

Outcomes Assessment Report Forestry B.S. AY 2009-2010

Department: **Natural Resources Management; Forestry Discipline**

Program: **Forestry B.S.**

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I. NMHU Mission

Education through Teaching, Research, and Service.

I.a) NRM Departmental Mission

The department provides pre-professional and post-graduate education in Forestry and Geology, conducts state-of-the-art research and scholarship in Forestry and Geology to expand knowledge and understanding, and serves the public, government agencies, NGOs, and the University by promoting sustainable management, restoration, and exploration of natural resources.

I.b) Forestry Discipline Mission

The Forestry Program integrates education, research and service to advance sustainable, collaborative management, protection and restoration of aquatic-, forest-, and woodland-associated ecosystems, through innovative student and public education, outreach to landowners and public agencies, and technology transfer to field professionals.

II. Forestry Program Goal

The Forestry program trains students to be competent in the philosophy, art and science of Forestry as practiced in the U.S.

III. Outcomes

NMHU has adopted 4 traits as desirable in all students:

1. Content mastery,
2. Critical and reflective thinking
3. Use of technology
4. Effective communication.

Outcomes

1. Graduates are employed in a natural resources management agency, company, or NGO, or, they are pursuing a graduate degree (traits 1, 2, 3, and 4).
2. Students are competent in the science and art of Forestry practices (Trait 1).
3. Students take Biology, Chemistry, Geology, English, Math, and Forestry courses in order of course-levels (e.g., 100-, 200-level, etc.) to be prepared for higher level courses (traits 1, 2, 3, and 4).
4. Students feel competent in the use of computer technology; including e-mail, word processor, spreadsheet, geographic information system and file systems (traits 3 and 4).

5. Students are satisfied with the program (trait 2).

IV. Assessment of Student Outcomes

Several of the following assessment activities will be on-going for several years. Reports will be prepared annually.

Student Tracking and Self-evaluation of Strengths and Weaknesses (Traits 2, 3, and 4)

Student retention depends on students successfully completing courses, understanding program requirements, the impressions of a program and courses, and their fellow students. Moreover, for outcomes assessment data we need better information on the path students follow through the program. In particular, we need to make an effort to reach students who have dropped out of the program to determine their reasons for leaving, and, whether it is in the departments capabilities to ameliorate those causes. Furthermore, contact information can be updated once students graduate so later we can find their impressions of the program (Insert 1: Tracking Form).

The second aspect is the ways students arrive at NMHU Forestry; that is, what are the elements for students' decisions to take majors (Insert 2: Student Self Assessment and Survey)? This information will be used to improve recruitment in accord with the Forestry Strategic Plan in the Forestry Program Review document. Measurement of effectiveness of recruitment will be determined by subsequent administration of the questionnaire in future years as new recruitment strategies are implemented.

The questionnaire also includes a self-assessment by students of their confidence or capability in elements of academic success and professional skills. The self-assessment approach will likely provide us with better information about student capabilities than we currently have. Moreover, this first survey will be followed by actions and subsequent outcomes assessments to improve student confidence in academic skills. The survey will be administered repeatedly over time to track changes.

The final portion of the questionnaire is a set of programmatic elements where students rate their satisfaction with various aspects of the Forestry major. Responses will form the basis for further analysis of particular dissatisfactions and remedial changes to the Forestry program.

Frequency of Student Grades and Course Sequence (Trait 1)

The Office of Institutional Research (OIR) can provide data on students from Banner and other sources. OIR will be queried annually for reports on:

1. Numbers of students receiving each grade (A-F, Incompletes) in all forestry courses.
2. Numbers of Seniors taking 100-level science and math courses

These data will be utilized to determine the level of content mastery (Trait 1 and Outcome 3).

Employment Tracking

Outcome 1 addresses whether most students are employed in natural resources management, environmental, or Forestry fields. The tracking form will initially be utilized to maintain a permanent contact address (if possible) so students may be contacted several years after graduation.

Insert 1. Student information form.

Natural Resources Management Students

Student Records Update Fall 2009

The Natural Resources Management Department faculties want to improve our communication with you. We are asking some questions below that will help us to improve our services to you. Information that you provide will not be released to any external group, and, will be maintained on a Departmental database.

Name: _____

Major: _____ Minor or 2nd Major: _____

You must complete a major declaration form before you can graduate. Insufficient numbers of declared majors can cause the cancellation of NRM programs, decrease funding for your classes, and prevent our hiring new faculty.

Have you completed a major declaration form? ____Yes ____No

1st Semester at NMHU: _____

Semester Expect to Graduate: _____

Current class standing (e.g., sophomore, junior, senior): _____

Preferred e-mail address: _____

Phone number you can usually be reached at: _____

Please provide a permanent mailing address where if we send anything to you in the future it is likely to reach you: _____

Insert 2. Student self-assessment and satisfaction survey.

Natural Resources Management Students

Undergraduate Student Self-Assessment and Program Satisfaction Survey

The Natural Resources Management Departmental faculties are interested in your impression of your education at NMHU. NRM is seeking to continually improve its programs. Your answers to these questions will improve your and future student's education and satisfaction with the program.

Major: _____ **Minor or 2nd Major:** _____

Please circle the appropriate answer to the following:

Current class standing: Freshman Sophomore Junior Senior

Did you start at NMHU as a: Freshman Transfer 2nd Bachelors

Did you go to high school or complete a GED in New Mexico: Yes No

Do you own a computer? Yes No

Do you commute more than 20 miles to classes? Yes No

Why did you select NMHU for your higher education? (Circle the 2 answers that fit best)

Academic Reputation	Low cost	Close to home
Major is at NMHU	In-state tuition	Research reputation
Family	Small university	No grade threshold for admission
Friends	Faculty reputation	Sports

Why did you select your major? (Circle the 2 answers that fit best)

Lifelong interest in subject	Friends are in the major	
Like the outdoors	Like science	
Want to improve the environment	Future employment and wages	
Requirement for current job	Graduate degree opportunities	
Faculty reputation	Research reputation	
100-level course	Family	Other: _____

Where did you first hear of NMHU's major program in Geology or Forestry? (Circle the 1 answer that fits best)

TV	Radio	Newspaper	Web	Family
Recruiter of students	Friends	NMHU course catalog		
High school councilor	Brochure	Other: _____		

Please indicate how capable or competent you feel in the following areas (scale is 1 (not at all capable) to 5 (very capable); circle a number):

	Not at all Capable					Very Capable
Word Processing		1	2	3	4	5
Spreadsheet use	1	2	3	4	5	
E-mail use		1	2	3	4	5
Library use		1	2	3	4	5

Insert 2. Continued

Looking up information	1	2	3	4	5
Writing papers for classes	1	2	3	4	5
Reading technical papers	1	2	3	4	5
Working math problems	1	2	3	4	5
Answering test questions	1	2	3	4	5

How satisfied do you feel with the following aspects of the program? (Scale is 1 (not at all satisfied) to 5 (very satisfied); circle a number).

	Not at all satisfied				Very satisfied
Academic Advising in major	1	2	3	4	5
Number of courses in major	1	2	3	4	5
Scheduling of courses	1	2	3	4	5
Instructors available outside class	1	2	3	4	5
Laboratories and equipment	1	2	3	4	5
Tutoring and Support Services	1	2	3	4	5
Classrooms	1	2	3	4	5
Instruction of courses	1	2	3	4	5
Availability of computers for use	1	2	3	4	5
Your classmates	1	2	3	4	5
Field Experiences	1	2	3	4	5
<u>Overall satisfaction with major</u>	1	2	3	4	5

What is one thing about your major program that you would change? Why? Please write a short response.

V. Results of Student Outcomes

Student Tracking and Self-evaluation of Strengths and Weaknesses (Traits 2, 3, and 4)

In Fall 2009, the above questionnaires were administered to students in Forestry classes.

Student Self-Assessment and Satisfaction Survey Results (N=16; numbers responding are shown)

Major	Forestry	13	NRM (Old)	2	University Studies	1
Class	Senior	11	Junior	4		
Start NMHU	Transfer	9	Freshman not NM	5	2nd BS	2
NM HS/GED	NM HS	12	HS	4	GED	0
Own computer	16					
Commute >20 m	no	14	yes	1		
Why did you select NMHU?		(multiple choice - were to select just 2)				
	Major		11			
	Close to home		5			
	Low cost		8			
	In-state tuition		3			
	Small university		4			
	Academic reputation		1			
	Research reputation		1			
	Sports		2			
Why did you select your major?						
	Like outdoors		13			
	Lifelong interest		8			
	Like science		5			
	Improve environment		4			
	Future employment		3			
	Graduate opport.		1			
How did you hear about program(s)?						
	Web	4				
	Friends	5				
	Recruiter	2				
	Brochure	2				
	Catalog	1				
	Previous school advisor	1				

Please indicate how competent you feel in the following areas:

How confident are you that you can do the following tasks?						
	Not at all capable			Very capable		
Scale	1	2	3	4	5	
	Score		Range			Priority
Word processing		74	(4-5)			8
Spreadsheet use		66	(2-5)		[Comment: Max possible = 80;	4
E-mail use		78	(3-5)		Minimum possible = 16	9
Library Use		69	(3-5)		Mid-range = 32]	6
Lookup info		70	(3-5)			7
Writing papers		67	(3-5)			5
Read tech papers		63	(2-5)			3
Math problems		59	(2-5)			2
Answer tests		56	(1-5)			1

How satisfied are you with the following aspects of program(s):

	Not at all satisfied		Very satisfied			
Scale	1	2	3	4	5	
	Score		Range			Priority
Academic advice		68	(2-5)			5
Number of courses		61	(1, 3-5)			2
Course schedules		47	(2-4)			1
Available Instruct.		77	(4-5)			10
Labs & Equip		67	(3-5)			4
Tutoring/SSS		67	(3-5)			4
Classrooms		63	(2-5)			3
Course instruction		68	(3-5)			5
Computer avail.		75	(4-5)			9
Classmates		71	(1, 4-5)			6
Field Exper.		73	(3-5)			7
Overall		74	(4-5)			8

Student Comments:

1. Very broad course with many requirements. Would like more options within curriculum. Substituting classes would be beneficial and make classes more enjoyable.
2. More staff to other classes more often
3. Full SAF accreditation. Less classes that are only offered every other year. NAU they only take pre-calc, not calc 1. Just a thought.
4. Too many required hours/courses.
5. I think it is fine as it is but having a class on wildlife would be interesting.
6. I would change that we should go get more field experience
7. Tutors who can help with specific forestry classes like mensuration, GIS, silviculture, etc. would be great. If there already are tutors like this, please make sure that we know about them.
8. Evening classes would be great!
9. It's difficult when I've had to drop classes and can't take it for a couple of years because it's only offered every other Fall semester.
10. Minimize the total credit hours of the program. NMHU vs other forestry programs is significantly higher amount of credit hours.

Use of Results

1. The Forestry curriculum has been revised to reduce the number of credit hours by about 10 with a consequent reduction in the number of courses.
2. With the restructuring of the curriculum a new 5-yr schedule of course offerings has been devised.
3. Most of the students in the survey have transferred from community colleges, while a substantial proportion are from out-of-state. Advertising (if it ever happens) should be targeted out-of-state and to community colleges. Especially Northern NM College, and Central NM Community College.
4. Students do not like lectures in laboratories. We will try to schedule all lectures in lecture rooms with desks.
5. In FOR 318 Natural Resources Ecology, students are given a number of papers in PDF format to select and read over the semester. They are required to prepare an outline of the paper with the salient points. Some papers are discussed in class, as well as technical terminology.
6. We have not addressed the issues with math problems and answering test questions.

Frequency of Student Grades and Course Sequence (Trait 1)

1. Student grades over all courses averages about 2.2. No change is needed.
2. Students are delaying "hard" science courses until they are seniors. Forestry students have difficulty with these courses, often taking them repeatedly before passing or giving up.

Use of Results

As part of the curriculum revision cited above, we have instituted a different pattern of prerequisites. We will strictly enforce the rule that until students have completed Chem 211, Biol 212, and Math 140 they will not be allowed to take upper division Forestry courses.