Science Studies, BS

Science studies provides preparation in more than one discipline of science; a consideration of science from a philosophical, historical, and sociological perspective; an introduction to applied science (technology); and an education sequence.

Program planning in science studies requires the cooperation and involvement of a variety of university departments and colleges. Most of the program's requirements are drawn from courses offered by these varied academic units.

Programs designed to lead to professional licensure are subject to federal regulations regarding informational disclosures. Please see Professional Licensure Disclosures by Program for further information.

Learning Outcomes

Students who major in science studies gain:

- knowledge in two or more areas of science;
- a specified proficiency in mathematics as a tool of science (with more mathematics study required for the physical science emphases than for the biological ones);
- a view of science from a historical, philosophical, and cultural perspective; and
- experience with the application of scientific knowledge.

Research

Each faculty member in science studies is responsible for one or more areas of research. Major interests include studies of effective teaching and learning, science through writing, philosophy and sociology of science, individualized learning, social issues in science and technology, curriculum planning and development, professional development, intellectual development related to teaching and learning science, studies of effective use of hands-on activities, and evaluation and assessment of science instruction and programs.

Programs and Projects

A wide range of funded programs provides ample opportunity for students to be involved in innovative development and research in science studies.

Science studies faculty members collaborate on a number of international research projects in many countries. Activities include faculty exchanges and cross-national studies.

International students enrich the opportunities for graduate studies in science studies. New international collaborative efforts are underway each year.

Requirements

The Bachelor of Science with a major in science studies (awarded by the College of Liberal Arts and Sciences) requires a minimum of 120 s.h., including at least 48 s.h. of work for the major. Students must maintain a grade-point average of at least 2.00 in all courses for the major and in all UI courses for the major. They must also complete the College of Liberal Arts and Sciences GE CLAS Core.

The major in science studies is interdisciplinary. It is intended for students interested in education; it is not intended to prepare students for advanced study in one area of science. When graduates of the science studies program elect to pursue graduate study in a specific area of science, they often must complete additional coursework in that discipline after they are admitted to the Graduate College.

The science studies curriculum includes courses offered by science departments in the College of Liberal Arts and Sciences, science applications courses, and courses in the history, philosophy, and sociology of science.

The major offers five emphasis areas: all-science, biology, chemistry, earth science, and physics. The all-science emphasis area is open only to students who will earn teacher licensure and would like equal preparation in biology, chemistry, earth science, and physics. Students who choose the all-science emphasis area do not choose a secondary emphasis area. They must complete all requirements for teacher licensure in order to graduate in the all-science emphasis area.

Students who do not choose the all-science emphasis area may elect whether or not to earn teacher licensure. They choose a primary and a secondary emphasis area from biology, chemistry, earth science, and physics, acquiring depth in the primary emphasis area equivalent to six semesters of sequential study and preparation in the secondary area equivalent to four semesters of sequential study.

All science studies students must complete the requirements for their emphasis area(s) plus the broad field science block. Those who wish to earn teacher licensure must also complete the College of Education's Teacher Education Program (TEP), including the 47 s.h. professional education sequence; see the section titled "Teacher Licensure."

Special Rules

The Science Studies Program may involve many faculty advisors and more than one college or department. Consequently, the following special rules apply to science studies students.

- At least 10 s.h. of graded credit in science must be earned at the University of Iowa.
- No credit from the CLEP Natural Science General Examination may be applied toward the major in science studies.
- Courses for the major may not be taken pass/nonpass. Grades from all courses applied toward the science studies major are used in computing a student's grade-point average in the major, both at the University of Iowa and overall.

Since mathematics forms an integral part of so many aspects of modern science, all-science emphasis area education students are urged to complete appropriate advanced courses in both pure and applied mathematics (including statistics and computer science) so that they may be qualified to do graduate work and quantitative research later.

The BS with a major in science studies requires the following coursework.

All-Science Emphasis Area

Students who choose the all-science emphasis area do not choose a secondary emphasis area. They complete a minimum of 48 s.h. for the major, including at least 36 s.h. in the following coursework (at least 9 s.h. in each of the four science disciplines—biology, chemistry, earth science, and physics), and 12 s.h. in the broad field science block. They

must also complete all requirements for teacher licensure (see the section titled "Teacher Licensure").

Biology

Course #	Title	Hours
At least 9 s.h. from these:		
BIOL:1411	Foundations of Biology	4
BIOL:1412	Diversity of Form and Function	4
BIOL:2211	Genes, Genomes, and the Human Condition	3
BIOL:2673	Ecology	3
BIOL:3172	Evolution	4
HHP:3500	Human Physiology	3

Chemistry

Course #	Title	Hours
At least 9 s.h. from these:		
CHEM:1110	Principles of Chemistry I	4
CHEM:1120	Principles of Chemistry II	4
CHEM:2021	Fundamentals of Chemical Measurements	3
CHEM:2210	Organic Chemistry I	3
CHEM:2220	Organic Chemistry II	3

Earth Science

Course #	Title	Hours
At least 9 s.h. from these:		
SEES:1030	Introduction to Earth Science	3-4
SEES:1040	Evolution and the History of Life	3-4
SEES:1050	Introduction to Geology	4
SEES:1080	Introduction to Environmental Science	3-4
SEES:3070	Marine Ecosystems and Conservation	3

Physics

At least 9 s.h. chosen as follows.

Course #	Title	Hours
At least one of these:		
ASTR:1070	Stars, Galaxies, and the Universe	3-4
PHYS:1200	Physics of Everyday Experience	3
No more than one of these:		
PHYS:1511	College Physics I	4
PHYS:1611	Introductory Physics I	4
PHYS:1701	Physics I	4
No more than one of these:		
PHYS:1512	College Physics II	4
PHYS:1612	Introductory Physics II	4
PHYS:1702	Physics II	4

Broad Field Science Block

Students complete 12 s.h. from the following.

Course #	Title	Hours
This course:		
SIED:4135	The Nature of Science	4
At least two of these:		
SIED:4102	Societal and Educational Applications of Earth Science and Environmental	4
SIED:4103	Societal and Educational Applications of Biological Sciences	4
SIED:4105	Societal and Educational Applications of Physical Sciences	4
SIED:4106	Societal and Educational Applications of Chemical Concepts	4
SIED:4110	Exploring the Geology, Mining History, and Environmental Issues of the Colorado Rockies	4

Biology Emphasis Area

Students who choose biology as their primary emphasis area complete a minimum of 50 s.h. for the major, including 25 s.h. in the following biology coursework plus at least 15 s.h. in a secondary emphasis area (chemistry, earth science, or physics) and 12 s.h. in the broad field science block. With their advisor's permission, students may include a science applications course in their secondary emphasis area.

Course #	Title	Hours
All of these:		
BIOL:1411 & BIOL:1412	Foundations of Biology and Diversity of Form and Function	8
BIOL:2512	Fundamental Genetics	4
BIOL:3172	Evolution	4
One of these:		
BIOL:2374	Biogeography	3
BIOL:2673	Ecology	3
One of these:		
BIOL:3343	Animal Physiology	3
HHP:3500	Human Physiology	3
One of these:		
BIOL:2723	Cell Biology	3
BIOL:3233	Introduction to Developmental Biology	3
BIOL:3363	Plant Developmental Biology	3
BMB:3110	Biochemistry	3
And all of these:		
Coursework in a secondary emphasis area (chemistry, earth science, or physics)		15
Coursework listed under "Broad Field Science Block-Biology Emphasis Area"		12

Broad Field Science Block—Biology Emphasis Area

Students complete 12 s.h. from the following.

Course #	Title	Hours
This course:		
SIED:4135	The Nature of Science	4

At least two of these:		
SIED:4102	Societal and Educational Applications of Earth Science and Environmental	4
SIED:4103	Societal and Educational Applications of Biological Sciences	4
SIED:4105	Societal and Educational Applications of Physical Sciences	4
SIED:4106	Societal and Educational Applications of Chemical Concepts	4
SIED:4110	Exploring the Geology, Mining History, and Environmental Issues of the Colorado Rockies	4

Chemistry Emphasis Area

Students who choose chemistry as their primary emphasis area complete a minimum of 50 s.h. for the major, including 23 s.h. in the following chemistry coursework plus at least 15 s.h. in a secondary emphasis area (biology, earth science, or physics) and 12 s.h. in the broad field science block. With their advisor's permission, students may include a science applications course in their secondary emphasis area.

Course #	Title	Hours
All of these:		
CHEM:1110 & CHEM:1120	Principles of Chemistry I and Principles of Chemistry II	8
CHEM:2210	Organic Chemistry I	3
CHEM:2220	Organic Chemistry II	3
CHEM:2410	Organic Chemistry Laboratory	3
CHEM:3250	Inorganic Chemistry (spring)	3
One of these:		
BMB:3110	Biochemistry	3
CHEM:3110	Equilibria and Electrochemistry	3
CHEM:4431	Chemical Thermodynamics	3
And all of these:		
Coursework in a secondary emphasis area (biology, earth science, or physics)		15
Coursework listed under "Broad Field Science Block- Chemistry Emphasis Area"		12

Broad Field Science Block—Chemistry Emphasis Area

Students complete 12 s.h. from the following.

Course #	Title	Hours
This course:		
SIED:4135	The Nature of Science	4
At least two of these:		
SIED:4102	Societal and Educational Applications of Earth Science and Environmental	4
SIED:4103	Societal and Educational Applications of Biological Sciences	4
SIED:4105	Societal and Educational Applications of Physical Sciences	4
SIED:4106	Societal and Educational Applications of Chemical Concepts	4
SIED:4110	Exploring the Geology, Mining History, and Environmental Issues of the Colorado Rockies	4

Earth Science Emphasis Area

Students who choose earth science as their primary emphasis area complete a minimum of 48 s.h. for the major, including at least 21 s.h. in the following earth science coursework plus at least 15 s.h. in a secondary emphasis area (biology, chemistry, or physics) and 12 s.h. in the broad field science block. With their advisor's permission, students may include a science applications course in their secondary emphasis area.

Course #	Title	Hours
Both of these:		
SEES:1040	Evolution and the History of Life	3-4
SEES:1080	Introduction to Environmental Science	3-4
One of these:		
SEES:1030	Introduction to Earth Science	3-4
SEES:1050	Introduction to Geology	4
One of these:		
SEES:2831	Geologic Field Methods	3
SEES:3330	Sedimentary Geology	4
SEES:3840	Structural Geology	4
One of these:		
SEES:3020	Earth Surface Processes	3
SEES:3210	Principles of Paleontology	3
SEES:3360	Soil Genesis and Geomorphology	3
One of these:		
SEES:1290	Energy and the Environment	3
SEES:4010	Field Methods in Physical Geography	3
One of these:		
SEES:3070	Marine Ecosystems and Conservation	3
SEES:3080	Introduction to Oceanography	2
And all of these:		
Coursework in a secondary emphasis area (biology, chemistry, or physics)		15
Coursework listed under "Broad Field Science Block-Earth Science Emphasis Area"		12

Broad Field Science Block—Earth Science Emphasis Area

Students complete 12 s.h. from the following.

Course #	Title	Hours
This course:		
SIED:4135	The Nature of Science	4
At least two of these:		

SIED:4102	Societal and Educational Applications of Earth Science and Environmental	4
SIED:4103	Societal and Educational Applications of Biological Sciences	4
SIED:4105	Societal and Educational Applications of Physical Sciences	4
SIED:4106	Societal and Educational Applications of Chemical Concepts	4
SIED:4110	Exploring the Geology, Mining History, and Environmental Issues of the Colorado Rockies	4

Physics Emphasis Area

Students who choose physics as their primary emphasis area complete a minimum of 47 s.h. for the major, including at least 20 s.h. in the following physics coursework plus at least 15 s.h. in a secondary emphasis area (biology, chemistry, or earth science) and 12 s.h. in the broad field science block. With their advisor's permission, students may include a science applications course in their secondary emphasis area.

Course #	Title	Hours
One of these sequences:		
PHYS:1511 & PHYS:1512	College Physics I and College Physics II (if physics is a secondary emphasis area)	8
PHYS:1611 & PHYS:1612	Introductory Physics I and Introductory Physics II	8
PHYS:1701 & PHYS:1702	Physics I and Physics II	8
One of these:		
PHYS:2703	Physics III	4
PHYS:3710	Intermediate Mechanics	3
One of these:		
ASTR:1070	Stars, Galaxies, and the Universe (if physics is a secondary emphasis area)	3-4
ASTR:1080	Exploration of the Solar System (if physics is a secondary emphasis area)	4
ASTR:1771	Fundamental Astronomy I: The Solar System and Exoplanets	4
One of these:		
PHYS:3811	Electricity and Magnetism I	3
PHYS:3850	Electronics	4
This course:		
PHYS:1200	Physics of Everyday Experience	3
And all of these:		
Coursework in a secondary emphasis area (biology, chemistry, or earth science)		15
Coursework listed under "Broad Field Science Block-Physics Emphasis Area"		12

Broad Field Science Block—Physics Emphasis Area

Students complete 12 s.h. from the following.

Course #	Title	Hours
This course:		
SIED:4135	The Nature of Science	4
At least two of these:		
SIED:4102	Societal and Educational Applications of Earth Science and Environmental	4
SIED:4103	Societal and Educational Applications of Biological Sciences	4
SIED:4105	Societal and Educational Applications of Physical Sciences	4
SIED:4106	Societal and Educational Applications of Chemical Concepts	4
SIED:4110	Exploring the Geology, Mining History, and Environmental Issues of the Colorado Rockies	4

Teacher Licensure

Students interested in teaching in elementary and/or secondary schools should seek admission to the Teacher Education Program (TEP) in the College of Education.

To qualify for licensure in secondary teaching, students in the TEP complete a degree in education as well as a related College of Liberal Arts and Sciences degree. See Apply on the College of Education website for details on requirements and deadlines for applying to the College of Education and about TEP choices of majors leading to licensure.

Honors

Honors in the Major

The science studies program offers outstanding students the opportunity to graduate with honors in the major. Honors students must maintain a cumulative University of Iowa grade-point average of at least 3.33 and fulfill other requirements; contact the Science Education program for more information about graduating with honors in the science studies major.

University of Iowa Honors Program

In addition to honors in the major, students have opportunities for honors study and activities through membership in the University of Iowa Honors Program. Visit Honors at Iowa to learn about the university's honors program.

Membership in the UI Honors Program is not required to earn honors in the science studies major.

Career Advancement

The Pomerantz Career Center offers multiple resources to help students find internships and jobs.

Academic Plans

Four-Year Graduation Plan

The Four-Year Graduation Plan is not available to students majoring in science studies.

Sample Plans of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

Science Studies, BS

- Biology Emphasis [p. 5]
- Chemistry Emphasis [p. 6]
- Earth Science Emphasis [p. 7]
- Physics Emphasis [p. 8]

Biology Emphasis

Course	Title	Hours
Academic Career		
Any Semester		
Students will choose a secondary emphasis area from chemistry, earth science, or physics.		
GE CLAS Core: Sustainability [a]		
	Hours	**0**
First Year		
Fall		
CHEM:1070 or CHEM:1110	General Chemistry I [b] or Principles of Chemistry I	4
ENGL:1200 or RHET:1030	The Interpretation of Literature or Rhetoric: Writing and Communication	3 - 4
GE CLAS Core: World Languages First Level Proficiency or elective course [c]		4 - 5
Elective course [d]		3
CSI:1600	Success at Iowa	1
	Hours	**15-17**
Spring		
BIOL:1411	Foundations of Biology	4
GE CLAS Core: Understanding Cultural Perspectives [e]		3
GE CLAS Core: World Languages Second Level Proficiency or elective course [c]		4 - 5
Elective course [d]		3
	Hours	**14-15**
Second Year		
Fall		
BIOL:1412	Diversity of Form and Function	4
ENGL:1200 or RHET:1030	The Interpretation of Literature or Rhetoric: Writing and Communication	3 - 4
GE CLAS Core: Quantitative or Formal Reasoning [e]		3
GE CLAS Core: World Languages Third Level Proficiency or elective course [c]		4 - 5
	Hours	**14-16**
Spring		
BIOL:2512	Fundamental Genetics	4
SIED:4103	Societal and Educational Applications of Biological Sciences [f]	4
Major: secondary emphasis area course [g]		3 - 4
GE CLAS Core: World Languages Fourth Level Proficiency or elective course [c]		4 - 5
	Hours	**15-17**
Third Year		
Fall		
BIOL:3172	Evolution	4
SIED:4102	Societal and Educational Applications of Earth Science and Environmental [f]	4
BIOL:3343 or HHP:3500	Animal Physiology or Human Physiology	3
GE CLAS Core: Literary, Visual, and Performing Arts [e]		3
GE CLAS Core: Social Sciences [e]		3
	Hours	**17**
Spring		
BIOL:2374 or BIOL:2673	Biogeography or Ecology	3
Major: secondary emphasis area course [g]		3 - 4
GE CLAS Core: Historical Perspectives [e]		3
GE CLAS Core: Values and Society [e]		3
Elective course [d]		3
	Hours	**15-16**
Fourth Year		
Fall		
SIED:4135	The Nature of Science	4
Major: approved biology or biochemistry course [h]		3
Major: secondary emphasis area course [g]		3 - 4
Elective course [d]		3
Elective course [d]		3
	Hours	**16-17**
Spring		
Major: secondary emphasis area course [g]		3 - 4
Major: secondary emphasis area course (if needed) [g]		3 - 4
GE CLAS Core: International and Global Issues [e]		3
Elective course [d]		3
Elective course (if needed) [d]		2 - 3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [i]		
	Hours	**14-17**
	Total Hours	**120-132**

a Sustainability must be completed by choosing a course that has been approved for Sustainability AND for one of these General Education areas: Natural Sciences; Quantitative or Formal Reasoning; Social Sciences; Historical Perspectives; International and Global Issues; Literary, Visual, and Performing Arts; or Values and Society.

b Enrollment in chemistry courses requires completion of a placement exam.

c Students who have completed four levels of a single language or two levels of two different languages in high school or college have satisfied the GE CLAS Core World Languages requirement. Students who have completed three levels of a single language may complete a fourth-level course in the same language or may choose an

approved World Language and Cultural Exploration course. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course. Contact your academic advisor or CLAS Undergraduate Programs Office with questions concerning the World Languages requirement.

d Students may use elective courses to earn credit towards the total s.h. required for graduation or to complete a double major, minors, or certificates.

e GE CLAS Core courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses.

f Students must take two of the applications courses SIED:4102, SIED:4103, SIED:4105, or SIED:4106, or SIED:4110.

g Students must complete 15 semester hours in their secondary emphasis area.

h Choose from BMB:3110, BIOL:2723, BIOL:3233, or BIOL:3363. Some courses are offered in spring semesters only. Check MyUI for course availability since offerings are subject to change.

i Please see Academic Calendar, on Office of the Registrar website, for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Degree Services.

Chemistry Emphasis

Course	Title	Hours
Academic Career		
Any Semester		
Students will choose a secondary emphasis area from biology, earth science, or physics.		
GE CLAS Core: Sustainability [a]		
	Hours	**0**
First Year		
Fall		
CHEM:1110	Principles of Chemistry I [b]	4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or The Interpretation of Literature	3 - 4
GE CLAS Core: World Languages First Level Proficiency or elective course [c]		4 - 5
Elective course [d]		3
CSI:1600	Success at Iowa	1
	Hours	**15-17**
Spring		
CHEM:1120	Principles of Chemistry II	4
GE CLAS Core: Understanding Cultural Perspectives [e]		3
GE CLAS Core: World Languages Second Level Proficiency or elective course [c]		4 - 5
Elective course [d]		3
	Hours	**14-15**
Second Year		
Fall		
CHEM:2210	Organic Chemistry I	3
Major: secondary emphasis area course [f]		3 - 4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or The Interpretation of Literature	3 - 4
GE CLAS Core: World Languages Third Level Proficiency or elective course [c]		4 - 5
Elective course [d]		3
	Hours	**16-19**
Spring		
CHEM:2220	Organic Chemistry II	3
Major: secondary emphasis area course [f]		3 - 4
GE CLAS Core: Quantitative or Formal Reasoning [e]		3
GE CLAS Core: World Languages Fourth Level Proficiency or elective course [c]		4 - 5
Elective course [d]		3
	Hours	**16-18**
Third Year		
Fall		
CHEM:2410	Organic Chemistry Laboratory	3
Major: applications course [g]		4
GE CLAS Core: Literary, Visual, and Performing Arts [e]		3
GE CLAS Core: Social Sciences [e]		3
Elective course [d]		3
	Hours	**16**
Spring		
CHEM:3250	Inorganic Chemistry	3
Major: applications course [g]		4
GE CLAS Core: Historical Perspectives [e]		3
GE CLAS Core: Values and Society [e]		3
Elective course [d]		3
	Hours	**16**
Fourth Year		
Fall		
CHEM:3110 or BMB:3110 or CHEM:4431	Equilibria and Electrochemistry or Biochemistry or Chemical Thermodynamics	3
SIED:4135	The Nature of Science	4
Major: secondary emphasis area course [f]		3 - 4
Elective course [d]		3
Elective course [d]		3
	Hours	**16-17**
Spring		
Major: secondary emphasis area course [f]		3 - 4
Major: secondary emphasis area course (if needed) [f]		3 - 4
GE CLAS Core: International and Global Issues [e]		3
Elective course [d]		3
Elective course (if needed) [d]		3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [h]		
	Hours	**15-17**
	Total Hours	**124-135**

a Sustainability must be completed by choosing a course that has been approved for Sustainability AND for one of these General Education areas: Natural Sciences; Quantitative or Formal Reasoning; Social Sciences; Historical Perspectives;

International and Global Issues; Literary, Visual, and Performing Arts; or Values and Society.

b Enrollment in chemistry courses requires completion of a placement exam.

c Students who have completed four levels of a single language or two levels of two different languages in high school or college have satisfied the GE CLAS Core World Languages requirement. Students who have completed three levels of a single language may complete a fourth-level course in the same language or may choose an approved World Language and Cultural Exploration course. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course. Contact your academic advisor or CLAS Undergraduate Programs Office with questions concerning the World Languages requirement.

d Students may use elective courses to earn credit towards the total s.h. required for graduation or to complete a double major, minors, or certificates.

e GE CLAS Core courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses.

f Students must complete 15 semester hours in their secondary emphasis area.

g Students must take two of the applications courses SIED:4102, SIED:4103, SIED:4105, SIED:4106, or SIED:4110.

h Please see Academic Calendar, on Office of the Registrar website, for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Degree Services.

Earth Science Emphasis

Course	Title	Hours
Academic Career		
Any Semester		
Students will choose a secondary emphasis area from biology, chemistry, or physics.		
GE CLAS Core: Sustainability [a]		
	Hours	**0**
First Year		
Fall		
SEES:1040	Evolution and the History of Life	4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or The Interpretation of Literature	3 - 4
GE CLAS Core: Social Sciences [b]		3
GE CLAS Core: World Languages First Level Proficiency or elective course [c]		4 - 5
CSI:1600	Success at Iowa	1
	Hours	**15-17**
Spring		
SEES:1030 or SEES:1050	Introduction to Earth Science or Introduction to Geology	3 - 4
GE CLAS Core: Understanding Cultural Perspectives [b]		3
GE CLAS Core: World Languages Second Level Proficiency or elective course [c]		4 - 5
Elective course [d]		3
Elective course [d]		3
	Hours	**16-18**
Second Year		
Fall		
SIED:4102	Societal and Educational Applications of Earth Science and Environmental [e]	4
SEES:1080	Introduction to Environmental Science	4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or The Interpretation of Literature	3 - 4
GE CLAS Core: World Languages Third Level Proficiency or elective course [c]		4 - 5
	Hours	**15-17**
Spring		
SEES:3840 or SEES:2831 or SEES:3330	Structural Geology or Geologic Field Methods or Sedimentary Geology	4
GE CLAS Core: Historical Perspectives [b]		3
GE CLAS Core: Quantitative or Formal Reasoning [b]		3
GE CLAS Core: World Languages Fourth Level Proficiency or elective course [c]		4 - 5
	Hours	**14-15**
Third Year		
Fall		
SIED:4103	Societal and Educational Applications of Biological Sciences [e]	4
SEES:3080 or SEES:3070	Introduction to Oceanography or Marine Ecosystems and Conservation	3
Major: secondary emphasis area course [f]		3 - 4
GE CLAS Core: Literary, Visual, and Performing Arts [b]		3
Elective course [d]		3
	Hours	**16-17**
Spring		
SEES:4010 or SEES:1290	Field Methods in Physical Geography or Energy and the Environment	3
Major: secondary emphasis area course [f]		3 - 4
GE CLAS Core: Values and Society [b]		3
Elective course [d]		3
Elective course [d]		3
	Hours	**15-16**
Fourth Year		
Fall		
SIED:4135	The Nature of Science	4
SEES:3210 or SEES:3360 or SEES:3020	Principles of Paleontology or Soil Genesis and Geomorphology or Earth Surface Processes	3
Major: secondary emphasis area course [f]		3 - 4
Elective course [d]		3
Elective course [d]		3
	Hours	**16-17**
Spring		
Major: secondary emphasis area course [f]		3 - 4

Major: secondary emphasis area course (if needed) [f]	3 - 4
GE CLAS Core: International and Global Issues [b]	3
Elective course [d]	3
Elective course (if needed) [d]	3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [g]	
Hours	**15-17**
Total Hours	**122-134**

a Sustainability must be completed by choosing a course that has been approved for Sustainability AND for one of these General Education areas: Natural Sciences; Quantitative or Formal Reasoning; Social Sciences; Historical Perspectives; International and Global Issues; Literary, Visual, and Performing Arts; or Values and Society.

b GE CLAS Core courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses.

c Students who have completed four levels of a single language or two levels of two different languages in high school or college have satisfied the GE CLAS Core World Languages requirement. Students who have completed three levels of a single language may complete a fourth-level course in the same language or may choose an approved World Language and Cultural Exploration course. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course. Contact your academic advisor or CLAS Undergraduate Programs Office with questions concerning the World Languages requirement.

d Students may use elective courses to earn credit towards the total s.h. required for graduation or to complete a double major, minors, or certificates.

e Students must take two of the applications courses SIED:4102, SIED:4103, SIED:4105, SIED:4106, or SIED:4110.

f Students must complete 15 semester hours in their secondary emphasis area.

g Please see Academic Calendar, on Office of the Registrar website, for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Degree Services.

Physics Emphasis

Course	Title	Hours
Academic Career		
Any Semester		
Students will choose a secondary emphasis area from biology, chemistry, or earth science.		
GE CLAS Core: Sustainability [a]		
	Hours	**0**
First Year		
Fall		
MATH:1850	Calculus I [b, c]	4
PHYS:1611 or PHYS:1701	Introductory Physics I or Physics I	4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or The Interpretation of Literature	3 - 4
GE CLAS Core: World Languages First Level Proficiency or elective course [d]		4 - 5
CSI:1600	Success at Iowa	1
	Hours	**16-18**
Spring		
MATH:1860	Calculus II [b]	4
PHYS:1702 or PHYS:1612	Physics II or Introductory Physics II	4
GE CLAS Core: Social Sciences [e]		3
GE CLAS Core: Understanding Cultural Perspectives [e]		3
GE CLAS Core: World Languages Second Level Proficiency or elective course [d]		4 - 5
	Hours	**18-19**
Second Year		
Fall		
PHYS:3710 or PHYS:2703	Intermediate Mechanics or Physics III	3 - 4
Major: applications course [f]		4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or The Interpretation of Literature	3 - 4
GE CLAS Core: World Languages Third Level Proficiency or elective course [d]		4 - 5
	Hours	**14-17**
Spring		
GE CLAS Core: Historical Perspectives [e]		3
GE CLAS Core: World Languages Fourth Level Proficiency or elective course [d]		4 - 5
Elective course [g]		3
Elective course [g]		3
	Hours	**13-14**
Third Year		
Fall		
ASTR:1771	Fundamental Astronomy I: The Solar System and Exoplanets	4
PHYS:1200	Physics of Everyday Experience	3
Major: secondary emphasis area course [h]		3 - 4
GE CLAS Core: Literary, Visual, and Performing Arts [e]		3
Elective course [g]		3
	Hours	**16-17**
Spring		
Major: applications course [f]		4
Major: secondary emphasis area course [h]		3 - 4
GE CLAS Core: Values and Society [e]		3
Elective course [g]		3
Elective course [g]		3
	Hours	**16-17**
Fourth Year		
Fall		
SIED:4135	The Nature of Science	4
PHYS:3850 or PHYS:3811	Electronics or Electricity and Magnetism I	3 - 4
Major: secondary emphasis area course [h]		3 - 4
Elective course [g]		3

Elective course [g]	3
Hours	**16-18**
Spring	
Major: secondary emphasis area course [h]	3 - 4
Major: secondary emphasis area course (if needed) [h]	3 - 4
GE CLAS Core: International and Global Issues [e]	3
Elective course [g]	3
Elective course (if needed) [g]	3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [i]	
Hours	**15-17**
Total Hours	**124-137**

a Sustainability must be completed by choosing a course that has been approved for Sustainability AND for one of these General Education areas: Natural Sciences; Quantitative or Formal Reasoning; Social Sciences; Historical Perspectives; International and Global Issues; Literary, Visual, and Performing Arts; or Values and Society.

b MATH:1850 and MATH:1860 are corequisites for required courses.

c Enrollment in math courses requires completion of a placement exam.

d Students who have completed four levels of a single language or two levels of two different languages in high school or college have satisfied the GE CLAS Core World Languages requirement. Students who have completed three levels of a single language may complete a fourth-level course in the same language or may choose an approved World Language and Cultural Exploration course. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course. Contact your academic advisor or CLAS Undergraduate Programs Office with questions concerning the World Languages requirement.

e GE CLAS Core courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses.

f Students must take two of the applications courses SIED:4102, SIED:4103, SIED:4105, SIED:4106, or SIED:4110.

g Students may use elective courses to earn credit towards the total s.h. required for graduation or to complete a double major, minors, or certificates.

h Students must complete 15 semester hours in their secondary emphasis area.

i Please see Academic Calendar, on Office of the Registrar website, for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Degree Services.