

Natural Resources Management 2014

Natural Resources Management Minor

Minor Requirements

Required Credits: 19

Core Courses

NRM 150	Natural Resource Management Orientation	1
NRM 225	Natural Resources & Agrosystems	3
NRM 431	National Environmental Policy Act & Environmental Impact Assessment	3

Interdisciplinary Courses

I. Biotic Resources Science: Select one of the following:		3
BIOL/ZOO 364	General Ecology	
BOT/RNG 460	Plant Ecology	
NRM/RNG 453	Rangeland Resource/Watershed Management	
RNG 336	Introduction to Range Management	
II. Physical/Earth Resources Science: Select one of the followi		3
ASM/NRM/SOIL 264	Natural Resource Management Systems	
GEOL 105	Physical Geology	
SOIL 210	Introduction to Soil Science	
SOIL 217	Introduction to Meteorology & Climatology	
III. Social Sciences: Select two of the follow		6
HIST 434	Environmental History	
SOC 431	Environmental Sociology	
NRM 421	Environmental Outreach Methods	
POLS 442	Global Policy Issues	
POLS 453	Environmental Policy and Politics	
ECON 481	Natural Resource Economics	

Total Credits	19
---------------	----

Minor Requirements and Notes:

- Students must earn a 2.00 minimum GPA in the courses used to satisfy the minor requirements.
- A minimum of 8 credits must be taken at NDSU.

CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory	4
GEOL 105	Physical Geology	3
NRM 225	Natural Resources & Agrosystems	3
Humanities & Fine Arts (A): Select from current general education list		6
Social & Behavioral Sciences (B):		
ECON 201	Principles of Microeconomics	3
Select one of the following:		3
POLS 110	Introduction to Political Science	
SOC 110	Introduction to Sociology	
EMGT 101	Emergencies, Disasters, and Catastrophes	
ANTH 111	Introduction to Anthropology	
Wellness (W): Select from current general education list		2
Cultural Diversity (D): Select from current general education list		
Global Perspectives (G):		
GEOL 105	Physical Geology	3
Total Credits		40

Major Requirements

General Education Requirements		40
Required Core Courses for Natural Resources Management:		
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
BIOL 151 & 151L	General Biology II and General Biology II Laboratory	4
BIOL 364	General Ecology	3
ECON 481	Natural Resource Economics	3
HIST 434	Environmental History	3
NRM 150	Natural Resource Management Orientation	1
NRM/SOIL 264	Natural Resource Management Systems	3
NRM 431	National Environmental Policy Act & Environmental Impact Assessment	3
POLS 115	American Government	3
or POLS 215	Problems and Policies In American Government	
RNG 452	Geographic Information Systems in Range Survey	3
or GEOG 455	Introduction to Geographic Information Systems	
Select one of the following:		3
SOC 431	Environmental Sociology	
POLS 360	Principles of Public Administration	
POLS 422	State and Local Politics	
POLS 442	Global Policy Issues	
ANTH 462	Anthropology and the Environment	
EMGT 261	Disaster Preparedness	
EMGT 262	Disaster Mitigation	
EMGT 263	Disaster Response	
EMGT 264	Disaster Recovery	
SOIL 210	Introduction to Soil Science	
NRM Emphasis Area: Students must select one of the six NRM emphasis areas to complete the major. See below.		38
Degree Requirements: Potential of a minimum of 12 credits to reach 128.		12
Total Credits		123

Natural Resources Management Emphasis Areas

- Select and complete one emphasis area as part of the Natural Resources Management major.
- Declaring an Emphasis- Students should formally declare an emphasis area with the Office of Registration & Records by the beginning of their junior year. The emphasis area is recorded on the academic transcript with the degree.

Biotic Resources Science

Required. Select two of the following:

6

CHEM 122	General Chemistry II
CHEM 240	Survey of Organic Chemistry
RNG 336	Introduction to Range Management
RNG/NRM 453	Rangeland Resources Watershed Management

Select a minimum of 32 credits from the approved electives list below for Biotic Resources:

32

BOT 314	Plant Systematics
RNG 456	Range Habitat Management
SOIL 217	Introduction to Meteorology & Climatology
NRM 401	Urban-Ecosystem Management
NRM 420	Scenarios in Natural Resources Management
PLSC 219	Introduction to Prairie & Community Forestry
ZOO 470	Limnology
ZOO 476	Wildlife Ecology and Management
PLSC/BOT/ZOO 315	Genetics
PLSC/BOT/ZOO 315L	Genetics Laboratory
RNG/NRM 454	Wetland Resources Management
BOT/RNG 460	Plant Ecology
MICR 202	Introductory Microbiology
ZOO 450	Invertebrate Zoology
ZOO 454	Herpetology
ZOO 458	Mammalogy
PLSC 355	Woody Landscape Plants
RNG/BOT 450	Range Plants
BOT 380	Plant Physiology
RNG 458	Grazing Ecology
MICR 202L	Introductory Microbiology Lab
NRM 402	River and Stream Resource Management
NRM 421	Environmental Outreach Methods
ZOO 462	Physiological Ecology
ZOO 475	Conservation Biology
ZOO 477	Wildlife and Fisheries Management Techniques
ENT 350	General Entomology
ZOO 360	Animal Behavior
ZOO 452	Ichthyology
ZOO 456	Ornithology
PLSC 323	Principles of Weed Science
RNG 326	Modeling of Range and Agro-Ecosystems

Total Credits

38

Physical/earth Resources Science

Required:

CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory	4
MATH 146 or MATH 165	Applied Calculus I Calculus I	4
GEOL 412	Geomorphology	3

or SOIL 444	Soil Genesis and Survey	
Select a minimum of 27 credits from the approved electives list below for Physical/Earth Resources Science:		27
ABEN 464	Resource Conservation and Irrigation Engineering	
ASM 354	Electricity and Electronic Applications	
RNG 336	Introduction to Range Management	
GEOL 105L	Physical Geology Lab	
GEOL 412	Geomorphology	
SOIL 444	Soil Genesis and Survey	
NRM 401	Urban-Ecosystem Management	
RNG/NRM 454	Wetland Resources Management	
NRM 420	Scenarios in Natural Resources Management	
PHYS 211	College Physics I	
CE 204	Surveying	
SOIL 322	Soil Fertility and Fertilizers	
SOIL 410	Soils and Land Use	
MICR 202	Introductory Microbiology	
SOIL 465	Soil And Plant Analysis	
GEOL/CHEM 428	Geochemistry	
ASM 225	Computer Applications in Agricultural Systems Management	
PHYS 211L	College Physics I Laboratory	
CHEM 240	Survey of Organic Chemistry	
GEOL 300	Environmental Geology	
GEOL 414	Hydrogeology	
MICR 202L	Introductory Microbiology Lab	
NRM 402	River and Stream Resource Management	
NRM 421	Environmental Outreach Methods	
ASM 454	Principles and Application of Precision Agriculture	
SOIL 217	Introduction to Meteorology & Climatology	
SOIL 351	Soil Ecology	
SOIL 433	Soil Physics	
SOIL 447	Microclimatology	
SOIL 480	Soils and Pollution	
Total Credits		38

Environmental Communication

Required:

COMM 112	Understanding Media and Social Change	3
COMM 200	Introduction to Media Writing	3
NRM 421	Environmental Outreach Methods	3
COMM 485	Crisis Communications in Public Relations	3
Select one of the following:		4

COMM/POLS/CJ 325	Applied Research Methods	
SOC 340 & SOC 341	Social Research Methods and Social Research Methods Laboratory	

Select a minimum of 22 credits from the approved electives list below for Environmental Communication: 22

COMM 260	Principles of Internet Web-Based Design	
COMM 301	Rhetorical Traditions	
COMM 345	Principles of Broadcast Production	
NRM 420	Scenarios in Natural Resources Management	
COMM 433	Legal Communication	
COMM 442	Digital Media and Society	
COMM 445	Advanced Broadcast Production	

COMM 472	Public Relations Campaigns
COMM 402	Contemporary Rhetoric
COMM 261	Introduction to Web Development
COMM 310	Advanced Media Writing
COMM 362	Principles of Design For Print
COMM 383	Organizational Communication I
NRM 421	Environmental Outreach Methods
COMM 436	Issues in Mass Communications
COMM 443	Mass Media and Public Opinion
COMM 450	Issues in Communication
COMM 431	Communication Ethics

Total Credits	38
---------------	----

Pollution Control

Required:

CE 309	Fluid Mechanics	3
CE 370	Introduction to Environmental Engineering	3
CE 408	Water Resources and Supply	3
CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory	4
MATH 165	Calculus I	4
ME 221	Engineering Mechanics I	3
ME 222	Engineering Mechanics II	3

Select a minimum of 15 credits from the approved electives list below for Pollution Control:	15
--	----

Air/Solids:	
CE 472	Solid Waste Management
SOIL 217	Introduction to Meteorology & Climatology
SOIL 447	Microclimatology
Biotic:	
ABEN 499	Special Topics
BOT 380	Plant Physiology
BOT/RNG 460	Plant Ecology
MICR 350	General Microbiology
MICR 350L	General Microbiology Lab
ZOO 470	Limnology
ZOO 476	Wildlife Ecology and Management
ZOO 477	Wildlife and Fisheries Management Techniques
Earth/Soils:	
CHEM 240	Survey of Organic Chemistry
GEOL 300	Environmental Geology
SOIL 322	Soil Fertility and Fertilizers
SOIL 351	Soil Ecology
SOIL 410	Soils and Land Use
SOIL 433	Soil Physics
SOIL 444	Soil Genesis and Survey
SOIL 447	Microclimatology
SOIL 465	Soil And Plant Analysis
SOIL 480	Soils and Pollution
Water:	
ABEN 464	Resource Conservation and Irrigation Engineering
CE 410	Water and Wastewater Engineering
CE 421	Open Channel Flow

CE 477	Applied Hydrology	
CE 478	Water Quality Management	
GEOL 414	Hydrogeology	
RNG/NRM 453	Rangeland Resources Watershed Management	
GEOL/CHEM 428	Geochemistry	
Total Credits		38

Natural Resources Economics

Required:

MATH 146	Applied Calculus I	4
or MATH 165	Calculus I	
ECON 341	Intermediate Microeconomics	3
STAT 331	Regression Analysis	2

Select a minimum of 29 credits from the approved electives list below for Natural Resources Economics: 29

AGEC 339	Quantitative Methods & Decision Making	
AGEC 375	Applied Agricultural Law	
ECON 202	Principles of Macroeconomics	
ECON 343	Intermediate Macroeconomics	
ECON 456	History of Economic Thought	
ECON 470	Public Economics	
ECON 480	Industrial Organization	
GEOG 262	Geography of North America	
NRM 401	Urban-Ecosystem Management	
NRM 420	Scenarios in Natural Resources Management	
POLS 220	International Politics	
POLS 442	Global Policy Issues	
POLS 452	Comparative Political Economy	
SOC 403	Sociology of The Great Plains	
SOC 439	Social Change	
AGEC 347	Principles of Real Estate	
AGEC 484	Agricultural Policy	
COMM 315	Small Group Communication	
ECON 324	Money and Banking	
ECON 410	Econometrics	
ECON 461	Economic Development	
ECON 472	International Trade	
HNES 427	Leisure And Society	
NRM 402	River and Stream Resource Management	
NRM 421	Environmental Outreach Methods	
POLS 360	Principles of Public Administration	
POLS 444	International Law	
POLS 453	Environmental Policy and Politics	
SOC 431	Environmental Sociology	

Total Credits 38

Social Sciences

Required:

SOC 340	Social Research Methods	4
& SOC 341	and Social Research Methods Laboratory	
SOC 422	Development Of Social Theory	3
or ANTH 480	Development of Anthropological Theory	

Select a minimum of 31 credits from the approved electives list below for Social Science: 31

ANTH 204	Archaeology and Prehistory	
----------	----------------------------	--

ANTH 206	Introduction to Cultural Anthropology: Peoples of the World
ANTH 446	Latin America & Caribbean: Afro-Latino/as, Gender, Indigeneity
CJ 201	Introduction to Criminal Justice
EMGT 261	Disaster Preparedness
EMGT 263	Disaster Response
EMGT 414	Spatial Analysis in Emergency Management
EMGT 461	Business Continuity and Crisis Management
EMGT 481	Disaster Analysis
GEOG 262	Geography of North America
NRM 401	Urban-Ecosystem Management
NRM 421	Environmental Outreach Methods
POLS 225	Comparative Politics
POLS 422	State and Local Politics
SOC 403	Sociology of The Great Plains
SOC 418	Social Psychology
SOC 431	Environmental Sociology
SOC 443	International Disasters
ANTH 205	Human Origins
ANTH 433	Apes and Human Evolution
ANTH 462	Anthropology and the Environment
ANTH 481	Qualitative Methods in Cultural Anthropology
EMGT 101	Emergencies, Disasters, and Catastrophes
EMGT 262	Disaster Mitigation
EMGT 264	Disaster Recovery
EMGT 463	Voluntary Agency Disaster Services
ENGL 474	Native American Literature
NRM 420	Scenarios in Natural Resources Management
POLS 215	Problems and Policies In American Government
POLS 360	Principles of Public Administration
POLS 453	Environmental Policy and Politics
SOC 405	Community Development
SOC 439	Social Change
SOC 465	Applied Demographics

Total Credits

38

Degree Notes:

- **Acceptable Substitutions:** The following courses are accepted as electives in all emphasis areas: NRM courses (may not be double-counted with the NRM Core); a maximum of 3 credits of Field Experience (396/496); a maximum of 3 credits of Co-op Ed (397/497). **All other substitutions require NRM advisor approval and a substitution form to be completed and submitted to the Office of Registration and Records.**

Minor Requirements

