

**NATURAL RESOURCE MANAGEMENT & SUSTAINABILITY MAJOR (Geospatial Information Science Area of Emphasis)
COURSE SEQUENCE--SPRING ENTRY (Spring 2018 and later)**

SPRING 1			
FANR 3000	Field Methods		4
prereq:	Enrollment in Warnell prof program		
F:	72 TR	07-08F+(M or 74-76T)	
S:	03 MW	07-08F+(M or 74-76T)	
FANR 3060	Soils and Hydrology		4
prereq:	Chemistry I		
F:	04 MWF	W, R: var.	
S:	04 MWF	W, R: var.	
FANR 3300	Economics of Ren. Resources		2
1st half	F: 03 MW	02-03 F	
of term	S: 73 TR	05-06 F	
FANR 3400	Society and Natural Res.		2
2nd half	F: 03 MW	02-03 F	
of term	S: 73 TR	05-06 F	
	REQUIRED OPTION OR ELECTIVE		3
TERM TOTAL:			15

SPRING 2			
FANR 4800W	Renewable Resource Policy		2
prereq:	Economics and senior standing		
S:	03 MW		
FANR 5620	GIS Apps for Natl. Res.		3
prereq:	FANR 3800		
S:	73 TR	12-1pm TR	
FANR 5630	Stat. Software for NR Mgmt		3
prereq:	STAT 2000, BIOS 2010, or FANR 2010		
S:	75 TR		
	REQUIRED OPTION OR ELECTIVE		3
	REQUIRED OPTION OR ELECTIVE		3
TERM TOTAL:			14

FALL 1			
FANR 3200W	Ecology of Natural Res.		4
prereq:	Biology II		
F:	03 MWF	M, F	
S:	71 TR	T, R	
FANR 3800	Spatial Analysis		3
prereq:	FANR 3000		
F:	01 MW	W, R	
S:	05 MW	W, R	
	REMOTE SENSING OPTION		3
	REQUIRED OPTION OR ELECTIVE		3
	REQUIRED OPTION OR ELECTIVE		3
TERM TOTAL:			16

FALL 2			
FANR 4500S or 4990R	Senior Project or Senior Thesis		4
pre or coreq:	FANR 3300, final semester		
F:	3:30-4:30 R	or var.	
S:	01 M	or var.	
GEOG 4590	Programming for GIS		3
prereq:	FANR 3800		
F:	03-04 W	03-04 M	
	REQUIRED OPTION OR ELECTIVE		3
	REQUIRED OPTION OR ELECTIVE		3
	REQUIRED OPTION OR ELECTIVE		2
TERM TOTAL:			15

CLASS PERIODS:	
01	8:00-8:50a
02	9:10-10:00a
03	10:20-11:10a
04	11:30a-12:20p
05	12:40-1:30p
06	1:50-2:40p
07	3:00-3:50p
08	4:10-5:00p
09	5:20-6:10p
10	6:30-7:20p
11	6:50-7:40p
12	7:55-8:45p
13	9:00-9:50p
71	8:00-9:15a
72	9:35-10:50a
73	11:10a-12:25p
74	12:45-2:00p
75	2:20-3:35p
76	3:55-5:10p
77	5:30-6:45p
78	6:30-7:45p
79	8:00-9:15p
80	9:30-10:45p
VR	various times
AR	to be arranged

TERMS:	
F:	Fall
S:	Spring
SU:	Summer

Hours Needed to Graduate:
60

All non-Warnell course times are subject to change without notice.

Underneath each course title, you will find listed the term, the class period and days meeting for the lecture, and the day(s) the labs are offered, separated by a comma for separate sections. Assume the labs are in the afternoon (periods 06 or 75 or later), unless otherwise noted.

GIS Certificate
Students with a 3.0 or higher GPA in the following can receive the GIS certificate:

- FANR 3800 & 3800L
- FANR 5620
- GEOG 4590
- GEOG 4350 or 4460 (remote-sensing option)

**NATURAL RESOURCE MANAGEMENT & SUSTAINABILITY MAJOR (Geospatial Information Science Area of Emphasis)
COURSE SEQUENCE--SPRING ENTRY (continued)**

OPTIONS & ELECTIVES:

REMOTE SENSING OPTION		
GEOG 4350	Remote Sensing of Envir.	3
prereq:	FANR 3800	
	F: 72 T 72 R	
GEOG 4460	Field Methods in Remote Sens.	3
prereq:	FANR 3800	
	F: 06-08 M	
COMPUTER PROGRAMMING OPTION		
CSCI 1301	Intro to Computing	4
prereq:	Precalculus	
	F: 72, 73, 74, or 75 TR*	
	S: 72, 73, 74, or 75 TR*	
	SU: also offered	
*many labs are offered at various times		
CSCI 1360	Informatics & Data Analytics	4
prereq:	Precalculus	
	S: 76 TR 08 W	
CSCI 2150	Intro to Computational Science	4
prereq:	Precalculus	
even years	S: 72 TR 08 MW or 73 TR	
FANR 4700	Computational Plant Science	3
prereq:	STAT 2000 or BIOS 2010	
	S: AR	

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NOTE: Do not take GEOG 4370, which repeats material in FANR 3800 & 3800L.

Geospatial Electives (10 hrs)		
ATSC 4140	Satellite Meteorol. & Clim.	3
prereq:	GEOG 1111 or 1112	
CBIO 4835	Computational Biology	3
prereq:	none	
CRSS 4050	Impr Nutr & Energ Eff w/GIS	4
pre or coreq:	APTC(CRSS) 3030	
EDES 4270	Envir Design Uses of GIS	3
prereq:	EDES 3230	
EDES 4280E	Envir Design Uses of GIS	3
prereq:	EDES 3230	
ENGR 3120	Spatial Data Analysis	3
prereq:	MATH 2500 and ENGR 1120	
ENGR 5930	GPS w/ Eng. & GIS Apps.	3
prereq:	ENGR 1120 or GEOG 4370	
FANR 5640	Unmanned Aerial Systems	3
prereq:	FANR 3800	
	S: 02 WF 06-07 M	
FORS 5650	Aerial Photos in Forestry	3
prereq:	none	
	S: 01 MW 01 F	
FORS 5670	Forestry Info Systems	3
prereq:	none	
even years	F: 75-76 T	
GEOG 3510	Cartography and Graphics	3
prereq:	none	
GEOG 4330	Aerial Photos & Image Interp.	3
prereq:	none	
GEOG 4380	Transport Modeling & GIS	3
prereq:	GEOG 4370	
GEOG 4385S	Community GIS	3
coreq:	GEOG 4370 or 3510	
GEOG 4410	Cartographic Visualization	3
prereq:	none	
GEOG 4430	Adv Image Analysis	3
prereq:	GEOG 4330 or 4350	
GEOG 4450	Digital Image Analysis	3
prereq:	GEOG 4350	
	FANR 3800 is not sufficient	
GEOG 4460	Fld Methods in Remote Sens.	3
prereq:	GEOG 4350	
GEOG 4470	Adv Geosp Analysis	3
prereq:	STAT 2000 and GEOG 4370	
GEOG 4570	Advanced GIS	3
prereq:	GEOG 4370	
HORT 4095	GPS/GIS Apps / Land Mgrs	3
prereq:	BIOL 1107	
STAT 4360	Statistical Software Progr.	3
prereq:	CSCI 1301 and (STAT 4220 or 4230)	
WILD 5750	Statl Soft for Fish & Wild	1-3
prereq:	STAT 2000 or FANR 2010	
	irregularly offered	
or other, advisor-approved course		

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09	5:20-6:10p
10	6:30-7:20p
11	6:50-7:40p
12	7:55-8:45p
13	9:00-9:50p
71	8:00-9:15a
72	9:35-10:50a
73	11:10a-12:25p
74	12:45-2:00p
75	2:20-3:35p
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AR	to be arranged

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Natural Resources Electives (10 hrs)		
ECOL 4050	Ichthyology	4
	prereq: Biology II	
FISH 4200	Aquatic Biology	3
	prereq: Biology II	
	F: 74 TR R (optional)	
FISH 4300	Environmental Biol of Fishes	4
	prereq: Biology II	
	S: 04 MWF 05-08 F	
FISH 4310	Freshwater Ecosystems	4
	prereq: ECOL 3500 or FANR 3200W	
	F: 02 MW M, W	
FISH 4500	Fish Physiology	4
	prereq: WILD 3580+L	
	F: 75 TR F (optional)	
FISH 4520	Conservation Decision-Making	3
	prereq: FANR 3000 & Ecology	
	pre or coreq: FANR 3800	
	S: 71 TR M or W	
FISH 4550	Sustainable Aquaculture	4
	prereq: Biology II	
	S: 74 TR 75-76 R	
FISH 4600	Ecotoxicology	3
	prereq: Biology II and Chemistry II	
	irregularly offered	
FISH 4650L	Fisheries Field Camp	4
	prereq: apply through StudyAway portal	
	SU: VR (Maymester)	
FORS 3010	Dendrology	3
	prereq: Biology II	
	F: 73 TR T, W, R	
	S: 72 TR T, W, R	
FORS 4010	Silviculture	4
	prereq: FANR 3000 & (ECOL 3500 or FANR 3200W)	
	F: 03 MWF W	
	S: 73 TR T	
FORS 4210	Forest Health and Protection	3
	prereq: Biology II	
	S: 05 MWF 06 F	
FORS 4610	Forest Mensuration	4
	prereq: FANR 3000	
	F: 72 TR R	
FORS 4620	Timber Management	4
	prereq: FORS 4610	
	S: 04 MWF 03-04 F	
FORS 4700	Forest Economics	3
	prereq: none	
	F: 05 MW 05-06 F	
PRTM 3310	Humans, Nature & Env. Aware	3
	prereq: Enrollment in Warnell prof program	
	F: 6:30-9pm TR	
PRTM 4400	Park Management	3
	prereq: FANR 1100, 3400, or PRTM 3310	
	S: 73 TR	
PRTM 5410	Stewardship & Prot of Nat Res	3
	prereq: FANR 3400 or PRTM 3310	
	S: 77-78 T	
PRTM 5800S	Environmental Interpretation	3
	prereq: none	
	F: 73 TR	
PRTM 5900	Ecotourism & Sust Dev	3
	prereq: FANR 3400 or PRTM 3310	
	F: 72 TR	
or other, advisor-approved course		

Natural Resources Electives (10 hrs) (cont.)		
WASR 4110	Forest Hydrology	3
	prereq: FANR 3060	
	S: 01 MWF T	
WILD 3000W	Intro to Fish & Wildlife	2
	prereq: Biology II	
	F: 02 MW	
WILD 3580	Vertebrate Natural History	4
	prereq: Biology II, instructor permission	
	S: 02 MWF T, W, R	
WILD 4040	Herpetology	4
	prereq: Biology II, permission of instructor	
	S: 72 TR T	
WILD 4050	Mammalogy	4
	prereq: WILD 3580+L	
	F: 04 MWF T	
WILD 4060	Ornithology	4
	prereq: Biology II	
	S: 04 MWF 01-03 F	
WILD 4100	Wildlife Habitat Management	4
	prereq: Ecology & (WILD 1100E or 3000W)	
	F: 05 MW F	
WILD 4400	Wildlife Physiology & Nutr.	3
	prereq: WILD 1100E or 3000W	
	S: 72 TR	
WILD 4500	Nongame & End Sp Mgmt	3
	prereq: WILD 1100E/3000W, 4700, & Ecol.	
	even yrs F: 72 TR	
WILD 4700	Wildlife Techniques	3
	prereq: Enrollment in Warnell prof program	
	F: 04 MW M, T, R	
WILD 5100	Wildlife Diseases	3
	prereq: none	
	S: 73 TR	
WILD 5330	Conserv Wildlife in Ag Land	3
	prereq: none	
	irregularly offered	
WILD 5350	Wetlands for Wildlife	3
	prereq: none	
	irregularly offered	
WILD 5700	Population Dynamics	3
	prereq: (FANR 3200W or ECOL 3500) & Precal	
	F: 02 MW W	
or other, advisor-approved course		

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