ENSP – Environmental Economics

NOTE: always refer to the Schedule of Classes on Testudo for the most up-to-date information regarding course offerings, prerequisites and restrictions.

ENSP Core

Course	Title	Offered	Grade
All three:			
ENSP101 (NS)	Intro to Env Science	Fa	
ENSP102 (HS)	Intro to Env Policy	Sp	
ENSP400 (SP)	Senior Capstone	Fa,Sp	
Applied Science and Policy (one)			
ENSP305	Applied Spatial Methods	Sp	
ENSP306	Qual Research/Env Sci	Fa	
ENSP330	Environmental Law	Fa, Sp	
ENSP340	Sci, Ethics, Law: Water	Fa	
ENSP342	Oceans: Integ. Policy	Sp	
ENSP350	Energy: Science & Policy	TBA	
ENSP370	Environmental Justice	Sp	
Calculus (pick one)			**Grade**
MATH120 (MA) or	Elementary Calculus	Fa,Sp,Su	
MATH140 (MA)	Calculus I *(recommended)*	Fa,Sp,Su	
Statistics (pick one)	See page 2.		**Grade**
See page 2.			

Four (4) courses from the 5 groups below:

Biology			Grade
BSCI160/161 (NL)	Ecology & Evolution/Lab	Fa,Sp,Su	

Chemistry			Grade
CHEM131/132 (NL)	Gen Chemistry I/Lab	Fa,Sp,Su	

Earth Sci (pick one)			Grade
AOSC200/201 (NL	Weather & Climate/Lab	Fa,Sp	
ENST200 (NL)	Fund of Soil Science	Fa	
GEOG201/211 (NL)	Geog Environ Sys/Lab*	Fa,Sp,Su	
GEOL100/110 (NL)	Physical Geology/Lab	Fa,Sp,Su	
GEOL120/110	Environmental Geology *recommended*	Fa,Sp	

Economics (pick one, req'd)			
AREC240 (HS)	Intro to Econ and Env	Sp	
AREC241 (HS, IS)	Env, Econ, and Policy	Fa	
ECON200 (HS)	Princ of Micro-Econ	F,S,Su,W	

Geography (pick one)			
GEOG130 (HS)	Developmental Geography	Fa,Su	
GEOG140 (IS)	Natural Disasters	Fa, Sp	
GEOG170 NS)	Meth of Geospatial Anal	Fa	
GEOG202 (CC)	Intro to Human Geog	Sp	

ENSP Graduation Requirements

_____ Students must earn <u>C- or higher</u> in all courses used for ENSP Core and Concentration requirements.
_____ Students' major GPA must be 2.0 or higher.

General Education

Fundamental Studies (15 credits)

Requirements	Course	Cr
Academic Writing (AW)		3
Professional Writing (PW)		3
Oral Communication (OC)		3
Math (MA)	Calculus	3-4
Analytical Reasoning (AR)		

Distributive Studies (25 credits)

Requirements	Course	Cr
Natural Sciences w/Lab (NL)	ENSP Lab Sci	4
Natural Science (NS)	ENSP 101	3
History and/or Social Sci (HS1)	ENSP 102	3
History and/or Social Sci (HS2)	ECON201	4
Humanities (HU1)		3
Humanities (HU2)		3
Scholarship in Practice (SP, major)	ENSP 400	3
Scholarship in Practice (SP, non-major)		3

I-Series (6 credits)*

* May double-count with Distributive Studies

Requirements	Course	Cr
I- Series (IS)		3
I- Series (IS)		3

Diversity (4-6 credits)*

* May double-count with Distributive Studies

Requirements	Course	Cr
Understanding Plural Societies (UP)		3-6
Understanding Plural Societies (UP) *or* Cultural Competency (CC)		0-3

Experiential Learning (0-3 credits)*

* May overlap with major requirements

Requirements	Course	Cr
Practical experience is not required, but is strongly recommended.		

Graduation Requirements

_____ <u>Up to 6 AP courses</u> **may** be used for Gen Ed
_____ No more than 60 credits earned from Community College
_____ Last 30 credits must be earned at Maryland
_____ 120+ cumulative credits *and* 2.0+ cum GPA

REQUIREMENTS:

ECONOMICS FOUNDATION - Choose Track 1 or Track 2. (4 courses, 12-13 credits)

TRACK 1: Preparation for PhD programs in Economics and quantitative careers that produce economic analysis. Students who choose this track should strongly consider Area 4 Restricted Electives and/or a Minor in Mathematics.

Course	Description	Cr	Offered	Prerequisites	Grade
ECON201	Princ of Macro-Economics	3	F,Sp		
MATH141	Calculus II	4	F,Sp	MATH140	
ECON321* or	Economic Statistics	3	F,W,Sp,Su	ECON200, ECON201, and ECON300**	
STAT400 *	Applied Probability and Statistics I	3	F,Sp	MATH141	
ECON326	Intermediate Microecon Analysis	3	F,Sp	ECON200, ECON201, and ECON300**	

* These courses fill the ENSP Core Statistics requirement
** ECON300 can be replaced with MATH241 + any statistics course

TRACK 2: Preparation for Master's programs in Public Policy, Law, and careers that involve decision-making informed by economic analysis.

Course	Description	Cr	Offered	Prerequisites	Grade
ECON201	Princ of Macro-Economics	3	F,Sp		
ECON230* or	Applied Econ Statistics	3	F,Sp	ECON200 and 201; MATH111 or	
BMGT230*	Business Statistics	3	F,Sp,Su	MATH220;	
One from:					
MATH141	Calculus II	3	F, Sp	MATH140	
ECON424	Applied Econometrics	3	F, Sp	ECON305 or ECON306, and ECON230 or BMGT230	
AREC422	Econometric Analysis in Ag & Env	3	F, Sp	AREC326 or ECON326	
AREC380	EconData Science for Env .& Res.Econ.	3	F	ECON200 or equiv.	
AREC382	Computer-Based Anal in AREC	3	Sp	60 credits	
ENSP305**	Applied Quant. Methods in Env Sci	3	Sp		
ENSP306**	Applied Qual Methods in Env Sci.	3	Sp		
AREC326	Interm Applied Microecon	3	F,Sp	ECON200 (or AREC240) and 201; Calculus I (MATH220, 130, or 140); and ECON300	

* These courses fill the ENSP Core Statistics requirement
**Cannot double count with ENSP Applied Science and Policy requirement

RESTRICTED ELECTIVES INSIDE ECONOMICS (5 courses, 15 credits) Note: courses selected here may not "double-count" with other concentration requirements.

Choose four (4): .

Course	Description	Cr	Offered	Prerequisites	Grade
AREC422 *or*	Econometrics	3	TBA	ECON326 *or* AREC326	
ECON422	Econometrics I **	3	F, Sp	ECON 321 *and* ECON 326.	
AREC453	Natural Resources and Public Policy	3	F	ECON326 or AREC326	
AREC454	Economics of Climate Change	3	Sp	ECON326 or AREC326	
AREC455	Economics of Land Use	3	F	ECON326 or AREC326	
AREC456	Energy and Environ Economics	3	Sp	ECON326 or AREC326	
AREC466	Transp. Engineering, Econ, & Policy	3	Sp	MATH120 or 140; ECON200 & ECON230 or BMGT230	
AREC481 or ECON481	Environmental Econ	3	Sp	ECON306 (or ECON326), & ECON230 or BMGT230	
ECON454	Theory of Publ. Fin. & Fiscal Fed	3	F, Sp	ECON306 (or ECON326) and ECON230, BMGT230, or ECON321	

Choose one (1):

Course	Description	Cr	Offered	Prerequisites	Grade
AREC365	Hunger, Pop, and Food Supplies	3	Sp, F		
AREC380 *or*	Data Science for Env & Res Econ	3	Sp		
ENSP305	Applied Quant Methods in ENSP	3	Sp	60 credits, Calculus and Statistics	
AREC430	Intro to Agric and Resource Law	3	Fa		
AREC433	Food and Agricultural Policy	3	F	ECON326 or AREC326	
AREC445	Agric Dev., Pop Growth, & Env.	3	Sp	ECON326 or AREC326	
AREC489L	Ag Water Qual: Policy/Legal Issues	3	Sp		
ECON454	Theory of Publ. Fin. & Fiscal Fed	3	F, Sp	ECON306 (or ECON326) and ECON230, BMGT230, or ECON321	
ECON456	Law and Economics **	3	Sp	ECON326 and [ECON230 or BMGT230].	

** Due to severe over-enrollment in Economics, ENSP students should prepare to enroll in AREC courses in this category.

RESTRICTED ELECTIVES OUTSIDE ECONOMICS: At least 12 credits in one (1) supporting area below. Other courses are allowed as Restricted Electives with advisor approval in advance. Note: courses selected here may not "double-count" with other concentration requirements.

>>> **Area 1. Social Science.** *At least 9 credits must be 300- or 400-level.*

Course	Description	Cr	Offered	Prerequisites/Notes	Grade
AGNR301/PLCY301	Sustainability	3	F. Sp		
ANTH266	Changing Climate, Changing Cultures	3	F		
ANTH450	Theory & Practice of Environ Anthro	3	varies		
ANTH451	Environmental Archeology	3	F		
ANTH452	Anthropology and Climate Change	3	varies		
GEOG335 or 435	Population Geography – renumbered	3	varies		
ENSP386	Internship	3	F, Sp, Su	May use FGSM398 in its place	
ENST436	Emerging Environmental Threats	3	varies		
FIRE298	FIRE Sem. 3: Sustainability Analytics	3	F	Sustainability Analytics track only	
FGSM340	Energy and Environmental Policy	3	F	Must be in Federal Fellows program	
GEOG301	Advanced Geographical Environ. Systems	3	Sp		
GEOG330	Society & Sust. in a Time of Great Change	3	F, W, Su		
GEOG331	Intro to Human Dimen of Global Chng	3	Sp	GEOG201 or 202; or ANTH220 or 260	
GEOG332	Economic Geography	3	F		
GEOG373	Geographic Information Systems	3	F, Sp,Su,W		
GEOG415	Land Use, Climate Change and Sust	3	Sp	GEOG 306 or permission.	
GEOG416	Concep. & Modeling Human-Env. Interactions	3	varies	MATH120 or MATH140	
GEOG417	Land Cover Characterization/Remotely Sensed Data Sets	3	varies		
GEOG421	Regional Geography: China	3	varies		
GEOG422	Regional Geogy: Sub-Saharan Africa	3	varies		
GEOG423	Regional Geography: Latin America	3	varies		
GEOG430	Climate, Energy, and Policy	3	Sp		
GEOG431	Culture and Natural Resource Mgt	3	F		
GEOG437	Political Geography	3	varies	-	
GVPT200	International Political Relations	3	Sp,Su,F,w	GVPT 100 or ENSP102	
GVPT273	Intro to Environmental Politics	3	Sp		
GVPT306	Global Ecopolitics	3	Sp	GVPT 200	
GVPT406	International Political Economy	3	F	GVPT 200	
HIST405	Environmental History	3	varies		
SOCY410	Social Demography	3	Sp, F	6 credits of sociology or dept perm	
SOCY415	Environmental Sociology	3	F	6 credits of sociology or dept perm.	

>>> **Area 2. Earth Science**

Course	Description	Cr	Offered	Prerequisites/Notes	Grade
AOSC375/GEOL375	Intro to the Blue Ocean	3	F	MATH 120 or 140	
AOSC347	Computing/Analysis: Deciphering Climate Change	3	varies		
AOSC401	Climate Dynamics/Earth System Science	3	Sp		
AOSC424	Remote Sensing of the Atmosphere & Ocean	3	Sp	C- from (PHYS171, PHYS161, or MATH141); or perm.of instructor	
AOSC434	Air Pollution	3	3	MATH241; or permission of AOSC	
AOSC437	Global Climate Change: Past and Present	3	varies		
AOSC447	Machine Learning in Earth Science	3	Sp	MATH140	
CHEM231/231	Organic Chemistry I	3/1	Sp, F	CHEM131/132	
ENSP386	Internship	3	F, Sp, Su	May use FGSM398 in its place	
ENST200	Fundamentals of Soil Science	4	F	CHEM131/132 strongly recommended	
ENST452	Wetland Restoration	3	Sp	(BSCI160/161); and (BSCI362, ENST450, ENST360, or BSCI361)	
ENST423	Soil-Water Pollution	3	Sp	ENST200 and CHEM 231/232 or perm.	
ENST430	Wetland Soils	3	Sp	ENST 200	
ENST440	Crops, Soils, and Civilization	3	Sp		
ENST441	Sustainable Agriculture	3	Fa		

Course	Description	Cr	Offered	Prerequisites/Notes	Grade
GEOG301	Adv Geographical Environmental Sys	3	Sp	GEOG 201/211	
GEOG417	Land Cover/Remotely Sensed Data Sets	3	varies		
GEOG441	The Coastal Ocean	3	Sp	GEOG 201/211	
GEOL224	Observ/Measurements of the Natural World	3	varies		
GEOL340	Geomorphology	4	Sp	GEOL 100 or 120, GEOL110	
GEOL346	Cycles in the Earth System	3	varies		
GEOL437	Global Climate Change: Past & Present	3	varies		
GEOL451	Groundwater	3	F	CHEM131/132, GEOL100 or 120, GEOL110	
GEOL452	Watershed and Wetland Hydrology	3	F	CHEM131/132 & GEOL100/110 or perm.	
GEOL453	Ecosystem Restoration	3	F	CHEM131/2, MATH 120 or 140; GEOL100, GEOL120, or ENST200	
LARC450	Environmental Resources	3	F	ENST 200 or permission of dept.	

>>> **Area 3. Life Science** *At least 9 credits must be 300- or 400-level.*

Course	Description	Cr	Offered	Prerequisites/Notes	Grade
BSCI207	Organismal Biology	4	Sp,Su,F	BSCI 170/171, BSCI 160/161, CHEM 131/132	
BSCI361	Principles of Ecology	4	Sp	BSCI 160/161 and Calculus	
BSCI363	Biol of Conserv and Extinction	3	F	BSCI 160/161	
BSCI370	Principles of Evolution	3	F	BSCI 160/161	
BSCI374	Mathematical Modeling in Biology	3	F	MATH131, MATH136, or MATH141.	
BSCI460	Plant Ecology	3	TBA	BSCI 160/161	
BSCI461	Plant Ecology lab	2	TBA	Pre- or corequisite: BSCI 460	
BSCI462	Population Ecology	3	F	BSCI 160/161 and MATH 220	
BSCI465	Behavioral Ecology	3	varies		
BSCI473	Marine Ecology	3	F	BSCI 207	
ENSP386	Internship	3	F,Sp,Su	May also use FGSM398	
ENST214	Intro to Fisheries and Wildlife Science	3	Sp	BSCI160/161	
ENST314	Fisheries Mgmt and Sustainability	3	Sp	Spring of "even" years (2016, 2018, etc.)	
ENST373	Natural History of the Ches Bay	3	F		
ENST403	Invasive Species Ecology	3	F		
ENST410	Ecosystem Services: Integ. Anal.	3	F	BSCI 361	
ENST450	Wetland Ecology	3	F	BIOM 301 or permission of dept.	
ENST456	Spatial Analysis & Ecological Sampling	3	F	GEOG306 & GEOG373 recommended, dept perm	
ENST460	Principles of Wildlife Mgmt	3	F	-	
ENST461	Urban Wildlife Management	3	F	-	
ENST464	Wildlife Habitat Modeling	3	Sp	BSCI361 and GEOG373	
ENST479	Trop Ecol and Resource Mgmt.	3	Sp		
GEOG342	Intro to Biogeography		Varie3s		
GEOG442	Biogeography	3	F	BSCI361 or GEOG301	
PLSC471	Forest Ecology	3	Sp	BSCI 160/161	

>>> **Area 4. Preparation for Graduate Work in Environmental Economics:** Mathematics, Theory, Econometrics.

Course	Description	Cr	Offered	Prerequisites/Notes	Grade
MATH240	Introduction to Linear Algebra	4	Sp, Su, F	MATH 141 or equivalent	
MATH241	Calculus III	4	Sp, Su, F	MATH 141 and MATH 240	
ECON325	Intermediate Macroeconomics	3	Sp, Su, F	ECON200, ECON201, and ECON300**	
ECON414	Game Theory	3	Sp, F	ECON306 and [ECON230 or BMGT230]	
ECON422 or AREC422	Econometrics I Econometric Applications	3	Sp,F TBA	ECON 321 and [ECON325 or 326] ECON 306 or AREC326	
ENSP386	Internship	3	F, Sp, Su	May use FGSM398 in its place	
STAT401	Applied Probability and Stat II	3	Sp, F	STAT 400	

**ECON300 can be replaced with MATH241 + any statistics course