

### Landscape Assessment and Analysis Option (Major: Natural Resources)

This guide is to aid students in selecting courses. Changes may be made but only in consultation with an advisor. Students must meet all program, Natural Resource Core Curriculum, and University general education requirements for graduation. (see SNR Web Site: [www.snr.arizona.edu](http://www.snr.arizona.edu))

	Fall		Spring	
Freshman Year	Tier 1 Nat. Sci – CHEM 151 (Gen Chem & Lab)	4	Tier 1 Nat. Sci – CHEM 152 (Gen Chem & Lab)	4
	ENGL 101 or 103H (Freshman Composition)	3	ENGL 102 or 104H (Freshman Composition)	3
	Tier 1 Individuals & Societies Elect.	3	MATH 160 or 263 (Introduction to Statistics)	3
	Tier 1 Traditions and Cultures Elect. <sup>1</sup>	3	Tier 1 Individuals & Societies Elect.	3
	MATH 124 or 125 (Calculus)	3	Tier 1 Traditions and Cultures Elect.	3
	TOTAL	16	TOTAL	16
Sophomore Year	MCB 181R, L (Life Sci or Biology & Lab)	4	SWES 200, 201 (Soil Science & Lab)	4
	Tier 2 Nat Sci – PHYS 102 (Intro to Physics – I)	3	ECOL 182R/L (Life Science of Biology & Lab)	4
	Tier 2 Ind & Soc – ECON 200 or 201a (Intro Econ)	3	PHYS 103 (Intro to Physics – II)	3
	<b>RNR 200 (Foundations in History and Policy)</b>	3	<b>RNR 321 (Natural Resources – Measurements)</b>	3
	<b>RNR 230 (Nat Resources – Field Botany)</b>	3		
	TOTAL	16	TOTAL	14
Junior Year	<b>RNR 316 (Natural Resources – Ecology)</b>	3	<b>RNR 384 (Natural Resources – Management Practices)</b>	3
	Tier 2 Arts or Humanities Elect.	3	RNR 420 (Advanced GIS)	3
	RNR 417 (GIS for Nat Resources)	3	ENGL 308 (Bus or Tech Writing), SWES 408, or AED 422	3
	CSC 127a or ECE 175 or ENGR 170 (Comptr. Prog.)	3	RNR 419 (Cartographic Modeling)	3
			Technical Elective <sup>2</sup>	4
	TOTAL	12	TOTAL	16
Senior Year	Resource Econ: AREC 350, AREC 479 or RNR 485	3	RNR 422 (Resource Mapping—taught pre-summer session)	3
	WSM 330 or SWES 453 (Remote Sensing)	3	<b>RNR 480 (Nat Resources – Policy and Law)</b>	3
	RNR 473 (Spatial Analysis and Modeling)	3	RNR 498 (Senior Project)	3
	Technical Electives	6	Technical Electives	6
		TOTAL	15	TOTAL

**Bold = SNR Core**

<sup>1</sup> One general education course must have the non-Western Civilization, Gender, Race, Class, Ethnicity designation.

<sup>2</sup> Students must complete a minimum of 16 units of technical electives (shown on the back of this guide) as part of the major

## Technical Electives

Students must complete 16 units of technical electives, at least 9 of which must come from 1 of the 2 “tracks” listed below. The Ecological Landscape Planning is for students interested in applying computer technology to a specific area of natural resource science or management. The Geographic Information System is for students interested in becoming GIS specialists. Students may develop their own specialized track, but only with the approval of their advisor and the Landscape Resources Program faculty.

### Geographic Information System Track

C SC 127B (Intro to Computer Science)	4
C SC 227 (Program Design and Development)	4
C SC 245 (Introduction to Discrete Structures)	4
C SC 335 (Object-Oriented Programming and Design)	4
C SC 345 (Analysis of Discrete Structures)	4
C SC 335 (Object-Oriented Programming and Design)	4
C SC 386 (Component-based Software Dev Using C#)	3
C SC 387 (Developing Enterprise Web Applications)	3
C SC 460 (Database Design)	3
C E 251 (Elementary Surveying)	3
RA M 382 (Rangeland Plant Communities of the West)	3
RA M 456A (Rangeland Inventory and Monitoring)	4
SIE 474 (Decision Support Systems)	3
SWES 431 (Soil Morphology, Class. & Interpretation)	3
GEOG 416A (Computer Cartography)	3
GEOG 416C (Urban Geographic Information Systems)	3
GEOG 416E (Geovisulization)	3
GEOG 424 (Integrated GIS)	3
GEOG 453 (Locational Analysis)	3
GEOG 483 (Geographic Applications of Remote Sensing)	3
GEOG 484 (Fire Mapping)	3
ABE 320 (Introduction to Computer Aided Design)	3
ABE 423 –(Biosystems Analysis and Design)	3

### Landscape Planning Track

C E 251 (Elementary Surveying)	3
GEOG 416A (Computer Cartography)	3
GEOG 416E (Geovisulization)	3
GEOG 453 (Locational Analysis)	3
GEOG 483 (Geographic Applications of RS)	3
PLNN 401A (Introduction to Planning)	3
PLNN 401B (Introduction to Planning)	3
GEOS 450 (Geomorphology)	4
RA M 382 (Rangeland Plant Communities of the West)	3
RA M 436A (Grazing Ecology and Management)	2
RA M 446 (Range and Forest Vegetation Management)	3
RA M 456A (Rangeland Inventory and Monitoring)	3
RNR 406R&L (Conservation Biology)	4
RNR 438 (Fire Ecology)	3
RNR 478 (Global Change)	3
SWES 431 (Soil Morphology, Classification and Survey)	3
WFSC 441 (Limnology)	4
WFSC 444 (Wildlife Management/Mammalian Species)	3
WFSC 446 (Wildlife Management/Avian Species)	3
WS M 408 (Wildlife Fire Management)	3
WS M 460 (Watershed Hydrology)	3
WS M 462 (Watershed Management)	3
WS M 468 (Wildland Water Quality)	3