

Forest and Natural Resource Management (FNRM) B.S. Park and Protected Area Management Specialization (PPAM)

Curriculum Guide – Last updated Fall 2016

This guide is subject to change at any time.

Learn how to plan and manage parks, wilderness, forests, lakes, rivers, and other natural resources for the visitors who enjoy them, for the communities who depend on them, and for society as a whole. The curriculum emphasizes natural and managed protected areas; natural resources-oriented recreation programs in public and private sectors; social science aspects of natural resource use; and skills in communication, planning, and management. Graduates are involved in land management, park management, visitor education, tourism, and more.

Communication Skills

- _____ Freshman Composition
- _____ COMM 1101 Introduction to Public Speaking [CIV] (3 cr, F/S/Sm)
or AFEE 2421 Professional Communication for Agriculture, Food, and the Environment (3 cr, F/S)

Physical and Biological Sciences

- _____ BIOL 1001 Introductory Biology: Evolutionary and Ecological Perspectives [BIOL] (4 cr, F/S)
or BIOL 1009 General Biology [BIOL] (4 cr, F/S/Sm, prereq high school chemistry)
- _____ BIOL 2022 General Botany (3 cr, F/S, prereq one semester of college biology)
- _____ SOIL 2125 Basic Soil Science [PHYS, ENV] (4 cr, F/S, prereq CHEM 1015/1017 or CHEM 1061)

Mathematical Thinking

- _____ MATH 1031 College Algebra and Probability [MATH] (3 cr, F/S/Sm, prereq 3 yrs. high school math or placement exam or at least C- in PSTL 731 or PSTL 732)
or MATH 1051 Precalculus I [MATH] (3 cr, F/S/Sm, prereq 3 yrs high school math or placement test or at least C- in PSTL 731 or PSTL 732)
- _____ ESPM 3012 Statistical Methods for Environmental Scientists and Managers [MATH] (4 cr, S, prereq 2 years high school math)
or STAT 3011 Introduction to Statistical Analysis [MATH] (4 cr, F/S/Sm)

Chemistry

- _____ CHEM 1015 Introductory Chemistry: Lecture (3 cr, F/S/Sm, prereq high school chemistry)
and CHEM 1017 Introductory Chemistry: Lab (1 cr, F/S/Sm)
or CHEM 1061 Chemical Principles I [PHYS] (3 cr, F/S/Sm, prereq passing grade in CHEM 1101 or 1015 or placement) and CHEM 1065 Chemical Principles I Lab [PHYS] (1 cr, F/S/Sm)

Social Sciences

- _____ ESPM 3261 Economics and Natural Resources Management [SOCS, ENV] (4 cr, S, prereq MATH 1031, 1051, 1142, 1155, or 1271 or ESPM 3012 or STAT 3011 or SOC 3811)
- _____ ESPM 3241W Natural Resource and Environmental Policy [SOCS, CIV, WI] (3 cr, S)
- _____ PSY 1001 Introduction to Psychology [SOCS] (4 cr, F/S/Sm)
or SOC 1001 Introduction to Sociology [SOCS, DSJ] (4 cr, F/S/Sm)
- _____ PSY 3201 Introduction to Social Psychology (3 cr, F/S/Sm, prereq PSY 1001)
or SOC 3721 Principles of Social Psychology (3 cr, F/S, prereq SOC 1001 recommended)

Major Professional Courses

- _____ FNRM 1001 Orientation and Information Systems (1 cr, F)
- _____ FNRM 1101 Dendrology: Identifying Forest Trees and Shrubs (3 cr, F)
- _____ FNRM 3131 Geographic Information Systems (GIS) for Natural Resources [TS] (4 cr, F/S, prereq soph, jr, sr or UHP fr)
- _____ FNRM 4232W Managing Recreational Lands [WI] (4 cr, S)

Liberal Education Requirements and Writing Intensive

	Required Credits	PPAM courses that fulfill requirements
Diversified Core		
Arts/Humanities [AH]	3	-
Biological Science [BIOL]	4, must include lab or field experience	BIOL 1001 or 1009
Historical Perspective [HIS]	3	-
Literature [LIT]	3	-
Mathematical Thinking [MATH]	3	MATH 1031 or 1051 ESPM 3012 or STAT 3011
Physical Science [PHYS]	4, must include lab or field experience	SOIL 2125 CHEM 1015/1017 or CHEM 1061/1065
Social Sciences [SOCS]	3	ESPM 3261, SOC 1001 or PSY 1001
Designated Themes	<i>Four of the following five themes must be satisfied</i>	
Civic Life and Ethics [CIV]	3	COMM 1101
Diversity and Social Justice in the US [DSJ]	3	-
The Environment [ENV]	3	SOIL 2125, ESPM 3261
Global Perspectives [GP]	3	-
Technology and Society [TS]	3	FNRM 3131
Writing Intensive [WI]: first year writing requirement and four writing intensive courses (two of which must be taken at the upper division level, one of which must be in your major)		

Park and Protected Area Management (PPAM) Core

- _____ FNRM 3101 Park and Protected Area Tourism (3 cr, F odd years)
- _____ FNRM 5259 Visitor Behavior Analysis (3 cr, F, jr, sr, or grad status)
- _____ ESPM 3202W Environmental Conflict Management, Leadership and Planning (3 cr, S)
- _____ ESPM 3245 Sustainable Land Use Planning and Policy [ENV] (3 cr, F, prereq jr or sr)
- _____ ESPM 4811 Environmental Interpretation (3 cr, S, prereq jr or sr)
- Management of Biophysical Resources**
- _____ FNRM 3104 Forest Ecology (4 cr, F, prereq BIOL 1001 or 1009, college chemistry recommended)
or ESPM 3108 Ecology of Managed Systems [ENV] (3cr, F, prereq BIOL1001, 1009 or HORT 1001)
- _____ FNRM 3114 Hydrology and Watershed Management (3 cr, F, prereq MATH 1151, BIOL 1001 or 1009,
and CHEM 1015/1017 or CHEM 1061/1065)
or ESPM 4061W Water Quality and Natural Resources (3 cr, F/S)
- _____ FW 2001W Intro to Fisheries, Wildlife, and Conservation Biology [ENV] [WI] (3 cr, F/S, prereq BIOL 1001
or 1009)
or ESPM 3101 Conservation of Plant Biodiversity (3 cr, F, prereq BIOL 1001 or 1009)
or FW 4102 Principles of Conservation Biology [ENV] (3 cr, S, prereq BIOL 1009)
or FW 4103 Principles of Wildlife Management (3 cr, S, prereq intro biology, jr or sr)

Experiential Learning

- _____ FNRM 4232W Managing Recreational Lands fulfills this requirement.

Interdisciplinary Learning

- _____ One of the following courses fulfills this requirement:
ESPM 1011 Issues in the Environment [ENV] (3 cr)
ESPM 2021 Environmental Sciences: Integrated Problem Solving (3 cr)
ESPM 3575 Wetlands (3 cr)
ESPM 4021W Problem Solving: Environmental Review [WI] (4 cr)

ESPM 4041W Problem Solving for Environmental Change [WI] (4 cr)
 AGRO 3203W Environment, Global Food Production, and the Citizen [GP, WI] (3 cr)
 AGRO 3305 Agroecosystems of the World [GP] (3 cr)
 AGRO 4103 World Food Problems [GP] (3 cr)
 ANSC 3203W Environment, Global Food Production, and the Citizen [GP, WI] (3 cr)
 APEC 3202 An Introduction to the Food System: Analysis, Management, and Design (3 cr)
 APEC 4103 World Food Problems [GP] (3 cr)
 BBE 4412W Biocomposites and Biomass Energy [WI] (4 cr)
 CFAN 1501 Biotechnology, People, and the Environment [TS] (3 cr)
 CFAN 3333 Insects, Microbes, and Plants [TS] (3 cr)
 FSCN 1102 Food: Safety, Risks, and Technology [CIV] (3 cr)
 FW 2001W Introduction to Fisheries, Wildlife, and Conservation Biology [ENV] [WI] (3 cr)
 HORT 4850 Pollinator Protection in Managed Landscapes (3 cr)
 PLPA 2003 Plague, Famine, and Beer: The Impact of Microscopic Organisms on Human Civilization [HIS] (3 cr)
 SSM 4407W Sustainable Manufacturing Principles and Practices [WI] (3 cr)

Electives

At the University, 120 credits are required for graduation. After completing the major requirements, credits from any discipline may be used to reach 120 credits.

Minors and Certificates

Minors and certificates are an excellent way to further focus your studies in a related area of interest. The following are minors and certificates typically of interest to students in natural resources.

Environmental Sciences, Policy and Management (16 cr)
 Fisheries and Wildlife (16-18 cr)
 Forest Ecosystem Management and Conservation (18 cr)
 Geographic Information Science (16 cr)
 Mass Communications-Emphasis in Public Relations (18 cr)
 Sustainable Tourism Certificate (12 cr in addition to FNRM 3101)
 Sustainability Studies (15-18 cr)
 Urban and Community Forestry (18 cr)

Study Abroad

The University encourages students to incorporate international study into their academic programs. In addition to those programs offered at the University level, the College of Food, Agricultural and Natural Resource Sciences also offers international programs specific to many of the majors housed within the college. Visit the Learning Abroad Center or CFANS International Programs Office to learn more about the many study abroad experiences available.

Subject/ Career Options

Students may also use their elective credits to develop additional coursework to further build knowledge and skill for employment. These are not required or equivalent to minors. See your advisor or faculty leader(s) noted for more information and assistance selecting courses. Subject and/or career option areas to consider include:

Heritage Preservation Management
 International protected area management
 Outdoor Recreation Planning
 Protected Area Law and Policy
 Tourism
 Graduate Study Preparation

The **Heritage Preservation Management** (*Faculty: M. Davenport, I. Schneider*) option is for students with a particular interest in cultural and heritage preservation within public agencies. Students focusing in this area could work with a variety of state, federal or international organizations to manage and plan for heritage preservation. Courses could include ANTH 3028 Historical Archeology, ANTH 3980/5990 International Heritage Management, ARCH 3641 Introduction to Heritage Preservation, FNRM 3201 Introduction to Travel and Tourism, FNRM 3206 Park and Protected Area Management Field Studies (prereq soph or higher, 10-day session in Ely, MN) or study abroad coursework.

The **International Protected Area Management** (*Faculty: M. Davenport, I. Schneider, D. Current, K. Nelson*) option is for students interested in international protected area management. Career opportunities include management, administration and development positions for protected areas across the globe. Coursework could include ANTH 3980/5990 International Heritage Management, ARCH 3641 Introduction to Heritage Preservation, ESPM 3251 Natural Resources in Sustainable International Development, GEOG 3379 Environment and Development in the Third World, Introductory Field Training in Assessment and Biology of Forests (taught at Cloquet Forestry Center in August and includes FNRM 2101 Identifying Forest Plants, FNRM 2102 Northern Forests Field Ecology, and FNRM 2104 Measuring Forest Resources), FNRM 3201 Introduction to Travel and Tourism, FNRM 3301 International Tourism, or language or study abroad courses.

The **Outdoor Recreation Planning** (*Faculty: M. Davenport, I. Schneider*) is for students interested in planning for outdoor recreation areas across landscape levels: county, state and federal. Career opportunities include positions as an outdoor recreation planner, regional planner, or county recreation planner. Coursework could include ESPM 3271 Environmental Policy, Law and Human Behavior, GEOG 3361W Land Use, Landscapes and the Law, GEOG 3605W Geographical Perspectives on Planning, LA 3002 Regional Landscape Planning, LA 3501 Environmental Design and Its Biological and Physical Context, FNRM 3206 Park and Protected Area Management Field Studies (prereq soph or higher, 10-day session in Ely, MN), Introductory Field Training in Assessment and Biology of Forests (taught at Cloquet Forestry Center in August and includes FNRM 2101 Identifying Forest Plants, FNRM 2102 Northern Forests Field Ecology, and FNRM 2104 Measuring Forest Resources), or study abroad courses.

The **Protected Area Law and Policy** (*Faculty: M. Davenport, I. Schneider*) option is for students interested in understanding how, where and why policy evolves and influences protected area management. Career opportunities include policy development and analysis and protected area administration. Coursework could include ESPM 3271 Environmental Policy, Law and Human Behavior, GEOG 3361W Land Use, Landscapes and the Law, ESPM 4242 Natural Resource and Environmental Policy Analysis, ESPM 4256 Natural Resource Law, FNRM 3206 Park and Protected Area Management Field Studies (prereq soph or higher, 10-day session in Ely, MN), and management of public lands and waters, or study abroad courses.

The **Resource-Based Tourism** (*Faculty: I. Schneider*) option is for students interested in tourism. Career opportunities include managing, administration, promotion, and development of tourism attractions and destinations. Coursework could include ARCH 3641 Introduction to Heritage Preservation, ESPM 3271 Environmental Policy, Law and Human Behavior, MKTG 3001 Principles of Marketing, MGMT 3001 Fundamentals of Management, MKTG 3040 Buyer Behavior, MKTG 4050 Integrated Marketing Communications, MKTG 4060 Marketing and Distribution Channels, FNRM 3201 Introduction to Travel and Tourism, FNRM 3301 International Tourism, APEC 4301 Workers and Consumers in the Global Economy, GEOG 3388 Going Places: Geographies of Travel and Tourism, or study abroad courses.

Graduate Study Option (*Faculty: All*) Students interested in graduate school should strengthen their undergraduate core and take prerequisites for classes likely to be needed in graduate school. Students should meet with faculty in their area of interest to develop their coursework. Math, science and basic courses also help students prepare for the Graduate Record Exam (GRE).