2017-2018 PROGRAM REQUIREMENTS
Degree: Bachelor of Science
Major: Mathematics
Concentration: Secondary Education

About This Major . . .
The major in mathematics with a concentration in secondary education will prepare students to teach in both middle schools and in high schools. While completing this degree, students develop problem-solving and critical thinking skills and are introduced to the logical and historical development of mathematical ideas. Students also learn the professional skills in teaching methods and content necessary for secondary mathematics teachers. Nationally recommended curriculum guidelines are followed in order to ensure that graduates have the mathematical content and conceptual understanding necessary for all high school mathematics courses. Graduates from this program are in great demand both locally and statewide with the scarcity of mathematics teachers in this country.

For more information on what you can do with this major, go to http://www.coloradomesa.edu/career/whatmajor.html and/or http://www.coloradomesa.edu/mathstat/links.html.

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

1. Construct multi-step problem solving strategies, use mathematical software tools appropriately, and communicate solutions effectively in written form. (Critical Thinking / Communication Fluency)
2. Use mathematical software (including calculators) to aid in problem-solving and investigation, and understand its limitations. (Applied Learning)
3. Prove propositions deductively from definitions and theorems in clear and precise prose. (Quantitative Fluency)
4. Demonstrate familiarity with the logical and historical development of mathematics and the implications of this development. (Specialized Knowledge)
5. Effectively communicate mathematics using oral and written exposition appropriate for teachers of mathematics. (Communication Fluency)
6. Instruct K-12 students based on self-written learning plans to address individual learning and developmental patterns in Mathematics. (Specialized Knowledge)
7. Design a safe and supportive learning environment for elementary and secondary education students. (Applied Learning)
8. Apply Mathematics content knowledge while working with learners to access information in real world settings assuring learner mastery of the content. (Specialized Knowledge)
9. Integrate assessment, planning, and instructional strategies in coordinated and engaging ways through multiple means of communication. Critical Thinking/Communication Fluency)
10. Engage in meaningful and intensive professional learning and self-renewal by regularly examining practice through ongoing study, self-reflection, and collaboration. (Applied Learning)

Advising Process and DegreeWorks
This document 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 her/his 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 at http://www.coloradomesa.edu/registrar/graduation.html.
If a student's petition for graduation is denied, it will be her/his responsibility to consult the Registrar's Office regarding next steps.

INSTITUTIONAL DEGREE REQUIREMENTS

The following institutional degree requirements apply to all CMU baccalaureate degrees. Specific programs may have different requirements that must be met in addition to institutional requirements.

- 120 semester hours minimum.
- Students must complete a minimum of 30 of the last 60 hours of credit at CMU, with at least 15 semester hours in major discipline courses numbered 300 or higher.
- 40 upper-division credits (an alternative credit limit applies to the Bachelor of Applied Science degree).
- 2.00 cumulative GPA or higher in all CMU coursework.
- 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 30 semester credit hours for a baccalaureate degree; A maximum of 15 of the 30 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.

PROGRAM-SPECIFIC DEGREE REQUIREMENTS

- 2.80 cumulative GPA or higher in all CMU coursework
- 2.80 cumulative GPA or higher in coursework toward the major content area.
- All EDUC prefix courses must be completed with a grade of B or better.
- ALL other coursework toward the degree must be successfully completed prior to the internship.
- A grade of B or better must be earned in all required courses, unless otherwise stated.

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.

English (6 semester hours, must receive a grade of "B" or better and must be completed by the time the student has 60 semester hours.)

- ☐ ENGL 111 - English Composition (3)
- ☐ ENGL 112 - English Composition (3)

Mathematics (3 semester hours, must receive a grade of "B" or better, must be completed by the time the student has 60 semester hours.)

- ☐ MATH 119 - Pre-Calculus Mathematics (5) or higher
  3 credits apply to the Essential Learning requirements and 2 credits apply to elective credit

Humanities (3 semester hours)

- ☐ Select one Humanities course (3)

Social and Behavioral Sciences (6 semester hours)

- ☐ PSYC 233 - Human Growth and Development (3) (must receive a grade of "B" or higher)
- ☐ Select one Social and Behavioral Sciences course (3)
  GEOG 103 - World Regional Geography (3) recommended

Natural Sciences (7 semester hours, one course must include a lab)

- ☐ Select one Natural Science course (3)
- ☐ Select one Natural Science course with a lab (4)

History (3 semester hours)

- ☐ Select one History course (3)

Fine Arts (3 semester hours)

- ☐ Select one Fine Arts course (3)

OTHER LOWER-DIVISION REQUIREMENTS

Wellness Requirement (2 semester hours)

- ☐ KINE 100 - Health and Wellness (1)
- ☐ Select one Activity course (1)

Essential Learning Capstone (4 semester hours)

Essential Learning Capstone must be taken after completion of the Essential Learning English and Mathematics requirements, and when a student has earned between 45 and 75 hours.

- ☐ ESSL 290 - Maverick Milestone (3)
- ☐ ESSL 200 - Essential Speech (1)

FOUNDATION COURSES (8 semester hours)

- ☐ MATH 151 - Calculus I (5)
- ☐ STAT 200 - Probability and Statistics (3)

BS, MATHEMATICS SECONDARY EDUCATION REQUIREMENTS (42 semester hours, must pass all courses with a grade of "B" or higher, excepting one "D", at most, which may be used in completing the major requirements.)

Required Core Courses

- ☐ Math 150 - Topics and Careers in Math (1)
- ☐ MATH 152 - Calculus II (5)
- ☐ MATH 225 - Computational Linear Algebra (2)
- ☐ MATH 240 - Intro to Advanced Mathematics (4)
- ☐ MATH 253 - Calculus III (4)
- ☐ MATH 325 - Linear Algebra (3)
- ☐ One of the following courses:
  CSCI 111 - CS1: Foundations of Computer Science (4)
  CSCI 110 - Beginning Programming (3) with CSCI 110L - Beginning Programming Laboratory (1)
- ☐ MATH 369 - Discrete Structures I (3)
- ☐ MATH 380 - History of Mathematics (3)
- ☐ MATH 386 - Geometries (4)
- ☐ MATH 352 - Advanced Calculus (3)
- ☐ One of the following courses:
  MATH 415 - Abstract Algebra for Secondary Education (3)
  MATH 490 - Abstract Algebra I (3)
- ☐ One of the following courses:
  MATH 310 - Number Theory (3)
  MATH 365 - Linear Algebra I (3)
  STAT 311 - Statistical Methods (3)

GENERAL ELECTIVES (All college level courses appearing on your final transcript, not listed above that will bring your total semester hours to 120 hours. 4 semester hours)

- ☐ MATH 119 - Pre-Calculus Mathematics (2)
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

SECONDARY EDUCATION REQUIREMENTS (29 semester hours)

Program Requirements: ENGL 111, ENGL 112, PSYC 233, EDUC 115 and 215 (all with a grade of B or better) and formal acceptance to the Teacher Education Program.

- ☐ EDUC 115 - What It Means to be a Teacher (1) (8 field experience hours)
- ☐ EDUC 215 - Teaching as a Profession (1) (12 field experience hours)
- ☐ EDUC 342 - Pedagogy and Assessment: Secondary and K-12 (3) (20 field experience hours)
- ☐ EDUC 343 - Teaching to Diversity (3) (20 field experience hours)
- ☐ EDUC 442 - Integrating Literacy across the Curriculum: Secondary and K-12 Art (3) (60 field experience hours)
- ☐ EDUC 475 - Classroom Management (1)
- ☐ EDUC 497 - Content Methodology Practicum (3) (80 field experience hours)
- ☐ EDUC 497C - Methods of Teaching Secondary Mathematics (2)
  This course is only offered in the fall semester. It may be taken with either the 300-level or 400-level EDUC courses but must be taken before the student teaching semester.
- ☐ EDUC 499G - Teaching Internship and Colloquia: Secondary (12) (600 field experience hours)

SUGGESTED COURSE SEQUENCING

Freshman Year, Fall Semester: 15 credits

- MATH 119 - Pre-Calculus Mathematics (5)
- ENGL 111 - English Composition (3)
- Essential Learning - Humanities (3)
- Essential Learning - Fine Arts (3)
- KINA Activity (1)

Freshman Year, Spring Semester: 16 credits

- MATH 151 - Calculus I (5)
- MATH 150 - Topics and Careers in Math (1)
- ENGL 112 - English Composition (3)
- Essential Learning - Social/Behavioral Science (3)
- Essential Learning - History (3)
- KINE 100 - Health and Wellness (1)

Sophomore Year, Fall Semester: 16 credits

- MATH 152 - Calculus II (5)
- MATH 225 - Computational Linear Algebra (2)
- Elective (2)
- Essential Learning - Natural Science (3)
- PSYC 233 - Human Growth and Development (3)
- EDUC 115 - What It Means to be a Teacher (1)

Sophomore Year, Spring Semester: 18 credits

- MATH 253 - Calculus III (4)
- MATH 240 - Introduction to Advanced Mathematics (4)
- Essential Learning - Natural Science with Lab (4)
- STAT 200 - Probability and Statistics (3)
- Essential Learning – Humanities (3)

Junior Year, Fall Semester: 18 credits

- MATH 325 - Linear Algebra I (3)
- CSCI 111 - CS1: Foundations of Computer Science (4) or CSCI 110/110L - Beginning Programming (4)
- MATH 352 - Advanced Calculus (3)
- ESSL 290 - Maverick Milestone (3)
- ESSL 200 - Essential Speech (1)
- EDUC 215 - Teaching as a Profession (1)

Junior Year, Spring Semester: 16 credits

- MATH 380 - History of Mathematics (3)
- MATH 386 - Geometries (3)
- MATH 365 - Linear Algebra I (3)
- EDUC 342 - Pedagogy and Assessment: Secondary and K-12 (3)
- EDUC 343 - Teaching to Diversity (3)

Senior Year, Fall Semester: 15 credits

- MATH 415 - Abstract Algebra for Secondary Education (3) or MATH 490 - Abstract Algebra I (3)
- MATH 310 - Number Theory (3) or MATH 369 - Discrete Structures (3) or STAT 311 - Statistical Methods (3)
- EDUC 442 - Integrating Literacy Across the Curriculum (3)
- EDUC 475 - Classroom Management (1)
- EDUC 497 - Content Methodology Practicum (3)
- EDUC 497C - Methods of Teaching Secondary Mathematics (2)

Senior Year, Spring Semester: 12 credits

- EDUC 499G - Teaching Internship and Colloquia (12)