2018-2019 PROGRAM REQUIREMENTS
Degree: Bachelor of Science
Major: Biological Sciences
Concentration: Ecology, Evolution, and Organismal Biology

About This Major . . .
The Bachelor of Science degree with a Biological Sciences major provides a broad background in the biological sciences. Students choose biology courses from four categories: cellular, molecular, and developmental biology; anatomical and physiological biology; organismal biology; and ecology, evolution, and systematics. The Ecology, Evolution, and Organismal Biology Concentration will provide a solid background in ecology and evolution, and offers field courses in a variety of areas, in addition to internships and research opportunities. Graduates of this program may pursue careers in ecology, plant biology, fish and wildlife biology, and evolutionary biology, which are just a few of the career options available.

For more information on what you can do with this major, go to http://www.coloradomesa.edu/career/whatmajor.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. Demonstrate a breadth of knowledge in the life sciences with an accompanying depth of knowledge particularly in the key areas of organismal diversity, ecology, evolution, and genetics. (Specialized Knowledge)
2. Utilize the scientific approach to address novel questions and problems through the development of hypotheses, design of experiments, collection of data, analysis of data, and interpretation of results. (Quantitative Fluency/Applied Learning)
3. Identify, examine, evaluate, and discuss the scientific literature. (Critical Thinking)
4. Articulate biological principles and ideas effectively, both in written and oral form. (Communication Fluency)

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 “C” or higher is required in all major courses and Foundation courses.
- Foundation courses should be completed by the end of the sophomore year.
- Topics courses (BIOL 196/296/396/496) as well as research courses (BIOL 387/487), internships (BIOL 499), teaching practicums (BIOL 493), and independent study (BIOL 495) may not be used as Additional Biology Courses but must be used for elective credit.

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.)

- ☐ MATH 113 - College Algebra (3) or higher
  3 credits apply to the Essential Learning requirements and 1 credit applies to elective credit.

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)
  PHYS 112/112L is typically required for admission to graduate schools. If chosen, 4 credits apply to the Essential Learning requirement and 1 credit applies to elective credit.

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 (17-19 semester hours, must pass all courses with a grade of "C" or higher)

- ☐ BIOL 105 - Attributes of Living Systems (3)
- ☐ BIOL 105L - Attributes of Living Systems Laboratory (1)
- ☐ CHEM 131 - General Chemistry I (4)*
- ☐ CHEM 131L - General Chemistry I Laboratory (1)*
- ☐ CHEM 132 - General Chemistry II (4)*
- ☐ CHEM 132L - General Chemistry II Laboratory (1)*
- ☐ One of the following courses:
  STAT 200 - Probability and Statistics (3)**
  MATH 151 - Calculus I (5)**

* A higher-level subject may be taken in the same category with advisor approval. Organic Chemistry may be required for admission to some graduate programs.

** Statistics **and** Calculus may be required for admission to some graduate programs.

BS, BIOLOGICAL SCIENCES, BIOLOGY REQUIREMENTS (51 semester hours, must pass all courses with a grade of "C" or higher)

Core (10 semester hours)

- ☐ BIOL 208 - Fundamentals of Ecology and Evolution (3)
- ☐ BIOL 208L - Fundamentals of Ecology and Evolution Laboratory (1)
- ☐ BIOL 301 - Principles of Genetics (3)
- ☐ BIOL 301L - Principles of Genetics Laboratory (1)
- ☐ BIOL 483 - Senior Thesis (2)

Required Related Study Area (21 semester hours)

- ☐ BIOL 106 - Principles of Animal Biology (3)
- ☐ BIOL 106L - Principles of Animal Biology Laboratory (1)
- ☐ BIOL 107 - Principles of Plant Biology (3)
- ☐ BIOL 107L - Principles of Plant Biology Laboratory (1)
- ☐ BIOL 403 - Evolution (3)
- ☐ BIOL 405 - Advanced Ecological Methods (3)
- ☐ BIOL 405L - Advanced Ecological Methods Laboratory (2)
- ☐ PHYS 111 - General Physics (4)
- ☐ PHYS 111L - General Physics Laboratory (1)

Additional Biology Courses (20 semester hours)

Select 20 semester hours, chosen from the lists below. At least 16 hours must be 300-level or above. Topics courses (BIOL 196/296/396/496) may not be used as Additional Biology Courses but must be used for elective credit.

Category 1: Cellular, Developmental, and Molecular

- BIOL 302 - Cellular Biology (3)
- BIOL 310/310L - Developmental Biology and Laboratory (5)
- BIOL 343 - Immunology (3)
- BIOL 344/344L - Forensic Molecular Biology and Laboratory (4)
- BIOL 371L - Laboratory Investigations in Cellular and Molecular Biology (3)
- BIOL 425 - Molecular Genetics (3)
- BIOL 442 - Pharmacology (3)
- CHEM 315/315L - Biochemistry I and Laboratory (4)
- CHEM 316 - Biochemistry II (3)

Category 2: Organismal

- BIOL 250/250L - Intro to Microbiology and Laboratory (4)
- BIOL 316/316L - Animal Behavior and Laboratory (4)
- BIOL 322/322L - Plant Identification and Laboratory (4)
- BIOL 331/331L - Insect Biology and Laboratory (5)
- BIOL 333 - Marine Biology (3)
- BIOL 335/335L - Invertebrate Zoology and Laboratory (4)
- BIOL 336/336L - Fish Biology and Laboratory (4)
- BIOL 350/350L - Microbiology and Laboratory (4)
- BIOL 411/411L - Mammalogy and Laboratory (4)
- BIOL 412/412L - Ornithology and Laboratory (4)
- BIOL 413/413L - Herpetology and Laboratory (4)
- BIOL 431/431L - Animal Parasitology and Laboratory (4)
- BIOL 433 - Marine Invertebrate Communities (3)
- BIOL 450/450L - Mycology and Laboratory (5)

Category 3: Anatomical and Physiological

- BIOL 209/209L - Human Anatomy & Physiology I and Laboratory (4)
- BIOL 210/210L - Human Anatomy & Physiology II and Laboratory (4)
- BIOL 241 - Pathophysiology (4)
- BIOL 341/341L - General Physiology and Laboratory (4)

BIOL 409/409L - Gross and Developmental Human Anatomy and Laboratory (4)
BIOL 410/410L - Human Osteology and Laboratory (4)
BIOL 421/421L - Plant Physiology and Laboratory (4)
BIOL 423/423L - Plant Anatomy and Laboratory (5)
BIOL 441 - Endocrinology (3)

Category 4: Ecology, Evolution, and Systematics

BIOL 211/211L - Ecosystem Biology and Laboratory (5)
BIOL 315 - Epidemiology (3)
BIOL 320 - Plant Systematics (3)
BIOL 321/321L - Taxonomy of Grasses and Laboratory (4)
BIOL 406 - Plant-Animal Interactions (3)
BIOL 407 - Tropical Field Biology (3-5)
BIOL 408 - Desert Ecology (3)
BIOL 414/414L - Freshwater Ecology and Laboratory (4)
BIOL 415 - Tropical Ecosystems (2)
BIOL 418/418L - Wildlife Management and Laboratory (5)
GEOL 305 - Cartography for GIS (1)
GEOG 131 - Introduction to Cartography (3)
GIST 332/332L - Introduction to GIS and Laboratory (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, including 40 upper-division hours. 13-15 semester hours; up to 10 hours of upper division may be needed. BIOL 499 Internship or research courses are recommended.)

- ☐ MATH 113 - College Algebra (1)
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

SUGGESTED COURSE SEQUENCING

Freshman Year, Fall Semester: 14 credits

- BIOL 105 - Attributes of Living Systems (3) and BIOL 105L - Attributes of Living Systems Laboratory (1)
- CHEM 131 - General Chemistry I (4) and CHEM 131L - General Chemistry I Laboratory (1)
- KINE 100 - Health and Wellness (1)
- MATH 113 - College Algebra (4)

Freshman Year, Spring Semester: 15-17 credits

- BIOL 106 - Principles of Animal Biology (3) and BIOL 106L - Principles of Animal Biology Laboratory (1)
- CHEM 132 - General Chemistry II (4) and CHEM 132L - General Chemistry II Laboratory (1)
- ENGL 111 - English Composition (3)
- STAT 200 - Probability and Statistics (3) or MATH 151 - Calculus I (5)

Sophomore Year, Fall Semester: 15 credits

- BIOL 107 - Principles of Plant Biology (3) and BIOL 107L - Principles of Plant Biology Laboratory (1)
- ENGL 112 - English Composition (3)
- Essential Learning - Social and Behavioral Sciences (3)
- PHYS 111 - General Physics (4) and PHYS 111L - General Physics Laboratory (1)

Sophomore Year, Spring Semester: 14 credits

- BIOL 208 - Ecology and Evolution (3) and BIOL 208L - Ecology and Evolution Laboratory (1)
- BIOL 301 - Principles of Genetics (3) and BIOL 301L - Principles of Genetics Laboratory (1)
- KINA Activity (1)
- PHYS 112 - General Physics II (4) and PHYS 112L - General Physics II Laboratory (1)

Junior Year, Fall Semester: 16 credits

- Additional Biology Courses (6)
- BIOL 403 - Evolution (3)
- Essential Learning - History (3)
- ESSL 290 - Maverick Milestone (3)
- ESSL 200 - Essential Speech (1)

Junior Year, Spring Semester: 15 credits

- BIOL 405 - Advanced Ecological Methods (3) and BIOL 405L - Advanced Ecological Methods Laboratory (2)
- Essential Learning - Social and Behavioral Sciences (3)
- Essential Learning - Humanities (3)
- General Electives (4)

Senior Year, Fall Semester: 16 credits

- Additional Biology Courses (7)
- Essential Learning - Fine Arts (3)
- Essential Learning - Natural Science (3)
- General Elective (3)

Senior Year, Spring Semester: 13-15 credits

- Additional Biology Courses (7)
- BIOL 483 - Senior Thesis (2)
- General Electives (4-6)