

Broad Science Education 7-12

Effective 2019-2020 academic year

#could be taken for credit towards an International Studies minor

I. ACHIEVEMENT CENTERED EDUCATION (ACE)

All UNL students are required to complete a minimum of 3 hours of approved course work in each of the 10 designated ACE areas.

ACE #1 *Written Texts Incorporating Research & Knowledge Skills*
ENGL 150, 151, or 254 (3 hrs) _____

ACE #2 *Communication Skills*
TEAC 259 (3 hrs) √√√√

ACE #3 *Mathematical, Computational, Statistical, or Formal Reasoning Skills*
MATH 106, STAT 218, or EDPS 459 (3 hrs) _____

ACE #4 *Study of Scientific Methods & Knowledge of Natural & Physical World*
LIFE 120/120L (3 hrs) √√√√

ACE #5 *Study of Humanities*
 (Any) _____ (3 hrs) _____

ACE #6 *Study of Social Sciences*
EDPS 251 (3 hrs) √√√√

ACE #7 *Study of the Arts to Understand Their Context & Significance*
 (Any) _____ (3 hrs) _____

ACE #8 *Ethical Principles, Civics, Stewardship & Their Importance to Society*
TEAC 331 (3 hrs) √√√√

ACE #9 *Global Awareness, Knowledge of Human Diversity through Analysis of an Issue*
#TEAC 330 (3 hrs) √√√√

ACE #10 *Integration of Abilities, Capacities in a Creative or Scholarly Product*
TEAC 403B (3 hrs) √√√√

Acceptance into the Science Teacher Education Program is required before enrollment in the Professional Education courses. 80% of the endorsement courses must be completed prior to enrolling in TEAC 451V. The professional education sequence begins spring semester, continues in the fall semester, and is followed by a semester of student teaching.

Electives (to meet 120 hour requirement for graduation)

_____ (3 hrs) _____

_____ (3 hrs) _____

II. PRE-PROFESSIONAL EDUCATION

No grade lower than "C"

All courses must be for a grade (not Pass/No Pass) with the exception of EPDS 297.

TEAC 331 & EDPS 251 must average a 2.5 GPA

TEAC 331 School & Society _____ (3 hrs) _____

EDPS 251 Adolescent Development for Ed _____ (3 hrs) _____

EDPS 297 Practicum (take with EDPS 251) _____ (1 hr) _____

#TEAC 330 Multicultural Ed _____ (3 hrs) _____

TEAC 259 Instructional Technology _____ (3 hrs) _____

Professional Education Courses

All grades must be a minimum of "C+" or above.

Methods

TEAC 451V Teaching Principles _____ (3 hrs) _____

TEAC 452V Curriculum Principles _____ (3 hrs) _____

TEAC 397V Practicum _____ (3 hrs) _____

#TEAC 413M ELL Content Area _____ (3 hrs) _____

SPED 401B Mainstreaming _____ (3 hrs) _____

Student Teaching

TEAC 497V Student Teaching _____ (9 hrs) _____

TEAC 403B Student Teaching Seminar (ACE 10) _____ (3 hrs) _____

III. ENDORSEMENT

No grade lower than "C"

Select one of the science areas below and take a minimum of 24 credits as listed below. In each of the other three science areas, take a minimum of 12 credit hours.

A minimum of 60 credit hours of laboratory-based courses in science (biology, chemistry, earth and space science, and physics) is required. At least 24 credit hours must be in one of the four areas listed as the main core of the endorsement and 36 credit hours of laboratory-based courses must be distributed evenly among the other three ancillary science areas (i.e. a minimum of 12 credits in each of the ancillary sciences.)



BIOLOGY (24-26 hrs)

LIFE 120/120L Fundamentals of Biology I w/lab (4 hrs) _____
 LIFE 121/121L Fundamentals of Biology II w/lab (4 hrs) _____

Select one of the following choices: _____ (4 hrs) _____

BIOS 112/112L Intro to Zoology w/lab _____
 ASCI 100 Fundamentals of Animal Biology and Industry _____
 BIOS 109 General Botany _____
 AGRO 131/132 Plant Science w/lab (HORT 131/133) _____

Select one of the following choices: _____ (4 hrs) _____

BIOS 206 General Genetics _____
 AGRO 215 Genetics _____

Select one of the following choices: _____ (3-4 hrs) _____

BIOS 220/222 Principles of Ecology (NRES 220/222) _____
 BIOS 207 Ecology and evolution _____
 PLPT 270 Biological Invaders (NRES/AGRO/HORT) _____

Select at least one of the following: _____ (4-5 hrs) _____

BIOS 115 Insect Biology (ENTO 115) _____
 BIOS 213/213L Human Physiology w/lab _____
 BIOS 312/313 Microbiology w/lab _____
 BIOS 205 Genetics, Molecular and Cellular Biology Lab _____
 NRES 281 Introduction to Water Science _____
 AGRI 115 Biotechnology: Food Health and Environment _____

BIOLOGY (12-15 hrs)**Option A**

LIFE 120/120L Fundamentals of Biology I w/lab (4 hrs) _____
 LIFE 121/121L Fundamentals of Biology II w/lab (4 hrs) _____

BIOS 207 Ecology and Evolution **OR** _____
 BIOS 220/222 Principles of Ecology (NRES 220/222) (4 hrs) _____

Option B

LIFE 120/120L Fundamentals of Biology I w/lab (4 hrs) _____
 LIFE 121/121L Fundamentals of Biology II w/lab (4 hrs) _____

PLPT 270 Biological Invaders (NRES/AGRO/HORT) (3 hrs) _____

Select one of the following:

AGRI 115 Biotechnology: Food Health and Environment **OR** _____
 BIOS 115 Insect Biology (ENTO 115) **OR** _____
 BIOS 205 Genetics, Molecular and Cellular Biology Lab **OR** _____
 BIOS 213/213L Human Physiology w/lab **OR** _____
 BIOS 312/313 Microbiology w/lab **OR** _____
 NRES 281 Introduction to Water Science (2-4 hrs) _____

PHYSICS (24 hrs)

Calculus based physics

PHYS 211/221 General Physics I (5 hrs) _____
 (Prerequisite: Math 106 or parallel & 1 yr high school physics or Phys115)

PHYS 212/222 General Physics II I (5 hrs) _____
 (Prerequisite: Math 107 or parallel & Phys 211/221)

ASTR 204/224 Astrophysics w/lab (4 hrs) _____
 (Prerequisite: Phys 211/221 and Math 107 or parallel)

PHYS 115 Descriptive Physics (3 hrs) _____

PHYS 201 Modern Topics in Physics and Astronomy (1 hr) _____

PHYS 231 Electrical and Electronic Circuits (3 hrs) _____

(Prerequisite: Phys 212/222)

PHYS 361 Mechanics (3 hrs) _____

PHYSICS (13 hrs)

PHYS 141 Elementary General Physics I (5 hrs) _____

PHYS 142 Elementary General Physics I (5 hrs) _____

PHYS 115 Descriptive Physics (3 hrs) _____

EARTH & SPACE SCIENCE (24-27 hrs)

GEOL 101 Physical Geology (4 hrs) _____
 GEOL 103 Historical Geology (4 hrs) _____
 GEOL 109 Oceanography (3 hrs) _____
 METR 100 Weather and Climate (4 hrs) _____

Select one of the following: _____ (3-4 hrs) _____

ASTR 103 Descriptive Astronomy _____
 ASTR 204/224 Astrophysics w/lab _____
 Pre-requisite: Phys 211/221 and Math 107

Select one of the following: _____ (3-4 hrs) _____

GEOL 106 Environmental Geology _____
 NRES 108 Earth's Energy Resources _____
 SOIL 153 Soil Resources _____

Select one of the following: _____ (3-4 hrs) _____

GEOL 110 Geological Natural Hazards _____
 GEOL 115 Earth's Energy Resources _____
 GEOL 160 Geoscience Fundamentals in the Field _____
 GEOL 210 Minerals, Rocks & Ores _____
 GEOL 211 Sedimentology and Stratigraphy _____
 (Prerequisite: Geol 210)

EARTH & SPACE SCIENCE (12-15 hrs)**Option A**

GEOL 101 Physical Geology (4 hrs) _____
 METR 100 Weather and Climate (4 hrs) _____
 ASTR 204/224 Astrophysics w/lab (4 hrs) _____

Option B

GEOL 101 Physical Geology (4 hrs) _____
 METR 100 Weather and Climate (4 hrs) _____
 (Pre-requisite: Math 101)
 ASTR 103 Descriptive Astronomy (3 hrs) _____

Select one of the following:

GEOL 106 Environmental Geology **OR** _____
 GEOL 110 Geological Natural Hazards **OR** _____
 GEOL 115 Earth's Energy Resources **OR** _____
 GEOL 210 Minerals, Rocks & Ores **OR** _____
 GEOL 211 Sedimentology and Stratigraphy **OR** _____
 NRES 108 Earth's Energy Resources **OR** _____
 SOIL 153 Soil Resources (3-4 hrs) _____

CHEMISTRY (25 hrs)

CHEM 109 General Chemistry I (4 hrs) _____
 CHEM 110 General Chemistry II (4 hrs) _____
 CHEM 221 Elementary Quantitative Analysis (4 hrs) _____

Select one of the following: _____ (4 hrs) _____

CHEM 251/253 Organic Chemistry w/lab **OR** _____
 CHEM 255/257 Biologic Organic Chemistry w/lab _____

CHEM 421/423 Analytical Chemistry w/lab (5 hrs) _____
 (Prerequisite: Chem 471 or 481)

Select one of the following: _____ (4 hrs) _____

CHEM 471 Physical Chemistry **OR** _____
 (Prerequisite: Chem 221, Math 107)
 CHEM 481 Physical Chemistry I _____
 (Prerequisite: Chem 221, Math 208, Phys 212)

CHEMISTRY (12 hrs)

CHEM 109 General Chemistry I (4 hrs) _____
 CHEM 110 General Chemistry II (4 hrs) _____

CHEM 251/253 Organic Chemistry w/lab **OR** _____
 CHEM 255/257 Biologic Organic Chemistry w/lab (4 hrs) _____