2017-2018 PROGRAM REQUIREMENTS
Degree: Bachelor of Science
Major: Computer Science

About This Major . . .
Computer science is the study of algorithms and the issues involved in implementing them. The program includes core courses in algorithms, data structures, logic, programming languages, software design, and advanced mathematics. Electives in web page design, artificial intelligence, robotics, computer graphics, video game design, databases, security, multimedia, and networks are also possible. The program and course offerings are constantly evolving to keep up with the latest changes in the Computer Science field. The small class sizes allow for close interaction between faculty and students, with independent research projects and internships available.

A wide variety of exciting professional and academic opportunities exist for graduates of computer science including software engineering, software testing, computational finance, game design, computer graphics, robotics, artificial intelligence, internet systems and technology, security, hardware development, animation, medicine, biotechnology, business management and consulting, modeling, as well as master's and doctoral studies in computing-related fields. Our graduates have continued on to advanced degrees in top-tier schools and are employed at IBM, Microsoft, Northrup Grumann, Lockheed-Martin, and many other technical companies.

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/cs.

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. Write programs in multiple programming languages and be able to translate concepts between languages. (Applied Learning)
2. Develop the technical specification, and develop, design and test a software solution for a given problem. (Communication Fluency Quantitative Fluency)
3. Analyze and measure competing hardware and software components and defend a choice for a given situation. (Critical Thinking)
4. Independently learn and use new technologies. (Specialized Knowledge)
5. Work in teams to solve large scale problems. (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

- A 2.50 GPA is required in the major courses. No more than one "D" may be used in completing major requirements.
- CSCI 310 is offered for different languages for 1-3 credit hours. A student may meet the required in any combination number of languages/courses/hours, to reach a total minimum of 4 hours taken. No language may be counted for credit more than once.

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 "C" 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 "C" or better, must be completed by the time the student has 60 semester hours.)

- ☐ Select one of the following courses:
  MATH 151 - Calculus I (5)
  MATH 135 - Engineering Calculus (4)
  3 credits will apply to the Essential Learning requirements and 1 or 2 credits will apply to Foundation Courses.

Humanities (3 semester hours)

- ☐ Select one Humanities course (3)

Social and Behavioral Sciences (6 semester hours)

- ☐ Select one Social and Behavioral Sciences course (3)
- ☐ Select one Social and Behavioral Sciences course (3)

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

- ☐ Select one Natural Sciences course (3)
- ☐ Select one Natural Sciences 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 (16-18 semester hours)

- ☐ CSCI 111 - CS1: Foundations of Computer Science (4)
- ☐ CSCI 112 - CS2: Data Structures (4)
- ☐ One of the following courses:
  MATH 151 - Calculus I (2)
  MATH 135 - Engineering Calculus I (1)
- ☐ One of the following courses:
  MATH 152 - Calculus II (5)
  MATH 136 - Engineering Calculus II (4)
- ☐ STAT 200 - Probability and Statistics (3)

BS, COMPUTER SCIENCE REQUIREMENTS (41-42 semester hours, 2.5 GPA is required in major courses, no more than one "D" may be used in completing major requirements.)

Computer Science Core (26 semester hours)

- ☐ CSCI 241 - Computer Architecture and Assembly Language (4)
- ☐ CSCI 250 - CS3: Introduction to Algorithms (3)
- ☐ CSCI 330 - Programming Languages (3)
- ☐ CSCI 470 - Operating Systems Design (3)
- ☐ CSCI 484 - Computer Networks (3)
- ☐ CSCI 490 - Software Engineering (3)
- ☐ MATH 369 - Discrete Structures I (3)

Complete 4 semester hours of CSCI 310 - Advanced Programming*:

- ☐ CSCI 310_____
- ☐ CSCI 310_____

* CSCI 310 is offered for different languages for 1-3 credit hours. A student may meet the required in any combination number of languages/courses/hours to reach a total minimum of 4 hours taken. No language may be counted for credit more than once.

Computer Science Choices (15-16 semester hours)

Select five courses from the following list:

CSCI 306 - Web Page Design III (3)
CSCI 322 - Embedded Systems (3)
CSCI 333 - UNIX Operating Systems (3)
CSCI 337 - User Interface Design (3)
CSCI 345 - Video Game Design (3)
CSCI 370 - Computer Security (3)
CSCI 375 - Object Oriented Programming (3)
CSCI 380 - Operations Research (3)
CSCI 445 - Computer Graphics (3)
CSCI 450 - Compiler Structure (3)
CSCI 460 - Database Design (3)
CSCI 480 - Theory of Algorithms (3)
CSCI 486 - Artificial Intelligence (3)
MATH 361 - Numerical Analysis (4)

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

GENERAL ELECTIVES (All college level courses appearing on your final transcript, not listed above that will bring your total semester hours to 120 hours. 23-26 semester hours, 5-6 hours of upper division may be needed.)

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SUGGESTED COURSE SEQUENCING

Freshman Year, Fall Semester: 15-16 credits

- CSCI 111 - CS1: Foundations of Computer Science (4)
- MATH 151 - Calculus I (5) or MATH 135 - Engineering Calculus I (4)
- ENGL 111 - English Composition (3)
- KINE 100 - Health and Wellness (1)
- Essential Learning - Social and Behavioral Science (3)

Freshman Year, Spring Semester: 15-16 credits

- CSCI 112 - CS2: Data Structures (4)
- MATH 152 - Calculus II (5) or MATH 136 - Engineering Calculus II (4)
- ENGL 112 - English Composition (3)
- KINA Activity (1)
- Essential Learning - Social and Behavioral Science (3)

Sophomore Year, Fall Semester: 16 credits

- CSCI 250 - CS3: Introduction to Algorithms (3)
- Essential Learning - History (3)
- Essential Learning - Humanities (3)
- Essential Learning - Natural Science with Lab (4)
- Elective (3)

Sophomore Year, Spring Semester: 15 credits

- CSCI 241 - Computer Architecture and Assembly Language (4)
- STAT 200 - Probability and Statistics (3)
- ESSL 290 - Maverick Milestone (3)
- ESSL 200 - Essential Speech (1)
- CSCI 310 - Advanced Programming (1)
- Essential Learning - Natural Science (3)

Junior Year, Fall Semester: 15 credits

- CSCI 310 - Advanced Programming (3)
- CSCI 330 - Programming Languages (3)
- Essential Learning - Fine Arts (3)
- Electives (6)

Junior Year, Spring Semester: 14-15 credits

- Computer Science Choice (3)
- Computer Science Choice (3)
- Electives (5-6)
- MATH 369 - Discrete Structures I (3)

Senior Year, Fall Semester: 15-16 credits

- Computer Science Choice (3)
- Computer Science Choice (3)
- CSCI 484 - Computer Networks (3)
- Electives (6-7)

Senior Year, Spring Semester: 12-13 credits

- CSCI 470 - Operating Systems Design (3)
- CSCI 490 - Software Engineering (3)
- Computer Science Choice (3)
- Electives (3-4)