

Math Requirements for Specific Majors

Category 1B of the All-University Core Curriculum (AUCC) requires students to have at least three credits of mathematics. (Visit the [General Catalog](#) for a list of courses that will satisfy this requirement.) Many majors have specific courses that are required, whereas, other majors may not specify. (Refer to table at the end of the document.)

MATH 101 and **STAT 100** do not have prerequisites. If either of these courses are acceptable for your major, you will not need to take the MPE. These courses will not satisfy the prerequisite for higher-level math. Therefore, if you add to or change your degree program, you may end up having to take the MPE later.

Not every student will place into the class(es) recommended to take their first semester. These students can opt to improve their math placement results and/or register for the prerequisite classes. When you look at your MPE results, you will see what options are available to you if you wish to improve your math placement. If you wish to register for the prerequisite classes, you will need to place into at least MATH 117.

The MPE covers the content of the five one credit pre-calculus courses at CSU.

- **MATH 117** College Algebra I (prerequisite: satisfactory score on a Colorado State University Mathematics Placement Examination, or MAT 055, 093, or 099 taken at a Colorado Community College with a grade of C- or higher)
- **MATH 118** College Algebra II (prerequisite: MATH 117)
- **MATH 124** Logarithmic and Exponential Functions (prerequisite: MATH 117 and 118)
- **MATH 125** Numerical Trigonometry (prerequisite: MATH 117 and 118)
- **MATH 126** Analytical Trigonometry (prerequisite: MATH 117, 118, and 125)

The exam consists of three sections: Algebra (MATH 117 and 118), Trigonometry (MATH 125 and 126), and Logarithmic and Exponential Functions (MATH 124). The only section you are required to answer is the Algebra section.

The Math Placement Exam is also testing prerequisite skills for two of the entry-level math courses. (The third entry-level math course, **MATH 101** Mathematics in the Social Sciences, has no prerequisites.)

- **MATH 105** Patterns of Phenomena (Will not satisfy the prerequisite for higher-level math.)
- **MATH 117** College Algebra I

Some students should be enrolled in calculus their first semester. There are three different first semester calculus courses at CSU:

- **MATH 141**, Calculus in the Management Sciences (prerequisite: MATH 117 and 118)
- **MATH 155**, Calculus for Biological Students I (prerequisite: MATH 117, 118, 124, and 125)
- **MATH 160**, Calculus for Physical Scientists I (prerequisite: MATH 117, MATH 118, MATH 124, MATH 125, and MATH 126. Note: for both MATH 124 and 126 students must place out of the course on the MPE or have a grade of B or higher.)

Major	Is math important to first semester schedule?*	The ideal math placement result will allow students to register for the following math course(s).	Notes
<u>Agricultural Business</u>	Yes	MATH 117, 118, 124	The algebra section of the MPE is the most important section. You must be enrolled in or have completed MATH 117 & 118 before taking the first class required for Ag Business, AREC 202.
<u>Agricultural Education</u>	Yes	MATH 117, 118, 124	The algebra section of the MPE is the most important section. You must be enrolled in or have completed MATH 117 & 118 before taking AREC 202, preferably, in your first semester on campus.
<u>Animal Science</u>	Yes	MATH 117, 118, and 124	
<u>Anthropology</u>	No	Any, MATH 101 is fine	
<u>Apparel and Merchandising</u>	Yes, very important	MATH 117, 118, 124	
<u>Applied Computing Technology</u>	Yes, very important	MATH 160	The algebra and logarithmic sections of the MPE are the most important sections. The prerequisites for the first computer science course are MATH 117, 118, and 124.

Major	Is math important to first semester schedule?*	The ideal math placement result will allow students to register for the following math course(s).	Notes
<u>Art (BA and BFA)</u>	No	Any, MATH 101 is fine	Only consideration for Art students is if they want a minor that requires a certain level of math.
<u>Biochemistry</u>	Yes, very important	MATH 155 or MATH 160	The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for chemistry.
<u>Biological Science (Biology)</u>	Yes, very important	MATH 117, 118, 124, 125, or 155	The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for chemistry.
<u>Biomedical Engineering</u>	Yes, very important	MATH 160	All Engineering students must take the MPE prior to Ram Orientation due to math prerequisites for courses such as MATH 160 & 161, as well as CHEM 111 and PH 141. Please note it is not possible to graduate from Engineering in 10 semesters unless you place into MATH 160 or higher in your first semester or take summer courses.
<u>Biomedical Sciences</u>	Yes, very important	MATH 155 or MATH 160	The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for chemistry.
<u>Business Administration</u>	Yes	MATH 141	

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<u>Chemical and Biological Engineering</u>	Yes, very important	MATH 160	All Engineering students must take the MPE prior to Ram Orientation due to math prerequisites for courses such as MATH 160 & 161, as well as CHEM 111 and PH 141. Please note it is not possible to graduate from Engineering in 8 semesters unless you place into MATH 160 or higher in your first semester or take summer courses.
<u>Chemistry</u>	Yes, very important	MATH 160	The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for the first chemistry course.
<u>Civil Engineering</u>	Yes, very important	MATH 160	All Engineering students must take the MPE prior to Ram Orientation due to math prerequisites for courses such as MATH 160 & 161, as well as CHEM 111 and PH 141. Please note it is not possible to graduate from Engineering in 8 semesters unless you place into MATH 160 or higher in your first semester or take summer courses.
<u>Communication Studies</u>	No	Any, MATH 101 is fine	Only consideration for students is if they want a minor or double major that requires a certain level of math.

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<u>Computer Engineering</u>	Yes, very important	MATH 160	All Engineering students must take the MPE prior to Ram Orientation due to math prerequisites for courses such as MATH 160 & 161, as well as CHEM 111 and PH 141. Please note it is not possible to graduate from Engineering in 8 semesters unless you place into MATH 160 or higher in your first semester or take summer courses. In addition, it is important for students to take CS 163 or CS 164 in their first semester. Students must show completion of MATH 124 via transfer credit, AP/IB credit or through the MPE in order to take CS 163/164.
<u>Computer Science</u>	Yes, very important	MATH 160	The algebra and logarithmic sections of the MPE are the most important sections. The prerequisites for the first computer science course are MATH 117, 118, and 124.
<u>Construction Management</u>	Yes, very important	MATH 125	A grade of C or better in MATH 125 is required for admission to the Construction Management major. Students must take MATH 125 in order to progress to the rest of the Construction Management courses.
<u>Dance</u>	No	Any, MATH 101 is fine	Only consideration for students is if they want a minor or double major that requires a certain level of math.

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<u>Data Science</u>	Yes, very important	MATH 160	The algebra and logarithmic sections of the MPE are the most important sections. The prerequisites for the first computer science course are MATH 117, 118, and 124.
<u>Early Childhood Education</u>	No	Any, MATH 101 is fine	Only consideration for students is if they want a minor or double major that requires a certain level of math.
<u>Economics</u>	Yes, very important.	MATH 117 and 118	Eventually must complete MATH 141 or 155 or 160 and Statistics 201 or 204 or 301. Timely graduation best ensured if calculus done by end of sophomore year. Stats by end of 1 st semester junior year (although that is pushing it).
<u>Ecosystem Science and Sustainability</u>	Yes, very important	MATH 155 or 160	Major requires completion of MATH 155 or 160 and STAT 301 or 307. Timely graduation best ensured if calculus done no later than fall of second year and statistics by fall of third year.
<u>Electrical Engineering</u>	Yes, very important	MATH 160	All Engineering students must take the MPE prior to Ram Orientation due to math prerequisites for courses such as MATH 160 & 161, as well as CHEM 111 and PH 141. Please note it is not possible to graduate from Engineering in 8 semesters unless you place into MATH 160 or higher in your first semester or take summer courses.

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<u>Engineering Science</u>	Yes, very important	MATH 160	All Engineering students must take the MPE prior to Ram Orientation due to math prerequisites for courses such as MATH 160 & 161, as well as CHEM 111 and PH 141. Please note it is not possible to graduate from Engineering in 8-10 semesters (depending on your concentration) unless you place into MATH 160 or higher in your first semester or take summer courses.
<u>Engineering Science & International Studies</u>	Yes, very important	MATH 160	All Engineering students must take the MPE prior to Ram Orientation due to math prerequisites for courses such as MATH 160 & 161, as well as CHEM 111 and PH 141. Please note it is not possible to graduate from Engineering in 10 semesters unless you place into MATH 160 or higher in your first semester or take summer courses.
<u>English</u>	No	Any, MATH 101 is fine	The only math consideration for English is if the student is in or is considering a minor or double major with specific math requirements.
<u>Environmental and Natural Resource Economics</u>	Yes	MATH 117, 118, 124	The algebra section of the MPE is the most important section. You must be enrolled in or have completed MATH 117 & 118 in order to take Ag Economics in your first semester on campus.

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<u>Environmental Engineering</u>	Yes, very important	MATH 160	All Engineering students must take the MPE prior to Ram Orientation due to math prerequisites for courses such as MATH 160 & 161, as well as CHEM 111 and PH 141. Please note it is not possible to graduate from Engineering in 8 semesters unless you place into MATH 160 or higher in your first semester or take summer courses.
<u>Environmental Health</u>	Yes, very important	MATH 155 or MATH 160	The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for chemistry.
<u>Environmental Horticulture</u>	Yes	MATH 117, 118, plus 124 or 125 (see notes)	<p>Three credits of math are required. Landscape Business, and Landscape Design & Contracting Concentrations require up to MATH 125; Other concentrations up to MATH 124.</p> <p>The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for chemistry, and/or microeconomics.</p>
<u>Equine Science</u>	Yes	MATH 117, 118, and 124	
<u>Ethnic Studies</u>	No	Any, MATH 101 is fine	The only math consideration for Ethnic Studies is if the student is in or is considering a minor or double major with specific math requirements.

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<u>Family and Consumer Sciences</u>	No	Any, MATH 101 is fine	Only consideration for students is if they want a minor or double major that requires a certain level of math.
<u>Fermentation Science and Technology</u>	Yes	MATH 117, 118, 124, 125	
<u>Fire and Emergency Services Administration</u>	No	Any AUCC Math – MATH 101 is fine	This degree is offered through CSU online.
<u>Fish, Wildlife and Conservation Biology</u>	Yes	MATH 117 or higher	Completing MATH 117, 118, 124, and 125 before the end of the freshman year is critical to staying on track for calculus and other courses that have MATH 155 and/or MATH 117-125 as prerequisites.
<u>Forest and Rangeland Stewardship</u>	Yes	Forest biology concentration MATH 155, all other concentrations MATH 141	The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for MATH141. Completion of MATH141 by sophomore year is key to a student graduating in four years.
<u>Geography</u>	No	Any, MATH 101 is fine	Only consideration for students is if they want a minor or double major that requires a certain level of math.

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<u>Geology</u>	Yes, very important	MATH 160	<p>The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for chemistry.</p> <p>Some concentrations previously accepted MATH 155. As of Fall 2015, all concentrations must take MATH 160.</p>
<u>Health and Exercise Science</u>	Yes	MATH 118, 124, and 125	
<u>History</u>	No	Any, MATH 101 is fine	Only consideration for students is if they want a minor or double major that requires a certain level of math.
<u>Horticulture</u>	Yes	MATH 117, 118, 124 or MATH 155	<p>Three credits of math are required. Horticultural Science Concentration requires MATH 155; Other concentrations require up to MATH 124.</p> <p>The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for chemistry, and/or microeconomics.</p>
<u>Hospitality Management</u>	Yes	MATH 117 and MATH 101	

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<u>Human Development and Family Studies</u>	No	MATH 101 or higher	MATH 101 is sufficient for HDFS majors. However students pursuing careers in health professions or pursuing certain other majors and minors should take at least MATH 117, 118, 124.
<u>Human Dimensions of Natural Resources</u>	Yes	MATH 117, 118, 124	
<u>Interdisciplinary Liberal Arts</u>	No	Any AUCC math – MATH 101 most common	Many incoming interdisciplinary Lib. Arts students are exploring majors/minors, so MATH 117 is suggested if they qualify.
<u>Interdisciplinary Liberal Arts and Engineering Science</u>	Yes, very important	MATH 160	All Engineering students must take the MPE prior to Ram Orientation due to math prerequisites for courses such as MATH 160 & 161, as well as CHEM 111 and PH 141. Please note it is not possible to graduate from Engineering in 10 semesters unless you place into MATH 160 or higher in your first semester or take summer courses.
<u>Interior Architecture and Design</u>	Yes	MATH 117, 118, 124	
<u>International Studies</u>	Yes, but not critical	Any AUCC Math is fine	

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<u>Journalism and Media Communication</u>	No	Any AUCC Math	The only math consideration is if the student is in or is considering a minor or double major with specific math requirements.
<u>Landscape Architecture</u>	Yes	MATH 117, 118, 125, and 126	Three credits of math are required. Placing into MATH 118 is ideal. Program requires up to MATH 126. The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for chemistry, and/or microeconomics.
<u>Languages, Literatures and Culture</u>	No	Any AUCC Math – MATH 101 most common	
<u>Mathematics</u>	Yes, very important	MATH 160	
<u>Mechanical Engineering</u>	Yes, very important	MATH 160	All Engineering students must take the MPE prior to Ram Orientation due to math prerequisites for courses such as MATH 160 & 161, as well as CHEM 111 and PH 141. Please note it is not possible to graduate from Engineering in 8 semesters unless you place into MATH 160 or higher in your first semester or take summer courses.

Major	Is math important to first semester schedule?*	The ideal math placement result will allow students to register for the following math course(s).	Notes
<u>Microbiology</u>	Yes, very important	MATH 155 or MATH 160	The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for chemistry.
<u>Music (BA and BM)</u>	No	Any, MATH 101 is fine	Only consideration for Music students is if they want a 2 nd major or minor that requires a certain level of math.
<u>Natural Resource Tourism</u>	Yes	MATH 117, 118, 124	
<u>Natural Resources Management</u>	Yes	MATH 117, 118, 125	Completion of three math credits by sophomore year is key to a student graduating in four years.
<u>Natural Sciences</u>	Yes, very important	MATH 155 or 160	The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for chemistry.
<u>Neuroscience</u>	Yes, very important	MATH 155 or MATH 160	The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for chemistry.
<u>Nutrition and Food Science</u>	Yes	MATH 117, 118, 124	Nutritional sciences and Nutrition & Fitness concentrations require MATH 125.
<u>Philosophy</u>	No	Any AUCC Math – MATH 101 is fine	The only math consideration for Philosophy is if the student is in or is considering a minor or double major with specific math requirements.

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<u>Physics</u>	Yes, very important	MATH 160	
<u>Political Science</u>	No	Any AUCC Math – MATH 101 is fine	The only math consideration is if the student is in or is considering a minor or double major with specific math requirements.
<u>Psychology</u>	Yes	MATH 117	
<u>Restoration Ecology</u>	Yes	MATH117, 118, and 125	Completion of three math credits by sophomore year is key to a student graduating in four years.
<u>Social Work</u>	No	Any AUCC Math – MATH 101 is fine	STAT 100 will clear both your mathematics and statistic requirements.
<u>Sociology</u>	No	Any AUCC Math—MATH 101 is fine	Three credits of math required. MATH 105, 133, and 135 are NOT acceptable.
<u>Soil and Crop Sciences</u>	Yes	MATH 124, 125, 126 – Plant Biotechnology, Genetics, & Breeding and Soil Ecology concentrations; MATH 117, 118, 124 – all other concentrations	
<u>Statistics</u>	Yes, very important	MATH 160	
<u>Theatre</u>	No	Any, MATH 101 is fine	Only consideration for students is if they want a 2 nd major or minor that requires a certain level of math.
<u>Undeclared Arts/Humanities and Design</u>	No, but encouraged	MATH 117 encouraged	

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<u>Undeclared Art Interest</u>	No		
<u>Undeclared Business Interest</u>	Yes	MATH 118	
<u>Undeclared Engineering Interest</u>	Yes	MATH 160	
<u>Undeclared Environmental and Natural Resources</u>	Yes	MATH 117	
<u>Undeclared Exploring</u>	No, but encouraged	MATH 117	Depends on major
<u>Undeclared Global and Social Sciences</u>	Yes, but not critical	MATH 117	Depends on major
<u>Undeclared Health, Life, and Food Sciences</u>	Yes	MATH 117	

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<u>Undeclared Information Technology Interest</u>	Yes	MATH 160	
<u>Undeclared Journalism Interest</u>	No, but encouraged	MATH 117 encouraged, any math is acceptable	
<u>Undeclared Land, Plant, and Animal Sciences</u>	Yes	MATH 117	
<u>Undeclared Life Science Interest</u>	Yes	MATH 117	
<u>Undeclared Organization, Management, Enterprise</u>	Yes	MATH 117 or 118	
<u>Undeclared Physical Sciences and Engineering</u>	Yes	MATH 124	Most majors in this area require MATH 160

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<u>Watershed Science</u>	Yes, very important	MATH 155 or 160	Major requires completion of MATH 155 or 160, MATH 255 or 161, and STAT 301 or 315. Timely graduation best ensured if both calculus courses done by spring of second year and statistics by fall of third year.
<u>Women's and Gender Studies</u>	No	Any AUCC math – MATH 101 most common	
<u>Zoology</u>	Yes, very important	MATH 117, 118, 124, 125, or 155	The algebra section of the MPE is the most important section. Placing out of the two algebra courses (MATH 117 and 118) will allow you to register for chemistry.

* CSU requires all students to satisfy category 1B (3 credits of mathematics) of the All-University Core Curriculum before earning 60 credits, including transfer credits. Refer to the [General Catalog](#) for more information.