

# MATHEMATICS, LIBERAL ARTS (AS)

Degree: Associate of Science  
Major: Liberal Arts  
Emphasis: Mathematics  
Program Code: 2425

## About This Major . . .

The Associate of Science (A.S.) degree with an emphasis in mathematics provides students with a reasonable exposure to foundational college-level mathematics. The A.S. is the appropriate choice for students who will take upper division coursework in mathematics, biological sciences, and physical sciences. The degree program includes the Colorado Statewide General Education Core and meets the lower division general education requirements at most public institutions in Colorado. By completing this degree, students should be able to matriculate into a baccalaureate degree in mathematics with only 60 additional hours of coursework.

Important information for this degree:

- Students must maintain a 2.5 cumulative GPA or higher in all CMU coursework.

For more information on what you can do with this major, visit Career Services' [What to Do with a Major?](#) resource and the [Mathematics](#) website.

All CMU/CMU Tech associate graduates are expected to demonstrate proficiency in specialized knowledge/applied learning, quantitative fluency, communication fluency, critical thinking, personal and social responsibility, and information literacy. In addition to these campus-wide student learning outcomes, graduates of this major will be able to:

- Construct multi-step problem-solving strategies, and communicate solutions effectively in written form. (Specialized Knowledge/Quantitative Fluency)
- Use mathematical software (including calculators) to aid in problem-solving and investigation, and understand its limitations. (Applied Learning)

## Requirements

Each section below contains details about the requirements for this program. Select a header to expand the information/requirements for that particular section of the program's requirements.

To print or save an overview of this program's information, including the program description, learning outcomes, requirements, suggested course sequencing (if applicable), and advising and graduation information, scroll to the bottom of the left-hand navigation menu and select "Print Options." This will give you the options to either "Send Page to Printer" or "Download PDF of This Page." The "Download PDF of This Page" option prepares a much more concise presentation of all program information. The PDF is also printable and may be preferable due to its brevity.

## Institutional Degree Requirements

The following institutional degree requirements apply to all CMU or CMU Tech Associate of Science (AS) degrees. Specific programs may

have different requirements that must be met in addition to institutional requirements.

- 60 semester hours total.
- Students must complete a minimum of 15 of the final 30 semester hours of credit at CMU/CMU Tech.
- 2.00 cumulative GPA or higher in all CMU/CMU Tech coursework.
- A grade of "C" or higher must be earned in all Essential Learning courses in order to be accepted for transfer under the Colorado Core Transfer Consortium General Education curriculum or gtPathways, Colorado's guaranteed transfer program.
- A course may only be used to fulfill one requirement for each degree/certificate.
- No more than six semester hours of independent study courses can be used toward the degree.
- Non-traditional credit, such as advanced placement, credit by examination, credit for prior learning, cooperative education and internships, cannot exceed 15 semester credit hours for an associate of science degree. A maximum of 6 of the 15 credits may be for cooperative education, internships, and practica.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- Capstone exit assessment/projects (e.g., Major Field Achievement Test) requirements are identified under Program-Specific Degree Requirements.
- The Catalog Year determines which program sheet and degree requirements a student must fulfill in order to graduate. Visit with your advisor or academic department to determine which catalog year and program requirements you should follow.
- See "Requirements for Undergraduate Degrees and Certificates" in the catalog for a complete list of graduation requirements.

### Specific to this degree:

- Students must maintain a 2.5 cumulative GPA or higher in all CMU coursework.

## Essential Learning Requirements

(31 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is an Essential Learning option and a requirement for your major, you must use it to fulfill the major requirement and make a different selection for the Essential Learning requirement.

Code	Title	Semester Credit Hours
<b>English <sup>1</sup></b>		
ENGL 111	English Composition I-GTC01	3
ENGL 112	English Composition II-GTC02	3
<b>Mathematics <sup>1</sup></b>		
MATH 119	Precalculus Mathematics-GTMA1 <sup>2</sup>	3
or MATH 151	Calculus I-GT-MA1	
<b>History</b>		
Select one History course		3
<b>Humanities</b>		
Select one Humanities course		3
<b>Social and Behavioral Sciences</b>		

Select one Social and Behavioral Sciences course	3
Select one Social and Behavioral Sciences course	3
<b>Fine Arts</b>	
Select one Fine arts course	3
<b>Natural Sciences</b> <sup>3</sup>	
Select one Natural Sciences course with a lab	4
Select one Natural Sciences course	3
<b>Total Semester Credit Hours</b>	<b>31</b>

- <sup>1</sup> Must receive a grade of “C” or better and must be completed by the time the student has 60 semester hours.
- <sup>2</sup> Both options are 5 semester credit hour courses. Of the course selected, 3 credits apply to the Essential Learning Requirements and 2 credits apply to electives.
- <sup>3</sup> One course must include a lab.

## Other Lower Division Requirements

(2 semester hours)

Code	Title	Semester Credit Hours
<b>Wellness Requirement</b>		
KINE 100	Health and Wellness	1
Select one Activity course		1
<b>Total Semester Credit Hours</b>		<b>2</b>

## Program Specific Degree Requirements

(15-21 semester hours, no more than one “D” grade may be used. A GPA of 2.5 or higher must be maintained for all coursework toward the major content area.)

Code	Title	Semester Credit Hours
MATH 151	Calculus I-GT-MA1 <sup>1</sup>	5
MATH 152	Calculus II	5
MATH 253	Calculus III	4
MATH 260 or MATH 236	Differential Equations Differential Equations and Linear Algebra	3-4
STAT 200	Probability and Statistics-GTMA1	3
<b>Total Semester Credit Hours</b>		<b>20-21</b>

<sup>1</sup> If MATH 151 is used to satisfy the Mathematics Essential Learning Requirement, only 15 semester hours are required for the emphasis.

## General Electives

(6-12 semester hours)

Code	Title	Semester Credit Hours
MATH 119 or MATH 151	Precalculus Mathematics-GTMA1 Calculus I-GT-MA1	2

Select courses not listed above that will bring your total semester hours to 60 hours <sup>1</sup>	4-10
<b>Total Semester Credit Hours</b>	<b>6-12</b>

<sup>1</sup> Recommended: MATH 240 or CSCI 111.

## Suggested Course Plan

While the sequencing below culminates in a total of 60-62 semester credit hours, students must complete a minimum of 60 semester credit hours as required for completion of the degree, including satisfactory completion of all required courses. Plan to complete requirements with varying hour options accordingly.

First Year		Semester Credit Hours
<b>Fall Semester</b>		
ENGL 111	English Composition I-GTC01	3
MATH 151	Calculus I-GT-MA1	5
Essential Learning - Natural Science with lab		4
Essential Learning - Social and Behavioral Sciences		3
<b>Semester Credit Hours</b>		<b>15</b>
<b>Spring Semester</b>		
ENGL 112	English Composition II-GTC02	3
MATH 152	Calculus II	5
Essential Learning - Natural Science without lab		3
STAT 200	Probability and Statistics-GTMA1	3
Wellness Requirement - Activities Course		1
<b>Semester Credit Hours</b>		<b>15</b>
<b>Second Year</b>		
<b>Fall Semester</b>		
MATH 253	Calculus III	4
Essential Learning - Humanities		3
CSCI 111	CS1: Foundations of Computer Science (Or Elective)	3-4
Essential Learning - Social and Behavioral Sciences		3
KINE 100	Health and Wellness	1
<b>Semester Credit Hours</b>		<b>14-15</b>
<b>Spring Semester</b>		
MATH 260	Differential Equations	3
MATH 240	Introduction to Advanced Mathematics (or Elective)	3-4
Essential Learning - Fine Arts		3
Essential Learning - History		3
General Elective <sup>1</sup>		4
<b>Semester Credit Hours</b>		<b>16-17</b>
<b>Total Semester Credit Hours</b>		<b>60-62</b>

<sup>1</sup> Students that intend to continue with Colorado Mesa University should also take ESSL 290 and ESSL 200 during the final semester of their Associate of Science work.

## Advising and Graduation

### Advising Process and DegreeWorks

Documentation on the pages related to this program is intended for informational purposes to help determine what courses and associated requirements are needed to earn a degree. The suggested course sequencing outlines how students could finish degree requirements. Some courses are critical to complete in specific semesters, while others may be moved around. Meeting with an academic advisor is essential in planning courses and altering the suggested course sequencing. It

is ultimately the student's responsibility to understand and fulfill the requirements for their intended degree(s).

DegreeWorks is an online degree audit tool available in MAVzone. It is the official record used by the Registrar's Office to evaluate progress towards a degree and determine eligibility for graduation. Students are responsible for reviewing their DegreeWorks audit on a regular basis and should discuss questions or concerns with their advisor or academic department head. Discrepancies in requirements should be reported to the Registrar's Office.

## Graduation Process

Students must complete the following in the first two months of the semester prior to completing their degree requirements:

- Review their DegreeWorks audit and create a plan that outlines how unmet requirements will be met in the final semester.
- Meet with their advisor and modify their plan as needed. The advisor must approve the final plan.
- Submit the "Intent to Graduate" form to the Registrar's Office to officially declare the intended graduation date and commencement ceremony plans.
- Register for all needed courses and complete all requirements for each degree sought.

Submission deadlines and commencement details can be found on the [Graduation](#) web page.

If a student's petition for graduation is denied, it will be their responsibility to apply for graduation in a subsequent semester. A student's "Intent to Graduate" does not automatically move to a later graduation date.