# School of Food and Agriculture (Animal and Veterinary Sciences) / Graduate School of Biomedical Science and Engineering Faculty Position Request

**Title:** Lecturer in Animal and Veterinary Science and Biomedical Science and Engineering (fulltime, nine-month, 100% teaching, non - tenure-track, 75% SFA / 25% GSBSE)

**Justification**

Due to recent faculty retirements, AVS has reduced teaching capacity in the face of continued high enrollment. This shortage of teaching faculty threatens delivery of our heavily enrolled, foundational, first year course (AVS 145). Furthermore, there is a need to strengthen aspects of the AVS curriculum to better prepare our graduates to enter Maine’s agricultural workforce, familiarizing them with new technologies, and positioning them to assume leadership roles in animal agriculture and animal biotechnology. Therefore, AVS faculty feel that a Lecturer should be hired to deliver the foundational class to first year students, and to strengthen industry-relevant course offerings for students planning to join the workforce in animal agriculture, biotechnology, and related sectors. A partnership with the Graduate School of Biomedical Science and Engineering allows us to leverage additional funding for this position.

**Critical Teaching Needs**

The core AVS teaching need met by the Lecturer will be to deliver AVS 145 – Introduction to Animal Science. This course is required by AVS Majors, and meets specific requirements for Sustainable Agriculture and Zoology majors. Currently the course has 103 students enrolled. To meet this high demand, and the scheduling needs of diverse students, AVS 145 will be offered in Fall and Spring semesters. In addition, in collaboration with Graduate School of Biomedical Science and Engineering, the Lecturer will deliver two classes, each of 3 credits, constituting the BMS 625 Foundations of Biomedical Science & Engineering with modules in Genetics, Biostatistics and Computational Biology in the Fall Semester, followed by Animal and Cellular Physiology and Biochemistry in the Spring Semester. In addition, 4 credits of AVS course work in animal biotechnology, genetics, and data management for Animal Science and SFA undergraduates seeking jobs in Maine’s animal biotechnology and agricultural sectors will be offered. Annual teaching load will be 16 credits a year.

**Additional Information**

This position is designed to encourage student interest in Animal Science and to enhance student understanding of the many possible career paths open to students majoring in AVS, while meeting a critical teaching need of GSBSE. Within the AVS curriculum, the role of this position is to strengthen the Animal Science concentration and to protect pre - tenure research faculty from excessive teaching commitments. In addition to didactic teaching, the lecturer will serve as an AVS undergraduate advisor, and work with students on undergraduate capstone and honors research projects involving cattle, horses, sheep etc at the Witter Center and aquatic species at the Aquaculture Research Center. In addition, the Lecturer may serve as club advisor and/or resource for clubs based at the Witter center. The Lecturer will hold a 75% appointment within SFA, eligible for committee service and, in due time, eligible for leadership positions and administrative roles within SFA. The Lecturer will also carry a 25% appointment in GSBSE, reflecting 6 credits of teaching per year.

# Alignment with Unit Plans or Strategies

This proposed position conforms with recent discussions of the Board of Agriculture to enhance workforce development, and aligns with our major goal of excellence in our undergraduate programs and providing strong and creative leadership for the AVS undergraduate program. This position also supports the unit goal of creating opportunities for teaching relevant to diverse disciplines of SFA. In addition it supports elements of the Dean’s Roadmap to Excellence, Initiative 4 (Rising to meet Maine’s Health Care Needs), and the Vice President for Research’s Maine Medicine initiative.

# Assurance Statement

This position has been discussed broadly with SFA faculty and in detail with AVS and GSBSE Faculty. The justification has been circulated to all AVS and GSBSE faculty to provide an opportunity for comments.

**BMS 625: Foundations of Biomedical Science & Engineering – Genetics Module**, offered 1st half of Fall semester: <https://gsbse.umaine.edu/resources/bms-classes/bms-625/>

"As this is a foundations course for the GSBSE Ph.D. program, students may have a broad range of background experience and training in molecular biology and/or genetics – from very little to advanced. The goal of this course is to provide a common foundation for students in the major principles of molecular genetics from which students can base more advanced studies.  
  
It is expected that by the end of this course you will understand the major principles of molecular genetics and the underlying processes by which cells and organisms replicate, repair, read, and translate their genetic codes. You should achieve an advanced understanding of these topics that will allow you to read the primary research literature, understand the biological processes examined, and interpret the results in the larger context of molecular genetics.  
  
This class is offered in the Fall."

**BMS 625: Foundations of Biomedical Science & Engineering – Biostats/Computational Biology Module**, offered 2nd half of Fall semester: <https://gsbse.umaine.edu/resources/bms-classes/bms-625-2/>

"This class is an introduction to biostatistics with application to the biomedical sciences and genetics, and introduction to computational biology.

The goal this course is for students to understand and apply the principles of statistics to appropriately design research studies, analyze the collected data, draw appropriate conclusions, and test assumptions. Students will learn basic modeling techniques such as linear regression, analysis of variance (ANOVA), and basic categorical data analysis. Students will be introduced to a sampling of advanced techniques and topics such as multivariate data analysis, missing data, multiple testing, survival analysis, and nonparametric methods. The overall goal is for students to have a broad understanding of good research design as well as understand some of the basic statistical methods available for the analysis of different types of data sets.  
  
This class is offered in the Fall."

**BMS 625: Foundations of Biomedical Science & Engineering – Animal Physiology Module**, offered 1st half of Spring semester: <https://gsbse.umaine.edu/resources/bms-classes/bms-625-3/>  
"This course is part of the foundations class and will cover basic physiological principles in animals and humans. The class is separated into 3 parts: Part 1 will cover central principles of general physiology. Part 2 will cover physiological processes and in part 3 all processes will be integrated into the living organism and its adaptions to the environment. Some parts will be presented as comparative physiology across the animal kingdom.  
  
This class will be lecture based. However, I expect students to participate in class and be prepared to answer questions. Homework assignments will be given every Thursday and are expected to be submitted to me by the following Monday at noon prior to the start of the next class. Late submission of homework will not be accepted. There will be a final exam, which will be a take home exam. You’ll have one week to complete this exam.  
  
This class is offered in the Spring."  
  
**BMS 625: Foundations of Biomedical Science & Engineering – Biochemistry Module**, offered 2nd half of Spring semester:  <https://gsbse.umaine.edu/resources/bms-classes/bms-625-4/>

"This course is part of the foundations class and will survey selected advanced aspects of basic biochemistry that are both fundamental and relevant to GSBSE areas of investigational focus. Generally, this class will cover central principles of macromolecular structure and catalysis, intermediary metabolism, and aspects of macromolecular information flow (e.g., signaling).

Students will participate in class discussion or a research paper highlighting the topic at hand. Generally, the students will confer amongst themselves to provide an introduction/overview of the paper on hand, then split up presentation of the results by data figures, and then a summary, followed by further discussion by all. (Depending on the number of attendees, we may alternate responsibility for conducting the paper presentation to preassigned teams. However, in this case, everyone is still expected to participate in the overall discussion.)  
  
This class is offered in the Spring."