

# ENSP – Global Environmental Change

**Effective -- Fall 2016**

Reviewed 10.12.16 - WW

<b>ENSP Core</b>				<b>General Education</b>		
<b>All</b>				<b>Fundamental Studies (15 credits)</b>		
<b>Course</b>	<b>Title</b>	<b>Offered</b>	<b>Grade</b>	<b>Requirements</b>	<b>Course</b>	<b>Cr</b>
ENSP101 (NS) ENSP102 (HS) ENSP400 (SP)	Intro to Env Science Intro to Env Policy Senior Capstone	Fa Sp Fa,Sp		Academic Writing (AW)		3
<b>Applied Science and Policy (one)</b>				<b>Distributive Studies (25 credits)</b>		
ENSP305 ENSP330 ENSP340 ENSP342 ENSP350	Quant. Methods Environmental Law Sci, Ethics, Law: Water Oceans: Integ. Policy Energy & Science	Sp Fa, Sp Fa Sp TBA		<b>Requirements</b>		
<b>Calculus (one)</b>				Natural Sciences w/Lab (NL)	ENSP Lab Sci	4
MATH120 (MA) MATH140 (MA)	Elementary Calculus Calculus I ( <i>strongly recommended</i> )	Fa,Sp,Su Fa,Sp,Su	<b>Grade</b>	Natural Science (NS)	ENSP 101	3
<b>Statistics (one)</b>				History and/or Social Sci (HS1)	ENSP 102	3
BIOM301 (AR) GEOG306 (AR) ** PSYC200 (AR)	Intro to Biometrics Intro to Quant Methods Stat Methods in Psyc	Fa,W,Sp Fa,Sp,Su, Fa,Sp,Su	<b>Grade</b>	History and/or Social Sci (HS2)		4
<i>** strongly recommended</i>				Humanities (HU1)		3
<b>One course from each group below:</b>				Humanities (HU2)		3
<b>Biology</b>				Scholarship in Practice (SP, major)	ENSP 400	3
BSCI160/161 (NL)	Ecology & Evolution/Lab	Fa,Sp,Su	<b>Grade</b>	Scholarship in Practice (SP, non-major)		3
<b>Chemistry</b>				<b>I-Series (6 credits)*</b>		
CHEM131/132 (NL)	Gen Chemistry I/Lab	Fa,Sp,Su	<b>Grade</b>	<i>* May double-count with Distributive Studies</i>		
<b>Earth Sci</b>				<b>Requirements</b>		
GEOG201/211 (NL)	Geog Environ Sys/Lab	Fa,Sp,Su	<b>Grade</b>	I- Series (IS)		3
<b>Economics (one)</b>				I- Series (IS)		3
AREC240 (HS) AREC241 (HS, IS)	Intro to Econ and Env Env, Econ, and Policy	Sp Fa		<b>Diversity (4-6 credits)*</b>		
<b>Geography (one)</b>				<i>* May double-count with Distributive Studies</i>		
GEOG130 (HS) GEOG140 (IS) GEOG170 (NS) GEOG202 (CC)	Developing Countries Natural Disasters Meth of Geospatial Anal Intro to Human Geog	Fa,Su Fa, Sp Fa Sp		<b>Requirements</b>		
<b>ENSP Graduation Requirements</b>				Understanding Plural Societies (UP)		3-6
_____ Students must earn <b>C- or higher</b> in all courses used for ENSP Core and Concentration requirements.				Understanding Plural Societies (UP) or Cultural Competency (CC)		0-3
_____ Students' major GPA must be 2.0 or higher.				<b>Experiential Learning (0-3 credits)*</b>		
<b>ENSP Graduation Requirements</b>				<i>* May overlap with major requirements</i>		
_____ Up to 6 AP courses <b>may</b> be used for Gen Ed				<b>Requirements</b>		
_____ There are <b>at least 40 non-overlapping Gen Ed</b> credits				Practical experience is <i>required</i> in this concentration		
_____ No more than 60 credits earned from Community College				<b>Graduation Requirements</b>		
_____ Last 30 credits must be earned at Maryland				_____ Up to 6 AP courses <b>may</b> be used for Gen Ed		
_____ 120+ cumulative credits <i>and</i> 2.0+ cum GPA				_____ There are <b>at least 40 non-overlapping Gen Ed</b> credits		
_____ 120+ cumulative credits <i>and</i> 2.0+ cum GPA				_____ No more than 60 credits earned from Community College		
_____ 120+ cumulative credits <i>and</i> 2.0+ cum GPA				_____ Last 30 credits must be earned at Maryland		
_____ 120+ cumulative credits <i>and</i> 2.0+ cum GPA				_____ 120+ cumulative credits <i>and</i> 2.0+ cum GPA		

## ENSP – Global Environmental Change (p. 2 of 3)

### REQUIREMENTS:

#### >>> LOWER LEVEL requirements (18-19 credits):

Course	Description	Cr	Offered	Prerequisites	Grade
GEOL 100	Introduction to Geology	3	F, Sp, Su		
MATH 141 <i>or</i> MATH 121	Calculus II [ <i>strongly recommended</i> ] <i>or</i> Elementary Calculus II	4 3	F, Sp, Su F, Sp, Su	MATH 140 MATH 220	____ ____
PHYS161/174 PHYS 141 <i>or</i> PHYS 121	Gen Phys: Mechanics and Particle Dyn /Lab Prin of Physics [ <i>strongly recomm</i> ] Fund of Physics	3/1 4 4	F, Sp F, Sp F, Sp	MATH141 <i>No longer offered</i> MATH 115	____ ____ ____
CHEM 231/232	Organic Chemistry I	4	F, Sp, Su	CHEM 131/132	____
ENST 200 <i>or</i> GEOL 102	Introduction to Soil Science* <i>or</i> Historical Geology	4 4	Fa Sp	CHEM 131/132 GEOL 100	____ ____

>>> **UPPER LEVEL requirements (18-19 credits):** Special care needs to be taken in planning your junior and senior years, as many courses and their pre-requisites are offered only once annually. Please see your advisor for help with this as early as possible!

Course	Description	Cr	Offered	Prerequisites	Grade
GEOG 342 <i>or</i> BSCI 361	Intro to Biogeography <i>or</i> Principles of Ecology	3 4	Sp Fa, Sp	<i>No longer offered.</i> BSCI 160/161	____ ____
GEOG 331	Intro to Hum Dimen of Global Chng	3	Sp	GEOG 201 <i>or</i> GEOG 202	
GEOG 345 <i>or</i> GEOG 398B	Intro to Climatology Adv Geographical Environmental Systems	3 3	F S	<i>No longer offered</i> GEOG201	
GVPT 306 <i>or</i> AREC 332 <i>or</i> ENSP340 <i>or</i> ENSP342 <i>or</i> ENSP350	Global Ecopolitics <i>or</i> Intro to Natural Resource Policy Science, Ethics, and Policy of Water Env Threats to Oceans and Coasts: Energy Resources: Science and Policy	3 3 3 3 3	Fa,Sp,Su F Sp TBA	GVPT 200 <i>No longer offered.</i> 60 credits; ENSP101 and 102 60 credits; ENSP101 and 102 60 credits; ENSP101 and 102	____ ____ ____ ____ ____
GEOG 442 <i>or</i> GEOG 445 <i>or</i> AOSC 400 <i>or</i> GEOL 437	Biogeography and Enviro. Change <i>or</i> Climatology <i>or</i> The Atmosphere <i>or</i> Global Climatic Chng: Past and Pres	3 3 3 3	F Sp F Sp, even # years	GEOG301, GEOG201/211; <i>or</i> perm. GEOG 345 MATH 140 CHEM 131/132, MATH 140, GEOL 100	____ ____ ____ ____
ENSP 386	Internship	3-6	F, Sp, Su	Perm.	

>>> **TECHNIQUES & METHODS (9 credits):** Select at least 3 courses and 9 credits in consultation with your advisor. Selections must be approved in advance.

Course	Description	Cr	Offered	Prerequisites	Grade
GEOG 372	Remote Sensing	3	Sp, Su, W		
GEOG 373 <i>or</i> ENST 415	Geographic Information Systems GIS Applications in Soil Science	3 3	F,W, Su F	<i>No longer offered.</i>	
GEOG 418	Field & Lab Techniques in Env Science	3	F	<i>The field component is taught in Sum Session; check Sched of Classes</i>	
GEOG 472	Advanced Remote Sensing	3	F	GEOG 372	
GEOG 473	GIS & Spatial Analysis	3	Sp	GEOG 373	
GEOG 498C <i>or</i> MATH 246	Climate Modeling and Analysis <i>or</i> Differential Equations	3 3	F F, Sp, Su	GEOG 445 MATH 141 and 240 <i>or</i> PHYS 161	
MATH 240	Introduction to Linear Algebra	4	F, Sp, Su		
MATH 241	Calculus III	4	F, Sp, Su		
PHYS 165	Intro to Programming in the Phys Sci	3	F	PHYS 141 <i>or</i> Physics AP score 3+	

*Cont'd (over) →*

## ENSP – Global Environmental Change (p. 3 of 3)

**RESTRICTED ELECTIVES (9 credits):** Select at least 6 credits from one area and 3 credits from the other. Also, course selections may not “count” twice, e.g., once in “Upper Level Requirements” and again in “Restricted Electives.”

### >>> Area 1 - Physical and Biological Components

Course	Description	Cr	Offered	Prerequisites	Grade
AOSC 400	The Atmosphere	3	F	MATH 141, PHYS 161 or 171, or perm.	
AOSC 401	Global Environment	3	Sp	AOSC 400	
AOSC 434	Air Pollution	3	Sp	CHEM 113 and MATH 241 or perm.	
BSCI 460 <i>or</i> BSCI 462	Plant Ecology Population Ecology	3 3	F F	BSCI 160/161 BSCI 160/161 and MATH 220	____ ____
ENST 450	Wetland Ecology	3	F	BIOM 301.	
GEOG 340 <i>or</i> GEOL 340	Geomorphology <i>or</i> Geomorphology	3 4	TBA Sp	GEOG 201 GEOL 100 or GEOL 120	____ ____
GEOG398B	Adv Geographical Environmental Systems	3	Sp		
GEOG 441	The Coastal Ocean	3	Sp	GEOG 201.	
GEOG 442	Biogeography and Environmental Change	3	F	GEOG301, GEOG201/211; or perm.	
GEOG 445	Climatology	3	Sp	GEOG 345	
GEOL 437	Global Climatic Chng: Past and Present	3	Sp	CHEM 103, MATH 140, GEOL 100	
GEOL 444	Low Temperature Geochemistry	3	F	GEOL 100/110, GEOL 322, CHEM 131/132, MATH115 or perm.	
GEOL 452	Watershed and Wetland Hydrology	3	Fa	MATH 140, GEOL 100, CHEM 131/132, or perm	
GEOL453	Restoration Ecology	3	F	BSCI 160/161	
ENST 479	Tropical Ecology and Resource Mgt	3	Sp	BSCI 160/161. <i>Course has required travel-study component.</i>	
PLSC 471	Forest Ecology	3	Sp	BSCI 160/161	

### >>> Area 2 - Human Dimensions

Course	Description	Cr	Offered	Prerequisites	Grade
ANTH 450	Environmental Anthropology	3	S	Jr. standing	
AREC 453	Natural Resources and Public Policy	3	F	ECON200, 201, and AREC 326	
AREC 454	Economics of Global Change	3	Sp	ECON200, 201, and AREC 326	
AREC 455	Economics of Land Use	3	F	ECON200, 201, and AREC 326	
GEOG 330	Society and Sustainability (Gen Ed UP, IS)	3	F		
GEOG 431	Culture & Natural Resource Mgt	3	F		
GEOG 435 <i>or</i> GEOG398C	Population Geography Population Geography	3 3	Sp Sp		
GVPT 306	Global Ecopolitics	3	F	GVPT 200	
ENST 440	Crops, Soils and Civilization	3	Sp		
ENST 441	Sustainable Agriculture	3	F		
SOCY 305 <i>or</i> SOCY 405	Scarcity and Modern Society Scarcity and Modern Society (seminar)	3 3	Sp Sp	3 cr. in SOCY or ENSP 102 or perm. 3 cr. in SOCY or ENSP 102 or perm.	

**Advisor notes, approved course substitutions, etc:**