



2015-2016 PETITION/PROGRAM SHEET

Degree: Associate of Science

Major: Liberal Arts

Emphasis: Physics

About This Emphasis . . .

The Associate of Science (A.S.) degree is designed for students who intend to continue their education and obtain a baccalaureate degree. 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 Essential Learning Core and meets the lower division Essential Learning requirements at most public institutions in Colorado. A number of emphases are available within the A.S. degree. Students choosing one of these emphases will take courses in a discipline in addition to the Essential Learning core.

Physics is the study of the universe: what it's made of and how it works, ranging from stars and galaxies to atoms and nuclei and everything in between. Physics forms the foundation of many technical fields including electronics and optics. Physics also features prominently in many of the hottest areas of current research and innovation, such as the multidisciplinary fields of nanotechnology and biophysics.

Students who continue on in the physics baccalaureate program have a wide array of options. Physics majors from Colorado Mesa have gone on to graduate programs in physics, materials science, aerospace engineering, electrical engineering and to medical school. They have also gone directly into jobs in engineering, business, and research.

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

All CMU associate 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. Show fluency with aspects of the major fields of physics typical for introductory and sophomore level physics courses. (Specialized Knowledge)
2. Use mathematical representation to analyze physical scenarios. (Quantitative Fluency)
3. Use laboratory techniques to analyze physical scenarios. (Critical Thinking)

NAME: _____ STUDENT ID #: _____

LOCAL ADDRESS AND PHONE NUMBER: _____

_____ () _____

I, (Signature) _____, hereby certify that I have completed (or will complete) all the courses listed on the Program Sheet. I have read and understand the policies listed on the last page of this program sheet. I further certify that the grade listed for those courses is the final course grade received except for the courses in which I am currently enrolled and the courses which I complete next semester. I have indicated the semester in which I will complete these courses.

Signature of Advisor Date 20__

Signature of Department Head Date 20__

Signature of Registrar Date 20__

DEGREE REQUIREMENTS:

- Minimum of 60 semester hours total (A minimum of 15 of the final 30 semester hours of credit at CMU).
- 2.00 cumulative GPA or higher in all CMU coursework and a grade point average of 2.5 or higher must be earned in the Physics area of emphasis.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- No more than one "D" may be used in completing major requirements.
- A grade of "C" or higher must be earned in all Essential Learning courses in order to be accepted for the transfer under the Core Transfer Agreements.
- A student must follow the CMU graduation requirements either from 1) the program sheet for the major in effect at the time the student officially declares a major; or 2) a program sheet for the major approved for a year subsequent to the year during which the student officially declares the major and is approved for the student by the department head. Because a program may have requirements specific to the degree, the student should check with the faculty advisor for additional criteria. It is the student's responsibility to be aware of, and follow, all requirements for the degree being pursued. Any exceptions or substitutions must be approved by the student's faculty advisor and Department Head.
- When filling out the program sheet a course can be used only once.
- See the "Undergraduate Graduation Requirements" in the catalog for additional graduation information.

ESSENTIAL LEARNING REQUIREMENTS (31 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is on the Essential Learning list of options and a requirement for your major, you must use it to fulfill the major requirement and make a different selection within the Essential Learning requirement. The Essential Learning capstone course and co-requisite Essential Speech course (required for bachelor's degrees) cannot be used as options for the below requirements.

| | | | | |
|-----------|-------|---------|-------|-----------|
| Course No | Title | Sem.hrs | Grade | Term/Trns |
|-----------|-------|---------|-------|-----------|

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 | | _____ |

Math MATH 151 (3 semester hours, must receive a grade of "C" or better, must be completed by the time the student has 60 semester hours.)

| | | | | |
|----------|------------|----|--|-------|
| MATH 151 | Calculus I | 5* | | _____ |
|----------|------------|----|--|-------|

*3 credits apply to the Essential Learning requirements and 2 credits apply to elective credit

Social and Behavioral Sciences (6 semester hours)

| | | | | |
|-------|-------|-------|-------|-------|
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |

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

| | | | | |
|-------|---------|-------|-------|-------|
| _____ | _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ | _____ |
| _____ | L _____ | _____ | _____ | _____ |

History (3 semester hours)

| | | | | |
|------|-------|-------|-------|-------|
| HIST | _____ | _____ | _____ | _____ |
|------|-------|-------|-------|-------|

Fine Arts (3 semester hours)

| | | | | |
|-------|-------|-------|-------|-------|
| _____ | _____ | _____ | _____ | _____ |
|-------|-------|-------|-------|-------|

WELLNESS REQUIREMENT (2 semester hours)

| | | | | |
|----------|---------------------|---|-------|-------|
| KINE 100 | Health and Wellness | 1 | _____ | _____ |
| KINA 1 | _____ | 1 | _____ | _____ |

PHYSICS EMPHASIS REQUIREMENTS (24 semester hours)

Core Classes (13 semester hours)

| | | | | |
|--|--------------------------------|---|-------|-------|
| PHYS 131 | Fundamental Mechanics | 4 | _____ | _____ |
| PHYS 131L | Fundamental Mechanics Lab | 1 | _____ | _____ |
| PHYS 132 | Electromagnetism & Optics | 4 | _____ | _____ |
| PHYS 132L | Electromagnetism & Optics Lab1 | | _____ | _____ |
| Choose either PHYS 230 Intermediate Dynamics or PHYS 231 Modern Physics | | | | |
| PHYS | _____ | 3 | _____ | _____ |

Physics Specialization Classes (11 Semester Hours)

| | | | | |
|-----------|--------------|---|-------|-------|
| *MATH 151 | Calculus I | 2 | _____ | _____ |
| MATH 152 | Calculus II | 5 | _____ | _____ |
| MATH 253 | Calculus III | 4 | _____ | _____ |

Elective (3 Semester Hours)

| | | | | |
|-------|-------|-------|-------|-------|
| _____ | _____ | _____ | _____ | _____ |
|-------|-------|-------|-------|-------|

SUGGESTED COURSE SEQUENCING FOR THE ASSOCIATE OF SCIENCE WITH A MAJOR IN LIBERAL ARTS - EMPHASIS IN PHYSICS

This is a suggested sequence of course work. Certain courses may have prerequisites or are only offered during the Fall or Spring semesters. It is the student's responsibility to meet with the assigned advisor and check the 2 year course matrix on the Colorado Mesa website for course availability.

FRESHMAN YEAR

| Fall Semester | Hours | Spring Semester | Hours |
|---------------|----------|-----------------|----------|
| PHYS 131 | 4 | PHYS 132 | 4 |
| PHYS 131L | 1 | PHYS 132L | 1 |
| ENGL 111 | 3 | ENGL 112 | 3 |
| MATH 151 | 5 | MATH 152 | 5 |
| ESSL | <u>3</u> | Elective | <u>3</u> |
| | 16 | | 16 |

SOPHOMORE YEAR

| Fall Semester | Hours | Spring Semester | Hours |
|---------------|----------|-------------------------|----------|
| PHYS 230 | 3 | PHYS 231 Modern Physics | 3 |
| MATH 253 | 4 | ESSL | 3 |
| ESSL | 4 | ESSL | 3 |
| ESSL | <u>3</u> | ESSL | 3 |
| | 14 | KINE 100 | 1 |
| | | KINA | <u>1</u> |
| | | | 14 |

POLICIES:

1. Please see the catalog for a complete list of graduation requirements.
2. This program sheet must be submitted with your graduation planning sheet to your advisor during the **semester prior to the semester of graduation, no later than October 1 for spring graduates, no later than March 1 for fall graduates.** You must turn in your "Intent to Graduate" form to the Registrar's Office **by September 15 if you plan to graduate the following May, and by February 15 if you plan to graduate the following December.**
3. Your advisor will sign and forward the Program Sheet and Graduation Planning Sheet to the Department Head for signature. Finally, the Department Head will submit the signed forms to the Registrar's Office. (Students cannot handle the forms once the advisor signs.)
4. If your petition for graduation is denied, it will be your responsibility to reapply for graduation in a subsequent semester. Your "Intent to Graduate" does not automatically move to a later graduation date.
5. NOTE: The semester before graduation, you may be required to take a capstone exit assessment/project.