University Council

March 8, 2024

UNIVERSITY CURRICULUM COMMITTEE – 2023-2024
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Dear Colleagues:

The attached proposal from the College of Veterinary Medicine to offer a new Undergraduate Certificate in Wildlife Health will be an agenda item for the March 15, 2024, Full University Curriculum Committee meeting.

Sincerely,

Susan Sanchez, Chair

cc: Provost S. Jack Hu
Dr. Marisa Pagnattaro

PROPOSAL FOR A CERTIFICATE PROGRAM

Date: February 27, 2024

College: College of Veterinary Medicine

Department: Population Health

Unit: Southeastern Cooperative Wildlife Disease Study

Certificate Title: Undergraduate Certificate in Wildlife Health

Effective Term: Fall 2024

Which campus (es) will offer this certificate? Athens

Level: Undergraduate

CIP: 26070900

Program Abstract

The proposed undergraduate certificate in wildlife health aims to provide a comprehensive and multi-disciplinary undergraduate experience immersing students in the contemporary health concerns of wildlife populations. This program will offer a diverse exploration of critical issues affecting free-ranging wildlife health, combining in-depth coursework encompassing the scientific, regulatory, policy-related aspects of wildlife health and conservation. Additionally, a pivotal feature of this certificate is its commitment to dynamic, active educational experiences via a spectrum of strategies to address existing and emergent challenges in wildlife conservation. The certificate will require completion of 13-15 credit hours and students must obtain at least a "C" (2.0) in these courses to be successful. Many local and national employers recruit graduates with expertise in wildlife health, including numerous state wildlife and natural resources agencies, The Centers for Disease Control and Prevention, the United States Department of Agriculture's Animal and Plant Health Inspection Service, the United States Fish and Wildlife Service, and the United States Geological Survey. Wildlife health is directly linked to the broader educational aims of the College of Veterinary Medicine and the Southeastern Cooperative Wildlife Disease Study (SCWDS), and this program can also benefit those students interested in careers in veterinary medicine, animal science, wildlife management, and conservation. This certificate represents the first attempt to formalize undergraduate training addressing wildlife health and create an exciting and innovative program. Importantly, the certificate in Wildlife Health will offer coursework and educational material not currently covered in the Minor in Wildlife Sciences offered by the Warnell School of Forestry and Natural Resources, the Undergraduate Certificate in One Health offered by the College of Veterinary Medicine, or undergraduate coursework from the Odum School of Ecology. Written documentation in support of this proposal from each of these programs is provided at the end of this document.

Purpose and Educational Objectives
State the purpose and educational objectives of the program. How does this program complement the mission of the institution?

The objective of the Undergraduate Certificate in Wildlife Health is to:

1. Provide practical and theoretical knowledge of wildlife health issues (e.g., zoonotic pathogens, global diseases, biodiversity loss, policy and regulation, management, and impacts of climate change) through the lens of various disciplines.
2. Introduce graduates of the program to the skills necessary to analyze, evaluate, and adapt to the numerous challenges within the field of wildlife health.

Need for the Program

Explain why this program is necessary. In addition, provide the following information:

a. ***Semester/Year of Program Initiation:*** Fall 2024
b. ***Semester/Year of Full Implementation of Program:*** Fall 2024
c. ***Semester/Year First Certificates will be awarded:*** Spring 2025
d. ***Annual Number of Graduates expected (once the program is established):*** 20-30
e. ***Projected Future Trends for number of students enrolled in the program:*** 20-30

An undergraduate certificate program in wildlife health at the University of Georgia (UGA) is imperative in today's rapidly changing environment. Wildlife health is intricately connected to veterinary medicine and infectious diseases, necessitating a specialized educational track to equip students with the unique knowledge and skills required to address this critical intersection. With climate change, zoonotic pathogens, and landscape alterations posing unprecedented challenges to wildlife populations, it is paramount that society cultivates a cadre of professionals well-versed in these dynamics. By offering a dedicated program, UGA would be fostering a cohort of students capable of forming collaborative teams that can discuss and develop potential wildlife health management strategies. This program would act as a cornerstone for building a workforce familiar with the multifaceted issues impacting wildlife health.

Moreover, recognizing the pivotal role of wildlife health in the broader context of One Health is paramount. The concept of One Health underscores the interconnectedness of animal, human, and environmental health, emphasizing that the well-being of each is intimately linked. By establishing an undergraduate certificate program in wildlife health, UGA would be taking a significant step towards realizing the principles of One Health in a tangible and impactful manner. The College of Veterinary Medicine at UGA does offer an Undergraduate Certificate in One Health; however, it is important to note that the proposed Undergraduate Certificate in Wildlife Health certificate differs significantly. For example, the Undergraduate Certificate in One Health touches on all three arms of One Health (environmental, human, and animal health), but does not specifically focus on wildlife health. Furthermore, the proposed Undergraduate Certificate in Wildlife Health will spend considerable time teaching students about the various techniques and assays for pathogen detection, the interpretation of results, and reporting needs for zoonotic pathogens. These learning objectives are not covered in the programs of study of the Undergraduate Certificate in One Health program or in the Minor in Wildlife Sciences, and represent a truly unique learning opportunity at UGA.

Graduates of this program would possess a comprehensive understanding of how wildlife health interfaces with human and environmental health, positioning them as invaluable assets in the collective effort to safeguard our planet's ecosystems. This program would not only fill a crucial educational gap but also contribute significantly to the mission of the UGA College of Veterinary Medicine by promoting holistic well-being across species and environments and “tackling the most pressing animal and human health challenges.”

The Southeastern Cooperative Wildlife Disease Study at the University of Georgia is a leader in the field of wildlife health and has a successful track record of training graduate students who have gone on to

successful careers in academia, state wildlife agencies, federal agencies (USDA, USFWS, USGS), and the Centers for Disease Control and Prevention. Furthermore, as evidenced by research income and scholarly productivity, SCWDS has demonstrated a dedication to local, national, and international wildlife health. Partnering with other outstanding departments and schools within UGA, such as the department of Infectious Diseases, the Center for Tropical and Emerging Global Diseases, and the Warnell School of Forestry and Natural Resources, this program can leverage existing expertise alongside academic and research excellence to deliver a unique and high-quality undergraduate certificate.

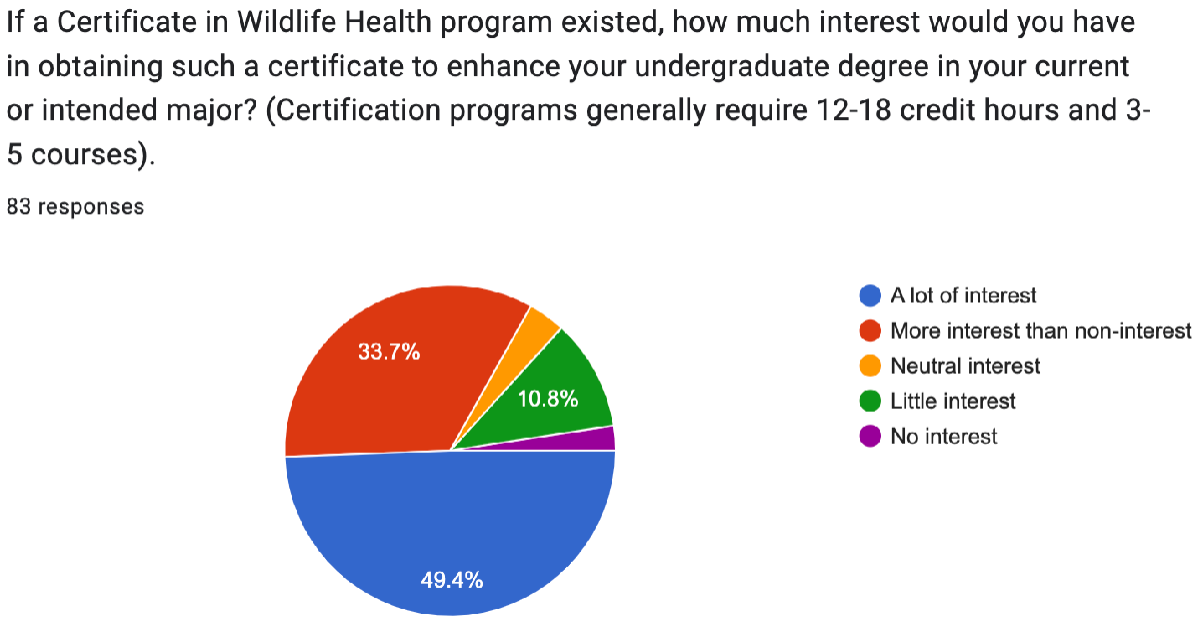
It is anticipated that the certificate will be offered beginning the fall semester of 2024, with full implementation the same semester. The first certificates are anticipated to be awarded the following semester, spring 2025. The department expects that 20-30 students will obtain the certificate each year once the program is established.

Student Demand

a. **Provide documentation of evidence of student demand for this program.**
b. **Provide evidence that demand will be sufficient to sustain reasonable enrollment.**
c. **To what extent will minority student enrollments be greater than, less than, or equivalent to the proportion of minority students in the total student body?**

As part of a survey into student interest in a potential undergraduate certificate in wildlife health, students enrolled in FANR 3950 (Professional Communication and Development for Natural Resource Students), FYOS 1001 (Ecology of Infectious Diseases), WILD(FISH) 3000W (Introduction to Fish and Wildlife Management), and WILD(FISH) 3001 (Fish and Wildlife Policy) in fall 2023, along with the 296 undergraduate students on the Warnell School of Forestry and Natural Resources listserv, were asked the following question (Q1):

If a Certificate in Wildlife Health program existed, how much interest would you have in obtaining such a certificate to enhance your undergraduate degree in your current or intended major? (Certification programs generally require 12-18 credit hours and 3-5 courses).



#	Answer	Percentage	Count
1	A lot of interest	49.4%	41
2	More interest than non-interest	33.7%	28
3	Neutral interest	3.6%	3
4	Little interest	10.8%	9
5	No interest	2.4%	2
Total		100%	83

Of the 83 students completing the survey, 83% (69) indicated an interest in this certificate. It is expected that enrollment will be greater among students with a pre-veterinary or wildlife sciences focus. Minority student enrollment is predicted to align with the overall average for the Athens campus of UGA.

Program of Study

Provide a detailed program of study for the certificate program, including:

a. **Specific course prefixes, numbers, and titles**
b. **Identify any new courses for this program**

To earn the certificate, students must complete 7 hours of required core courses and 6-8 hours of elective courses, of which at least 3 hours must come from FISH or WILD courses. Learning outcomes will be assessed through the grading of individual courses. Students must receive a grade of "C" (2.0) or better in all courses counted towards the certificate.

Required courses (7 hours)

- POPH 3300, Introduction to Wildlife Health (3 hours) **NEW**
- POPH 3500, Current Topics in Wildlife Health (1 hour) **NEW**
- POPH 3600, Advanced Topics in Wildlife Health (3 hours) **NEW**

Required prerequisites for these courses are: [(BIOL 1103 or PBIO 1210) and BIOL 1103L] or [BIOL 1107 and BIOL 1107L]

Elective courses (6-8 hours)
Students should take a minimum of 3 hours of FISH or WILD courses.

- ECOL(EHSC)(FISH) 4600/6600, Ecotoxicology (3 hours)
- EHSC 4200, Global Climate Change and Public Health (3 hours)
- EHSC(FDST)(MIBO) 4310-4310L, Environmental Microbiology (4 hours)
- EHSC 4400, Environmental Issues in the Developing World (3 hours)
- EHSC 4490, Environmental Toxicology (3 hours)
- FANR 3950, Professional Communication and Development for Natural Resource Students (3 hours)
- FANR(WILD) 4820/6820, Human Dimensions of Natural Resources. and Wildlife Conservation (3 hours)
- FISH(ECOL)(MARS)(WILD) 4550/6550-4550L/6550L, Sustainable Aquaculture (4 hours)
- IDIS 3100, People, Parasites, and Plagues (3 hours)
- POPH 4000/6000, Comparative Parasitology and the Changing Global Climate (3 hours)
- POPH 4000L/6000L, Comparative Parasitology Lab (1 hour)
- VPAT 3700, Introduction to One Health (3 hours)
- POPH 4125/6125, Infectious and Vector-Borne Diseases Associated with Wildlife in a Changing World (3 hours)
- VPAT 4000/6000, On the Origins of Disease (3 hours)

- WILD(FISH) 3000W, Introduction to Fish and Wildlife Management (2 hours)
- WILD(FISH) 3001, Fish and Wildlife Policy (1 hour)
- WILD 3700W, Animal Behavior (3 hours)
- WILD(ECOL) 4040/6040-4040L/6040L, Herpetology (4 hours)
- WILD(BIOL) 4050/6050, Mammalogy (3 hours)
- WILD(ECOL) 4060/6060-4060L/6060L, Ornithology (4 hours)
- WILD 4100-4100L, Principles of Wildlife Habitat and Management (4 hours)
- WILD 4110/6110, Wildlife Science: Design, Sampling, Analyses, and Inferences for Fish and Wildlife Populations (3 hours)
- WILD 4400/6400, Wildlife Physiology and Nutrition (3 hours)
- WILD(ECOL)(POPH) 4575, Conservation Medicine (6 hours)
- WILD(POPH) 5100/7100, Wildlife Diseases (3 hours)
- WILD 5700/7700, Applied Population Dynamics (2 hours)

Model Program and Accreditation

a. **Identify any model programs, accepting disciplinary standards, and accepted curricular practices against which the proposed program could be judged. Evaluate the extent to which the proposed curriculum is consistent with these external points of reference and provide rationale for significant inconsistencies and differences that may exist.**
b. **If program accreditation is available, provide an analysis of the ability of the program to satisfy the curricular standards of such specialized accreditation.**

Currently, there are no undergraduate wildlife health certificate programs at universities within the United States. As a result, there are no model programs against which any proposal in this area can be judged. A few programs do include wildlife health as a sub-topic embedded within curriculum focused on wildlife management and conservation.

Some programs of note include:

- Northern Arizona University – Undergraduate Certificate in Wildlife Ecology and Management
- North Dakota State University – Undergraduate Certificate in Animal Health Management
- Purdue University – Wildlife Veterinary Medicine and Conservation Certificate (Online)
- University of Florida – Aquatic Animal Medicine Certificate

Student Learning Outcomes

Describe the proposed learning outcomes for the certificate program.

Upon completion of the undergraduate certificate in wildlife health, students will be able to:

1. Recall and recognize key zoonotic pathogens, their transmission routes, and associated wildlife species.
2. Explain the interrelationships between climate change and wildlife health, including the impacts of habitat loss, altered migration patterns, and changing disease dynamics.
3. Apply principles of population health to assess and monitor the well-being of a specific wildlife species or population, considering factors such as disease prevalence, genetic diversity, and habitat availability.
4. Evaluate the effectiveness and ethical implications of wildlife rehabilitation practices, considering factors such as species-specific needs, release criteria, and long-term monitoring.
5. Formulate a comprehensive wildlife health policy and management plan, integrating knowledge of zoonotic disease prevention, climate change mitigation, and population health strategies.

Assessment of Student Learning Outcomes

Describe how the learning outcomes for the program will be assessed. Describe the process and criteria for how students will be admitted to and retained in the program.

Assessment of student learning will be addressed via the following methods:

1. Given a list of zoonotic pathogens, identify and match them with their respective modes of transmission and susceptible wildlife hosts through a multiple-choice quiz.
2. Provide written explanations of how specific climate-related factors can affect wildlife populations, illustrating the concepts with relevant case studies.
3. Develop a population health assessment plan for a chosen wildlife species, incorporating field data collection methods, analytical tools, and recommended management strategies.
4. Critically review and analyze case studies of wildlife rehabilitation efforts, identifying strengths, weaknesses, and potential areas for improvement in the rehabilitation process.
5. Develop a policy document that outlines specific measures for wildlife health preservation and management, addressing key stakeholders, regulatory frameworks, and implementation strategies.

Review of student major, certificate courses, grades earned, and a final assessment of learning outcomes through completion of an exit questionnaire will be conducted. The exit questionnaire will be composed by the Southeastern Cooperative Wildlife Disease Study with assistance by the CVM Academic Affairs Program Assessment Office and the Center for Teaching and Learning.

The certificate program is open to any students who wish to enroll in the program. To complete the certificate, students must enroll in the program, earn a “C” (2.0) or better in all certificate courses, and complete a final learning outcome exit questionnaire.

Documentation of Approval and Notification

Proposal: Undergraduate Certificate in Wildlife Health

College: College of Veterinary Medicine

Department: Population Health

Proposed Effective Term: Fall 2024

School/College Approvals:

- College of Veterinary Medicine Interim Associate Dean for Undergraduate Affairs, Dr. Gaylen Edwards, 2/15/24

Use of Course Approvals:

- Co-Director of the Undergraduate Certificate in One Health, Dr. Paige Carmichael, 2/26/24
- Co-Director of the Undergraduate Certificate in One Health, Dr. Shannon Hostetter, 2/26/24
- Odum School of Ecology Associate Dean for Academic Affairs, Dr. Pejman Rohani, 2/23/24
- Warnell School of Forestry and Natural Resources Interim Associate Dean for Academic Affairs, Dr. Rhett Jackson, 2/23/24