GLOBAL RESOURCE SYSTEMS

The Global Resource Systems undergraduate major employs a truly interdisciplinary and systemic approach to understanding complex global resource issues. Students develop a core set of technical competencies in a resource area selected from the majors, minors and certificates offered by the College of Agriculture and Life Sciences. Students choose a world region in which to specialize, develop competency in a relevant world language, and participate in a significant cross-cultural immersion experience. They carry out a senior project related to their resource specialization within the context of the world region.

Multidisciplinary themes are developed in the context of the physical, biological and sociological factors affecting global resource systems. In this context, resource systems include agricultural (including crops, livestock and aquaculture), food, fuel, natural, environmental, biological, financial, governmental, institutional, human, knowledge, and other resources. Graduates of this program have transnational leadership skills and are successful integrators of various specializations on a team. They are skilled in applying a systemic perspective and developing solutions to complex global resource systems problems using innovativeness and creativity. Future professionals communicate effectively and demonstrate environmental awareness, exhibit an ethical perspective, and display clear analysis of how cultural diversity impacts work both here and abroad. They also recognize opportunities for learning after graduation.

A degree in Global Resource Systems opens the door to employment opportunities in the many businesses and organizations that require globally competent employees.

Curriculum in Global Resource Systems

Administered by a supervisory committee in the College of Agriculture and Life Sciences. Students choose a region of the world to develop an expertise; they choose a language to learn and develop proficiency through the intermediate level; they choose and possess an area of technical expertise by completing an additional major, minor or certificate program offered through the College of Agriculture and Life Sciences; they complete a required internship in an international setting; and they select and complete a senior research project with faculty mentoring.

Total Degree Requirement: 129 cr.
Only 65 cr. from a two-year institution may apply which may include up to 16 technical cr.; 9 P-NP cr. of free electives; 2.00 minimum GPA.

International Perspective: 3 cr.
3 cr. from approved list 3

U.S. Diversity: 3 cr.
3 cr. from approved list 3

Communications Proficiency:

English composition (6 credits with a grade of C or higher; see courses below.)

Speech fundamentals (3 credits with a grade of C or higher; see courses below.)

Communication/Library: 13 cr.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 150</td>
<td>Critical Thinking and Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 250</td>
<td>Written, Oral, Visual, and Electronic Composition</td>
<td>3</td>
</tr>
<tr>
<td>SP CM 212</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>or AGEDS 311</td>
<td>Presentation and Sales Strategies for Agricultural Audiences</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 302</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL 309</td>
<td>Proposal and Report Writing</td>
<td></td>
</tr>
<tr>
<td>or ENGL 314</td>
<td>Technical Communication</td>
<td></td>
</tr>
<tr>
<td>LIB 160</td>
<td>Information Literacy</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 13

Humanities and Social Sciences: 6 cr.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ECON 101</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>or ECON 102</td>
<td>Principles of Macroeconomics</td>
<td></td>
</tr>
<tr>
<td>Plus three credit hours from approved humanities list</td>
<td>3</td>
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</tbody>
</table>

Total Credits 6

Ethics: 3 cr.
3 cr. from approved list 3

Life Sciences: 7 cr.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL 211 &amp; 211L</td>
<td>Principles of Biology I and Principles of Biology Laboratory I</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 212 &amp; 212L</td>
<td>Principles of Biology II and Principles of Biology Laboratory II</td>
<td></td>
</tr>
<tr>
<td>Plus 3 cr. from approved life sciences list at 300-level or higher</td>
<td>3</td>
<td></td>
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Mathematical Sciences: 6 cr.

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MATH 140</td>
<td>College Algebra (or higher; except Math 195 or 196)</td>
<td>3</td>
</tr>
<tr>
<td>STAT 101</td>
<td>Principles of Statistics</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 104</td>
<td>Introduction to Statistics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6-7

Global Competency: 15-31 cr.
16 cr. of 100 and 200 level of a single WLC language; 15 cr. in global competency courses from an approved list with up to 3 cr. may be earned from a travel course.

**Physical Sciences: 8 cr.**

One of the following: 5

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 163 &amp; 163L</td>
<td>College Chemistry and Laboratory in College Chemistry or CHEM 177 General Chemistry I &amp; 177L and Laboratory in General Chemistry I</td>
</tr>
</tbody>
</table>

One course from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>AGRON 182</td>
<td>Introduction to Soil Science</td>
</tr>
<tr>
<td>AGRON 282</td>
<td>Soil Conservation and Land Use</td>
</tr>
<tr>
<td>AGRON 206</td>
<td>Introduction to Weather and Climate</td>
</tr>
<tr>
<td>GEOL 101</td>
<td>Environmental Geology: Earth in Crisis</td>
</tr>
<tr>
<td>GEOL 160</td>
<td>Water Resources of the World</td>
</tr>
</tbody>
</table>

**Total Credits** 8

**Global Resource Systems: 23 cr.**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>GLOBE 110</td>
<td>Orientation</td>
</tr>
<tr>
<td>GLOBE 211</td>
<td>Issues in Global Resource Systems (Each offering is 1 cr., must be repeated for 3 cr.)</td>
</tr>
<tr>
<td>GLOBE 201</td>
<td>Global Resource Systems</td>
</tr>
<tr>
<td>GLOBE 320</td>
<td>Global Resource Systems Internship Preparation</td>
</tr>
<tr>
<td>GLOBE 303</td>
<td>Agricultural, Food and Natural Global Resource Systems</td>
</tr>
<tr>
<td>GLOBE 304</td>
<td>Socio-Economic Global Resource Systems</td>
</tr>
<tr>
<td>GLOBE 401</td>
<td>Senior Project</td>
</tr>
<tr>
<td>GLOBE 402</td>
<td>Responses to Global Resource System Challenges</td>
</tr>
</tbody>
</table>

One of the following: 3-6

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOBE 321</td>
<td>Internship - Global</td>
</tr>
<tr>
<td>GLOBE 322</td>
<td>Internship - United States</td>
</tr>
</tbody>
</table>

**Total Credits** 23-26

**Technical Concentration: 15-18 cr.**

Satisfied by any of the majors, minors or certificates offered through the College of Agriculture and Life Sciences.

**Electives:**

Sufficient coursework to ensure a total of not less than 129 credits

Global Resource Systems, B.S.
Courses primarily for undergraduates:

**GLOBE 110: Orientation**
(1-0) Cr. 1. F.

**GLOBE 120: Geography of Global Resource Systems**
(3-0) Cr. 3. F.
A survey of geographic concepts with a specific focus on the distribution of natural and human-generated resources and the demand for those resources on a global scale. Meets International Perspectives Requirement.

**GLOBE 201: Global Resource Systems**
(3-0) Cr. 3. F.S.
A comparative analysis of global resources and the various natural and human systems affecting those resources. Assessed service-learning component.

**GLOBE 211: Issues in Global Resource Systems**
(1-0) Cr. 1. Repeatable, maximum of 3 credits. F.S.
Discussion of topics of current importance in global resource systems. Offered on a satisfactory-fail basis only. A maximum of 3 credits of 211 may be used towards degree requirements.

**GLOBE 220: Globalization and Sustainability**
(Cross-listed with ANTHR, ENV S, M E, MAT E, SOC, T SC). (3-0) Cr. 3. F.S.
An introduction to understanding the key global issues in sustainability. Focuses on interconnected roles of energy, materials, human resources, economics, and technology in building and maintaining sustainable systems. Applications discussed will include challenges in both the developed and developing world and will examine the role of technology in a resource-constrained world. Cannot be used for technical elective credit in any engineering department. Meets International Perspectives Requirement.

**GLOBE 221: Apprenticeship**
Cr. R. Repeatable. F.S.SS.
*Prereq: Approval by the Global Resource Systems Faculty Coordinator*
Practical work experience in approved domestic or international settings such as with a company, research laboratory, governmental agency or non-governmental organization. Offered on a satisfactory-fail basis only.

**GLOBE 290: Independent Study**
Cr. 1-2. Repeatable. F.S.SS.
*Prereq: Permission of the instructor and approval by the Global Resource Systems Faculty Coordinator*
Independent study on topics of special interest to the student. Comprehensive report required. Intended primarily for first-year students and sophomores.

**GLOBE 290H: Independent Study, Honors**
Cr. 1-2. Repeatable. F.S.SS.
*Prereq: Permission of the instructor and approval by the Global Resource Systems Faculty Coordinator*
Independent study on topics of special interest to the student. Comprehensive report required. Intended primarily for first-year students and sophomores.

**GLOBE 303: Agricultural, Food and Natural Global Resource Systems**
(3-0) Cr. 3. F.
*Prereq: GLOBE 201, ECON 101 or ECON 102*
In-depth analysis of the opportunities, constraints and consequences of agricultural, food and natural resource systems. Topics integrate global natural resources with agriculture and food systems, nutrition and health, sustainable development, and societal structures, including gender, migration and urbanization. Course content utilizes a systems approach.

**GLOBE 304: Socio-Economic Global Resource Systems**
(3-0) Cr. 3. S.
*Prereq: GLOBE 201, ECON 101 or ECON 102*
In-depth analysis of the opportunities, constraints and consequences of social, economic and political global resource systems. Topics integrate agriculture and food production, globalization, population, economic planning, energy, security, trade, and policy and their role in defining different world regions. Course content utilizes a systems approach.

**GLOBE 320: Global Resource Systems Internship Preparation**
(1-0) Cr. 1. S.
*Prereq: Permission of instructor.*
Students enrolled in this course intend to enroll in Globe 321 or 322 in the following term. Topics provide a pre-departure orientation, including logistical, academic, cultural, and personal requirements for completion of an experiential supervised work experience.
GLOBE 321: Internship - Global  
Cr. 3-6. Repeatable. F.S.SS.  
**Prereq:** GLOBE 320, Junior or Senior and enrollment in Global Resource Systems major; permission of the instructor and approval by the Global Resource Systems Faculty Coordinator  
A supervised learning experience including an analysis of an international location’s resource system via immersion in a foreign culture lasting at least five weeks. The experience should focus on the region consistent with the student’s degree track. Course expenses paid by student. A maximum of 12 credits of GLOBE 321 and 322 may be used for degree requirements.

GLOBE 322: Internship - United States  
Cr. 3-6. Repeatable. F.S.SS.  
**Prereq:** GLOBE 320, Junior or Senior and enrollment in Global Resource Systems major; permission of the instructor and approval by the Global Resource Systems Faculty Coordinator  
A supervised learning experience including an analysis of a domestic location’s resource system via immersion in a different culture within the United States lasting at least five weeks. Designed for international students and for students who are not in a position to leave the United States. Course expenses paid by student. A maximum of 12 credits of Globe 321 and 322 may be used for degree requirements.

GLOBE 335: The Economics of Global Agricultural Food and Bio-energy  
(Cross-listed with ECON). (3-0) Cr. 3.  
**Prereq:** ECON 101  
Applied economic analysis of the determinants of world agricultural production, marketing, and use in feed, food, fiber, biofuel, and other applications, and global food processing and consumption. Analysis of market case studies and various data on global agricultural production and transformation, land and resource use, demography, economic activity, nutrition and health trends.  
Meets International Perspectives Requirement.

GLOBE 385: Economic Development  
(Cross-listed with ECON). (3-0) Cr. 3.  
**Prereq:** ECON 101, ECON 102  
Current problems of developing countries, theories of economic development, agriculture, and economic development, measurement and prediction of economic performance of developing countries, alternative policies and reforms required for satisfying basic needs of Third World countries, interrelationships between industrialized countries and the developing countries, including foreign aid.  
Meets International Perspectives Requirement.

GLOBE 398: Cooperative Education  
Cr. R. F.S.SS.  
**Prereq:** Permission of faculty coordinator for the major.  
Students must complete GLOBE 398 Cooperative Education Approval Form and register for GLOBE 398 before commencing each work period. Work periods for students in cooperative education related to Global Resource Systems. Offered on a satisfactory-fail basis only.

GLOBE 401: Senior Project  
Cr. 3. F.S.SS.  
**Prereq:** Senior classification in Global Resource Systems  
Research project in collaboration with faculty that complements and furthers a student’s experiences from Globe 321 and 322 while simultaneously bringing into focus entire four-year experience. Student will write a research report and make either an oral or poster presentation.

GLOBE 401H: Senior Project, Honors  
Cr. 3. F.S.SS.  
**Prereq:** Senior classification in Global Resource Systems  
Research project in collaboration with faculty that complements and furthers a student’s experiences from Globe 321 and 322 while simultaneously bringing into focus entire four-year experience. Student will write a research report and make either an oral or poster presentation.

GLOBE 402: Responses to Global Resource System Challenges  
(3-0) Cr. 3. S.  
Capstone analysis of critical global resource challenges facing both developed and developing countries. Students will use research skills to investigate specific global resource issues and use communications skills to work as a team to integrate their research, develop an interdisciplinary perspective, and evaluate potential solutions to resource challenges.

GLOBE 441: International Animal Agriculture  
(Cross-listed with AN S). (3-0) Cr. 3. S.  
**Prereq:** Two courses from AN S 223, AN S 225, AN S 226, AN S 229, AN S 235  
An overview of animal agriculture with emphasis in developing countries. Historical, economic, environmental, and political considerations will be assessed and evaluated. Issues related to gender, resilience and sustainability for different production systems including alternative livestock species, will be investigated. The role of animal source foods in attainment of global food security will be discussed.  
Meets International Perspectives Requirement.
GLOBE 446: International Issues and Challenges in Sustainable Development
(Cross-listed with AGRON, INTST). Cr. 3. F.S.
Prereq: 3-credit biology course, Sophomore or higher classification, permission of instructor
Interdisciplinary study and analysis of agricultural systems, sustainable management, and impact on plants and animal biodiversity. International field experience in evaluating different agricultural systems and impact on biodiversity may be required. A program fee is charged to students for international study abroad.
Meets International Perspectives Requirement.

GLOBE 490: Independent Study
Cr. 1-4. Repeatable. F.S.S.S.
Prereq: Permission of the instructor and approval by the Global Resource Systems Faculty Coordinator
Independent study on topics of special interest to the student.
Comprehensive report required. Intended primarily for juniors and seniors. A maximum of 9 credits of all (university-wide) 490 courses may be used for degree requirements.

GLOBE 490A: Independent Study: General
Cr. 1-4. Repeatable. F.S.S.S.
Prereq: Permission of the instructor and approval by the Global Resource Systems Faculty Coordinator
Independent study on topics of special interest to the student.
Comprehensive report required. Intended primarily for juniors and seniors. A maximum of 9 credits of all (university-wide) 490 courses may be used for degree requirements.

GLOBE 490E: Independent Study: Entrepreneurship
Cr. 1-4. Repeatable. F.S.S.S.
Prereq: Permission of the instructor and approval by the Global Resource Systems Faculty Coordinator
Independent study on topics of special interest to the student.
Comprehensive report required. Intended primarily for juniors and seniors. A maximum of 9 credits of all (university-wide) 490 courses may be used for degree requirements.

GLOBE 490H: Independent Study: Honors
Cr. 1-4. Repeatable. F.S.S.S.
Prereq: Permission of the instructor and approval by the Global Resource Systems Faculty Coordinator
Independent study on topics of special interest to the student.
Comprehensive report required. Intended primarily for juniors and seniors. A maximum of 9 credits of all (university-wide) 490 courses may be used for degree requirements.

GLOBE 490Z: Independent Study: Service Learning
Cr. 1-4. Repeatable. F.S.S.S.
Prereq: Permission of instructor and approval by the Global Resource Systems Faculty Coordinator
Independent study on topics of special interest to the student.
Comprehensive report required. Intended primarily for juniors and seniors. A maximum of 9 credits of all (university-wide) 490 courses may be used for degree requirements.

GLOBE 494: Service Learning
Cr. arr. F.S.S.S.
Prereq: Permission of instructor.
Selected projects that result in outcomes benefiting a non-Iowa State University entity while instilling a professional ethics and accomplishing student learning goals. Course expenses paid by student. Assessed service-learning component.

GLOBE 494A: Service Learning: International
Cr. arr. Repeatable, maximum of 12 credits. F.S.S.S.
Prereq: Permission of instructor.
Selected projects that result in outcomes benefiting a non-Iowa State University entity while instilling a professional ethics and accomplishing student learning goals. Course expenses paid by student. Assessed service-learning component.

GLOBE 494B: Service Learning: Domestic
Cr. arr. Repeatable, maximum of 12 credits. F.S.S.S.
Prereq: Permission of instructor.
Selected projects that result in outcomes benefiting a non-Iowa State University entity while instilling a professional ethics and accomplishing student learning goals. Course expenses paid by student. Assessed service-learning component.

GLOBE 494C: Service Learning: U.S. Diversity Project
Cr. 3. Repeatable. F.S.S.S.
Prereq: Permission of Instructor
Selected projects that result in outcomes benefiting a non-Iowa State University entity, while instilling professional ethics and accomplishing student learning goals. Academic work under faculty supervision may include written reports, presentations, and guided readings. Course expenses paid by student. Assessed service-learning component. Meets U.S. Diversity Requirement
GLOBE 495: Global Resource Systems Study Abroad Course Preparation
Cr. 1-2. Repeatable. F.S.
Prereq: Permission of instructor
Global resource systems topics will include the agricultural industries, climate, crops, culture, economics, food, geography, government, history, livestock, marketing, natural resources, public policies, soils, and preparation for travel to locations to be visited. Students enrolled in this course intend to register for Globe 494A, 496 or 497 the following term.

GLOBE 496: Global Resource Systems Study Abroad
Cr. 2-4. Repeatable. F.S.SS.
Prereq: Permission of instructor
Extended field trips abroad to study global resource systems. Location and duration of trips will vary. Pre-trip sessions arranged through Globe 495. Trip expenses paid by student.
Meets International Perspectives Requirement.

GLOBE 497: Deans Global Ag and Food Leadership Program
Cr. 1-4. Repeatable. F.S.SS.
Prereq: Permission of instructor
An integrated agricultural and food production and policy program that allows students to assess, analyze and evaluate complex, country-specific situations and to develop their skills, knowledge and abilities via team-oriented projects that involve complex issues such as development of effective foreign food aid and agricultural and food production systems, drivers of world hunger, sustainable resource management and efficacy of policy, and the role of the USA and the United Nations and other development agencies in these systems. International location and duration of program will vary. Pre-trip sessions arranged through Globe 495. Trip expenses paid by students.
Meets International Perspectives Requirement.

GLOBE 499: Undergraduate Research
Cr. arr. F.S.SS.
Prereq: Permission of the instructor and approval by the Global Resource Systems Faculty Coordinator
Research projects in collaboration with faculty.