

Review Process Recommendation*

	Printed Name	Signature	Date
Department Head:	_____	_____	_____
Recommend	Not Recommended	(please provide a brief rationale)	
Dean:	_____	_____	_____
Recommend	Not Recommended	(please provide a brief rationale)	
VPAA:	_____	_____	_____
Recommend	Not Recommended	(please provide a brief rationale)	
President:	_____	_____	_____
Recommend	Not Recommended		

*A recommendation at the department head or dean level is considered as full support of the pre-proposal. If a pre-proposal is not recommended at the department head or dean's level it should not be sent forward to the VPAA.

Note: Recommendation for a pre-proposal should not be considered as a tacit approval of a program proposal. A pre-proposal is preliminary approval to move forward with completing a program proposal. Program approval is not final until all requisite bodies and accreditation entities have approved.

Provide a maximum 5 page narrative for the proposed program and attach relevant documentation.

Justification/Need for Program (Attach Relevant Documentation):

- State, Regional and National Data Relative to Demand for Program
- Projected Program Enrollment for 3-5 Years. Based on Internal & External Prospective Students Who Indicate a Commitment (not interest) in Enrolling (consider attrition)
- Impact on Existing Internal and External Programs (Russellville & Ozark)

Curriculum Outline

- List Major Courses and Credit Hours (denote new courses with an asterisk)
- List All Support Courses Required from Other Departments/Programs

Resources

- Anticipated New Program Costs/Expenses (i.e., faculty (FT, PT, Adjunct)/GAs/staff/lab assistant, supplies, library resources, equipment, space renovations) for 3-5 Years and How Program Will Support
- Other

Faculty

- Impact on Workload for Current Faculty
 - Other
-

Review Process Recommendation*

	Printed Name	Signature	Date
Department Head:	John Jackson	John Jackson	3/31/2020
	Recommend <input checked="" type="checkbox"/>	Not Recommended <input type="checkbox"/>	(please provide a brief rationale)
I fully support the creation of this degree and modification to the Master of Science in Fisheries and Wildlife. I am encouraged by the interdisciplinary nature of this proposal, I anticipate increased faculty participation, increased graduate student research and graduation, increased opportunity for undergraduate high impact learning.			
Dean:	Jeff Robertson <i>[Signature]</i>		2020 Apr 1
	Recommend <input checked="" type="checkbox"/>	Not Recommended <input type="checkbox"/>	(please provide a brief rationale)
VPAA:	_____		
	Recommend <input type="checkbox"/>	Not Recommended <input type="checkbox"/>	(please provide a brief rationale)
President:	_____		
	Recommend <input type="checkbox"/>	Not Recommended <input type="checkbox"/>	

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Proposed Title: Master of Science in Natural Resources Management

CIP: 03.0101

Proposed Effective Date: Fall, 2021

I. Justification: Arkansas Tech University has a thriving B.S. degree in Fisheries and Wildlife Science (CIP: 03.0601) and we are considered a leader in the state in this area. The Fisheries and Wildlife Program also already supports a small but viable M.S. degree program. Our proposal aims to expand on this existing strength to produce a program, broader in scope, called Natural Resources Management. This program could encompass other disciplines and faculty members having a Natural Resources Management focus, who could benefit from a graduate program. Possible related disciplines are varied and could include Environmental Science, Environmental Chemistry, Ecology, Genetics, Hydrology and even seemingly unrelated disciplines like Social Sciences could be involved. For instance, Human Dimensions in Fisheries and Wildlife is a burgeoning area of study that entails cross-disciplinary expertise in Sociology and Fisheries and Wildlife.

We see many advantages to this cross-disciplinary, but Natural Resources-targeted approach to a M.S. degree. We expect that the programs involved would have an enhanced ability to share resources, generate funding, and attract a larger diversity and quality of students. Another benefit is that we could produce Master's graduates in disciplines that might not otherwise be able to sustain a standalone Master's Program. Arkansas Tech would develop a reputation for, and become a destination for, both in-state and out-of-state students interested in pursuing a degree in the Natural Resources Management field. With an increase in total graduate students in the Natural Resources field, we could increase the diversity of course offerings, graduate class sizes would be larger, and more faculty would be involved in research with graduate students. We would also gain increased supporting capacity for areas of expertise needed for all Natural Resources students including Geographic Information Systems and Statistics. As a secondary benefit, more undergraduate students would be exposed and have opportunities for participating in research.

Our proposal involves following the existing model of the M.S. in Fisheries and Wildlife Science and renaming the degree Master of Science in Natural Resources Management with specialization (or certificate) in Wildlife Science, Fisheries Science, Environmental Science, Environmental Chemistry etc. The degree requirements would include 30 hours of coursework with a Thesis required. If so desired by the faculty, a 36-hour non-thesis option could also be included. Included in this proposal would be the creation of a Natural Resources Management Consortium that would include faculty across disciplines.

This proposed degree program would support strategic plan goal 2.3.

II. Curriculum

Core curriculum:

NRM 6001 Graduate Seminar in Natural Resources Management

NRM 6002 Research Methods I

NRM 6012 Research Methods II

MATH 5173 Advanced Biostatistics or equivalent

NRM 6991-6 Thesis Research

Electives: (specific electives may be required based on area of specialization eg. FW 6013 Population Dynamics may be required for specialization in Wildlife Science)

16 hours of approved 5000- or 6000-level courses

III. Cost

We do not envision an immediate cost in hiring new faculty, but existing faculty that join the Natural Resources Management Consortium (NRMC) would be expected to engage in less teaching hours commensurate with their involvement with graduate students and research. We also suggest that ATU considers ‘targeting’ new or replacement hires to include faculty members with a Natural Resources Management focus across multiple disciplines. Membership within the NRMC would include expectations in regard to participation in graduate education and research. Members would be expected to advise a minimum of two MS thesis candidates, and routinely develop grant proposals to support the research of their students. Mentoring of two graduate students would oblige a release from teaching the equivalent of one course per semester (one course with a lab in the sciences or one lecture course in non-science disciplines). This would result in the model of 50-56% Teaching, 34-40% Research, and 10% Service, based on a full-time teaching load of 15 hours per semester. The equivalent of one term of full-time summer salary would be provided to support research activities, student mentoring, and grant writing during the summer. In order to attract quality graduate students to this program and to develop a minimum core of graduate students, we propose a model of providing at least one competitively funded GA position for each NRMC faculty member. Some of the cost of GA positions could be offset through increased use of GA’s in teaching laboratories and/or other courses as is appropriate. There are some intangible benefits of using GA’s in teaching that cannot be adequately quantified. For instance, a study by Bettinger et al. (2016) found that undergraduates were more than twice as likely to major in a subject if their first interaction was with a GA, and GA’s themselves took less time to complete their degree and were more likely to become professional teachers if they taught as a graduate student.

Table 1. Per faculty cost/benefit of Masters of Natural Resources Management degree program that involves a 25% teaching reduction, summer research salary, and GA position. This sample valuation is based on a faculty salary of \$60,000 and a 80/10/10 distribution of teaching, scholarship, and service. The value of graduate student teaching is estimated at half the value of faculty time.

value of teaching reduction	summer salary	GA stipend	fees	tuition benefit	grant production (value of total grant production by FW faculty in 2018 divided by 6 faculty)	teaching value of GA's (3 hours faculty time/2 + 60 hours @ \$20.00/hr tutoring)	total
-12,000	-6,667	-12,000	1,484	-5,252	36,520	7,200	9,285

IV. Enrollment

The enrollment in the M.S. in Fisheries and Wildlife Science has ranged from 9 – 14 students with 6 faculty involved in the program. As more faculty join the NRMC we would expect greater enrollments to ensue to the point when there are 10 faculty members involved we would expect 20 – 25 thesis students enrolled. An even greater number could be expected if a non-thesis option was made available.

V. Impact on Faculty

We envision little impact to faculty in the Fisheries and Wildlife Science program as that program will continue with just a name change of the degree. Some benefits could accrue from increased graduate student numbers which may allow faculty to teach specialty courses that up to this point would not be supported by the number of graduate students in the program. Other programs could

be impacted by reduced teaching of faculty that become members of the NRMC. Some of this could be compensated for through increase use of GA's in laboratories. We already have several faculty outside of Fisheries and Wildlife Science that are engaging in research and may wish to join the NRMC.

References:

Bettinger, E.P., B.T. Long, and E.S. Taylor. 2016. When inputs are outputs: The case of graduate student instructors. *Economics of Education Review* 52:63-76.