

Terrestrial Ecosystems Option

(Environmental Sciences Undergraduate Program Revised 1/2008)

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Class	Pre-requisites	Credit	Comments
Core Course - 3 credits:			
BI 371 ^ Ecological Methods	BI 370	3	
Advanced Ecology - select min 9 credits:			
BOT 440 Field Methods in Vegetation Science	Course in Ecology, course in Statistics	4	Online Summer only
BOT 442 Plant Population Ecology	BOT 341 or equivalent		
ENT 420 Insect Ecology	ENT 350, BI 370 or equivalent	3	Offered even years
FW 320 Introductory Population Dynamics	BI 370 or BI 371 and MTH 111	3	
FOR 445 Ecological Restoration	BI 370	4	
FW 479 Wetlands & Riparian Ecology	BI 370 or 371	3	
GEO 324 Biogeography		4	
RNG 341 Rangeland Ecology and Mgmt		3	
RNG 450 Landscape Ecology and Anal.	RNG 341 or equivalent	3	
RNG 455 Riparian Ecology and Magmt	RNG 355	3	
BI 349 Biodiversity		3	
Z 423 Environmental Physiology	1 year college biology	4	
Land/Air Processes - select min 6 credits:			
ATS 412 Atmospheric Radiation	PH 213, MTH 254, MTH 256	3	
ATS 413 Atmospheric Chemistry	PH 213, CH 221, MTH 254	3	
ATS 420 Principles of Atmospheric Science	One year physics and calculus	4	
ATS 564 Interactions of Vegetation and Atmosphere	PH 201, MTH 251, BI 201	3	
BOT/FS 547 Nutrient Cycling	College-level chemistry and biology, one class in ecology	3	
FE 430 Watershed Processes	junior standing	4	
FE 537 Hillslope and Watershed Hydrology		4	
GEO 322 Surface Processes	GEO 102 or GEO 201	4	
GEO 323 Climatology	GEO 101 and GEO 201	4	
GEO 430 Geochemistry	REQ: GEO 315; CH 121 and CH 122 or CH 221 and CH 222	3	
GEO 432 Applied Geomorphology	GEO 322	3	
Principles of Terrestrial Ecosystems Management			
Select 3 courses from <u>one</u> of the following "Groups":			
Forest, Soils, Fisheries and Wildlife, Range, or GIS and Mapping – see following pages for courses			
TOTAL CREDITS		≥ 27	

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PRINCIPLES OF TERRESTRIAL ECOSYSTEM MANAGEMENT:			
Select 3 courses from <u>one</u> of the following “groups” (≥ 9 credits)			
• Forest Group			
FOR 332 Risk and Decision Making for Natural Resource Management	REQ: ST 351 and MTH 245 and (AREC 250 or ECON 201)	3	
FOR 346 Topics in Wildland Fire Science	Course work in forest biology or ecology (e.g. FOR 240, FOR 341) or equivalent.	3	Online
FOR 441 Silviculture Principles	REQ: FOR 240 and (FOR 141 or FOR 241)	4	
FOR 444 Ecological Aspects of Park Management	FOR 251, plus an ecology course	3	
FOR 445 Ecological Restoration	REQ: BI 370 or 370H	4	
FOR 446 Wildland Fire Ecology	Coursework in ecology and natural resource management	3	Online
FOR 457 Techniques for Forest Resource Analysis	REQ: FOR 330 or AREC 351	4	
FOR 459 Forest Resource Planning and Decision Making	Senior Standing, Need College approval	4	
FS 415 Forest Insect and Disease Mgmt	REQ: BI 213 or 213H	5	
FS 430 Biotechnologies: Agriculture, Food and Resource Issues		3	
FS 453 Forest Management and Wildlife Conservation	REQ: FOR 240 or FOR 341 or (BI 370 or BI 370H)	3	
FS 548 Biology of Invasive Plants	One year biological science; BOT 341 and BOT 442 recommended.	3	
• Soils Group			
CSS 315 Nutrient Management and Cycling	CH 122; REQ: CSS 305	4	
CSS 330 World Food Crops	CSS 200 recommended	3	
CSS 335 Intro to Water Science and Policy		3	
CSS 415 Soil Fertility Management	CSS 315; REQ: courses in statistics, chemistry & plant physiology	3	
CSS 455 Biology of Soil Ecosystems	CSS 305		
CSS 466 Soil Morphology and Classification	CSS 305	4	
CSS 468 Soil Landscape Analysis	CSS 466	4	
CSS 480 Case Studies in Cropping Systems Management	CSS 300/HORT 300, senior standing in agriculture	4	
CSS 525X Mineral-Organic Matter Interactions	CSS 305	3	
CSS 535 Soil Physics	CSS 305, MTH 241, CH 123, PH 201 or equivalent; COREQ: CSS 536	3	
CSS 536 Vadose Zone Hydrology Lab	CH 123, PH 201	1	
CSS 545 Geochemistry of Soil Ecosystems	CH 123, PH 201. CSS 305 is recommended	4	

Course	Prerequisites	Credit	Comments
• Fisheries & Wildlife Group			
FW 321 Fisheries and Wildlife Resource Ecology	FW 320	3	
FW 322 Investigations in Population Dynamics	REQ: FW 320 OTHER: BI 370 or BI 371 and MTH 111.	2	
FW 446 Wildland Fire Ecology	Course work in ecology and natural resource management	3	Online
FW 453 Forest Management and Wildlife Conservation	equivalent course in ecology; REQ: FOR 240* or FOR 341* or (BI 370* or BI 370H*)	3	
FW 458 Management of Big Game Animals	9 credits biological sciences	4	
FW 479 Wetlands and Riparian Ecology	BI 370 or BI 371	3	
FW 481 Wildlife Ecology	FW 311, FW 320, ST 351; REQ: BI 370 or BI 370H or BI 371	3	
• Range Group			
RNG 355 Desert Watershed Management		3	
RNG 346 Topics in Wildland Fire Science	Course work in forest biology or ecology (e.g. FOR 240, FOR 341) or equivalent.	3	Online
RNG 421 Wildland Restoration and Ecology	Course work in soils and ecology. Field trip required	4	
RNG 441 Rangeland Analysis	ST 351	4	
RNG 442 Rangeland-Animal Relations	REQ: RNG 341	4	
RNG 446 Wildland Fire Ecology	Course work in ecology and natural resource management	3	Online
RNG 450 Landscape Ecology and Analysis	RNG 341 or equivalent	3	
RNG 455 Riparian Ecology and Mgmt.	RNG 355	3	
• GIS and Mapping Group			
FE 357 GIS and Forest Engineering Appl.		3	
FOR 420 Advanced Aerial Photos and Remote Sensing	A photo interpretation course (FOR 220) or the equivalent; a remote sensing course (GEO 444/GEO 544) or the equivalent	3	
FOR 421 Spatial Analysis of Forested Landscapes	A GIS course (GEO 265, FE 357, GEO 465/GEO 565) or the equivalent	3	Offered alternate years
GEO 301 Map and Image Interpretation	CS 101	4	
GEO 360 Cartography		4	
GEO 365 Intro to GIS	GEO 301 or GEO 360	4	
GEO 444 Remote Sensing	REQ: GEO 301	4	
GEO 445 Computer-Assisted Cartography	MTH 112; REQ: GEO 360	3	
GEO 465 Geographic Information Systems and Science		3	
GEO 466 Digital Imaging Processing	REQ: GEO 444	3	