Are you interested in research and opportunities to explore the field of animal sciences?

Research positions are available for undergraduate students who are interested in research in the Department of Animal Sciences. Applicants must commit to full-time research over a 10 week period during summer 2018 and submit an abstract for participation in the CFAES and University Denman undergraduate research forums spring semester 2019. Successful applicants receive a $3500 stipend. The award is distributed in two parts: $3000 is disbursed at the beginning of the summer of research and the remaining $500 is disbursed upon participation in the CFAES undergraduate research forum. Research positions are located on the OSU Columbus campus and at the Ohio Agricultural Research and Development Center (OARDC) in Wooster, Ohio. Detailed position descriptions follow.

The application deadline for Animal Sciences Undergraduate Research Experiences is Wednesday, February 15, 2018.

Eligibility:
Minimum required qualifications:
- OSU undergraduate student of the Columbus campus
- Minimum cumulative GPA of 2.50 (research experiences are for non-honors students)
- Anticipated graduation date of spring 2019 or later

Desired qualifications:
- Interest in graduate school

Students may be eligible to use the research experience for internship credit (ANIMSCI 3191), individuals studies credit (ANIMSCI 4193), or graduation with research distinction (ANIMSCI 4999). To be eligible for 3191 credit, students must be Animal Sciences majors and are required to adhere to the departmental internship program requirements (http://ansci.osu.edu). For eligibility for 4999 credit, students accepted for a position must develop an independent research project proposal in consultation with their research mentor and must submit a plan for research distinction to the Department of Animal Sciences and to CFAES. The plan for research distinction must be pre-approved. In addition, a final oral component and research thesis is required (http://ansci.osu.edu/undergraduate/ug-research).

Research experiences cannot be used to fulfill more than one course. In addition, these experiences are for non-honors students and are not eligible for honors research distinction (4999H). Students in CFAES interested in funding honors research should apply to the CFAES Honors Scholarship Competition offered each spring term.
Application Components:
To apply you will need:

1) Application form (http://ansci.osu.edu/undergraduate/ug-research)
2) Personal statement, submitted as part of the application form, discussing your academic intentions, career goals, interest in research, and why the positions chosen interests you.
3) Resume
4) Your most recent advising report including autumn term grade assignments (available at http://buckeyelink.osu.edu)

Failure to adhere to program submission requirements disqualifies the application.

Submission Instructions:
E-mail a copy of these items (as attachments) no later than 5:00 pm February 15, 2018 to:

Monique Pairis-Garcia
Department of Animal Sciences
pairis-garcia.1@osu.edu

Include in the subject: ANIM SCI UGR Experience Application 2018

Once your application materials are received you will receive a confirmation email.

Questions:
Direct all questions regarding the program, eligibility, or application process to:

Monique Pairis-Garcia
Department of Animal Sciences
pairis-garcia.1@osu.edu
POSITION DESCRIPTIONS & LOCATION

POULTRY GUT HEALTH-Wooster, OH

SUPERVISOR INFORMATION:
Dr. Lisa Bielke, Assistant Professor
Department of Animal Sciences
202 Gerlaugh Hall
1680 Madison Ave
Wooster, OH 44691

Phone: 330-263-3945    Fax: 330-263-3949
Email: bielke.1@osu.edu

DETAILED SUMMARY OF DUTIES & RESPONSIBILITIES:
• General animal (poultry) care during research experiments, sample collection and analysis, data input, general lab cleaning and media preparation.
• Some duties may require weekend and/or non-traditional work hours.
• Prepare and present a poster at the CFAES Undergraduate Research Forum and Denman Undergraduate Research Forum that are held in the Spring Term.

KNOWLEDGE & EXPERIENCE STUDENT WILL GAIN:
This research experience will provide you an opportunity to implement scientific processes from hypothesis to conclusion, and learn basic laboratory techniques related to microbiology. Emphasis of research will be poultry gut health, especially in reference to impact of gut microbiome on development and homeostasis.
SKELETAL MUSCLE GROWTH AND DEVELOPMENT – Wooster, OH

SUPERVISOR INFORMATION:
Dr. Daniel Clark, Assistant Research Professor
Department of Animal Sciences
103 Gerlaugh Hall
1680 Madison Ave
Wooster, OH 44691

Phone: 618-553-5506    Fax: 330-263-3949
Email: clark.2710@osu.edu

DETAILED SUMMARY OF DUTIES & RESPONSIBILITIES:
• Assist with livestock handling and sampling procedures
• Recognize and understand basic laboratory research procedures
• Perform applied assays to understand treatment effects on the basic principles of muscle
growth and meat quality
• Learn molecular research techniques to understand the underlying cellular signal
  transduction pathways impact on muscle growth and meat quality
• Learn proper cell culture techniques and appropriate in vitro assays
• Input, organize and maintain accurate data
• Assist with appropriate statistical analyses and learn how to interpret research results
• Present research findings at the CFAES Undergraduate Research Forum and Denman
  Undergraduate Research Forum that are held in the Spring Term.

KNOWLEDGE & EXPERIENCE STUDENT WILL GAIN:
The objectives of this experience will be tailored to meet your interests while simultaneously
propelling the overall lab research progress forward. You will be required to design a research proposal
with an objective to determine how cellular processes govern muscle growth and meat quality.
Dependent upon your interests, a number of molecular techniques including quantitative PCR, SDS-
PAGE, histology, immunolabeling and applied meat yield and quality techniques can be used to test an
appropriate developed hypothesis.
SKELETAL MUSCLE BIOLOGY AND MEAT SCIENCE – Columbus, OH

SUPERVISOR INFORMATION:
Dr. Eric England, Assistant Professor
Department of Animal Sciences
122D Animal Science Building
2029 Fyffe Court
Columbus, OH 43210-1095

Phone: 614-247-7863       Fax: 614-292-2929
Email: england.146@osu.edu

DETAILED SUMMARY OF DUTIES & RESPONSIBILITIES:
• Assist with animal harvest and postmortem tissue collection
• Gain proficiency in basic and advanced laboratory techniques
• Collect and analyze data from multiple research projects
• Attend laboratory group meetings and provide a research status update
• Help with laboratory maintenance and upkeep
• Participate in a poster presentation at the CFAES Undergraduate Research Forum and Denman Undergraduate Research Forum during Spring 2017

KNOWLEDGE & EXPERIENCE STUDENT WILL GAIN:
You will gain knowledge and experience working with skeletal muscle and meat from a variety of livestock species. You will become proficient in a number of the following techniques based on the laboratory needs and your interests: muscle sample collection and processing, muscle metabolite analysis, histology, PCR, SDS-PAGE, immunoblotting, HPLC, and meat quality analysis.
CATTLE REPRODUCTION-Columbus, OH

SUPERVISOR INFORMATION:
Alvaro Garcia Guerra, Assistant Professor
Department of Animal Sciences
323 Plumb Hall
2027 Coffey Road
Columbus, OH 43210-1095

Phone: 614-292-6583
Email: garciaguerra.1@osu.edu

DETAILED SUMMARY OF DUTIES & RESPONSIBILITIES:
• Conduct general husbandry and management practices during breeding experiments in both beef and dairy cattle.
• Learn proper data entry, analysis, interpretation and reporting methods.
• Collect and analyze data to understand the effect of treatments on the reproductive physiology of cattle.
• Learn general laboratory maintenance procedures and reagent preparation.
• Attend laboratory meetings and provide updates on research status.
• Present research findings at the CFAES Undergraduate Research Forum and Denman Undergraduate Research Forum that are held in the Spring Term.

Duties may require extended travel to outlying research stations and non-traditional work hours or weekends.

KNOWLEDGE & EXPERIENCE STUDENT WILL GAIN:
You will gain knowledge and experience in cattle reproductive physiology. You will learn and implement the scientific method and develop critical thinking abilities. The precise objective of the research experience will be planned to meet the needs of the lab and match your interests. You will acquire experience in synchronization programs for fixed time artificial insemination and embryo transfer, trans-rectal ultrasound, pregnancy diagnosis, and hormone determinations.
**SWINE NUTRITIONAL IMMUNOLOGY & DEVELOPMENTAL NUTRITION**- Columbus & Wooster, OH*

**SUPERVISOR INFORMATION:**
Dr. Sheila Jacobi, Assistant Professor  
Department of Animal Sciences  
207 Gerlaugh Hall  
1680 Madison Avenue  
Wooster, OH  44691

Phone: 330-263-3959  Fax: 330-263-3949  
Email: jacobi.1@osu.edu

**DETAILED SUMMARY OF DUTIES & RESPONSIBILITIES:**
- Execution of experiment, data collection, analysis and presentation of the results involving swine nutrition and intestinal health
- Experience in animal care, dietary treatments, laboratory techniques, statistical analysis, and interpretation of results
- Integration of findings with current literature in the area will be required for presentation of results at the CFAES Undergraduate Research Forum and Denman Undergraduate Research Forum that are held during the spring term.

**KNOWLEDGE & EXPERIENCE STUDENT WILL GAIN:**
Your research will aim to identify nutritional programing of the baby pig intestinal health and immune function. Basic techniques in molecular biology and immunology will be learned to evaluate the role bioactive nutrients role in programing intestinal health.

Students will conduct research in both the Columbus and Wooster, OH locations.
RUMINANT NUTRITION & NUTRIENT MANAGEMENT – Wooster, Ohio

SUPERVISOR INFORMATION:
Dr. Chanhee Lee, Assistant Professor
Department of Animal Sciences
313 Gerlaugh Hall
1680 Madison Avenue
Wooster, OH 44691

Phone: 330-263-3794    Fax: 330-263-3949
Email: lee.7502@osu.edu

DETAILED SUMMARY OF DUTIES & RESPONSIBILITIES:
• Students will be involved in nutrient management projects (ruminant nutrition, nutrient excretion, manure management).
• Sampling from ruminants (beef or dairy), sample analysis, and data management.
• Independent research project assigned based on student interests.
• Present of results in the CFAES and Denman Undergraduate research forums. Potential for presentation in a national conference, dependent on student research output.

KNOWLEDGE & EXPERIENCE INTERN SHOULD GAIN:
Improving ruminant productivity and mitigating environmental impacts will be a focus. By assisting a research technician and graduate student in running animal studies, you will understand the scientific research process. Various techniques (analyses and sampling) and basic knowledge on ruminant nutrient management (feed to manure; environmental impacts) will be obtained. By working as part of a group and participating in national conferences, you will improve your communication and team work skills.
MOLECULAR AND CELLULAR BIOLOGY — Columbus, OH

SUPERVISOR INFORMATION:
Kichoon Lee, Associate Professor
Department of Animal Sciences
222F Animal Science Building
2029 Fyffe Court
Columbus, OH 43210-1095

Email: lee.2626@osu.edu

DETAILED SUMMARY OF DUTIES & RESPONSIBILITIES:
• Assist with the collection of data during poultry and swine research trials in the area of Nutrition and Molecular Biology.
• Assist with data analysis and interpretation of results.
• Prepare a poster for the CFAES Undergraduate Research Forum and Denman Undergraduate Research Forum that are held during the Spring term.

KNOWLEDGE & EXPERIENCE STUDENT WILL GAIN:
You will gain an understanding of basic laboratory techniques, the research process, and the value of communicating research. A basic understanding of molecular genetics with regard to the developmental biology of adipose and muscle tissues will be a focus.
APPLICATIONS OF STATISTICAL MODELING IN ANIMAL SCIENCES - Columbus, OH

SUPERVISOR INFORMATION:
Dr. Luis Moraes
Department of Animal Sciences
221A Animal Science Building
2029 Fyffe Court
Columbus, OH 43210-1095

Phone: 614-292-6507   Fax: 614-292-1515
Email: ferrazdiasdemoraes.1@osu.edu
Website: https://ansci.osu.edu/our-people/luis-e-moraes

DETAILED SUMMARY OF DUTIES & RESPONSIBILITIES:
• Collect data from literature and online databases
• Assist with construction and processing of databases
• Implement data visualization procedures
• Develop and implement statistical models for the analysis of various databases. Level of engagement is dependent on the student’s interests and experiences
• Assist graduate students and post-docs with data management
• Participate in a poster presentation at the CFAES Undergraduate Research Forum and Denman Undergraduate Research Forum during Spring 2019

KNOWLEDGE & EXPERIENCE STUDENT WILL GAIN:
You will gain knowledge and experience working with various types of database as well as with the main software used for data analysis and modeling in the animal sciences. You will be introduced to mathematical and statistical modeling techniques used for prediction and characterization of animal science systems. Through exposure to the use of different software and programming languages (mainly R), you will improve your ability of utilizing computers for extracting information from data and decision making.
SWINE BEHAVIOR RESEARCH-Columbus, OH

SUPERVISOR INFORMATION:
Dr. Monique Pairis-Garcia, Assistant Professor
Department of Animal Sciences
222E Animal Sciences Building
2029 Fyffe Rd.
Columbus, OH 4310

Phone: 614-688-1968 Fax: 614-292-1515
Email: pairis-garcia.1@osu.edu

DETAILED SUMMARY OF DUTIES & RESPONSIBILITIES:
The objective of this study is to evaluate feeding patterns and behaviors of a sow herd transitioning from individually housed stalls to group housing utilizing the Gestal® as the sole feeding system. This project will quantify feeding patterns and frequencies of group housed sows and determine how experience and time using the Gestal® feeder alters sow feeding behavior.

Responsibilities include:
- Complete pre-training requirements (by May 31st, 2018) and be competent in working with video equipment
- Be attentive and consistent when scoring video, but be able to work independently on the project without supervision of professor
- Be engaged in the project and ask questions as needed
- Have regular meetings with Dr. Pairis-Garcia to give a progress and update report and to discuss any concerns or challenges experienced

KNOWLEDGE & EXPERIENCE STUDENT WILL GAIN:
You will become proficient in behavioral sampling techniques and the concepts of behavioral methodology that can be applied to future research projects. A unique skill set in collecting behavioral data utilizing a professional software program for collection, analysis and presentation of behavioral data will be developed. You will understand the importance and application of work to current industry needs and gain experience supporting data results with peer reviewed literature and participation in scientific conferences and poster presentations.
Ruminant Nutrition and Metabolism - Wooster, OH

Supervisor Information:
Dr. Alejandro Relling, Assistant Professor
114 Gerlaugh Hall
1680 Madison Avenue
Wooster, OH 44691
Phone: 330-263-3900 Fax: 330-263-3949
Email: relling.1@osu.edu

Detailed Summary of Duties & Responsibilities:
The objectives of this study are to evaluate fetal programming in sheep. Specifically, the study aims to improve animal performance in lambs by evaluating the effects of omega 3 fatty acid supplementation to the dams.

Responsibilities Include:
• Collecting, processing, and analyzing feed samples
• Assisting in weight and plasma collections
• Performing metabolic assays to determine plasma glucose and free fatty acids
• Participating in and presenting to lab meetings

Knowledge & Experience Student Will Gain:
You will be working on a finishing project of lambs born from ewes supplemented with different sources of fatty acids. You will gain an appreciation for and understanding of the importance of the scientific method. The methods of determining feed quality and accuracy of laboratory analyses will be gained. You will gain and understanding of the physiology of fetal programming and the impact. By writing abstracts and participating in oral presentations, you will improve your communication skills.