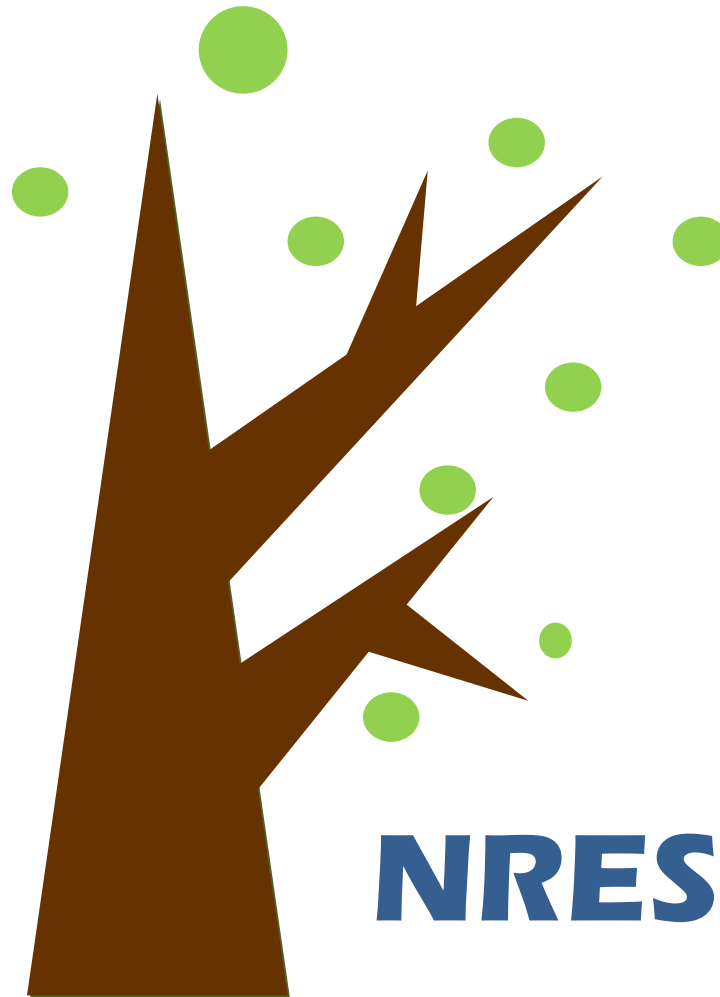


Natural Resources and Environmental Science Program



Purdue University, West Lafayette, Indiana
College of Agriculture

Phone: (765) 494-4786
Email: nres@purdue.edu
<http://www.purdue.edu/nres>

NATURAL RESOURCES AND ENVIRONMENTAL SCIENCE (NREV)

University regulations stipulate that at least 32 credits of 30000+ level Purdue courses must be successfully completed for a degree.

College of Agriculture Requirements

___ AGR 10100 & AGR 12200 (1)

Math & Basic Sciences (23 credits)

- ___ *BIOL 11000* (4)
- ___ *BIOL 11100 or BTNY 11000* (4)
- ___ *CHM 11100* (3)
- ___ *CHM 11200* (3)
- ___ *MA 16010* (3)
- ___ MA 16020 (3)
- ___ *STAT 30100* (3)

Written & Oral Communications (10 credits)

- ___ *COM 11400* (3)
- ___ *ENGL 10600* (4)
- ___ ENGL/COM/ASL +20000 level (3)

Social Science and Humanities^{1,2,4} (15 credits)

- ___ *AGEC 20300/20400 or ECON 25100* (3)
- ___ **UCC HUM SEL** _____ (3)
- ___ SS/HUM SEL _____ (3)
- ___ SS/HUM SEL _____ (3)
- ___ SS/HUM SEL _____ (3)

International Understanding Selectives³: (9 credits)

- _____ (3)
- _____ (3)
- _____ (3)

Multicultural Awareness³: (3 credits)

- _____ (3)

- Minimum of 32 credits at +30000 level Purdue courses must be completed for baccalaureate degree
- 19 credits must be earned outside the College of Agriculture in Humanities and Social Sciences
- 23 credits of SS or HUM must be at +30000 level
- ³May also be used to fulfill College or Departmental requirements
- ⁴See College of Ag. catalog for requirements
- ⁵Number of credits will be dependent on the Concentration selected.
- UCC=University Core Curriculum
- Variance from the course requirements must be approved by the NRES Director.

NRES Core Requirements

Basic Requirements (28-29 credits)

- ___ AGEC 40600 (Nat. Res & Env. Econ)(3)
- ___ CHM 25700 (Organic Chem.) (4)
- ___ Ecology _____ (2-3)
- ___ Ecology _____ (3)
- ___ FNR 21000 (Nat. Res. Info. Mgmt.) (3)
- ___ NRES 20000 (Env. Careers Sem.) (1)
- ___ NRES 23000 (Meteorology) or AGRY 33500 (Weather/Climate) (3)
- ___ NRES 25500 (Soil Science) (3)
- ___ *NRES 29000 (Intro. Env. Sci.)* (3)
- ___ POL 22300 (Env. Policy) (3)

Additional Science Selectives (9 credits)

- ___ _____ ()
- ___ _____ ()
- ___ _____ ()
- ___ _____ ()
- ___ _____ ()

Concentration⁵ (19-22 credits)

- ___ _____ ()
- ___ _____ ()
- ___ _____ ()
- ___ _____ ()
- ___ _____ ()
- ___ _____ ()
- ___ _____ ()
- ___ _____ ()
- ___ _____ ()
- ___ _____ ()

Electives (12-17 credits)

- ___ _____ ()
- ___ _____ ()
- ___ _____ ()
- ___ _____ ()
- ___ _____ ()
- ___ _____ ()

Capstone Experience⁴: _____

Total Credit Hours: _____ (120 required)

(For students entering college **Fall 2014 or later**)

COMMONLY USED CORE COURSE SUBSTITUTIONS

Chemistry:

CHM 11500 and 11600 for CHM 11100 and 11200

Mathematics:

MA 16100 for MA 16010 and 16020 if MA 16200 or MA 16020 is used for science elective
MA 16500 for MA 16010 and MA 16600 for MA 16020

NRES Core Courses:

For CHM 25700: CHM 25500/25500L

SOME COMMONLY USED ELECTIVE/SELECTIVE COURSES

Additional Communications Electives: See list in current College of Ag catalog.

^{1,2}Humanities and Social Science Electives: See list in current College of Ag catalog. Note: If using a foreign language in this requirement, a minimum of six credits of the same language must be earned.

³International Understanding Selectives: See list in current College of Ag catalog. Note: If using a foreign language in this requirement, a minimum of six credits of the same language must be earned.

³Multicultural Awareness: (See list in current College of Ag catalog) or completion of an approved non-credit multicultural work experience (See details in current College of Ag catalog).

⁴Capstone Course or Experience: To be completed either Junior or Senior year for 0-3 credits. Students may choose to take a course or complete an experience. Course options are NRES 42000 (Environmental Internship), NRES 41000 (Individual Research Project), EPICS 40100 or 40200 (Senior Participation in a Community Service Project). In a capstone experience, students will be challenged to integrate their accumulated knowledge and technical and social skills in order to identify and solve a problem relevant to issues encountered by professionals in their chosen discipline, and to communicate the results of their efforts to their peers.

Ecology Course Selectives (Please check for Prerequisites):

AGRY 34900 (3) F	BIOL 58500 (3) F	ENTM 31100 (3) S	FNR 35900 (3) F
BIOL 12100 (2) F	BTNY 21100 (3) S	FNR 20100 (3) F	
BIOL 28600 (2) S	BTNY 30200 (3) S odd	FNR 24100 (3) F	
BIOL 48300 (3) S	EEE 30000 (3) F	FNR 25100 (3) S	

⁴NRES Science Selectives (Please check for Prerequisites):

**In addition to the College of Agriculture's Math and Science Selectives, the following are also available:*

AGRY 38500	MA 26200
BIOL 28900	PHYS 17200
CHM 32100, 33300, 37200	STAT 51400
EAPS 24300, 24400, 30100, 31300, 32000	

Electives:

Additional specialization, broadening and technical courses, ROTC, Band

Credit Hours Required for Graduation: 120 (See International Understanding, Multicultural Awareness, and Capstone Course requirements in the current College of Agriculture catalog.)

Freshmen Year

First Semester

- (0.5) **AGR 10100** (Introduction to the College of Agriculture and Purdue University)
- (0.5) **AGR 12200** (Introduction to Natural Resources and Environmental Science Academic Programs)
- (3) **CHM 11100** (General Chemistry) †
- (4) **ENGL 10600** (First-Year Composition) †
- (3) **MA 16010** (Applied Calculus I) †
- (3) **NRES 29000** (Introduction to Environmental Science) †
- (14)

Second Semester

- (3) **CHM 11200** (General Chemistry) †
- (3) **COM 11400** (Fundamentals of Speech Communication) †
- (3) **MA 16020** (Applied Calculus II) †
- (4) Biological sciences selective †
- (2) Elective
- (15)

Sophomore Year

Third Semester

- (4) **CHM 25700** (Organic Chemistry)
- (3) **NRES 25500** (Soil Science)
- (3) **STAT 30100** (Elementary Statistical Methods) †
- (4) Biological sciences selective †
- (3) Microeconomics selective †
- (17)

Fourth Semester

- (3) **AGRY 33500** (Weather and Climate) **or**
(3) **NRES 23000** (Survey of Meteorology)
- (1) **NRES 20000** (Introduction to Environmental Careers)
- (3) **POL 22300** (Introduction to Environmental Policy)
- (2) Environmental biology or plant ecology selective
- (3) Social science or humanities selective
- (3) Elective
- (15)

Junior Year

Fifth Semester

- (6) Biochemistry, biology, chemistry, mathematics, physics, or statistics selectives
- (6) Concentration selectives*
- (3) Environmental biology or plant ecology selective
- (15)

Sixth Semester

- (3) **AGEC 40600** (Natural Resource and Environmental Economics)
- (3) **FNR 21000** (Natural Resource Information Management)
- (6) Concentration selective*
- (3) Humanities selective ‡
- (15)

Senior Year

Seventh Semester

- (3) Biochemistry, biology, chemistry, mathematics, physics, or statistics selective
- (3) Concentration selective*
- (3) Social science or humanities selective
- (3) Written or oral communication selective
- (3) Elective
- (15)

Eighth Semester

- (6) Concentration selectives*
- (3) Social science or humanities selective (30000+ level)
- (5) Electives
- (14)

†-Course fulfills a University Core Foundational Outcome
 ‡-See University Core Foundational Outcome list of approved courses
 * Concentration selectives are determined by the Concentration selected to pursue

Air Quality Concentration 21 Hours Total

Course No.	Course Title	Cred Hrs	Sem	Prerequisites
<u>These courses must be taken (9 hours):</u>				
AGRY 43100/EAPS 42100	Atmospheric Thermodynamics	3	F	AGRY 33500; MA 26100; (PHYS 22100 or PHYS 24100 or PHYS 25100)
EAPS 32000	Physics of Climate	3	S	One sem calc, physics
FNR 35700	Fundamental Remote Sensing	3	F	
<u>A total of 12 hours must be taken from this list</u>				
AGRY 53500	Boundary Layer Meteorology	3	F	AGRY 33500, MA 26100, PHYS 22100
CE 45700	Air Pollution Control and Design	3	S	CE 34000
CHM 58100/EAPS 52100	Atmospheric Chemistry	3	F	CHM 24100, CHM 25700, EAPS 23000
EAPS 52000	Theory of Climate	3	F/S	EAPS 53200, EAPS 53300
HSCI 31200	Radiation Science Fundamentals	3	F	PHYS 22100; (MA 16100 or MA 16020)
HSCI 31300	Principles of Radiation Detection and Measurement	2	S	HSCI 31200
NRES 28000	Hazardous Waste Handling	3	S	

Environmental Policy and Analysis Concentration 21 Hours Total

Course No.	Course Title	Cred Hrs	Sem	Prerequisites
<u>These courses must be taken (9 hours):</u>				
FNR 37500	Human Dimensions of Natural Resource Management	3	S	POL 22300
PHIL 29000	Environmental Ethics	3	F,S	
POL 32700	Global Green Politics	3	SU,F,S	
<u>A total of 12 hours must be taken from this list</u>				
ANTH 32700	Environment and Culture	3	SU,F,S	
AGEC 52500	Environmental Policy Analysis	3	S	
FNR 36500	Natural Resources Issues, Policy and Administration	3	F	
FNR 48800	Global Environmental Issues	3	F	
POL 32300	Comparative Environmental Policy	3	SU,F,S	
POL 42300	International Environmental Policy	3	SU,F,S	
POL 42500	Environmental Law and Politics	3	SU,F,S	
POL 52300	Environmental Politics and Public Policy	3	SU,F,S	
SOC 53300	Environmental Sociology	3	S	

Land Resources Concentration 22 Hours Total

Course No.	Course Title	Cred Hrs	Sem	Prerequisites
<u>These courses must be taken (10 hours):</u>				
AGRY 38500	Environmental Soil Chemistry	4	F	(AGRY 25500 or NRES 25500) and one semester chemistry
FNR 37500	Human Dimensions of Nat'l Resource Management	3	S	POL 22300
AGRY 33700	Environmental Hydrology	3	S	
<u>A total of 12 hours must be taken from this list</u>				
ABE 32500	Soil and Water Resource Engineering	4	F	AGRY 25500 and ME 30900 or AGRY 25500 and (CE 34000 and 34300)
AGRY 34900	Soil Ecology	3	F	BIOL 11000, BIOL 11100 <i>or</i> BIOL 11000, BTNY 11000
AGRY 45000 or	Soil Conservation and Water Management	3	F	AGRY 25500
ASM 52100	Soil and Water Conservation Management	3	F	PHYS 21400 or PHYS 22000
AGRY 58500	Soils and Land Use	3	S	AGRY 25500
AGRY 36500	Soil Fertility	3	S	AGRY 25500
ASM 33600	Environmental Systems Management	3	F	ASM 10500 or ASM 23100 or (ASM 10400 and AGECE 20200)
CE 35000	Environmental Engineering	3	Su, F, S	CHM 11600
FNR 35300	Natural Resources Measurement	3	S	MA 16010, MA 16020
FNR 35700	Fundamental Remote Sensing	3	F	
NRES 28000	Hazardous Waste Handling	3	S	

Water Quality Concentration 19-21 Hours Total

Course No.	Course Title	Cred Hrs	Sem	Prerequisites
<u>These courses must be taken (9 hours):</u>				
AGRY 33700	Environmental Hydrology	3	S	
CE 35500	Engineering Environmental Sustainability	3	S	Sophomore status or higher
FNR 20100	Marine Biology	3	F	BIOL 11000 or BIOL 12100
<u>A total of 10-12 hours must be selected from this list:</u>				
ABE 32500	Soil and Water Resource Engineering	4	F	AGRY 25500 and ME 30900 or AGRY 25500 and (CE 34000 and 34300)
AGRY 38500	Environmental Soil Chemistry	4	F	(AGRY 25500 or NRES 25500) and one semester chemistry
CE 35000	Environmental Engineering	3	Su,F,S	CHM 11600
CE 45600	Water and Wastewater Treatment	3	F	CE 35000
CE 59300	Environ. Geotechnology	3	S (odd years)	CE 35000, CE 38300
FNR 35100	Aquatic Samp. Techniques	3	S	FNR 24200 and (MA 16010, MA 16020) and STAT 30100 and FNR 25200
NRES 28000	Hazardous Waste Handling	3	S	

Emerging Environmental Challenges Concentration

20 Hours Total

Students may wish to construct a concentration of their own design to respond to emerging areas of study or unique opportunities. The following criteria must be met:

1. All NRES academic requirements must be met. The student initiated concentration replaces only the 20 hours of directed electives.
2. At least 20 hours of classes must be taken to fulfill this requirement.
3. All classes must be 30000+ level.
4. The classes as a group should pursue an environmentally related subject.
5. The courses should not originate from a single department. NRES strives to be interdisciplinary, and the student initiated concentration should be interdisciplinary.
6. The student must meet with his/her academic advisor to plan the student initiated concentration.
7. The NRES director must approve the selected courses.