

# NATURAL RESOURCE MANAGEMENT-ECOSYSTEM SCIENCE AND MANAGEMENT

THIS IS A **GENERAL** CURRICULUM GUIDE AND IS NOT APPLICABLE TO EVERY STUDENT. IT IS IMPORTANT TO MEET WITH YOUR ADVISOR.

This sample plan assumes that the MTH 110 requirement has been fulfilled. If MTH 110 is needed, students should take the course in the first semester in place of the chemistry option.

Year One			
<sup>1</sup> BIO 120 General Biology I Prerequisites: High school chemistry, CHM 109, or CHM 115 strongly recommended (CHM 109 or 115 may be taken concurrently with BIO 120) <b>See notes below regarding BIO 120/121 option</b>	4	<sup>1</sup> BIO 121 General Biology II <b>See notes below regarding BIO 120/121 option</b>	4
CHM 109 Introductory Chemistry	4	NRM 150 Introduction to Natural Resources	3
<b>OR</b> CHM 115 Principles of Chemistry I Prerequisites: High school chemistry and (MTH 110 or MTH 122 or MTH 125 or MTH 201)	4	<b>**MTH 122 College Algebra</b> Prerequisite: MTH 110 or proficiency through math placement – <b>see notes below regarding math placement</b>	3
Gen Ed – choose two or WRT 098 (self-placement)	3-4	WRT 150 Strategies in Writing	4
Elective – choose any 1 credit course to reach 15 for the semester	1	Elective – choose any 1 credit course to reach 15 credits for the semester	1
<i>Total</i>	<i>15</i>	<i>Total</i>	<i>15</i>
Year Two			
BIO 215 General Ecology Prerequisite: BIO 120 and 12 college credits; BIO 121 recommended	4	<sup>2</sup> NRM 395 GIS Application in Resource Management Prerequisites: GPY 307 or NRM 250	3
<sup>2</sup> NRM 250 Resource Measurements and Maps	3	GEO 111 Exploring the Earth	4
<sup>2</sup> NRM 281 Principles of Soil Science	4	STA 215 Introductory Applied Statistics	3
Gen Ed	3	Prerequisite: MTH 110 or equivalent	
		ECO 211 Introductory Microeconomics	3
		Prerequisites: MTH 110 or MTH 122 or MTH 201, sophomore standing recommended	
		Gen Ed	3
<i>Total</i>	<i>14</i>	<i>Total</i>	<i>16*</i>
Year Three			
<sup>2</sup> NRM Cognate Course	3/4	<sup>2</sup> NRM 320 Introduction to Resource Systems Prerequisites: BIO 215 and MTH 122	3
<sup>2</sup> NRM 452 Watershed and Wetland Management Prerequisites: GEO 111, MTH122, and NRM 250	4	<sup>2</sup> NRM 462 Forest Ecosystem Management Prerequisite: NRM 250	4
Gen Ed	3	<sup>2</sup> NRM 308 Wildlife Ecology Prerequisite: BIO 215	4
Issue	3	<sup>3</sup> NRM Cognate Course	3/4
<i>Total</i>	<i>13-14</i>	<i>Total</i>	<i>14-15</i>
Year Four			
BIO 460 Terrestrial Ecosystem Ecology Prerequisites: BIO 215; NRM 281 recommended	4	<sup>4</sup> NRM 495 <b>SWS</b> Trends in Natural Resources Mgt <b>OR</b> NRM 496 + 497 (Capstone) Prerequisites: Completion of 20 credits in NRM, STA 215	4
<sup>3</sup> NRM Cognate Course	3/4	<sup>3</sup> NRM Cognate Course	3/4
<sup>2</sup> NRM Core Course	3/4	<sup>2</sup> NRM Core Course	3/4
Issue	3	Gen Ed	3
<i>Total</i>	<i>13-15</i>	<i>Total</i>	<i>13-15</i>

\*The block tuition rate is for 12-15 credits. You will pay additional tuition for any credits over 15.

A total of 120 credits are required for graduation. Please supplement your schedule with elective courses to reach the required 120 credits.

**\*\*Students who have fulfilled the MTH 122 requirement based on ACT scores are still required to complete a college level mathematics course higher than MTH 110. Students should choose from MTH 123, 125 or 201.**

<sup>1</sup>Students have the option of starting in BIO 120 or 121 in the fall semester. BIO 120 requires a prerequisite of high school chemistry or CHM 109 or 115 (can be taken concurrently). **Students who have an ACT science sub-score of 22 and below should start with BIO 121.**

<sup>2</sup>NRM majors must complete a total of 40 credits of NRM courses with a GPA of 2.0 or better. NRM 250, 281, 308, 395, 452, and 462 are required for the Ecosystem Science and Management emphasis. Please see reverse for additional NRM options.

<sup>3</sup>NRM majors must complete a minimum of 40 credits of cognate courses (These cannot have NRM prefixes). Please see reverse for cognate courses.

Ecosystem Science and Management emphasis students must choose one course from each of the following groups: Plant Taxonomy and Identification, Aquatic Sciences, and Wildlife Biology. See reverse for courses within each group.

<sup>4</sup>Students must complete a total of two courses with an SWS attribute.

**It is imperative to meet with your faculty advisor and an advisor in the CLAS Academic Advising Center regularly.**

The CLAS Academic Advising Center is located in C-1-140 MAK, 616-331-8585.

Your academic advisor in the CLAS Academic Advising Center is Betty Schaner ([schanerb@gvsu.edu](mailto:schanerb@gvsu.edu))

Online at: <http://www.gvsu.edu/clasadvising>

NRM classes are generally not offered during the summer. You are encouraged to obtain a natural resources management job, an internship (NRM 490), conduct a research project (NRM 499), or take general education and elective classes during the summer.

### Bachelor of Science Degree

Natural Resources Management Students only have the option of pursuing a Bachelor of Science degree. The B.S. degree requirements are incorporated into the major and include: MTH 122, NRM 320, and BIO 460.

#### Declaring the Natural Resources Management - Ecosystem Science and Management Major:

1. Log into myBanner from the GVSU homepage
2. Once logged in select "Student," "Student Records," and then "Change Major"
3. Click on the "Change Major 1/Program" box
4. Click on the down arrow in the box next to "New Major 1/Program," from here scroll down and choose "Natural Resources Mgmt – BS Ecosystem Science and Management"
5. Click "Submit" and then "Change to New Program"

#### General Education Overlap

General Education Categories fulfilled by the NRM Major:	
Life Sciences with Lab: BIO 120	Physical Sciences with Lab: CHM 109 or CHM 115
Mathematical Sciences: MTH 122 or STA 215	Social and Behavioral Sciences: ECO 211
Issue: NRM 451, BIO 328, ECO 345	

#### Natural Resources Management Cognate Courses

**There are 29-30 credits of cognates required in the curriculum:**

MTH 122 College Algebra	GEO 111 Physical Geology
STA 215 Introductory Applied Statistics	CHM 115 Principles of Chemistry I
BIO 120 General Biology I	or CHM 109 Introductory Chemistry
BIO 121 General Biology II	ECO 211 Microeconomics
BIO 215 General Ecology	

**Choose one course from each of the categories below to reach a minimum total of 40 cognate credits:**

Plant Taxonomy and Identification	Aquatic Sciences	Wildlife Biology
BIO 243 Plant Identification and Natural History	BIO 362 Fisheries Biology	BIO 342 Ornithology
BIO 323 Aquatic and Wetland Plants	BIO 402 Aquatic Insects	BIO 408 Wildlife Management
BIO 333 Systematic Botany	BIO 440 Limnology	BIO 412 Mammalogy
BIO 433 Plant Ecology	BIO 450 Stream Ecology	BIO 470 Conservation Biology

#### Natural Resources Management Core Electives

NRM majors must complete a total of 40 credits of NRM courses with a GPA of 2.0 or better. Choose from the list below to reach the minimum of 40 NRM credits. (BIO 460 also counts as NRM credit)

BIO 408 Wildlife Management (check with your advisor)	NRM 450 Applied Spatial Analysis of Natural Resources
NRM 380 Special Topics (also NRM 180, 280, 480)	NRM 451 Natural Resource Policy
NRM 240 Principles of Climatology	NRM/BIO 386 Ecological Restoration and Management
NRM 330 Environmental Pollution	NRM 486 Advanced Restoration Ecology
NRM 399 Readings in Resource Management	NRM 490 Internship in Resource Management
NRM 420 Wildland Recreation Mgmt.	NRM 499 Research in Resource Management

#### Notes:

- NRM 180, 280, 380 and 480 are designations for a special topics class. You may take multiple classes with an NRM X80 designation because each class will cover a different topic.
- No more than 3 credits of NRM 399 (readings) will be counted towards the major.
- No more than 3 credits of NRM 499 (research) will be counted towards the major.
- No more than 5 credits of NRM 490 (internship) and NRM 499 (research) total can be applied to the major.
- BIO 417 and BIO 418 are field trip classes. You MAY be able to count these classes as core classes (NRM credit) but you MUST check with your advisor BEFORE you take the class. No more than 6 credits can be applied to the major.