

MVCTC Math Guide

Prior Math

Courses

(Partner School)

Algebra 1
Algebra 2

Junior Year

(MVCTC)

Geometry

Choose an Algebra 2 EQUIVALENT based on career paths (see next page)

- Algebra 2
- Math Modeling & Reasoning (MMR)

Algebra 1
Geometry

Transitional Algebra
for students that need additional support prior to taking Algebra 2 if student needs Algebra 2 based on career path (see next page)

Algebra 1
Geometry
Algebra 2

Choose based on career path:

- **Mathematical Modeling & Reasoning (MMR)**
- **Pre-Calculus** (student will likely take Calculus at some point)
- **Functions & Trig** (student will likely take Pre-Calculus at some point, but needs to improve Algebra skills)

Senior Year

(MVCTC)

MVCTC Counselors will assist students in selecting a math course that aligns with career goals.

These classes may be taken by all students. (They are Algebra 2 Equivalents if the student still needs one).

- **Algebra 2**
- **Math Modeling & Reasoning**
- **Statistics**

These classes may be taken by all students. (They are Career Tech Options that can replace Algebra 2 if the student does not have an Algebra 2 Equivalent.)

- **Math for Technologists (potential to earn credit for Sinclair MAT1110)**
- **Allied Health Math (potential to earn credit for Sinclair MAT1130)**
- **Advanced Technical Math (for students in two week on/off pre-apprenticeship)**
- **Services Applied Math**

These classes may be taken by students with the appropriate pre-requisites.

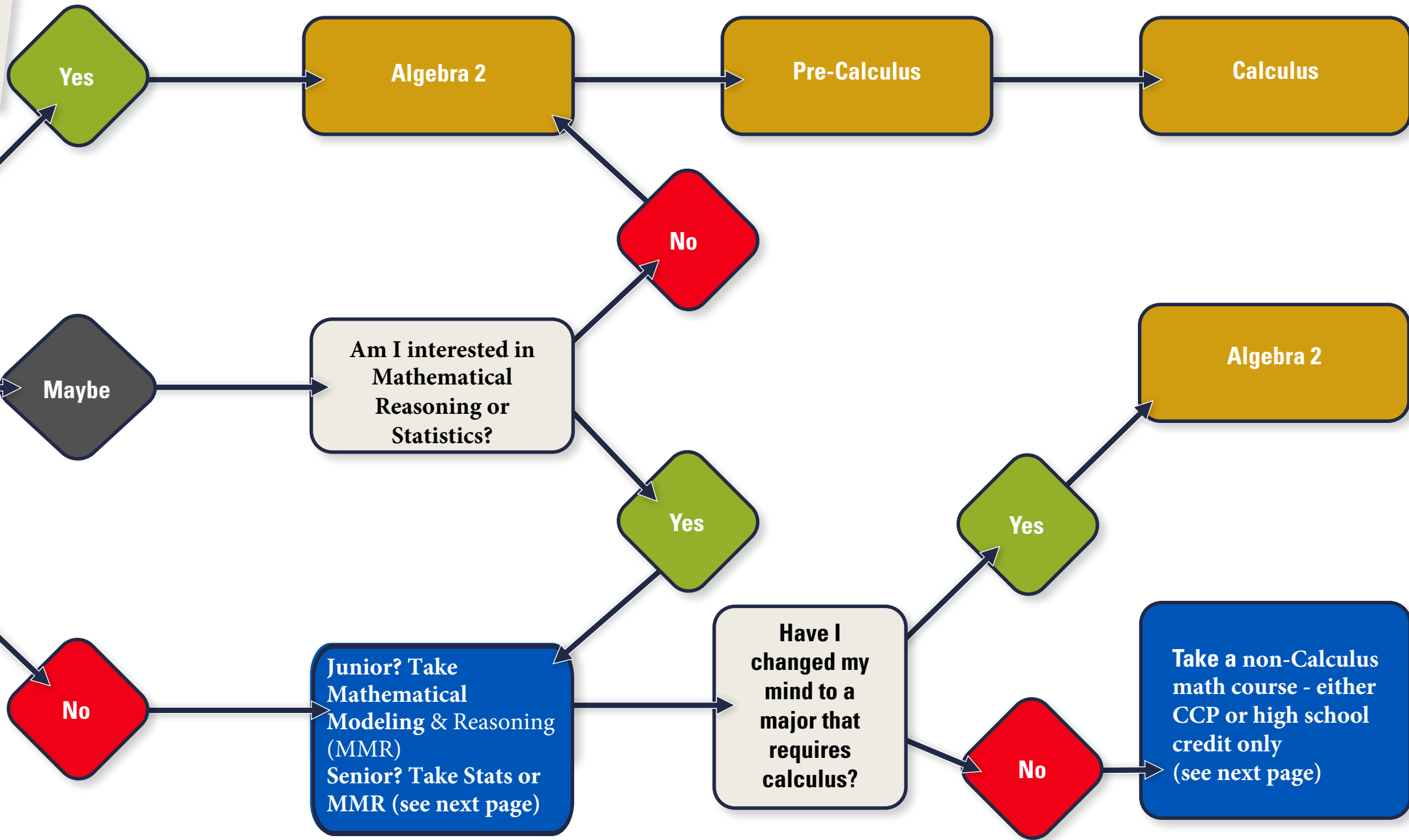
- **Problem Solving**
- **Functions & Trig**
- **Pre-Calculus**
- **Calculus**
- **CCP Pre-Calculus**
- **CCP Calculus**
- **CCP Statistics**

Student Decision Tree

Majors that Require Calculus



Am I planning to take Calculus in either high school or college?
(see list of majors below)



A2E = Algebra 2 Equivalency
CCP = College Credit Plus
AP = Advanced Placement

Majors that Require Calculus

- Actuarial Science
- Accounting
- Agribusiness
- Architecture*
- Astronomy
- Astrophysics
- Aviation (B.S.)
- Biology**
- Biochemistry
- Bioinformatics
- Biomedical Science
- Botany
- Business (B.S.)
- Chemistry
- City and Regional Planning*
- Computer Science (B.S.)
- Data Analytics (B.S.)
- Earth Science
- Economics
- Engineering Science
- Engineering Technology (B.S., B.A.S.)
- Environmental Science
- Exercise Science
- Finance
- Forensic Science
- Forestries, Fisheries, and Wildlife
- Geology**
- Information Science
- Logistics Management
- Marketing***
- Mathematics
- Math or Science Teacher
- Microeconomic Theory
- Neuroscience
- Nutrition Science (B.S.)
- Operations Management
- Physics
- Physiological Optics
- Public Health
- Pre-Health Professional (Doctor, Vet, Pharmacy)
- Real Estate and Urban Analysis

* Check with your local institution. ** Some institutions may require Precalculus for Bachelor of Arts Degrees. *** Check with your local feeder school. Some Marketing programs may require Statistics.

MVCTC offers the following Algebra 2 equivalents:

Algebra 2

Statistics

Mathematical Modeling & Reasoning

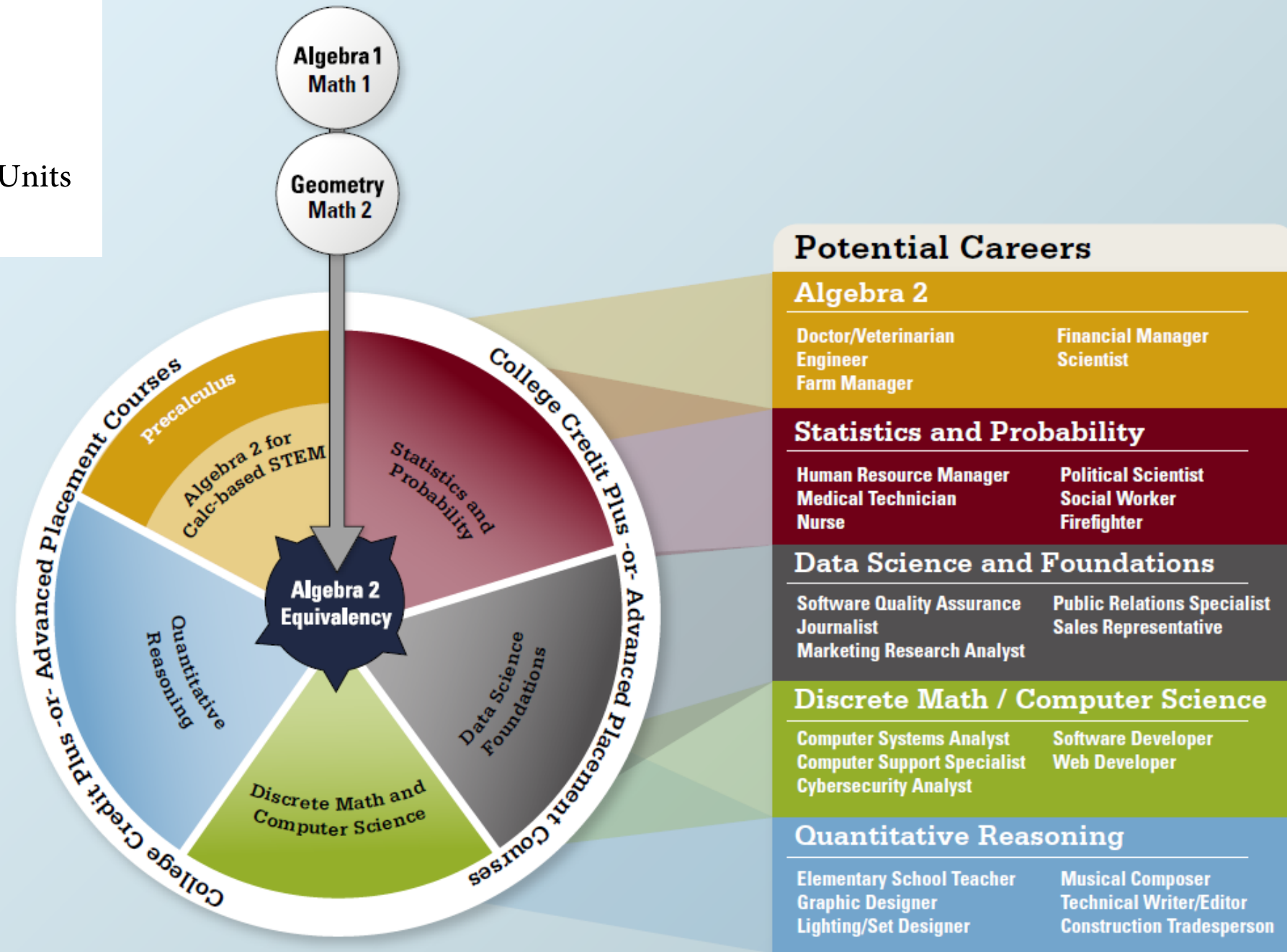
All are coded as CORE Subject Area: Algebra II or Equivalent Units

All are NCAA approved.

Math Pathways

ALL
Pathways are
college
preparatory

Ohio's High School Math Pathways



Districts may offer 1 or more courses listed in addition to Algebra 2.

Career-Technical Education Pathway Guidelines for Algebra II/Mathematics III Replacement

New legislation allows students who entered high school on or after July 1, 2015, and who are pursuing a career-technical education pathway to replace the Algebra II/Mathematics III requirement with a career-based mathematics course¹. All students are required to have access to a minimum of 10 career-technical education pathways.

HOW DOES REPLACING THE ALGEBRA II/MATHEMATICS III REQUIREMENT EFFECT GRADUATION?

Students replacing Algebra II/Mathematics III with a career-based mathematics course also must fulfill:

- The curriculum requirements, including four total units of mathematics;
- The assessment requirements; and
- One of the diploma options to receive an Ohio diploma.

Further graduation information may be found [here](#).

WHO IS ELIGIBLE?

The Algebra II/Mathematics III replacement is available to all students in the graduating classes of 2019 and beyond.

To be eligible, a student must:

- Have entered high school for the first time on or after July 1, 2015; and
- Be enrolled in a career-technical education pathway.

Please note: Students enrolled in a career-technical education pathway related to science, technology, engineering or math are strongly encouraged to take Algebra II/Mathematics III.

WHAT QUALIFIES AS A CAREER-TECHNICAL EDUCATIONAL PATHWAY?

A career-technical education pathway is defined as a coherent sequence of courses that lead to the attainment of the technical knowledge and skills identified by business and industry as necessary for high-skill, high-demand positions. Each pathway contains a minimum of four courses. Students are considered to be participating in the pathway once they begin the second half of their career-technical education coursework. Examples are given in the table.

Coursework Example	Career-Technical Pathway?	Reasoning
Two semesters of Family and Consumer Sciences coursework	No	Family and consumer sciences is not considered a career-technical education pathway.
The completion of a minimum of two courses in a single specialized Workforce Development program.	Yes	This is a sequential career-technical program.
One year in a Career-Based Intervention Program	No	Career-Based Intervention is not considered a career-technical education pathway. However, Career-Based Intervention Program students are encouraged to transition to CTE pathways by 11 th grade.
One semester of a business and management foundation course that is less than 120 hours	No	The two-course minimum has not been met.

¹ ORC 3313.603 C 3

MVCTC Math Guide

Which Algebra 2 Equivalent is MOST Appropriate? All students can benefit from either option. Mathematical Modeling & Reasoning, Statistics, and Algebra 2 are available to all students.			
	Program	Mathematical Modeling & Reasoning	Statistics
Advanced Manufacturing	Pre-Engineering	x	
	Precision Machining	x	
	Robotics & Automation	x	
	Welding	x	
Agriculture	Agriculture & Livestock Production	x	
	Animal Care & Management	x	
	Diesel Power Technologies	x	x
	Natural Resource Management	x	x
	Veterinary Science	x	
Arts & Communication	Digital Design	x	
	Graphic Commercial Art	x	
	Graphic Commercial Photography	x	
	Media & Video Production	x	
Building & Construction	Architectural Design	x	
	Construction Carpentry	x	
	Electrical Trades	x	
	Heating, Ventilation, & Air Conditioning	x	
	Heavy Equipment Operator	x	
Business & Information Technology	Business Ownership	x	x
	Computer Coding & Web Applications		x
	Computer Networking & Cyber Security	x	x
	Computer Repair & Technical Support		x
	Drones & GIS Technologies	x	x
	Medical Office Management		x
	Pre-Law & Legal Studies	x	x
	Sports Management & Marketing	x	x
Health	Biotechnology		x
	Dental Assisting	x	x
	Health Occupations		x
	Medical Lab Assisting		x
	Pre-Nursing		x
	Sports Medicine		x
Human Services	Cosmetology	x	
	Culinary Arts	x	x
	Early Childhood Education	x	x
Public Safety	Criminal Justice	x	x
	Firefighter / EMS		x
Transportation Systems	Auto Collision	x	x
	Automotive Technology	x	x
	Aviation Maintenance Technician	x	x

Ohio's High School Math Pathways

STUDENT DECISION TREE

This decision tree shows alignment between majors/careers and high school math pathways courses. The information is broad and should be used for general guidance only, as alignments may vary by higher education institutions. Please check your local community colleges or four-year feeder schools and adjust the chart as necessary.

For their third unit of mathematics, students may wish to explore one of their new pathway courses such as Statistics & Probability or Mathematical Modeling & Reasoning. However, if students decide to pursue a major within that pathway that requires Calculus, they should take Algebra 2 for their fourth unit of mathematics.

Mathematical Modeling & Reasoning (MMR)

Bachelor's or above (non-Calculus)

- Art History
- Communication Studies
- Criminal Justice (Applied degree)
- English
- History
- Human Resources Assistants*
- Intervention Specialist
- Journalism*
- Music
- PreK-5 Elementary Education
- Philosophy
- Public Relations/Advertising*
- Social/Human Services (AAB to BSW)*
- Social Work (AA to BSW)*
- Studio/Fine Arts
- Telecommunication*
- Theatre

Associate degree

- Applied Business (AAS)*
- Applied Marketing (AAB)*
- Computer Network Support Specialists*
- Dental Hygienists*
- Occupational Therapist Assistants*
- Web Developers*

Other Careers

- Agribusiness Systems
- Animal Systems
- Construction
- Design/Pre-Construction
- Environmental Service Systems
- Facility and Mobile Equipment
- Maintenance
- Food Products and Processing Systems
- Lodging

- Logistics Planning & Management Services
- Maintenance/Operations
- Natural Resource Systems Plant Systems
- Power, Structure and Technical Systems
- Recreation, Amusements, and Attractions
- Restaurants and Food/Beverage Services
- Sales and Service
- Transportation Operations
- Transportation Systems/Infrastructure
- Travel & Tourism

Statistics and Probability

Bachelor's or above (Calculus)

- 6-12 Education (math or science concentration)
- Business Intelligence
- Information Science*
- Statistics

Bachelor's or above (non-Calculus)

- 6-12 Education (non-math or science concentration)
- Anthropology
- Applied Business (AAB)*
- Applied Marketing (AAB)*
- Clinical/Medical Laboratory Science
- Criminal Justice (AA)
- Diagnostic Medical Sonographers*
- Dietetics
- Emergency Medical Technician (EMT)/Paramedic
- Environmental Science & Protection Tech*

- Exercise Science*
- Fire Science/EMT
- Geography
- Health Information
- Journalism*
- Health Sciences
- Management Analysts
- Market Research Analysts and Marketing Specialists*
- Nursing*
- Information Technology*
- Medical Laboratory
- Occupational Therapy*
- Paralegal and Legal Assistants
- Physical Therapy*
- Political Science
- Public Relations/Advertising*
- Radiologic Technologists*
- Respiratory Therapy Psychology (AA to BA)*
- Search Marketing Strategists*
- Social/Human Services (AAS) to BSW*

- Social Work (AA to BSW)*
- Sociology
- Telecommunication*

Associate degree

- Computer Network Support Specialists*
- Dental Hygienists*
- Human Resources Assistants*
- Medical and Clinical Laboratory Technicians*
- Nursing*
- Occupational Therapist Assistants*
- Physical Therapist Assistants*
- Recreation, Amusements, and Attractions
- Restaurants and Food/Beverage Services
- Sales and Service
- Transportation Operations
- Transportation Systems/Infrastructure
- Travel & Tourism

Algebra 2/Pre-Calculus/Calculus STEM Path

Bachelor's or above (Calculus)

- 6-12 Education (math or science concentration)
- Accounting
- Actuarial
- Aerospace, Agricultural, Civil, and Mechanical Engineering
- Agribusiness (BS)
- Architecture
- Bioengineering/Biomedical Engineering,
- Biology
- Business
- Chemical/Environmental Chemistry
- Computer/Electrical Engineering

- Economics
- Electrical Engineering Technology*
- Engineering Science
- Engineering Technology (BS, BAS)
- Exercise Science*
- Finance
- Geology
- Industrial Engineering
- Mathematics
- Mechanical Engineering Technology*
- Physics
- Pre-Health Professional (Doctor, Vet, Pharmacy)

Associate degree

- Chemical Technicians
- Civil/Construction Engineering Technology
- Computer Network Support Specialists*
- Electro-Mechanical Technicians
- Electrical and Electronic Engineering Technicians
- Environmental Science & Protection Tech*
- Industrial Engineering Technicians
- Mechanical Engineering Technicians
- Radiologic Technologists*

* Appears in more than one pathway; requirements differ by institution; or a major may require multiple math courses. Check with your local feeder institution to see the math requirements.

Note: A College Credit Plus (CCP) Technical Math may help students switch from a non-Calculus path to a Calculus path in the same field.