

Environmental and Conservation Sciences Program Course Requirements

North Dakota State University, Dec. 2005

Requirements for M.S. Degree in Environmental and Conservation Sciences

Each M.S. student will complete a minimum of 16 didactic course credits plus 1 credit ECS graduate seminar. The didactic credits must include at least 1 ECS core course and 1 ECS track course. A total of 30 credits are required for a M.S. degree in Environmental and Conservation Sciences.

Requirements for Ph.D. Degree in Environmental and Conservation Sciences

Each Ph.D. student will complete at least 27 credits of didactic courses plus the ECS graduate seminar for 1 credit. The didactic courses will include: 3 core courses (9 credits), a minimum of 15 credits from a chosen track, and 3 credits of electives from the other track or other NDSU courses numbered 601-689 or 700-789. The 15 track credits must be from at least 2 course categories. A total of 90 credits are required.

CORE COURSES

History of Environmental Science (HIST 634 or HIST 710)	3 cr
Rhetoric of Environmental Science (COMM 755)	3 cr
Environmental Law and Policy (ECS 770)	3 cr
Natural Resources Economics (ECON 681)	3 cr
Core Courses Total	9 cr

Graduate Seminar (ECS 790) **1 cr**

and

CONSERVATION BIOLOGY TRACK CATEGORIES

Biodiversity

Ecology and Evolution

Human dimensions and Management

Research Tools

Track Total **15 cr**

or

ENVIRONMENTAL SCIENCE TRACK CATEGORIES

Water Sciences

Soil and Solid Waste

Environmental Management

Research Tools

Track Total **15 cr**

Conservation Biology Track Curriculum

BIODIVERSITY COURSES

Department	Course #		Credits
Animal Range Science	ARSC 716	Agrostology	3
Botany	BOT 671	Phycology	3
Botany	BOT 672	Lichenology	3
Botany	BOT 714	Advanced Systematic Botany	3
Botany	BOT 717	Aquatic Vascular Plants	3
Biological Sciences	ZOO 650	Invertebrate Zoology	3
Biological Sciences	ZOO 652	Ichthyology	3
Biological Sciences	ZOO 654	Herpetology	3
Biological Sciences	ZOO 658	Mammalogy	3
Biological Sciences	ZOO 665	Ornithology	3
Entomology	ENT 750	Systematic Entomology	3

ECOLOGY & EVOLUTION COURSES

Department	Course #		Credits
Animal Range Science	ARSC 765	Analyses of Ecosystems	3
Biological Sciences	BIOL 631	Intermediate Genetics	3
Biological Sciences	BIOL 659	Evolution	3
Botany	BOT 660	Plant Ecology	3
Biology	BOT 762	Environment and Adaptation	3
Biology	BOT 764	Ecological Processes	3
Zoology	ZOO 662	Physiological Ecology	3
Zoology	ZOO 670	Limnology	3
Zoology	ZOO 760	Evolutionary Ecology	3
Zoology	ZOO 770	Aquatic Community Ecology	3
Zoology	ZOO 776	Animal Population Dynamics	3
Zoology	ZOO 784	Animal Research Principles	3
Entomology	ENT 765	Biological Control of insects and weeds	3
Entomology	ENT 770	Insect Ecology	3
Geosciences	GEOL 640	Quaternary Biology	3
Plant Sciences	PLSC 631	Intermediate Genetics	3
Plant Sciences	PLSC 737	Advanced Genetics	3
Plant Sciences	PLSC 781	Quantitative Genetics	3
Soil Science	SOIL 640	Environmental Modeling	3
Soil Science	SOIL 610	Soil and the Environment	3
Soil Science	SOIL 647	Microclimatology	3
Biological Sciences	BIOL 640	Microbial Ecology	3

HUMAN DIMENSIONS

Agricultural Economics	AGEC 680	Environmental Economics	3
Animal & Range Sciences	ARSC 656	Range Habitat Management	3
Biological Sciences	ZOO 672	Fisheries Biology	3
Biological Sciences	ZOO 674	Fisheries Management	3
Biological Sciences	ZOO 675	Conservation Biology	3
Biological Sciences	ZOO 676	Wildlife Ecology and Management	3
Biological Sciences	ZOO 677	Wildlife and Fisheries Management Techniques	3
Civil Engineering	CE 678	Water quality Management	
Communication	COMM 783	Conflict Resolution	3
Political Science	POLS 642	Global Policy Issues	3
Political Science	POLS 650	Politics of Developing Countries	3
Social Science/ Anthropology	ANTH 650	Cultural Anthropology	3
Social Science Anthropology	ANTH 662	Cultural Ecology	3
Biological Sciences	ZOO 750	Advanced Conservation Biology	3
Communication	COMM 755	Rhetoric of Environmental Science	3
ECS	ECS 750	Environmental Decision Analysis	3
ECS	ECS 760	Environmental Impact Assessment	3

RESEARCH TOOLS

Animal Range Science	ARSC 650	Geographic Information Systems in Range Survey	3
Animal Range Science	ARSC 740	Data Analysis and Design of Experiments	3
Civil Engineering	CE 677	Applied Hydrology	3
Geosciences	GEOL 655	Introduction to GIS	3
Geosciences	GEOL 656	Advanced GIS	3
Plant Sciences	PLSC 724	Field Design I	3
Psychology	PSYC 640	Experimental Methods	3
Social Science	SOC 701	Quantitative Methods	3
Soil Science	SOIL 784	Advanced Soil Genesis, Morphology & Classification	3
Statistics	STAT 661	Applied Regression Models	3
Statistics	STAT 662	Introduction to Experimental Design	3
Statistics	STAT 663	Non-parametric statistics	3
Statistics	STAT 665	Meta-analyses Methods	3
Statistics	STAT 670	Statistical SAS programming	3
Statistics	STAT 730	Bio-statistics	3
Statistics	STAT 761	Advanced Regression	3
Statistics	STAT 770	Survival Analyses	3
Geosciences	GEOL 660	Biogeochemistry	3
Geosciences	GEOL 760	Advanced Biogeochemistry	3

Environmental Sciences Track Curriculum

WATER SCIENCE COURSES

Department	Course #		Credits
Agriculture & Biosystems Engineering	ABEN 664	Resource Conservation and Irrigation Engineering	3
Agriculture & Biosystems Engineering	ABEN 765	Small Watershed Hydrology and Modeling	3
Biological Sciences	ZOO 670	Limnology	3
Civil Engineering	CE 610	Water and Wastewater Engineering	3
Civil Engineering	CE 677	Applied Hydrology	3
Civil Engineering	CE 678	Water Quality Management	3
Civil Engineering	CE 697	Advanced Water and Wastewater Eng.	3
Civil Engineering	CE 776	Groundwater	3
Geosciences	GEO 628	Geochemistry	3
Geosciences	GEO 640	Hydrogeology	3
Civil Engineering	CE 796	Industrial Waste Management	3

SOIL & SOLID WASTE COURSES

Department	Course #		Credits
Agriculture & Biosystems Engineering	ABEN 696	Waste Management and Bioprocessing	2
Civil Engineering	CE 672	Solid Waste Management	3
Civil Engineering	CE 770	Hazardous Waste Management	3
Soil Science	SOIL 610	Soil and the Environment	2
Soil Science	SOIL 633	Soil Water Relationship and Management	2
Soil Science	SOIL 733	Environmental Modeling	2
Soil Science	SOIL 783	Advanced Soil Physics	3

ENVIRONMENTAL MANAGEMENT

Department	Course #		Credits
Animal & Range Sciences	ARSC 656	Range Habitat Management	3
Biological Sciences	ZOO 674	Fisheries Management	3
Biological Sciences	ZOO 675	Conservation Biology	3
Biological Sciences	ZOO 676	Wildlife Ecology and Management	3
Biological Sciences	ZOO 677	Wildlife and Fisheries Management Techniques	3
Civil Engineering	CE 678	Water quality Management	3
Civil Engineering	CE 672	Solid Waste Management	3
Communication	COMM 783	Conflict Resolution	3
Biological Sciences	ZOO 750	Advanced Conservation Biology	3
ECS	ECS 750	Environmental Decision Analysis	3
ECS	ECS 760	Environmental Impact Assessment	3

(continued on next page)

Environmental Sciences Track Curriculum, cont.

RESEARCH TOOLS

Department	Course #		Credits
Agriculture & Biosystems Engineering	ABEN 682	Instrumentation and Measurements	3
Agriculture & Biosystems Engineering	ABEN 696	Transport Processes	3
Animal Range Science	ARSC 650	Geographic Information Systems in Range Survey	3
Animal Range Science	ARSC 740	Data Analysis and Design of Experiments	3
Civil Engineering	CE 677	Applied Hydrology	3
Geosciences	GEOL 655	Introduction to GIS	3
Geosciences	GEOL 656	Advanced GIS	3
Industrial & Manufacturing Engineering	IME 660	Evaluation of Engineering Data	3
Statistics	STAT 662	Introduction to Experimental Design	3
Statistics	STAT 725	Applied Statistics	3
Statistics	STAT 761	Advanced Regression	3
Geosciences	GEOL 660	Biogeochemistry	3
Geosciences	GEOL 760	Advanced Biogeochemistry	3

This information subject to revision.

<http://www.ndsu.edu/ecs/>