

Student: \_\_\_\_\_

ID#: \_\_\_\_\_

Advisor: \_\_\_\_\_

# Natural Resources Management

## Bachelor of Science Degree

North Dakota State University



### Welcome to the NRM Major

Natural Resources Management (NRM) is an interdisciplinary major for students interested in managing society's impacts on the environment. NRM is offered as a four-year Bachelor of Science (BS) degree.

**NRM Core.** Required of all NRM students, the core courses (listed in the curriculum guide at right) provide a broad foundation in the social, biological and physical/earth sciences. The 88-unit NRM Core also satisfies General Education (Gen Ed), the capstone experience, and includes 15 elective units (see Core Electives box below).

**NRM Emphasis.** During the third and fourth years of the program, students focus on a specific area of interest -- an emphasis. The majority of the courses are selected from a diverse group of approved electives (refer to the back of this guide). NRM offers six emphasis areas:

- ▶ Biotic Resources Science
- ▶ Environmental Communication
- ▶ Natural Resources Economics
- ▶ Physical/Earth Resources Science
- ▶ Pollution Science
- ▶ Social Sciences

### Core Electives: 15 units

Courses listed below are recommendations only.

#### Humanities/FA: 3 units from Gen Ed category A

HIST 261 Am Indian History	3	ENGL 336 Literature & Environ	3
HIST 431 North Am Plains	3	ENGR 311 Hist of Technology	3

#### Upper-Division Writing: 3 units from Gen Ed category C

ENGL 320 Bus & Prof Comm	3	ENGL 324 Wrtg in the Sciences	3
ENGL 321 Tech Wrtg for Engr	3	ENGL 358 Wrtg in Hum/Soc Sci	3

#### Free Electives: 9 units

Any courses of your choice may be taken to satisfy these 9 units.

Only two units may be Coop (397/497). Review your emphasis courses and plan ahead by taking necessary prerequisites (refer to the back of this guide).

MATH 103 College Algebra must be taken if you did not transfer or test out.

### Curriculum Guide effective Fall 2007

		FALL			SPRING				
		Course	Units	Grade	Gen Ed	Course	Units	Grade	Gen Ed
Freshman (<27 crs)	AGRI 189	<i>Skills for Academic Success</i>	1		F	BIOL 150	<i>General Biology I</i>	3	S
	ANTH 111*	<i>Intro to Anthro (or SOC 110)</i>	3		B/D	BIOL 150L	<i>General Biology I Lab</i>	1	
	BIOL 151	<i>General Biology II</i>	3		S	ECON 201	<i>Prin of Microeconomics</i>	3	B/G
	BIOL 151L	<i>General Biology II Lab</i>	1		L	ENGL 120	<i>College Composition II</i>	3	C
	ENGL 110	<i>College Composition I</i>	3		C	NRM 225	<i>Natural/Agro-ecosystems</i>	3	S
	NRM 150	<i>Intro to NRM</i>	1			Core Elective	<i>(MATH 103 may be required)</i>	3	
	Core Elective		3						
	<b>Total</b>		<b>15</b>			<b>Total</b>		<b>16</b>	
Sophomore (27-59 crs)	CHEM 121	<i>General Chemistry I</i>	3			BIOL 364	<i>General Ecology</i>	3	
	CHEM 121L	<i>General Chemistry I Lab</i>	1			NRM 264	<i>Natural Res Mgmt Systems</i>	3	
	COMM 110	<i>Fundmntls Public Speaking</i>	3		C	SOIL 210	<i>Intro to Soil Science</i>	3	
	ECON 202	<i>Prin of Macroeconomics</i>	3			STATS 330 ^	<i>Introductory Statistics</i>	3	R
	GEOL 105	<i>Physical Geology</i>	3			Wellness	<i>(Refer to the registration schedule)</i>	2	W
	Core Elective		3			Core Elective		3	
<b>Total</b>		<b>16</b>			<b>Total</b>		<b>17</b>		
Junior (60 - 89 crs)	AGEC 375	<i>Applied Ag Law</i>	3			HIST 333	<i>US Env Hist (or POLS 453)</i>	3	
	ASM 259	<i>Measurements in NRM</i>	1			PHIL 215	<i>Contemp Moral Issues</i>	3	A
	ECON 481	<i>Natural Resource Econ</i>	3			EMPHASIS		11	
	Core Elective		3		C/UDW				
	EMPHASIS		7						
<b>Total</b>		<b>17</b>			<b>Total</b>		<b>17</b>		
Senior (90 + crs)	ANTH 462*	<i>Cultural Ecology (or SOC 431)</i>	3			NRM 491	<i>Seminar (capstone)</i>	2	
	GEOG 455	<i>Intro to GIS (or ARSC 452)</i>	3			EMPHASIS		12	
	EMPHASIS		10						
	<b>Total</b>		<b>16</b>			<b>Total</b>		<b>14</b>	

^ **STATS 330:** Students in Pollution Science are not required to take this course. Substitute MATH 166.

\***ANTH/SOC:** Students taking SOC 110 & SOC 431 must take a Cultural Diversity Gen Ed course for a Core Elective.

**Total Credits:** A degree from the College of Science & Mathematics requires 18 units in Hum/Social Science which may affect total units.

**Total Units**

**128**

## NRM Emphasis Areas

► **Prerequisites:** Courses marked with an asterisk (\*) require a prerequisite that is not included in the NRM Core (refer to the front of this guide). A list of these prerequisites is available from the NRM office. Students are encouraged to plan ahead and take prerequisites to fulfill Core Electives.

► **Emphasis Electives:** The following courses are accepted as electives in any of the six emphasis areas: NRM courses not included in the NRM Core; a maximum of 2 units of Field Experience (396/496). A maximum of 2 units of Coop Ed (397/497) may be used to meet NRM Core Electives, but not Emphasis Electives. All other courses require NRM approval.

### Environmental Communication

Required: 13 units	Units	Register...
COMM 200* Intro Media Writing	3	Junior Fall
COMM /PS/CJ 325 Research or (SOC 340 + 341 Research Methods)	4 (3 + 1)	Junior Fall (Junior Fall)
COMM 450 Issues: Env Comm	3	Junior Spring
COMM 485 Crisis Comm in PR	3	Senior Spring

#### Electives: choose 27 units from the following course list

COMM 260* Internet Web Design	3	COMM 431 Comm Ethics	3
COMM 261* Web Development	3	COMM 433 Legal Comm	3
COMM 301 Survey Rhet Theory	3	COMM 436 Issues in Mass Comm	3
COMM 310* Adv Media Writing	3	COMM 442 Info Tech/Media	3
COMM 345* Broadcast Production	3	COMM 443 Media/Public Opinion	3
COMM 362 Design for Print	3	COMM 445* Adv Broadcasting	3
COMM 370* Public Relations	3	COMM 450 Issues in Comm	3
COMM 383 Org Comm I	3	COMM 472* PR Campaigns	3
COMM 402 Contemp Rhetoric	3	PC 201 Peace & Conflict	3

### Physical/Earth Resources Science

Required: 13 (14) units	Units	Register...
CHEM 122 General Chem II + Lab	3 + 1	Junior Fall
MATH 146* Applied Calc I (or 165)	4 (4)	Junior Fall
GEOL 412 Geomorphology or (SOIL 444 Soil Genesis/Survey)	3 (4)	Senior Fall (Senior Fall)
SOIL 491 Seminar or (ASM 475 Mgmt of Ag Systems)	1 + 1 (2)	Senior Fall + Spring (Senior Spring)

#### Electives: choose 27(26) units from the following course list

ARSC 336 Intro Range Mgmt	3	PHYS 211* (211 L) College Phys I	3(1)
ASM 225* Computer App in ASM	3	SOIL 217 Meteorology & Climatology	3
ASM 354* Elec & Electronic Apps	3	SOIL 321 Mgmt & Conservation	3
ASM 454* Prin of Site Specific Ag	3	SOIL 322 Fertility & Fertilizers	3
CE 204* Surveying	4	SOIL 333 Physical Properties	2
CHEM 240 Survey of Organic Chem	3	SOIL 339 Physical Prop Lab	1
GEOL 105 L Geol Lab	1	SOIL 410 Soil & Environment	2
GEOL 300 Environ Geology	3	SOIL 447* Microclimatology	3
GEOL 414 Hydrogeology	3	SOIL 455* Soil Chemistry	3
GEOL/CHEM 428 Geochem	3	SOIL 465* Soil & Plant Analysis	3
MICRO 202 (202 L) Intro Microbiol	2(1)	SOIL 480* Soil & Waste Disposal	2

### Biotic Resources Science

Required: 6 (7) units	Units	Register...
CHEM 122 General Chem II	3	Junior Fall
CHEM 240 Survey of Organic Chem or CHEM 260 Biochem	3 (4)	Senior Fall Jr/Sr Spring

#### Electives: choose 34 (33) units from the following course list

ARSC 326 Model Range/Eco-Sys	3	PLSC 323 Prin Weed Science	3
ARSC 336 Intro Range Mgmt	3	PLSC 355* Woody Lndscp Plants	3
ARSC 456 Range Habitat Mgmt	3	PPTH 324 Plant Pathology	3
ARSC 458 Grazing Ecology	3	ZOO 360 Animal Behavior	3
ASM 225* Computer App in ASM	3	ZOO 450 Invertebrate Zoo	4
BOT 314 Systematic Botany	3	ZOO 452 Ichthyology	3
BOT 380 (380 L) Plant Physiology	3(1)	ZOO 454 Herpetology	3
BOT/ARSC 450 Range Plants	3	ZOO 456 Ornithology	3
BOT/ARSC 460 Plant Ecology	3	ZOO 458 Mammalogy	3
ENT 350 Gen Entomology	5	ZOO 462 Physiological Ecology	3
MICRO 202 (202 L) Intro Microbiol	2(1)	ZOO 470 Limnology	4
NRM/ARSC 453 Range Watershed	3	ZOO 475* Conservation Biol	3
PLSC 219 Prairie/Com Forestry	2	ZOO 476 Wildlife Eco/Mgmt	3
PLSC 315 Genetics (315L)	3(1)	ZOO 477* Wild/Fish Mgmt Tech	3

### Pollution Science

Required: 19 units	Units	Register...
CE 309* Fluid Mechanics	3	Junior Fall
CHEM 122 General Chem II + Lab	3 + 1	Junior Fall
ME 222* Engr Mechanics II	3	Junior Fall
CE 370 Intro to Environ Engineering	3	Junior Spring
CE 408* Water Resources & Supply	3	Junior Spring
SOIL 217 Meteorology & Climatology	3	Junior Spring

#### Electives: work with your advisor to select 21 units

AIR / SOLIDS		BIOTIC	
CE 472* Solid Waste Mgmt	3	BOT 380 (380 L) Plant Physiology	3(1)
CE 473* Air Pollution	3	BOT/ARSC 460 Plant Ecology	3
SOIL 447* Microclimatology	3	MICRO 350 (350 L) Microbiology	3(1)
EARTH / SOILS		ZOO 470 Limnology	4
CHEM 240 Survey of Organic Chem	3	ZOO 476 Wildlife Eco/Mgmt	3
GEOL 105 L Geol Lab	1	ZOO 477* Wild/Fish Mgmt Tech	3
GEOL 300 Environ Geology	3	WATER	
SOIL 321 Mgmt & Conservation	3	ABEN 464* Conservation/Irrigation	4
SOIL 322 Fertility & Fertilizers	3	CE 410* Water/Wastewater Engr	3
SOIL 333 Physical Properties	2	CE 421* Open Channel Flow	3
SOIL 339 Physical Prop Lab	1	CE 477* Applied Hydrology	3
SOIL 410 Soil & Environment	2	CE 478* Water Quality Mgmt	3
SOIL 447* Microclimatology	3	GEOL 414 Hydrogeology	2
SOIL 455* Soil Chemistry	3	GEOL/CHEM 428 Geochem	3
SOIL 480* Soil & Waste Disposal	2	NRM/ARSC 453 Range Watershed	3

### Natural Resources Economics

Required: 9 units	Units	Register...
ECON 341* Intern Microecon	3	Junior Fall
SOC 340 + 341 Research Methods	3 + 1	Junior Fall
STATS 331 Regression Analysis	2	Junior Spring

#### Electives: choose 31 units from the following course list

AGEC 220 World Ag Dev	3	ECON 470* Public Finance	3
AGEC 339 Quantitative Methods	3	ECON 472* International Trade	4
AGEC 347 Prin Real Estate	3	ECON 480* Industrial Org	3
AGEC 484 Ag Policy	3	GEOG 262 Geog North Am	3
ASM 225* Comp App/ASM	3	HNES 427* Leisure & Soc	3
BUSN 350* Business Mgmt	3	POLS 220 Intl Politics	3
BUSN 351* Org Behavior	3	POLS 360 Prin of Public Admin	3
BUSN 451* Managerial Econ	4	POLS 442 Global Policy Issues	3
COMM 314 Arg & Debate	3	POLS 444* International Law	3
COMM 315 Small Group Com	3	POLS 452 Comp Political Econ	3
ECON 324 Money & Banking	3	POLS 453 Env Policy/Politics	3
ECON 343 Intern Macroecon	3	SOC 403 Soc of Great Plains	3
ECON 456* Hist of Econ Thought	3	SOC 431 Environ Sociology	3
ECON 461* Econ Development	3	SOC 439* Social Change	3

### Social Sciences

Required: 7 units	Units	Register...
SOC 340 + 341 Research Methods	3 + 1	Junior Fall
SOC 422* Social Theory or (ANTH 480 Development Anth Theory)	3 (3)	Junior Spring (Junior Spring)

#### Electives: choose 33 units from the following course list

ANTH 204 Arch & Prehistory	3	EMGT 483 Holistic Disaster	3
ANTH 205 Human Origins	3	ENGL 474 Native Am Lit	3
ANTH 206 Peoples of the World	3	ENGL 475 Regional Lit	3
ANTH 433* Apes & Human Evolution	3	GEOG 262 Geog of North Am	3
ANTH 446 Current Prob Paleoanthro	3	GEOG 315 Upper Midwest Geog	3
ANTH 450 Cultural Anthro	3	HIST 439 Hist of Am Agriculture	3
ANTH 458 Indians of the Plains	3	HNES 427* Leisure & Society	3
ANTH 465 Web/Media in Anthro	3	POLS 360 Prin of Public Admin	3
BUSN 350* Business Mgmt	3	POLS 453 Env Policy/Politics	3
CJ 201 Intro to Criminal Justice	3	SOC 403 Soc of Great Plains	3
EMGT 411 Com Disaster Prep	3	SOC 405 Community Dev	3
EMGT 413 Disaster Resilient Com	3	SOC 412 Sociology of Sex Roles	3
EMGT 415 Rural Emerg Mgmt	3	SOC 413 Sociology of Work	3
EMGT 431 Hazard Response	3	SOC 420 Sociology of Disaster	3
EMGT 451 Floods, Blizzrds, Tornados	3	SOC 431 Environ Sociology	3
EMGT 453 Emerg Mgmt Law	3	SOC 439* Social Change	3
EMGT 461 Bus Continuity/Crisis Mgm	3	SOC 443 Intl Disaster	3
EMGT 463 Vol Agency Disaster	3	SOC 445 Spec Pop in Disaster	3
EMGT 481 Disaster Analysis	3	SOC 465 App Demographics	3