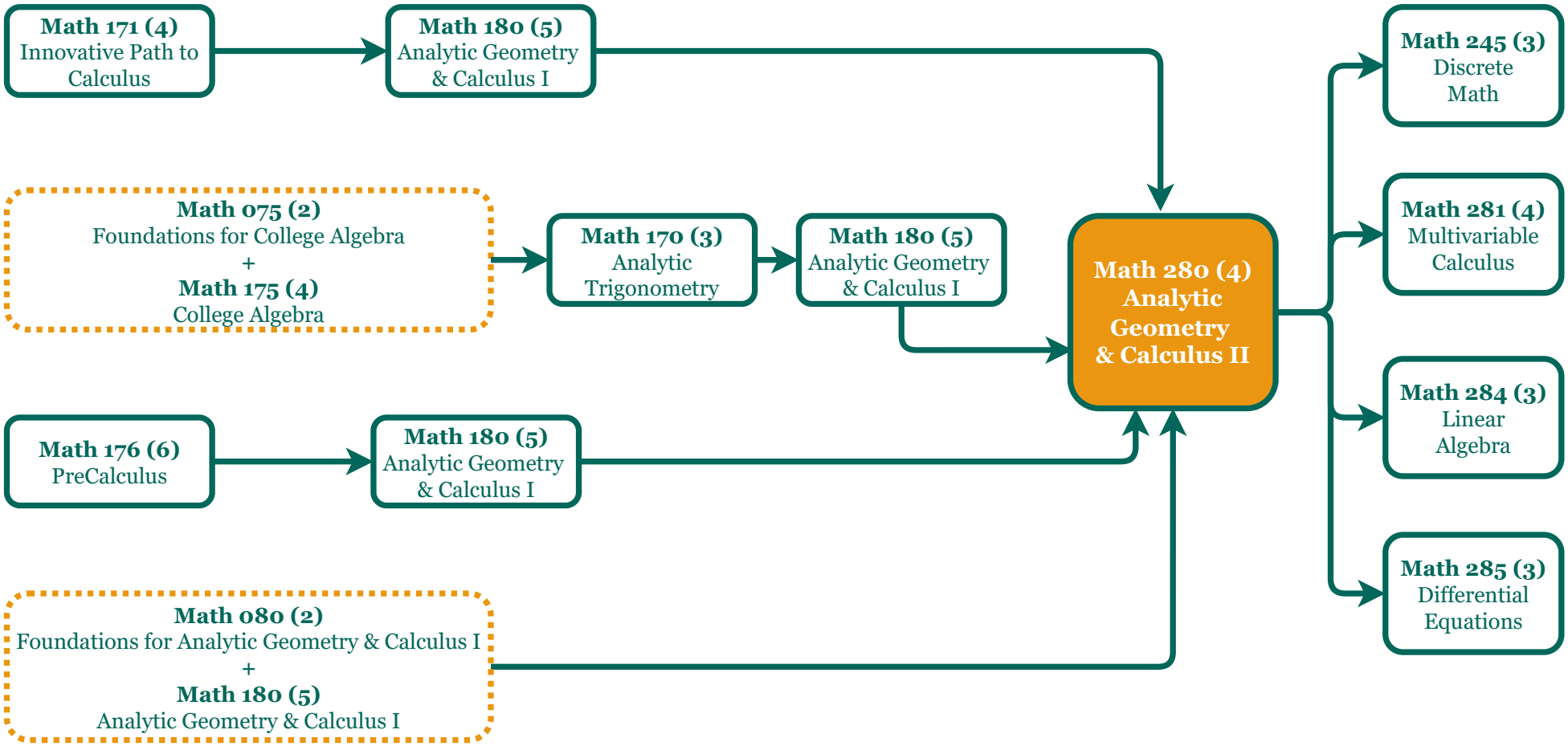
GROSSMONT COLLEGE
MATHEMATICS DEPARTMENT

STEM PATHWAYS

Path to Math 280 Analytic Geometry & Calculus II



STEM Course Descriptions

Math 170 Analytic Trigonometry

3 units, 3 hours lecture
A theoretical approach to the study of the trigonometric functions with emphasis upon circular functions, trigonometric identities, trigonometric equations, graphical methods, inverse functions, vectors and applications, complex numbers and solving triangles with applications.

Math 171 Innovative Path to Calculus

4 units, 3 hours lecture & 1 hour lab
This preparatory course offers focused instruction in essential algebraic and trigonometric concepts tailored to meet the needs of students pursuing STEM disciplines. Through targeted instruction and hands-on activities, students will engage with key topics including equations, functions, graphs, and trigonometry, priming them for success in Calculus I. While emphasizing mastery in core areas, the course strategically covers selected topics, ensuring students develop a solid foundation for advanced coursework, within the constraints of a condensed curriculum. Interactive sessions and the utilization of technology, such as graphing calculators, enrich the learning experience.

Math 175 College Algebra

4 units, 4 hours lecture
Graphic, numeric, and analytic approaches to the study of precalculus concepts from college algebra. Application of appropriate technology including but not limited to graphic utilities to model, analyze, and interpret world application problems from a wide variety of disciplines. Topics include the real number system; algebraic, exponential and logarithmic functions and their inverses; graphing techniques for polynomials, rational, and trigonometric functions; complex numbers; theory of equations; partial fractions; mathematical induction; sequences and series; matrices; and the binomial theorem.

Math 176 PreCalculus

6 units, 6 hours lecture
Unification of college algebra and analytical trigonometry based on the function concept. Topics include properties of real number system, inequalities, theory or equations, complex numbers, the study of functions including inverse functions, logarithmic and exponential functions, trigonometric functions with emphasis on circular functions, trigonometric identities, trigonometric equations, graphical methods and solving triangles with applications, matrices, binomial theorem, mathematical induction, sequences and series. Completion of the Matriculation Process is highly recommended. Completion of college algebra or trigonometry will enhance the student's preparation for this course.

Math 180 Calculus I

5 units, 5 hours lecture
MATH 180 includes topics from analytic plane geometry, limits and continuity of function, differential and integral calculus with applications involving algebraic, exponential, logarithmic, trigonometric, and hyperbolic functions.

Math 280 Calculus II

4 units, 4 hours lecture
A second course in differential and integral calculus of a single variable: integration; techniques of integration; infinite sequences and series; polar and parametric equation; conics. Primarily for Science, Technology, Engineering, and Math majors.

Math 281 Calculus III

4 units, 4 hours lecture
Sequel to Mathematics 280. Includes Vectors in two and three dimensions, partial differentiation, iterated integration, line and surface integrals, application of Green's and Stokes' theorems, work and cylindrical and spherical coordinates and an introduction to linear to algebra.

Math 245 Discrete Math

3 units, 3 hours lecture
Introduction to discrete mathematics. Topics to include sets, relations, summations, elementary counting techniques, recurrence relations, logic and proofs. This course is appropriate for mathematics and computer science majors.

Math 284 Linear Algebra

3 units, 3 hours lecture
The central topics are matrix operations. Gaussian elimination, determinants, vectorspaces, linear transformations, orthogonality, believable and eigenvectors.

Math 285 Differential Equations

3 units, 3 hours lecture
Includes first order differential equations, initial boundary value problems, the Cauchy-Euler equation, series solutions, and Laplace transformations, Fourier series, and separation of variables for elementary partial differential equations. Applications of these topics will be explored.

Math 075, 080 Support Courses

Units and hours dependent on the linked course
Support courses are designed to supplement topics needed for success in the paired transfer-level math course.

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