Secondary Education General Science Major

Students electing a major in General Science apply to the Feinstein School of Education and Human Development and meet admission requirements that include a 2.50 in their content grade point average (GPA) and a minimum grade of C. Students must maintain the content GPA of 2.50 for retention and, along with satisfactorily completing required courses in secondary education (minimum grade B-), complete the following courses to obtain General Science certification.  In addition to the requirements below, students must choose an additional area of certification (CUS in biology, CUS in chemistry, CUS in physics, or middle level certification) to pair with the General Science certification requirements.

Requirements

Secondary Education

|  |  |  |  |
| --- | --- | --- | --- |
| SED 303 | Inquiry into STEM | 2 | F |
| SED 316 | Teaching Science, Society, and Technology | 4 | Sp |
| SED 416 | Practicum in Secondary Science Education | 4 | F |
|  |  |  |  |
|  |  |  |  |
| SPED 433 | Special Education: Best Practices and Applications | 3 | F, Sp |
|  | -Or- |  |  |
| TESL 402 | Applications of Second Language Acquisition | 3 | F, Sp |

Biology

|  |  |  |  |
| --- | --- | --- | --- |
| BIOL 111 | Introductory Biology I | 4 | F, Sp, Su |
| BIOL 112 | Introductory Biology II | 4 | F, Sp, Su |

Chemistry

|  |  |  |  |
| --- | --- | --- | --- |
| CHEM 103 | General Chemistry I | 4 | F, Sp, Su |
| CHEM 104 | General Chemistry II | 4 | F, Sp, Su |

History

|  |  |  |  |
| --- | --- | --- | --- |
| HIST 108 | History of Science and Medicine | 4 | Annually |

Mathematics

|  |  |  |  |
| --- | --- | --- | --- |
| MATH 209 | Precalculus Mathematics | 4 | F, Sp, Su |

TWO COURSES from

|  |  |  |  |
| --- | --- | --- | --- |
| PSCI 211 | Introduction to Astronomy | 4 | F, Sp |
| PSCI 212 | Introduction to Geology | 4 | F, Su |
| PSCI 214 | Introduction to Meteorology | 4 | F |
| PSCI 217 | Introduction to Oceanography | 4 | Sp |

Physics

|  |  |  |  |
| --- | --- | --- | --- |
| PHYS 101 | Physics for Science and Mathematics I | 4 | F, Sp, Su |
| PHYS 102 | Physics for Science and Mathematics II | 4 | F, Sp, Su |

ONE RESEARCH COURSE from:

|  |  |  |  |
| --- | --- | --- | --- |
| BIOL 491-494 | Research in Biology | 1 | F, Sp, Su |
| CHEM 491-493 | Research in Chemistry | 1 | As needed |
| PHYS 491-493 | Research in Physics | 1 | As needed |
| PSCI 491-493 | Research in Physical Science | 1 | As needed |

Course descriptions

SED 315 - Teaching Mathematics in a Diverse Classroom (4)

Students adapt mathematics knowledge into thoughtful, engaging, reform-based mathematics lessons to help all students learn using community-building, dialogic practices. Clinical preparation (3 weeks or equivalent).

Prerequisite: SED 303.

Offered: Spring.

SED 316 - Teaching Science, Technology, and Society (4)

Students examine reforms in science education and investigate the interactions among science, technology, and society.

Prerequisite: SED 303, and completed at least 28 credit hours of required and cognate courses in the major or have the consent of the program advisor.

Offered: Spring.

SED 406 - Instructional Methods, Design, and Technology (3)

Students learn the fundamentals of lesson design and methods for integrating instructional technology to enhance content area teaching and learning. Students design and present model lessons in a laboratory setting.

Prerequisite: Admission to a secondary education teacher preparation program or consent of department chair.

Offered: Fall, Spring.

SED 414 - Responsive Social Studies Teaching/Learning II (4)

Emphasis is on inquiry and project-based learning, assessment, critical thinking skills and culturally responsive curricula and pedagogy in secondary classrooms. Three weeks or equivalent practicum field experience.

Prerequisite: Successful completion of SED 314 with a grade of B- or higher. Social studies/content G.P.A. of 3.0, overall G.P.A. of 2.75.

Offered: Fall.

SED 407 - Instructional Methods, Design, and Literacy (3)

Students explore research-based reading and writing strategies for secondary education content teaching and apply these strategies by designing and presenting literacy instruction in a field-based setting.

Prerequisite: SED 406 (with minimum grade of B-) and fulfillment of retention requirements, or consent of department chair.

Offered: Fall, Spring.

SED 411 - Content and Pedagogy in Secondary Education (4)

Students examine principles, methods, content, and curriculum in the content area and prepare lessons and units that incorporate the needs of diverse learners and effective assessment strategies.

Prerequisite: SED 407 (with minimum grade of B-), concurrent enrollment in SED 412, and fulfillment of retention requirements.

Offered: Fall.

SED 412 - Field Practicum in Secondary Education (2)

Teacher candidates, under the supervision of college and clinical instructors, plan, develop, and implement lesson plans within middle/secondary clinical settings, drawing on content developed in SED 411. 4 contact hours.

Prerequisite: SED 407 (with minimum grade of B-), concurrent enrollment in SED 411, and fulfillment of retention requirements.

Offered: Fall.

SED 413 - Social Justice Teaching in English Education (4)

Students connect *critical* and *culturally relevant* pedagogies to everyday classroom strategies and techniques. Students will focus on community-building, dialogical methods and the teaching of reading. Clinical preparation (3 weeks or equivalent).

Prerequisite: SED 313.

Offered: Fall.

SED 415 - Rethinking Mathematics Teaching and Learning (4)

Students connect equitable pedagogical approaches to the teaching and learning of mathematics. Focus on mindsets, mathematical problem analysis, visualizing mathematics and incorporating social justice in the mathematics curriculum. Clinical preparation (3 weeks or equivalent).

Prerequisite: SED 315.

Offered: Fall.

SED 416 - Practicum in Secondary Science Education (4)

Students examine methods, content, and curriculum in the sciences to plan and implement lessons within middle/secondary classrooms

Prerequisite: SED 316.

Offered: Fall.

SED 420 - Introduction to Student Teaching (2)

Teacher candidates will participate in a three-week clinical preparation in the field. This induction phase will orient secondary education teacher candidates to their student teaching semester. Graded S, U.

Prerequisite: Concurrent enrollment in SED 421 and SED 422. To be admitted into SED 420, SED 421, and SED 422, the student must have completed all other required courses.

Cross-Listed as: TECH 420, WLED 420.

Offered: Early Spring