

**EXECUTIVE COMMITTEE  
COLLEGE OF NATURAL AND AGRICULTURAL SCIENCES  
REPORT TO THE RIVERSIDE DIVISION  
MAY 29, 2018**

To be adopted:

Proposed Changes to Chemistry Undergraduate Program  
Bachelor of Science in Chemistry

**PRESENT:**

**Bachelor of Science**

1. Lower-division requirements (71-72 units)

- a) CHEM 001A, CHEM 001B, CHEM 001C, CHEM 01LA, CHEM 01LB, CHEM 01LC (or CHEM 01HA and CHEM 1HLA, CHEM 01HB and CHEM 1HLB, CHEM 01HC and CHEM 1HLC), CHEM 005, CHEM 008A and CHEM 08LA or ~~CHEM 12A~~, CHEM 008B and CHEM 08LB or ~~CHEM 12B~~, CHEM 008C and CHEM 08LC or ~~CHEM 12C~~ (or CHEM 08HA and CHEM 08HLA or ~~CHEM 12HA~~, CHEM 08HB and CHEM 08HLB or ~~CHEM 12HB~~, CHEM 08HC and CHEM 08HLC or ~~CHEM 12HC~~)

- b) MATH 009A, MATH 009B, MATH 009C, and ~~three~~ out of the following: ~~MATH 010A~~, MATH 010B, MATH 031, MATH 046

- c) PHYS 040A, PHYS 040B, PHYS 040C

2. Upper-division requirements (41-43 units)

A minimum grade of "C-" for any upper-division course used to fulfill the requirements for the B.S. degree.

- a) CHEM 110A, CHEM 110B, CHEM 111, CHEM 113, ~~CHEM 125~~, CHEM 150A, CHEM 191
- b) Two laboratory courses from CHEM 114 or CHEM 140, CHEM 166, BCH 162
- c) One course from BCH 100, BCH 110A, CHEM 143
- d) One 4-unit course from CHEM 135/ENSC 135/ENTX 135, CHEM 136/ENSC 136/ENTX 136/SWSC 136, CHEM 150B, CHEM 197, CHEM 199. CHEM 197 and

**PROPOSED:**

**Bachelor of Science**

No Change

- a) CHEM 001A, CHEM 001B, CHEM 001C, CHEM 01LA, CHEM 01LB, CHEM 01LC (or CHEM 01HA and CHEM 1HLA, CHEM 01HB and CHEM 1HLB, CHEM 01HC and CHEM 1HLC), CHEM 005, CHEM 008A and CHEM 08LA or, CHEM 008B and CHEM 08LB, CHEM 008C and CHEM (or CHEM 08HA and CHEM 08HLA, CHEM 08HB and CHEM 08HLB, CHEM 08HC and CHEM 08HLC)

- b) MATH 009A, MATH 009B, MATH 009C, MATH 010A, and two out of the following: MATH 010B, MATH 031, MATH 046

- c) No Change

2. No Change

- a) CHEM 110A, CHEM 110B, CHEM 111, CHEM 113, CHEM 125W, CHEM 150A, CHEM 191

- b) No Change

- c) No Change

- d) No Change

CHEM 199 must be taken for a grade and a written report submitted.

### Chemical Physics Option

Students must consult with their Chemistry advisor before electing this option.

#### 1. Lower-division requirements (79-80 units)

- a) CHEM 001A, CHEM 001B, CHEM 001C, CHEM 01LA, CHEM 01LB, CHEM 01LC (or CHEM 01HA and CHEM 1HLA, CHEM 01HB and CHEM 01HLB, CHEM 01HC and CHEM 1HLC), CHEM 005, CHEM 008A and CHEM 08LA ~~or CHEM 12A~~, CHEM 008B and CHEM 08LB ~~or CHEM 12B~~, CHEM 008C and CHEM 08LC ~~or CHEM 12C~~ (or CHEM 08HA and CHEM 08HLA ~~or CHEM 12HA~~, CHEM 08HB and CHEM 08HLB ~~or CHEM 12HB~~, CHEM 08HC and CHEM 08HLC ~~or CHEM 12HC~~)
- b) MATH 009A, MATH 009B, MATH 009C, MATH 010A, MATH 010B, MATH 046
- c) PHYS 041A, PHYS 041B, PHYS 41C or PHYS 040A, PHYS 040B, PHYS 040C, and PHYS 041C

#### 2. Upper-division requirements (59 units) A minimum grade of "C-" for any upper-division course used to fulfill the requirements for the Chemical Physics option.

- a) CHEM 110A, CHEM 110B, CHEM 111, CHEM 113, CHEM 114, CHEM 150A, CHEM 150B, CHEM 191
- b) Twenty-one (21) units of upper-division course work in Mathematics or Physics (110 or above excluding 190 series)
- c) Nine (9) additional units in physical chemistry

### Environmental Chemistry Option

Students must consult with their Chemistry advisor before electing this option.

### Chemical Physics Option

No Change

#### 1. No Change

- a) CHEM 001A, CHEM 001B, CHEM 001C, CHEM 01LA, CHEM 01LB, CHEM 01LC (or CHEM 01HA and CHEM 1HLA, CHEM 01HB and CHEM 01HLB, CHEM 01HC and CHEM 1HLC), CHEM 005, CHEM 008A and CHEM 08LA, CHEM 008B and CHEM 08LB, CHEM 008C and CHEM 08LC (or CHEM 08HA and CHEM 08HLA, CHEM 08HB and CHEM 08HLB, CHEM 08HC and CHEM 08HLC)
- b) No Change
- c) No Change

#### 2. No Change

- a) No Change
- b) No Change
- c) No Change

### Environmental Chemistry Option

No Change

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|---|--|
| <p>1. Lower-division requirements (84 units)</p> <p>a) CHEM 001A, CHEM 001B, CHEM 001C, CHEM 01LA, CHEM 01LB, CHEM 01LC (or CHEM 01HA and CHEM 1HLA, CHEM 01HB and CHEM 1HLB, CHEM 01HC and CHEM 1HLC), CHEM 005, CHEM 008A and CHEM 08LA or CHEM 12A, CHEM 008B and CHEM 08LB or CHEM 12B, CHEM 008C and CHEM 08LC or CHEM 12C (or CHEM 08HA and CHEM 08HLA or CHEM 12HA, CHEM 08HB and CHEM 08HLB or CHEM 12HB, CHEM 08HC and CHEM 08HLC or CHEM 12HC)</p> <p>b) MATH 009A, MATH 009B, MATH 009C, MATH 010A, MATH 010B, MATH 046</p> <p>c) PHYS 040A, PHYS 040B, PHYS 040C</p> <p>d) BIOL 005A, BIOL 05LA or BIOL 020, BIOL 005B, BIOL 005C.</p> <p>2. Upper-division requirements (57-58 units) A minimum grade of "C-" for any upper-division course used to fulfill the requirements for the Environmental Chemistry option.</p> <p>a) CHEM 110A, CHEM 110B, CHEM 111, CHEM 113, CHEM 125, CHEM 135/ ENSC 135/ENTX 135, CHEM 136/ENSC 136/ENTX 136/SWSC 136, CHEM 114 or CHEM 140, CHEM 150A, CHEM 166, CHEM 191</p> <p>b) One course from ENSC 104/SWSC 104 or GEO 137</p> <p>c) One course from BCH 100, BCH 110A or CHEM 143</p> <p>d) Two additional courses from CHEM 150B, CHEM 197, CHEM 199, ENSC 100, ENSC 101, ENSC 102, ENSC 140/SWSC 140, ENSC 163, ENTX 101, GEO 132, GEO 157 (4 units total from CHEM 197 and/or CHEM 199)</p> | <p>1. No Change</p> <p>a) CHEM 001A, CHEM 001B, CHEM 001C, CHEM 01LA, CHEM 01LB, CHEM 01LC (or CHEM 01HA and CHEM 1HLA, CHEM 01HB and CHEM 1HLB, CHEM 01HC and CHEM 1HLC), CHEM 005, CHEM 008A and CHEM 08LA, CHEM 008B and CHEM 08LB, CHEM 008C and CHEM 08LC (or CHEM 08HA and CHEM, CHEM 08HB and CHEM 08HLB, CHEM 08HC and CHEM 08HLC)</p> <p>b) No Change</p> <p>c) No Change</p> <p>d) No Change</p> <p>2. No Change</p> <p>a) CHEM 110A, CHEM 110B, CHEM 111, CHEM 113, <u>CHEM 125W</u>, CHEM 135/ ENSC 135/ENTX 135, CHEM 136/ENSC 136/ENTX 136/SWSC 136, CHEM 114 or CHEM 140, CHEM 150A, CHEM 166, CHEM 191</p> <p>b) No Change</p> <p>c) No Change</p> <p>d) No Change</p> |
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**Undergraduate Research** is strongly encouraged for students with the requisite ability. Students wishing to participate in this activity should consult

No Change

Chemistry faculty, their Chemistry advisor, or  
check: [ugr.ucr.edu](http://ugr.ucr.edu).

### **JUSTIFICATION:**

- Removing CHEM 012 courses

Organic Chemistry series has been approved to update from CHEM 012 to CHEM 008 in Fall on 2017 in order help all CNAS major by reducing the upper division requirement between 36 to 60 units and give other majors an opportunity to strengthen their own degree program. CHEM 012 no longer exists.

- Changing CHEM 125 to CHEM 125W

The CHEM 125 course contained an objective of having the students paraphrase experiments and scientific techniques to better understand the importance and objective of the experiment being performed. By changing the course from CHEM 125 to CHEM 125W, this will allow students to be trained in writing scientific reports or journals while preparing lab reports for this class. Along with that, this will also accomplish the requirement of satisfying the UCR's third -quarter writing requirement.

- Moving MATH 010A from being an optional course

MATH 010A is a pre-requisite to CHEM 110A, a course requirement for the Bachelor of Science in the Chemistry Program. With that, MATH 010A is a requirement.

### **APPROVALS:**

Approved by the faculty of the Department of Chemistry:  
Approved by the Executive Committee of the College of Natural and  
Agricultural Sciences:  
Approved by the Committee on Educational Policy:

February 27, 2018

March 20, 2018

May 4, 2018