

## 2011-2012 PETITION/PROGRAM SHEET

**Degree: Bachelor of Science**

**Major: Physical Sciences**

**Concentration: Chemistry**

### About This Major . . .

This concentration is a classic chemistry curriculum comparable to those offered at colleges and universities across the nation. As of 2007 it consists of two semesters each of general, organic and physical chemistry, one semester of analytical chemistry and two electives chosen from a list including biochemistry, instrumental analysis, advanced organic and advanced inorganic. Opportunities for student research abound and the physical and environmental sciences department is well equipped with modern chemical instrumentation, including a 300 MHz NMR, liquid chromatograph and an ICP atomic emission spectrophotometer.

Colorado Mesa graduates have been successful in finding jobs in the chemical industry and secondary education, as well as being placed in graduate, pharmacy, and medical schools. As of summer 2006 all of the chemistry majors who have applied to medical school have been successful in being admitted. Our graduates have completed Ph.D. programs at the University of Denver, Arizona State University, University of Utah and University of Wyoming, in chemistry, biomedical engineering and environmental engineering.

### POLICIES:

1. It is your responsibility to determine whether you have met the requirements for your degree. Please see the Catalog for a complete list of graduation requirements.
2. 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. 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.**
4. Your advisor will sign and forward the Program Sheet and Graduation Planning Sheet to the Department Head for signature.
5. Finally, the Department Head or the department administrative assistant will take the signed forms to the Registrar's Office. (Students cannot handle the forms once the advisor signs.)
6. 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.
7. NOTE: The semester before graduation, you will be required to take a Major Field Achievement Test (exit exam).

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 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

Students should work closely with a faculty advisor when selecting and scheduling courses prior to registration.

Degree Requirements:

- 120 semester hours total (A minimum of 28 taken at CMU in no fewer than two semesters).
- 40 upper division credits (A minimum of 15 taken at the 300-400 course levels within the major at CMU).
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- 2.00 cumulative GPA or higher in all CMU coursework
- A "C" or higher is required in all major and foundation courses.
- 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 College catalog for additional graduation information.

**GENERAL EDUCATION REQUIREMENTS** (31 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is on the general education 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 general education requirement.

Course No	Title	Sem.hrs	Grade	Term	Trns
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**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:** (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*	_____	_____	_____
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\*3 credits apply to the General Ed requirements and 2 credits apply to foundation credit

**Humanities** (3 semester hours)

_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**Social and Behavioral Sciences** (6 semester hours)

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

_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	L	_____	_____	_____	_____

**History** (3 semester hours)

HIST	_____	_____	_____	_____	_____
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**Fine Arts** (3 semester hours)

_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Course No	Title	Sem.hrs	Grade	Term	Trns
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**OTHER LOWER DIVISION REQUIREMENTS** (6 semester hours)

**Kinesiology** (3 semester hours)

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

**Applied Studies** (3 semester hours)

_____	_____	_____	_____	_____	_____
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**FOUNDATION COURSES** (17 semester hours) A "C" or higher is required in all foundation courses.

MATH 151	Calculus I	2	_____	_____	_____
MATH 152	Calculus II	5	_____	_____	_____
PHYS 131	Fundamental Mechanics		_____	_____	_____
<b>OR</b>					
PHYS 111	General Physics	4	_____	_____	_____
PHYS 131L	Fundamental Mechanics Laboratory		_____	_____	_____
<b>OR</b>					
PHYS 111L	General Physics Laboratory	1	_____	_____	_____
PHYS 132	Electromagnetism & Optics		_____	_____	_____
<b>OR</b>					
PHYS 112	General Physics	4	_____	_____	_____
PHYS 132L	Electromagnetism & Optics Laboratory		_____	_____	_____
<b>OR</b>					
PHYS 112L	General Physics Laboratory	1	_____	_____	_____

**PHYSICAL SCIENCES – CHEMISTRY MAJOR**

**REQUIREMENTS** (43semester hours) A "C" or higher is required in all major courses.

**Core Physical Sciences-Chemistry Courses (36 semester hours)** All students complete the following courses:

CHEM 131	General Chemistry	4	_____	_____	_____
CHEM 131L	General Chemistry Lab	1	_____	_____	_____
CHEM 132	General Chemistry	4	_____	_____	_____
CHEM 132L	General Chemistry Lab	1	_____	_____	_____
CHEM 211	Quantitative Analysis	3	_____	_____	_____
CHEM 211L	Quantitative Analysis Lab	1	_____	_____	_____
CHEM 311	Organic Chemistry	4	_____	_____	_____
CHEM 311L	Organic Chemistry Lab	1	_____	_____	_____
CHEM 312	Organic Chemistry	4	_____	_____	_____
CHEM 312L	Organic Chemistry Lab	1	_____	_____	_____
CHEM 321	Physical Chemistry I	3	_____	_____	_____
CHEM 322	Physical Chemistry II	3	_____	_____	_____
CHEM 341	Advanced Laboratory I	2	_____	_____	_____
MATH 253	Calculus III	4	_____	_____	_____

**Restricted Electives (7 semester hours)** Courses are to be chosen from the list on pg 3:

_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**ELECTIVES** (All college level courses appearing on your final transcript, **not listed above** that will bring your total semester hours to 120 hours.) (23 semester hours; 15 hours upper division may be needed.)

_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Course No	Title	Sem.hrs	Grade	Term/Trns	Course No	Title	Sem.hrs	Grade	Term/Trns
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

**RESTRICTED ELECTIVES:**

- CHEM 315/315L Biochemistry and Lab (3) / (1)
- CHEM 342 Advanced Laboratory II (2)
- CHEM 396 Topics (1-3)
- CHEM 397 Structured Research (1-3)
- CHEM 411 Main Group Elements (3)
- CHEM 412 Transition Elements (3)
- CHEM 421 Advanced Organic Chemistry I (3)
- CHEM 422 Advanced Organic Chemistry II (3)
- CHEM 431/431L Instrumental Analysis and Lab (3) / (1)
- CHEM 482 Senior Research I (2)
- CHEM 494 Seminar (1)
- CHEM 496. Topics (3)

## SUGGESTED COURSE SEQUENCING FOR A MAJOR IN PHYSICAL SCIENCES - CHEMISTRY

This is a recommended 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
CHEM 131    General Chemistry	4	CHEM 132    General Chemistry	4
CHEM 131L    General Chemistry Lab	1	CHEM 132L    General Chemistry Lab	1
ENGL 111    English Composition	3	ENGL 112    English Composition	3
MATH 151    Calculus I	5	MATH 152    Calculus II	5
General Education Natural Science	<u>3</u>	General Education Natural Science with lab	<u>4</u>
	16		17

### SOPHOMORE YEAR

Fall Semester	Hours	Spring Semester	Hours
CHEM 211    Quantitative Analysis	3	CHEM 312    Organic Chemistry	4
CHEM 211L    Quantitative Analysis Lab	1	CHEM 312L    Organic Chemistry Lab	1
CHEM 311    Organic Chemistry	4	PHYS 132    Electromagnetism & Optics	4
CHEM 311L    Organic Chemistry Lab	1	PHYS 132L    Electromagnetism & Optics Lab	1
MATH 253    Calculus III	4	KINE 100    Health and Wellness	1
PHYS 131    Fundamental Mechanics	4	General Education Fine Arts	<u>3</u>
PHYS 131L    Fundamental Mechanics Lab	<u>1</u>		14
	18		

### JUNIOR YEAR

Fall Semester	Hours	Spring Semester	Hours
CHEM 321    Physical Chemistry I	3	CHEM 322    Physical Chemistry II	3
General Education History	3	CHEM 341    Advanced Laboratory I	2
General Education Social/Behavioral Science	6	General Education Humanities	3
Elective	<u>3</u>	General Education Social/Behavioral Science or Humanities	3
	15	KINA    Activity	1
		Elective	<u>3</u>
			15

### SENIOR YEAR

Fall Semester	Hours	Spring Semester	Hours
General Education Applied Studies	3	Restricted Elective	4
KINA    Activity	1	Unrestricted Upper Division Electives	<u>8</u>
Restricted Electives	3		12
Elective	3		
Unrestricted Upper Division Elective	<u>3</u>		
	13		