

# 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 internship experience. They carry out a senior project related to their resource specialization within the context of the world region. The undergraduate experience culminates with a senior capstone course, where students work with real-world clients to address global resource challenges.

Multidisciplinary themes are developed in the context of the physical, biological and socio-economic factors affecting global resource systems. In this context, resource systems include natural, food and agricultural, environmental, cultural and human, political and institutional, financial and built, public health and social 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.

ENGL 150	Critical Thinking and Communication	3
ENGL 250	Written, Oral, Visual, and Electronic Composition	3
SP CM 212	Fundamentals of Public Speaking	3
or AGEDS 311	Presentation and Sales Strategies for Agricultural Audiences	
ENGL 302	Business Communication	3
or ENGL 309	Proposal and Report Writing	
or ENGL 314	Technical Communication	
LIB 160	Information Literacy	1

**Total Credits 13**

### Humanities and Social Sciences: 6 cr.

ECON 101	Principles of Microeconomics	3
or ECON 102	Principles of Macroeconomics	
Plus three credit hours from approved humanities list		3

**Total Credits 6**

### Ethics: 3 cr.

3 cr. from approved list 3

### Life Sciences: 7 cr.

BIOL 211	Principles of Biology I	4
& 211L	and Principles of Biology Laboratory I	
or BIOL 212	Principles of Biology II	
& 212L	and Principles of Biology Laboratory II	
Plus 3 cr. from approved life sciences list at 300-level or higher		3

### Mathematical Sciences: 6 cr.

MATH 140	College Algebra (or higher; except Math 195 or 196)	3
STAT 101	Principles of Statistics	3-4
or STAT 104	Introduction to Statistics	

**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

CHEM 163 & 163L	College Chemistry and Laboratory in College Chemistry	
or CHEM 177 & 177L	General Chemistry I and Laboratory in General Chemistry I	

One course from the following: 3

AGRON 182	Introduction to Soil Science	
AGRON 282	Soil Conservation and Land Use	
AGRON 206	Introduction to Weather and Climate	
GEOL 101	Environmental Geology: Earth in Crisis	
GEOL 160	Water Resources of the World	

**Total Credits 8**

**Global Resource Systems: 23 cr.**

GLOBE 110 Orientation 1

3 credits of GLOBE 211 3

GLOBE 211 Issues in Global Resource Systems (Each offering is 1 cr., must be repeated for 3 cr.)

GLOBE 201 Global Resource Systems 3

GLOBE 320 Global Resource Systems Internship Preparation 1

GLOBE 303 Agricultural, Food and Natural Global Resource Systems 3

GLOBE 304 Socio-Economic Global Resource Systems 3

GLOBE 401 Senior Project 3

GLOBE 402 Responses to Global Resource System Challenges 3

One of the following: 3-6

GLOBE 321 Internship - Global

GLOBE 322 Internship - United States

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.

**Freshman**

Fall	Credits Spring	Credits
GLOBE 110	1 GLOBE 201	3
GLOBE 211	1 ECON 101	3
MATH 140	3 ENGL 250	3
ENGL 150	3 CHEM 163	4
LIB 160	1 CHEM 163L	1
BIOL 211	3 STAT 104	3
BIOL 211L	1	
Humanities	3	
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		<b>16</b>
		<b>17</b>

**Sophomore**

Fall	Credits Spring	Credits
GLOBE 303	3 GLOBE 304	3
Language 101	4 Language 102	4
GLOBE 211	1 AGEDS 311 or SP CM 212	3
Global Politics or Global Culture	3 AGRON 182, 206, 282, GEOL 101, or GEOL 160	3
Technical Area	3 Technical Area	3
Elective	3	
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		<b>17</b>
		<b>16</b>

**Junior**

Fall	Credits Spring	Credits
GLOBE 211	1 GLOBE 320	1
Language 201	4 Language 202	4
ENGL 309	3 Global History or Global Culture	3
Global Culture	3 AGRON 342 (or Other CALS Approved Ethics)	3
US Diversity	3 Technical Area	3
General Elective	3 General Elective	3
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		<b>17</b>
		<b>17</b>

**Senior**

Fall	Credits Spring	Credits
GLOBE 321	3 GLOBE 402	3
GLOBE 401	3 Global Culture	3
International Perspectives	3 300 Level or Higher Life Science (From Approved List)	3
Global Economics or Global Culture	3 Technical Area	3

Technical Area	3 General Elective	2
	15	14

**Courses primarily for undergraduates:**

**GLOBE 110: Orientation**

(1-0) Cr. 1. F.

An introduction to Global Resource Systems (GRS) program. University and career acclimation, development of educational and professional skills, participation in GRS Learning Community. Assessed service-learning component.

**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 4 credits. F.S.

Discussion of topics of current importance in global resource systems. Offered on a satisfactory-fail basis only. A maximum of 4 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). (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 and ECON 101 or ECON 102. Or permission of instructor.*

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 and ECON 101 or ECON 102. Or permission of the instructor.*

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.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 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.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 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.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 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.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 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.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 juniors and seniors.

Assessed service-learning component. A maximum of 9 credits of all (university-wide) 490 courses may be used for degree requirements.

**GLOBE 493: Workshop in Global Resource Systems**

Cr. 1-3. Repeatable, maximum of 4 times. F.S.SS.

*Prereq:* Permission of instructor

Workshop experience in selected topics in global resource systems.

Variable format may include lecture, recitation, laboratory, and field.

Offered on a satisfactory-fail basis only.

**GLOBE 494: Service Learning**

Cr. arr. F.S.SS.

*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.SS.

*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. Course expenses paid by student. Assessed service-learning component.

**GLOBE 494B: Service Learning: Domestic**

Cr. arr. Repeatable, maximum of 12 credits. F.S.SS.

*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. Course expenses paid by student. Assessed service-learning component.

**GLOBE 494C: Service Learning: U.S. Diversity Project**

Cr. 3. Repeatable. F.S.SS.

*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: Successful completion of 2 credits of Globe 495 (Italy) and 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.