

# NATURAL RESOURCE MANAGEMENT-ENVIRONMENTAL SCIENCE

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 MTH 122 option. MTH 122 should then be taken in the winter semester.

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
**MTH 122 College Algebra Prerequisite: MTH 110 or proficiency through math placement – see <b>notes below regarding math placement</b>	3	GEO 111 Exploring the Earth	4
Gen Ed or WRT 098 (self-placement)	3/4	NRM 150 Introduction to Natural Resources	3
Gen Ed	3	WRT 150 Strategies in Writing	4
<sup>5</sup> Electives – choose any 1 credit courses to reach 15 for the semester	1-2		
<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	CHM 116 Principles of Chemistry II Prerequisite: CHM 115 and (MTH 122 or 125 or 201)	5
CHM 115 Principles of Chemistry I Prerequisites: High school chemistry and (MTH 110 or MTH 122 or MTH 125 or MTH 201)	4	STA 215 Introductory Applied Statistics Prerequisite: MTH 110 or equivalent	3
<sup>2</sup> NRM 250 Resource Measurements and Maps	3	ECO 211 Introductory Microeconomics Prerequisites: MTH 110 or MTH 122 or MTH 201, sophomore standing recommended	3
Gen Ed	3	Gen Ed	3
<i>Total</i>	<i>14</i>	<i>Total</i>	<i>14</i>
Year Three			
<sup>2</sup> NRM 281 Principles of Soil Science	4	NRM 320 Introduction to Resource Systems Prerequisites: BIO 215 and MTH 122	3
<sup>2</sup> NRM 451 Natural Resource Policy	4	NRM 330 Environmental Pollution Prerequisite: CHM 109 or CHM 116	3
<sup>2</sup> NRM Core Elective	3/4	<sup>2</sup> NRM Core Elective	4
<sup>3</sup> NRM Cognate Elective	3/4	<sup>3</sup> NRM Cognate Elective	4
<i>Total</i>	<i>14-16*</i>	<i>Total</i>	<i>14</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
NRM 452 Watershed and Wetland Management Prerequisites: GEO 111, MTH 122, and NRM 250	4	<sup>2</sup> NRM Core Elective	4
<sup>2</sup> NRM Core Elective	3/4	<sup>5</sup> Elective	3/4
Issue	3	Issue	3
<i>Total</i>	<i>14-15*</i>	<i>Total</i>	<i>14-15</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 150, 250, 281, 330, 451, 452, and 495 are required for the Environmental Science 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 side for cognate courses.

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

<sup>5</sup>Elective refers to any class to help you earn the required 120 credits for graduation.

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.

**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>

## 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 - Environmental Science 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 Environmental Science"
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 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 35 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	CHM 116 Principles of Chemistry II
BIO 121 General Biology II	ECO 211 Microeconomics
BIO 215 General Ecology	

#### Select the remaining 5 elective credits from the following courses:

BIO 338 Environmental Ethics	CHM 232 Biological Chemistry
BIO 357 Environmental Microbiology	CHM 321 Environmental Chemistry
BIO 399 Selected Experiences in Biology	CHM 322 Environmental Chemical Analysis
BIO 440 Limnology	GEO 112 Earth History
BIO 450 Stream Ecology	GEO 320 Geomorphology
BIO 470 Conservation Biology	GEO 430 Oceanography
BIO 490 Internship	GEO 440 Geohydrology
BIO 499 Research in Biology	GEO 445 Introduction to Geochemistry
CHM 221 Survey of Analytical Chemistry	GPY 307 Introduction To Computer Mapping/GIS
CHM 222 Quantitative Analysis	OSH 414 Environmental Safety and Health Regulations
CHM 231 Introductory Organic Chemistry	PHY 200 Physics for the Life Sciences

### 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, required for the BS cognate, 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 462 Forest Ecosystem Management
NRM 240 Principles of Climatology	NRM/BIO 386 Ecological Restoration and Management
NRM 308 Wildlife Ecology	NRM 486 Advanced Restoration Ecology
NRM 395 GIS Applications in Resource Management	NRM 490 Internship in Resource Management
NRM 399 Readings in Resource Management	NRM 499 Research in Resource Management
NRM 420 Wildland Recreation Mgmt.	

#### 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.