2013-2014 PETITION/PROGRAM SHEET
Degree: Bachelor of Science
Major: Chemistry

About This Major . . .

Chemistry students gain a unique perspective on the composition, properties, and reactivity of the substances surrounding them. These students gain problem-solving skills that can be applied in chemistry labs, in other classes, and in day-to-day life. By having chemistry faculty with a diverse range of specialties (analytical chemistry, biochemistry, inorganic chemistry, physical chemistry, and organic chemistry), chemistry majors have the opportunity to learn about each of these fields, and they are provided with a wide variety of research opportunities. Through research, students can synthesize new compounds and make other new scientific discoveries. In addition, chemistry students are trained to independently use modern instrumentation, including a 300 MHz NMR, a liquid chromatograph, a mass spectrometer, 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 2013 all of the chemistry majors who have applied to medical school have been 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.

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:

- Demonstrate fluency in the concepts from the major fields of chemistry (inorganic, organic, physical, and analytical). (Specialized Knowledge)
- Utilize mathematics to solve chemical problems. (Quantitative Fluency)
- Employ proper experimental techniques. (Applied Learning)
- Interpret chemical information from peer-reviewed publications. (Critical Thinking)
- Communicate chemical topics effectively, both verbally and in writing. (Communication Fluency)

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.

_____ _____ 20_____
Signature of Advisor Date

_____ _____ 20_____
Signature of Department Head Date

_____ _____ 20_____
Signature of Registrar Date

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

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*		

*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)

History (3 semester hours)
HIST

Fine Arts (3 semester hours)

Course No	Title	Sem.hrs	Grade	Term/Trns

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)

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			
OR		4		
PHYS 111	General Physics			
PHYS 131L	Fundamental Mechanics Laboratory			
OR		1		
PHYS 111L	General Physics Laboratory			
PHYS 132	Electromagnetism & Optics			
OR		4		
PHYS 112	General Physics			
PHYS 132L	Electromagnetism & Optics Laboratory			
OR		1		
PHYS 112L	General Physics Laboratory			

PHYSICAL SCIENCES – CHEMISTRY MAJOR REQUIREMENTS (51semester hours) A "C" or higher is required in all major courses.

Core Physical Sciences-Chemistry Courses (44 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 301	Analytical Chemistry	3		
CHEM 301L	Analytical Chemistry 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		
CHEM 351	Inorganic Chemistry I	3		
CHEM 431	Instrumental Analysis	3		
CHEM 431L	Instrumental Analysis Lab	1		
CHEM 442	Communication in Chemistry	1		
MATH 253	Calculus III	4		

Restricted Electives (7 semester hours) Courses are to be chosen from the list on pg 3, no more than 4 semester hours can come from CHEM 397 or 487:

ELECTIVES (All college level courses appearing on your final transcript, **not listed above,** that will bring your total semester hours to 120 hours.) (15 semester hours; 3 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 300 Environmental Chemistry (4)
CHEM 315/315L Biochemistry and Lab (3) / (1)
CHEM 316 Biochemistry II (3)
CHEM 352 Inorganic Chemistry II (3)
CHEM 396 Topics (1-3)
CHEM 397 Structured Research (1-3)
CHEM 421 Advanced Organic Chemistry I (3)
CHEM 422 Advanced Organic Chemistry II (3)
CHEM 487 Formal Research (1-3)
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	3	General Education	Natural Science with lab	4
		16			17

SOPHOMORE YEAR

Fall Semester		Hours	Spring Semester		Hours
CHEM 311	Organic Chemistry	4	CHEM 312	Organic Chemistry	4
CHEM 311L	Organic Chemistry Lab	1	CHEM 312L	Organic Chemistry Lab	1
MATH 253	Calculus III	4	PHYS 132	Electromagnetism & Optics	4
PHYS 131	Fundamental Mechanics	4	PHYS 132L	Electromagnetism & Optics Lab	1
PHYS 131L	Fundamental Mechanics Lab	1	CHEM 301	Analytical Chemistry	3
KINE 100	Health and Wellness	1	CHEM 301L	Analytical Chemistry Lab	1
General Education	Fine Arts	3			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 351	Inorganic Chemistry I	3
General Education	Social/Behavioral Science	6	General Education	Humanities	3
Elective		3	KINA	Activity	1
		15	Elective		3
					13

SENIOR YEAR

Fall Semester		Hours	Spring Semester		Hours
CHEM 411	Instrumental Analysis	3	Restricted Electives		4
CHEM 411L	Instrumental Analysis Lab	1	CHEM 341	Advanced Laboratory I	2
General Education	Applied Studies	3	CHEM 441	Chemistry Communication	1
KINA	Activity	1	Elective		3
Restricted Electives		3	Unrestricted Upper Division Electives		3
Elective		3			13
		14			

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).