## MAJOR REQUIREMENTS (104 Units)
### Chemistry & Biochemistry core curriculum (47 units)
- CHEM 111 General Chemistry I (4) and CHEM 111L Laboratory (1) **Prerequisite: MATH 121 eligibility and placement or CHEM 110. Theme IVB**
- CHEM 112 General Chemistry II (4) and CHEM 112L Laboratory (1) **Prerequisite: CHEM 111 and CHEM 111L. Theme IVB**
- CHEM 113 General Chemistry III (4) and CHEM 113L Laboratory (1) **Prerequisite: CHEM 112 and CHEM 112L. Theme IVB**
- CHEM 205 Chemistry Seminar I (0.5) **Students may enroll up to 4 times for a maximum total of 2 units**
- CHEM 206 Chemistry Seminar II (0.5 each) **Students enroll twice for a total maximum of 1 unit**
- CHEM 224 Analytical Chemistry (4) **Prerequisite: CHEM 113**
- CHEM 271 Organic Chemistry I (3) and CHEM 271L Laboratory (1) **Prerequisite: CHEM 113 and CHEM 111L**
- CHEM 272 Organic Chemistry II (3) and CHEM 272L Laboratory (1) **Prerequisite: CHEM 271 and CHEM 271L**
- CHEM 273 Organic Chemistry III (3) and CHEM 273L Laboratory (1) **Prerequisite: CHEM 272 and CHEM 272L. Life Science**
- CHEM 351 Physical Chemistry: Thermodynamics (3) and CHEM 351L Laboratory (1) **Prerequisite: CHEM 224, MATH 132, PHYS 233**
- CHEM 352 Physical Chemistry: Dynamics (3) and CHEM 352L Laboratory (1) **Prerequisite: CHEM 351 and CHEM 351L**
- CHEM 375 Advanced Organic Laboratory (2) **Prerequisite: CHEM 273 and 273L**
- CHEM 405 Senior Seminar I (1) **Prerequisite: CHEM 408 &498 or 499 (can be concurrently enrolled)**
- CHEM 406 Senior Seminar II (0.5) **Prerequisite: CHEM 405**
- CHEM 408 Introduction to Research (2) **Prerequisite: CHEM 273 and 273L**
- CHEM 498 Directed Research (1) or CHEM 499 Directed Study (1)

### Required Core Cognates (23 units)
- MATH 131 Calculus I (4) **Prerequisite: MATH 122 or applicable Math Placement Test score**
- MATH 132 Calculus II (4) **Prerequisite: MATH 131**
- PHYS 231 General Physics I (4) and PHYS 231L Laboratory (1) **PHYS 231A prerequisite: MATH 122; for PHYS 231B MATH 132. Physical Science**
- PHYS 232 General Physics II (4) and PHYS 232L Laboratory (1) **Prerequisite: PHYS 231 and 231L. Physical Science**
- PHYS 233 General Physics III (4) and PHYS 233L Laboratory (1) **Prerequisite: PHYS 232 and 232L. Physical Science**

### Physical Science courses (16 units)
- CHEM 416 Advanced Inorganic Chemistry (4) **Prerequisite: CHEM 352 or CHEM 417 Chemistry of the Periodic Table**
- GEOL 314 Earth Science (4) **Physical Science**
- PHYS 304 Astronomy (4) **Prerequisite: MATH 115 or 121. Not open to freshmen except by instructor's consent. Physical Science**
- Choose 1 of the following (4 units)
  - CHEM 353 Physical Chemistry: Quantum Mechanics (3) and CHEM 353L Laboratory (1) **Prerequisite:CHEM 352 and CHEM 352L**
  - CHEM 424 Instrumental Analysis I (3) and CHEM 424L Laboratory (1) **Prerequisite: CHEM 224**
  - CHEM 425 Instrumental Analysis II (3) and CHEM 425L Laboratory (1) **Prerequisite: CHEM 224**
  - CHEM 426 Instrumental Analysis III (3) and CHEM 426L Laboratory (1) **Prerequisite: CHEM 224**

### Required Cognates (15 units)
- BIOL 111 General Biology I (4) and BIOL 111L Laboratory (1) **Life Science**
- BIOL 112 General Biology II (4) and BIOL 112L Laboratory (1) **Prerequisite: BIOL 111 and 111L. Life Science**
- BIOL 113 General Biology III (4) and BIOL 113L Laboratory (1) **Prerequisite: BIOL 112 and 112L. Life Science**

### Additional Units (3 units)
- in Chemistry and/ or Physics selected in consultation with advisor

## UNIVERSTY STUDIES FOUNDATIONAL STUDIES (20-37 UNITS)
### I FIRST-YEAR SEMINAR
- UNST 101A (1) and 101B (1) or UNST 100A (3) and 100B (3)

### II RHETORICAL SKILLS
- A. ENGL 111 (3), 112 (3), 113 (3) College Writing or ENGL 124 Freshman Seminar (4)
- B. Upper Division Rhetoric: CHEM 405 (1), 408 (2), and CHEM 424/425/426 (3)

### III MATHEMATICS
- One college-level Mathematics course in MATH 115/121/155/CPTG 117 (4)

### IV WORLD LANGUAGES
- Level 3 proficiency (e.g. 153) in one non-English language (4-12)

### V HEALTH AND FITNESS
- HLSC 120 Lifetime Fitness (2)

## UNIVERSTY STUDIES GENERAL STUDIES (52 UNITS, 16 UPPER DIVISION)
### THEME I. SOCIAL SCIENCES (SSCI) 8 units
- Globalization, Identity and Citizenship (4 units from SSCI 204/205/206/207/208) **Prerequisite: ENGL 113/124**

### THEME II. ARTS AND HUMANITIES (HUMN) 12 units
- Exploring Culture (4 units from HUMN 104/105/106/107) **Prerequisite: ENGL 111/124**

### THEME III RELIGIOUS BELIEFS AND PRACTICES (RLGN) 16 units
- RLGN 304 Adventism in Global Perspective or RLGN 305 Religion in Three Cultures (4) **Prerequisite: ENGL 113/124, Junior Status**
- A. Spiritual Experience and Expressions (0-4 units)
- B. Beliefs and Heritage (4 units)
- C. Scripture (4 units)
- D. Religion and Society (0-4 units)

### THEME IV NATURAL SCIENCES (NSCI) 12 units
- Scientific Foundations (4 units from NSCI 404/405/406/407/408)
- Life Science (4 units) **Either life science or physical science must include a laboratory**
- Physical Science (4 units) **Either life science or physical science must include a laboratory**

### THEME V SENIOR SEMINAR
- UNST 404D Religion, Values, and Social Responsibility (4)

### UNIVERSITY STUDIES SERVICE-LEARNING (3 courses)

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A maximum of 4 units from the Major, and 8 units of Cognates required by the Major, may apply to University Studies General Studies requirements (2016-2017 Undergraduate Academic Bulletin.)
PHYSICAL SCIENCE
Bachelor of Science

CAREER OPPORTUNITIES AND RELATED OCCUPATIONS: This program is primarily to prepare students to teach on the secondary through the junior college level and offers a broader, less specialized, background than the Chemistry or Biochemistry major. It may also be used as a basis for Pre-Chemical Engineering, Pre-Medicine, Pre-Dentistry or other health-related occupations, e.g. laboratory technician, manufacturing industries, occupational safety/health workers, agricultural scientist, biological scientist and chemical technician.

EDUCATIONAL QUALIFICATIONS: For teaching at the high school level a state credential is required. Once employed as a teacher, you may advance to the Master’s program in the School of Education. For entry into health-related occupations, choices of additional science electives are recommended. Training beyond the B.S. level is eventually required for access to many higher level jobs. Postsecondary teachers who work for 4-year colleges and universities are most often required to have a doctoral degree in their field. However, some schools may hire those who have a master’s degree.

JOB OUTLOOK: Employment of high school teachers is projected to grow 6 percent from 2014 to 2024, about as fast as the average for all occupations. From 2014 to 2024, the average classroom size is expected to increase, meaning that each teacher is responsible for more students. From 2014 to 2024, a significant number of older teachers will reach retirement age. Their retirement will create job openings for new teachers. Many schools report that they have difficulty filling teaching positions for certain subjects, including math, science (especially chemistry and physics), English as a second language, and special education. As a result, teachers with education in those subjects or certifications to teach those specialties should have better job prospects.

SALARY: The median annual wage for high school teachers was $57,200 in May 2015. The lowest 10 percent earned less than $37,800, and the highest 10 percent earned more than $91,190.
