequisites:** None

This course is designed to develop the topics of differential and integral calculus. Emphasis is placed on limits, continuity, derivatives and integrals of algebraic and transcendental functions of one variable. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to derivative-related problems with and without technology.(2014 FA) This course has been approved to satisfy the following requirement(s):

- UGETC course for A.E., A.S. and A.S. Teacher Preparation
- Mathematics Gen. Ed. course for A.A. and A.A. Teacher Preparation
- A student may place directly into MAT 271 if the student has met at least one (1) of the following criteria within the past five (5) years:
  1. A score of 2 or higher on the AP Calculus AB Exam.
  2. A grade of C or higher in an AP Calculus course and an unweighted HS GPA of 3.0 or higher.
  3. A score of 90 or higher on the ACCUPLACER College-Level Math (CLM) test.
  4. A score of 46 or higher on the trigonometry section of the ACT Compass Math Placement Test.
  5. A score of 580 or higher on the old (prior to March 2016) SAT Math and a grade of C or higher in the North Carolina Standard Course of Study Pre-Calculus course or an equivalent course from another state.
  6. A score of 600 or higher on the new (March 2016 and beyond) SAT Math and a grade of C or higher in the North Carolina Standard Course of Study Pre-Calculus course or an equivalent course from another state.
  6. A score of 600 or higher on the new (March 2016 and beyond) SAT Math and a grade of C or higher in the North Carolina Standard Course of Study Pre-Calculus course or an equivalent course from another state.
  7. A score of 24 or higher on the ACT Math and a grade of C or higher in the North Carolina Standard Course of Study Pre-Calculus course or an equivalent course from another state.
  8. A score of 560 or higher on the SAT Subject Test in Mathematics Level 2.
  9. Local diagnostic exam or challenge exam which demonstrates proficiency in Pre-Calculus course(s) competencies.
  10. An unweighted HS GPA of 3.5 or higher and a grade of C or higher in the North Carolina Standard Course of Study Pre-Calculus course or an equivalent course from another state.

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<b>MAT-272</b>	<b>Calculus II</b>	<b>4 (3-2)</b>	<b>Fall Spring</b>
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**Prerequisites:** MAT-271<sup>S</sup>, minimum grade CL

**Corequisites:** None

This course is designed to develop advanced topics of differential and integral calculus. Emphasis is placed on the applications of definite integrals, techniques of integration, indeterminate forms, improper integrals, infinite series, conic sections, parametric equations, polar coordinates, and differential equations. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to integral-related problems with and without technology.(2014 FA) This course has been approved to satisfy the following requirement(s):

- UGETC course for A.E., A.S. and A.S. Teacher Preparation
- Mathematics Gen. Ed. course for A.A. and A.A. Teacher Preparation

<b>MAT-273</b>	<b>Calculus III</b>	<b>4 (3-2)</b>	<b>Spring</b>
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**Prerequisites:** MAT-272<sup>S</sup>, minimum grade CL

**Corequisites:** None

This course is designed to develop the topics of multivariate calculus. Emphasis is placed on multivariate functions, partial derivatives, multiple integration, solid analytical geometry, vector valued functions, and line and surface integrals. Upon completion, students should be able to select and use appropriate models and techniques for finding the solution to multivariate-related problems with and without technology.(2014 FA) This course has been approved to satisfy the following requirement(s):

- Mathematics Gen. Ed. course for A.A., A.A. Teacher Preparation, A.E., A.S. and A.S. Teacher Preparation

<b>MAT-285</b>	<b>Differential Equations</b>	<b>3 (2-2)</b>	<b>Spring</b>
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**Prerequisites:** MAT-272<sup>S</sup>, minimum grade CL

**Corequisites:** None

This course provides an introduction to topics involving ordinary differential equations. Emphasis is placed on the development of abstract concepts and applications for first-order and linear higher-order differential equations, systems of differential equations, numerical methods, series solutions, eigenvalues and eigenvectors, and LaPlace transforms. Upon completion, students should be able to demonstrate understanding of the theoretical concepts and select and use appropriate models and techniques for finding solutions to differential equations-related problems with and without technology.(2014 FA) This course has been approved to satisfy the following requirement(s):

- Premajor and/or Elective course for A.A. and A.S.
- Other Gen. Ed. and Premajor Elective Hour course for A.E.