

GLOBAL ENVIRONMENTAL CHANGE – CORE Program

Reviewed: 6.17.14

UM Core: ENGL 101 _____, (HL) _____, (HA) _____, (HL/HA/HO/IE) _____, (SH) _____, Diversity _____
 Adv. Writing _____, Adv. Studies _____, (SB) (AREC240) (SB/IE) (GEOG130) .

Grading Policy: Environmental Science and Policy students must earn C- grades or higher in all ENSP core courses and in all required courses and restricted electives of the selected area of concentration.

Required from ENSP Core:

Course	Title	Cr	Offered	Prerequisites	Grade	Completed	Notes
All three: ENSP 101 (PS) ENSP 102 ENSP 400 (AS)	Intro. to Environmental Science Intro. to Environmental Policy Capstone in Env. Sci & Policy	3 3 3	F Sp Sp, F	- - Senior year; ENSP 101 and 102	____ ____ ____	____ ____ ____	____ ____ ____
Calculus: MATH 140 (MS) <i>or</i> MATH 220 (MS)	Calculus I (<i>strongly recommended</i>) Elementary Calculus I	4 3	Sp, F, Su Sp, F, Su	dept. perm. or MATH 115 w/C or better dept. perm. or MATH 113, or 115	____ ____	____ ____	____ ____
Statistics: GEOG 306	Introduction to Quant. Methods (<i>strongly recommended</i>)	3	Sp, Su	-			
Biology: BSCI 106 (LL)	Principles of Biology II	4	Sp, F, Su	placement in MATH 220 or higher			
Chemistry: CHEM 131/132 (PL)	General Chemistry I	3/1	Sp, F, Su	placement in MATH 220 or higher			
Earth Sciences: GEOG 201/211 (PL)	Geography of Env. Systems/Lab.	3/1	F, Sp, Su	-			
Economics (one): AREC 240 (SB) AREC 241	Intro. to Economics and the Envir. Environment, Econ., and Policy	4 4	Sp Fa	MATH 220 or higher recommended MATH 220 or higher recommended			
Geography: GEOG 130 (SB/D)	Developing Countries	3	F, Sp, Su	-			

Required courses for GLOBAL ENVIRONMENTAL CHANGE:

LOWER LEVEL requirements (18-19 credits):

Course	Description	Cr	Offered	Prerequisites	Grade	Completed	Notes
GEOL 100	Introduction to Geology	3	F, Sp, Su				
MATH 141 <i>or</i> MATH 221	Calculus II [strongly recommended] <i>or</i> Elementary Calculus II	4 3	F, Sp, Su F, Sp, Su	MATH 140 MATH 220	____ ____	____ ____	_____ _____
PHYS 141 <i>or</i> PHYS 121	Prin of Physics [strongly recomm] <i>or</i> Fund of Physics	4 4	F, Sp F, Sp	MATH 140; co-req is MATH 141 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	F 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 Dr. Whittemore for help with this as early as possible!**

Course	Description	Cr	Offered	Prerequisites	Grade	Completed	Notes
GEOG 342 <i>or</i> BSCI 361	Intro to Biogeography <i>or</i> Principles of Ecology	3 4	Sp Fa, Sp	GEOG 201 BSCI 106	____ ____	____ ____	
GEOG 331	Intro to Hum Dimen of Global Chng	3	F	GEOG 201 or GEOG 202			
GEOG 345	Intro to Climatology	3	F	GEOG 201			
GVPT 306 <i>or</i> AREC 332	Global Ecopolitics <i>or</i> Intro to Natural Resource Policy	3 3	Sp TBA	GVPT 200. <i>Attn: new semester for this course.</i> AREC 240. <i>Offered "odd" years, 2011, 2013, etc.</i>	____ ____	____ ____	
GEOG 442 <i>or</i> GEOG 445 <i>or</i> AOSC 400 <i>or</i> GEOL 437	Biogeography <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	GEOG 342 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	Completed	Notes
GEOG 372	Remote Sensing	3	F,Sp,Su,W				
GEOG 373 <i>or</i> ENST 415	Geographic Information Systems GIS Applications in Soil Science	3 3	F,Sp,Su,W F				
GEOG 418	Field & Lab Techniques in Env Science	3	F	The field component is taught in Sum Session; check Sched of Classes			
GEOG 472	Advanced Remote Sensing	3	F	GEOG 372			
GEOG 473	GIS & Spatial Analysis	3	F, 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 or 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 or Physics AP score 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	Completed	Notes
AOSC 400	The Atmosphere	3	F	MATH 140 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	F F	BSCI 106 BSCI 106 and MATH 220	____ ____	____ ____	
ENST 450	Wetland Ecology	3	F	BIOM 301. <i>Note: Course conflicts with ENSP 400, so plan accordingly.</i>			
GEOG 340 <i>or</i> GEOL 340	Geomorphology <i>or</i> Geomorphology	3 4	TBA Sp	GEOG 201 GEOL 100 or GEOL 120	____ ____	____ ____	
GEOG 441	The Coastal Ocean	3	Sp	GEOG 201.			
GEOG 442	Biogeography	3	F	GEOG 342 or BSCI361			
GEOG 445	Climatology	3	Sp	GEOG 345			
GEOL 437	Global Climatic Chng: Past and Present	3	Sp	CHEM 131/132, 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	GEOL453			
ENST 479	Tropical Ecology and Resource Mgt	3	Sp	BSCI 106. <i>Course has required travel-study component.</i>			
PLSC 471	Forest Ecology	3	Sp	BSCI 106			

- Advising notes, course substitutions, etc :

Area 2 - Human Dimensions

Course	Description	Cr	Offered	Prerequisites	Grade	Completed	Notes
ANTH 450	Environmental Anthropology	3	F	Jr. standing			
AREC 453	Natural Resources and Public Policy	3	F	ECON 306 or ECON 326			
AREC 454	Economics of Global Change	3	Sp	ECON 306 or ECON 326			
AREC 455	Economics of Land Use	3	F	ECON 306 or ECON 326			
GEOG 431	Culture and Nat. Res. Management	3	F	GEOG 202.			
GEOG 435	Population Geography	3	Sp				
GVPT 306	Global Ecopolitics	3	Sp	GVPT 200			
ENST 440	Crops, Soils and Civilization	3	Sp				
ENST 441	Sustainable Agriculture	3	F				
SOCY 305	Scarcity and Modern Society	3	F, Sp	3 cr. in SOCY or ENSP 102 or perm.			

- Advising notes, course substitutions, etc :