PennState

College of Agricultural Sciences
Department of Animal Science

ANIMAL SCIENCE

UNDERGRADUATE STUDENT HANDBOOK

"For students enrolled Summer 2024 and later"

09/24

Penn State Animal Science

Department of Animal Science

PennState
College of Agricultural Sciences

ANIMAL SCIENCE MAJOR

http://animalscience.psu.edu

Department of Animal Science
109 Animal, Veterinary and Biomedical Sciences Bldg.
The Pennsylvania State University
University Park, PA 16802
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Dear accepted and prospective students,

Welcome to the Department of Animal Science at Penn State! Within the department you will find opportunities for personal growth, career development, and hands-on learning. For those who immerse themselves in our coursework, clubs, and extra-curriculars, suddenly such a large campus will begin to feel like a home away from home. The faculty and staff are here to assist you with course selection and to provide guidance for internships, externships, research, and industry connections. Our alumni groups provide great support to our program from those who have been in your place. We are very lucky to have 8 fully functioning animal facilities to support our direct learning of reproduction, genetics, disease management, nutrition and much more across a variety of species. Annually, the College of Agricultural Sciences awards approximately $1 million dollars in scholarships including $180,000 awarded by the department. As you meet with professors, students, and alumni of our program, you will begin to develop an understanding of the plethora of career opportunities available within the animal science industry. We strive to provide a first-class education with leading faculty, research labs, and facilities. There is always room for innovation related to animal agriculture and WE ARE excited to have you here with us!

Sincerely,

Lisa A Holden

Dr. Lisa Holden
Associate Professor and Interim Department Head
Department of Animal Science

PROGRESS REPORT

MAJOR: ANIMAL SCIENCE

CREDITS REQUIRED: 120 minimum

NAME: _____ STUDENT NUMBER: _____

ADVISOR: _____

REQUIREMENTS FOR THE MAJOR

GENERAL EDUCATION REQUIREMENTS (45 credits, 12 of which count for the major)

See **General Education Requirements Worksheet**
Or visit https://genedplan.psu.edu

FIRST YEAR SEMINAR (1) (S) – ANSC 150 or AG 160

FOUNDATIONS (*GWS and *GQ)

GWS –
- ENGL 15
- CAS 100
- ENGL 202 C or D

GQ – Based upon ALEK Placement Score

KNOWLEDGE DOMAIN (GHW, GN*, GA, GH, GS)
(Minimum of 3 unintegrated credits in each domain)

GN – Natural Science
GA – Art
GH – Humanities
GS – Social and Behavioral Sciences
GHW – Health and Wellness

Must include 6 credits of Integrative Studies
*6-9 credits of GN and 3 credits of GS required by major

Must include 3 credits of U.S. (US) and 3 credits of International (IL) Cultures

ELECTIVES (0 to 6 credits)
Students may choose any course at the university.
Required to complete 3 credits of writing **within the College*

REQUIREMENTS FOR MAJOR (45 to 48 credits)

Departmental	***CR***
*ANSC 100 (Industries)	3
*ANSC 201 (Animal Science)	4
*ANSC 207 & 208 (Products)	3
*ANSC 290 (Careers)	1
*ANSC 300 (Anat & Phys)	3
*ANSC 301 (Nutrition)	3
ANSC 331 (Reproduction)	3
*Production Course	3-4

(ANSC 305, 306, 308, 309, 310, 311, 315, 324 or 327)

Non-Departmental	***CR***
Chemistry (CHEM 101, 110, or 130)	2-3
Organic Chemistry (CHEM 202 or 210	3
Biochemistry (BMB 211)	3
Biology (BIOL 110 GN)	4
Microbiology (MICRB 106&107 GN or 201&202)	4-5
Genetics (ANSC 322 or BIOL 222)	3
Economics (AGBM 101 or ECON 102 GS)	3

**A grade of C or higher must be obtained to graduate – Policy 82-44*

SELECTIONS FOR MAJOR (36 credits)

Animal Science selections (choose at least 6 credits)
ANSC: 107, 117, 211, 213, 215, 217, 225, 226, 305, 306, 308, 309, 310, 311, 315, 317, 324, 327, 332N, 350, 357, 410, 413, 415, 418, 419W, 420, 421, 422W, 423, 424, 425, 426, 427, 429, 431, 432, 437, 447, 450, 451, 456, 457, 467W, 480, 488

Other Selections (choose at least 6 credits)
AEE: 330W, 360,440;
AGBM: 102, 106 (GQ), 200, 308W, 302, 320, 338, 407, 408, 420, 460;
BA: 301, 302, 303, 304; BLAW 243; ENGR 310; ENGR 411; IB 303; IST 110 (GS); ACCTG 211
LHR: 100(GS), 400;
SCM 200(GQ); SPAN: 105, 106;
MKTG 301; MGMT 331;
AGRO: 028, 423,425, 438;
SOILS: 101(GN), 402, 416;
BIOL: 220, 230, 240, 472;
BMB: 212, 221, 251;
CHEM: 203, 212, 213, 111(GN), 112(GN), 113(GN);
FD SC: 406W, 408, 409, 415;
KINES 203;
PHYS: 250(GN), 251(GN);
VB SC: 402W, 403, 405, 407, 409, 410, 420, 421, 423W,425;
WFS: 407, 408, 430, 447W, 460

Additional requirements:
1) an additional 36 credits must be chosen. These credits come from any of the above selection lists. AND,
2) 12 credits from any of the selections or combination must be taken at the 400-level (3 credits in ANSC).

University Required – Cannot Manipulate	*All Animal Science Students – Minimal Flexibility*	*Choose based on your career goals/species interest – Maximum Flexibility*

Penn State Animal Science Courses

Department of Animal Science

PennState College of Agricultural Sciences

ANIMAL SCIENCE COURSE DESCRIPTIONS

Animal Science 100 **INTRODUCTION TO ANIMAL INDUSTRIES (3).** Students will study the biology, production systems, terminology, and emerging issues of the N. American animal industries. Instructor: R. Mikesell

Animal Science 107 **INTRODUCTION TO EQUINE SCIENCE AND INDUSTRY (3).** Prepare students to proceed into further studies in equine science by providing background to communicate effectively with educators and industry. Instructors: W. B. Staniar & A. Kocher.

Animal Science 117 **EQUINE MARKETING (2).** Principles of marketing and event planning including marketing systems, advertising, management systems, team building and other aspects of conducting a purebred livestock sale. Students learn through the planning and conducting of the annual Penn State Equine Science Showcase and Registered Quarter Horse Sale. Instructor: B. Egan.

Animal Science 150S **ANIMAL SCIENCE FRESHMEN SEMINAR (2).** Students will engage in college success strategies including time management, advising resources, University practices, policies and procedures, as well as campus resources and opportunities. Students will explore Penn State's animal facilities and interact with peers and faculty while building research, oral, and written communication skills. Instructors: R. Cloninger, N. Dreschel, A. Macrina, and D. Olver.

Animal Science 201 **ANIMAL SCIENCE (4).** Scope of animal and poultry science; genetic, physiological, nutritional, and health factors in food production. Instructor: D. Olver.

Animal Science 207 **AN SC 207 (FD SC 207) ANIMAL PRODUCTS TECHNOLOGY (2).** Composition, safety, palatability, preservation, and processing of foods from animals, impact of animal production, and handling practices on product properties. Instructor: TBD.

Animal Science 208 **AN SC 208 (FD SC 208) ANIMAL PRODUCTS TECHNOLOGY LABORATORY (1).** Harvesting and processing of foods from animals; hands-on and demonstration exercises; industry procedures for TBD.

Animal Science 211 **INTRODUCTION TO AVIAN BIOLOGY (3).** Introduces the biology of birds; lectures, laboratories on anatomy and function, incubation, breeding, disease control, management techniques and student projects. Prerequisite or concurrent: BIOL 110.
Instructor: P. A. Bartell.

Animal Science 213 **INTRODUCTION TO ANIMAL BIOTECHNOLOGY (3).** An introduction to the multidisciplinary area of animal biotechnology: from molecular, genetic, genomics and development issues to their technological applications. Prerequisites: AN SC 201, BIOL 110, CHEM 110, CHEM 112. Instructor: W. Liu.

Animal Science 215 (GS) **PETS IN SOCIETY (3).** Introduction to the varied roles that companion animals play in human society and their impact on human activity and well-being. Instructor: N. A. Dreschel.

Animal Science 217 **INTRODUCTION TO HORSE JUDGING (2).** Introductory analysis of halter and performance classes of stock-type horses, with emphasis on conformation, gaits, patterns, and oral reasons. Instructors: M. Heilveil (Fall) & B. A. Egan (Spring).

Animal Science 225 **INTRODUCTION TO DAIRY JUDGING (1).** Training in the visual evaluation of dairy cattle and practice in defending decisions through oral reasons. Instructor: D. Olver.

Animal Science 290 **CAREERS IN ANIMAL AGRICULTURE (1).** A description and analysis of career opportunities in the animal science and allied industries. Instructors: R. Mikesell, R. Cloninger, & A. Kocher.

Animal Science 291 **EXTERNSHIP WITH ANIMAL SCIENCE BUSINESS (1-2).** Students will obtain a one-week on site work experience with an animal-related agribusiness. Instructors: R. Mikesell, R. Cloninger, and M. Heilveil (Coordinator)

Animal Science 296 **INDEPENDENT STUDIES (1-18).** Career projects or studies which are supervised on an individual basis, and which fall outside the scope of formal classes. Dairy and Animal Science majors may apply a total of six credits of Animal Science 296 to the total credits required for graduation. **This course may not be used for specific course requirements in the Animal Science major. In order to pursue an independent study, the student must contact the faculty member and reach a mutual agreement regarding the topic, number of credits and mode of conduct. The student must complete a Course Proposal Form and return the form to the Department Office during the first five days of classes. Any faculty member may work with any student.** Coordinator: R. Mikesell.

Animal Science 297 **SPECIAL TOPICS (1-9).** Formal courses offered infrequently on a topic or special interest subject. Coordinator: R. Mikesell.

Animal Science 300 **INTEGRATED ANIMAL BIOLOGY (3).** An integrated study of the biology of domestic animal growth and the underlying cellular, endocrine, and immune systems involved. Prerequisites: BIOL 110; at least third semester standing. Instructors: F. Diaz and D. Smarsh.

Animal Science 301 **PRINCIPLES OF ANIMAL NUTRITION (3).** Nutrients and their metabolism; the nutritional requirements of livestock; the nutritional value of various feeds; principles of ration formulation. Prerequisite: CHEM 202 OR CHEM 210. Instructors: K. Harvatine and T. Felix

Animal Science 305 **COMPANION ANIMAL NUTRITION (3).** Principles of care and nutrition and contemporary importance of companion animals with emphasis on canine and feline species. Prerequisite: AN SC 201. Instructor: N. A. Dreschel.

Animal Science 306 **SWINE PRODUCTION AND MANAGEMENT (3).** Application of the principles of enterprise and facility development, operations management, quality control, public relations, marketing for the efficient operation of a swine production business. Prerequisite or Concurrent: AN SC 201. Instructor: E. Hines.

Animal Science 308 **SHEEP AND GOAT PRODUCTION AND MANAGEMENT (3).** Application of principles of nutrition, breeding, physiology, health, facilities, marketing, and product development, to animal production agriculture. Prerequisite or Concurrent: AN SC 201.

Animal Science 309 **BEEF CATTLE PRODUCTION AND MANAGEMENT (4).** Application of principles of nutrition, breeding, physiology, health, facilities, and marketing to produce and manage beef efficiently. Prerequisite or Concurrent: AN SC 201. Instructor: T.Felix.

Animal Science 310 **DAIRY CATTLE PRODUCTION AND MANAGEMENT (3).** Principles of dairy management including the dairy industry, reproduction, and housing. Prerequisite: AN SC 201. Instructors: D. R. Olver, T. Edwards, M. Cantor, and C. Hughes.

Animal Science 311 **POULTRY PRODUCTION AND MANAGEMENT (4).** The application of fundamental concepts and preparation for careers in the economically integrated commercial poultry industry. Prerequisite: AN SC 100. Instructor: J. Boney.

Animal Science 315 **SMALL ANIMAL HEALTH AND DISEASE (3)**. Introduction to the principles of small animal health, including the recognition, prevention, and control of common small animal diseases. Prerequisite: MICRB 106 or MICRB 201. Instructor: J. B. Werner.

Animal Science 317 **HORSE HANDLING AND TRAINING (3).** Responses of horses to various stimuli during the training period. Laboratory exercises involve extensive practice with young horses. Prerequisites: AN SC 327 and approved level of horsemanship. Instructor: B. A. Egan.

Animal Science 322 **ANIMAL GENETICS AND SELECTION (3).** The fundamental principles of genetics as applied to breeding farm animals. Prerequisite: BIOL 110. Instructor: C. D. Dechow.

Animal Science 324 **VALUE DETERMINATION OF MEAT ANIMALS (3).** Live Animal and carcass evaluation of cattle, sheep, and swine to determine value of market animals and meat products. Instructor: B. Williamson.

Animal Science 327 **HORSE PRODUCTION AND MANAGEMENT (4).** Principles of selection, breeding, feeding, management, and marketing of horses; emphasis on light leg horses. Prerequisite or Concurrent: AN SC 201. Instructors: B. A. Egan & W. B. Staniar.

Animal Science 331 **PHYSIOLOGY OF ANIMAL REPRODUCTION (3).**
This course is a detailed study of reproductive anatomy, endocrinology, physiology, behaviors, and management in animals. Students will develop an understanding of factors that affect reproductive success and how this knowledge can be used to regulate/manage reproductive processes of domestic animals, wildlife, and humans. Prerequisite or Concurrent: AN SC 201. Instructors: C. Hughes and C. Stenhouse

Animal Science 332N **SCIENCE AND POLICY OF GLOBAL GREENHOUSE GAS EMISSIONS AND MANAGEMENT (3).** This interdomain course introduces students to the science and policy of greenhouse gas emissions. The course focuses on emissions from natural sources, energy production and food production. Policy components will introduce students to the fundamentals of environmental policy and examine key policy options for mitigating and managing emissions. Pre-requisite: ENGL 15. Instructor: A. Hristov

Animal Science 346 **ANIMAL ENTERPRISE ANALYSIS (3).** Evaluating livestock operations within and across enterprises has become a vital skill to being profitable today. The nexus of financial performance and production management is the catalyst to profitable and sustainable operations. Concurrent: ANSC 201. Instructor: L.A. Holden

Animal Science 350 **DAIRY PROBLEM SOLVING (2).** Students will use dairy records to analyze herd performance to identify bottlenecks for higher productivity. Prerequisite or concurrent: AN SC 310. Instructor: C. D. Dechow.

Animal Science 357 **EQUINE BROODMARE & FOAL CARE (3).** This course is an in-depth study of late gestation broodmares, fetal development, pre-foaling indicators of readiness for birth, and post-partum care and management of the mare and foal. Students completing this course should be well prepared to be employed on breeding farms as broodmare or foaling. Prerequisite: AN SC 327. Instructors: B. Egan

Animal Science 389 **SUPERVISED EXPERIENCE IN COLLEGE TEACHING (1-3).** The Supervised College Teaching course provides selected undergraduates with formal, supervised teaching experience in an Animal Science course. Faculty recruit students who excel in a particular course to serve as undergraduate teaching assistants for subsequent offerings of that course. Students participating in this course will develop a deeper understanding of the course material by actively teaching the material.

Animal Science 395 **ANIMAL SCIENCE INTERNSHIP (1-12).** Supervised field experience and study related to the student's major professional interest. Written and oral critique of the activity is required. Prerequisites: Dairy and Animal Science majors who have a GPA of 2.0 or higher, completed 6 credits in their major field of study and have obtained permission of their faculty advisor and course instructor. Coordinator: M. Heilveil

Animal Science 397 **SPECIAL TOPICS (1-9).** Formal courses given infrequently to explore, in depth, a comparatively narrow subject which may be topical or of special interest Coordinator: R. Mikesell.

Animal Science 410 **ADVANCED DAIRY HERD MANAGEMENT (4).** Application of dairy herd management principles using case studies and actual dairy farm situations. Students will be required to seek solutions to problems and to make management decisions using actual dairy farms and/or case studies. Prerequisite: AN SC 310. Instructors: C. Dechow, L. Holden, and A. Hristov

Animal Science 413 **TRANSGENIC BIOLOGY (3)**. The principles and concepts used to generate genetically engineered animals by pronuclear, knockout, and cloning methods, and applied biotechnology applications. Prerequisite: BMB 211 or BIOL 230W and ANSC 322 or BIOL 222. Instructor: T.H. Kim

Animal Science 415 **COMPANION ANIMAL BEHAVIOR (3).** Detailed study of companion animal behavior; including individual, developmental, and environmental bases of behavior with applied demonstration and discussion. Prerequisite: BIOL 110. Instructor: N. A. Dreschel.

Animal Science 418 **AN SC 418 (AGEC 418) and (SOILS 418) NUTRIENT MANAGEMENT IN AGRICULTURAL SYSTEMS (3).** Comprehensive review of nutrient flow in animal agricultural systems, environmental regulations, and environmental stewardship practices. Prerequisite**:** BIOL 11 and BIOL 12 or BIOL 110 or BIOL 127 or BISC 3 Instructors: R. Meinen & C. White.

Animal Science 419W **APPLIED ANIMAL WELFARE (3).** Assessment of management practices impacting animal welfare; devoted to livestock species, companion animals, captive exotic species, and animals in research. Prerequisite: AN SC 201 or 6 credits of biology. Instructor: A. Macrina.

Animal Science 420 **ANIMAL NUTRITION AND FEED TECHNOLOGY (4).** Feedstuff evaluation, quality control, handling, storage; life cycle feeding of beef cattle, dairy cattle, sheep, swine, horses, and poultry. Prerequisite: AN SC 301. Instructors: A. Hristov, W. B. Staniar, T. Felix, R. Mikesell, & J. Boney

Animal Science 421 **POULTRY EVALUATION AND SELECTION (3)** Introduction and application of standards and principles used to evaluate live poultry and poultry products. Prerequisite: permission of program. Prerequisite**:** ANSC 100. Instructors: M. Riggs

Animal Science 422W **DAIRY CATTLE EVALUATION AND SELECTION (3).** Methods used in evaluation of production and type traits and their role in selecting dairy breeding stock domestically and internationally. Prerequisite: AN SC 322. Instructors: D. R. Olver and C. D. Dechow.

Animal Science 423 **COMPARATIVE PHYSIOLOGY OF DOMESTIC ANIMALS (3).** A comparative approach to understanding body function in domesticated avian and mammalian species. Prerequisite: BIOL 110. Instructor: A. G. Lorenzoni.

Animal Science 424 **LIVESTOCK BREEDING EVALUATION AND SELECTION (3).** Evaluation and selection of beef cattle, sheep, and swine: critical analysis of performance records and genetic evaluations. Prerequisite: AN SC 324. Instructor: B. Williamson.

Animal Science 425 **AN SC 425 (VB SC 425) PRINCIPLES OF AVIAN DISEASES (3).** Principles of pathogenesis, diagnosis, and control of diseases in poultry and other avian populations. Prerequisite: MICRB 106 and MICRB 107 or MICRB 201 and MICRB 202 Concurrent: AN SC 211, AN SC 311. Instructor: A. G. Lorenzoni.

Animal Science 426 **ADVANCED JUDGING AND SELECTION (2-4).** Development of critical thinking and communication skills through evaluation and selection of animals and animal products. Prerequisite: ANSC 225; ANSC 226; ANSC 217; ANSC 421; ANSC 424 Recommended Preparation: ANSC 322. Instructor approval. Instructors: D. Olver, B. A. Egan., B. Williamson, and M. Riggs.

Animal Science 427 **MILK SECRETION (3).** Development and physiology of the mammary gland and factors which affect the amount and composition of milk produced. Prerequisites: AN SC 201 Instructor: A. Macrina.

Animal Science 429 **ADVANCED BEEF CATTLE PRODUCTION (3).** Application of scientific and business principles to practical production and management issues using case studies or selected live settings. Prerequisite: AN SC 309. Instructor: D. Kniffen.

Animal Science 432 **TECHNIQUES IN CATTLE REPRODUCTION (1).** Demonstration and practice in estrus detection, inseminating techniques, pregnancy detection, embryo recovery and transfer methods. Prerequisite or concurrent: AN SC 309 or 310. Instructor: R. Cloninger.

Animal Science 437 **AN SC 437 and (AEE 437). EQUINE FACILITATED THERAPY (3).** Equine Facilitated Therapy uses equine-related activities to contribute positively to the wellbeing of people with disabilities. Prerequisite: AN SC 327. Instructor: A. Macrina.

Animal Science 447 **EQUINE EXERCISE PHYSIOLOGY (3).** Course is an in-depth examination of the topic of equine exercise physiology. It covers anatomy and basic physiology of pertinent body systems in the first third of the semester, management, training, and therapy responses in the middle third, and examples of application in the equine industry in the last third. Prerequisite: BIOL 110, ANSC 201, ANSC 327. Instructor: D. Smarsh.

Animal Science 450 **DAIRY FARM MANAGEMENT SYSTEMS (3).** Capstone course emphasizing integration of dairy farm management principles into whole farm systems. Prerequisites: AN SC 310, AN SC 350, AN SC 410. Instructor: L. A. Holden.

Animal Science 451 **DAIRY SYSTEMS ANALYSIS (1).** Students will evaluate all aspects of a working dairy farm business. Prerequisites: AN SC 310, AN SC 410. Instructors: L. A. Holden.

Animal Science 456 **ANIMAL MICROBIOMES (3)** Students will be introduced to the concepts of multiple 'Omics' techniques, study designs, and data analysis methods. By the end of the semester, students will be able to apply the concepts learned to discuss scientific literature and be familiar with data analysis techniques. Prerequisites: (MICRB 106 or MICRB 201) Recommended Preparation: (STAT 200 or STAT 240 or STAT 250) Instructor: E. Ganda

Animal Science 457 **EQUINE REPRODUCTION AND BREEDING FARM MANAGEMENT (3).** Advanced aspects of equine reproduction will be covered, including collection of semen, processing it for shipment, and insemination of mares. Prerequisites: AN SC 327. Instructor: TBD.

Animal Science 467W **EQUINE NUTRITION AND FEEDING (3).** Equine gastrointestinal anatomy and physiology; energy and nutrient requirements for body functions; applied interrelationships between nutrition, health, and performance. Prerequisite: AN SC 301. Instructor: W. B. Staniar.

Animal Science 480 **ANIMAL GROWTH AND DEVELOPMENT (3).** Animal growth and development is the understanding of tissue interactions as they influence each other and whole animal complexity from conception to maturity. This course focuses on growth and development of meat animal species and its influence on economically important tissues and final meat quality; however, concepts are applicable across mammalian species. Prerequisites: ANSC 201 Recommended Preparation: ANSC 300. Instructor: E. Hines

Animal Science 488 **BIOLOGY OF GERM CELLS AND ASSISTED REPRODUCTIVE TECHNOLOGIES (3).** Special emphasis will be placed on the processes of meiosis and epigenetic reprogramming that occurs in both germ cells and early embryos. In the second half of the course, we will discuss how knowledge of germ cell physiology has led to the widespread use of assisted reproductive technologies (ART) which have fundamentally changed the way fertility is managed in animals and humans. Prerequisites: BIOL 110. Instructor: F. Diaz

Animal Science 494 **UNDERGRADUATE RESEARCH (1-6 per semester/maximum of 6).** Independent undergraduate research directed by an Animal Science faculty supervisor. Prerequisite: junior or senior status approval of an Animal Science faculty supervisor and approval of the Undergraduate Program Coordinator. Coordinator: R. Mikesell

Animal Science 496 **INDEPENDENT STUDIES (1-18).** Creative projects or studies which are supervised on an individual basis, and which fall outside the scope of formal courses. Animal Science majors may apply a total of six credits of AN SC 496 to the total credits required for graduation. **This course may not be used for specific course requirements in the Animal Sciences major. In order to pursue an independent study, the student must contact the faculty member and reach a mutual agreement regarding the topic, number of credits and mode of conduct. The student then notifies the course coordinator regarding the agreement in order to facilitate record keeping. Any faculty member may work with any student. The coordinator serves as a focal point for communications and records. The student is required to complete a Course Proposal Form. Prerequisites: 6 credits in animal science. Coordinator: R. Mikesell**

Animal Science 497 **SPECIAL TOPICS (1-9).** Formal courses offered infrequently on a topic or special interest subject. Prerequisite: 3 credits in animal science. Coordinator: R. Mikesell

Animal Science 499 **FOREIGN STUDIES (1-12).**

AN SC Courses (credits)	Title	Semester Offered
100 (3)	Introduction to Animal Industries	Spring
107 (3)	Introduction to Equine Science and Industry	Fall/Spring
117(2)	Equine Marketing	Spring
201 (4)	Animal Science	Fall/Spring
202W (3)	Contemporary Issues in Animal Agriculture	Fall/Spring
207 (2)	(FD SC) Animal Products Technology	Fall
208 (1)	(FD SC) Animal Products Technology Laboratory	Fall/Spring
211 (3)	Introduction to Avian Biology	Spring
213 (3)	Introduction to Animal Biotechnology	Fall
215 (3) (GS)	Pets in Society	Fall/Spring
217 (2)	Introduction to Horse Judging	Fall
225 (1)	Introduction to Dairy Judging	Spring
226 (2)	Meat Selection and Grading	Spring
290 (1)	Careers in Animal Agriculture	Fall
291(1-2)	Externship with Animal Science Business	Spring
300 (3)	Integrated Animal Biology	Spring
301 (3)	Principles of Animal Nutrition	Fall/Spring
305 (3)	Companion Animal Nutrition and Management	Fall
306 (3)	Swine Production and Management	Fall
308 (3)	Sheep and Goat Production and Management	Spring (even years)
309 (4)	Beef Cattle Production and Management	Spring
310 (3)	Dairy Cattle Production and Management	Spring
311 (4)	Poultry Production and Management	Fall
315 (3)	Small Animal Health and Disease	Spring
317 (3)	Horse Handling and Training	Spring
322 (3)	Animal Genetics and Selection	Fall
324 (3)	Value Determination of Meat Animals	Fall
327 (3)	Horse Production and Management	Fall
331 (3)	Physiology of Animal Reproduction	Spring
332N (3)	Science and Policy of Global Greenhouse Gas Emissions and Mgmt.	Fall
346 (3)	Animal Enterprise Analysis	Spring
350 (2)	Dairy Problem Solving	Spring
389 (1-3)	Supervised Experience in College Teaching	Fall/Spring
395 (1-12)	Animal Science Internship	All
397 (1-9)	Special Topics	Fall/Spring
410 (4)	Advanced Dairy Herd Management	Fall
413 (3)	Transgenic Biology	Spring
415 (3)	Companion Animal Behavior	Spring
418 (3)	(AGECO and SOILS) Nutrient Management in Agricultural Systems	Fall
419W (3)	Applied Animal Welfare	Fall
420 (4)	Animal Nutrition and Feed Technology	Spring
421 (3)	Poultry Evaluation and Selection	Spring
422W (3)	Dairy Cattle Evaluation and Selection	Spring
423 (3)	Comparative Physiology of Domestic Animals	Spring
424 (3)	Livestock Breeding Evaluation and Selection	Spring
425 (3)	(VB SC) Principles of Avian Diseases	Fall
426 (2)	Advanced Judging and Selection	Fall/Spring
427 (3)	Milk Secretion	Spring
429 (3)	Advance Beef Cattle Production	Fall
431(4)	Physiology of Mammalian Reproduction	Fall
432 (1)	Techniques in Cattle Reproduction	Fall
437 (3)	Equine Facilitated Therapy	Fall (even years)
447 (3)	Equine Exercise Physiology	Fall
450 (3)	Dairy Farm Management Systems	Spring
451 (1)	Dairy Systems Analysis	Fall/Spring
456 (3)	Animal Microbiomes	Fall
457 (3)	Equine Reproduction and Breeding Farm Management	Fall
467W(3)	Equine Nutrition and Feeding	Spring
480 (3)	Animal Growth and Development	Spring
488 (3)	Biology of Germ Cell and Assisted Reproductive Technologies	Fall

Penn State Animal Science Contacts

Department of Animal Science

PennState College of Agricultural Sciences

ADVISERS

Name	Address	Telephone(814)	Email Address	Interest Area
Brian Egan	109C AVBS	863-0569	began@psu.edu	Horses
Rachel Cloninger**	109F AVBS	863-4198	rle5000@psu.edu	Animal Science
Madison Heilveil	109G AVBS	865-6668	mxh664@psu.edu	Animal Science
Ann Macrina	332 Ag Sc In	863-4202	alm106@psu.edu	Horses, Lactation
Robert Mikesell*	109E AVBS	865-2987	rem9@psu.edu	Beef and Swine
Dale Olver	349 Ag Sc In	863-3914	dro105@psu.edu	Dairy

*Animal Science Program Coordinator
**Animal Science Advising Coordinator

FACULTY MENTORS

Name	Address	Telephone(814)	Email Address	Interest Area
Paul Bartell	316 AVBS	863-2101	pab43@psu.edu	Avian Biology
John Boney	318 Ag Sc In	863-8934	jxb2002@psu.edu	Poultry
Enrico Casella			casella@psu.edu	Data Science
Chad Dechow	Almquist Res. Cen.	863-3659	cdd1@psu.edu	Dairy, Genetics
Francisco Diaz	310 AVBS	865-1499	fjd10@psu.edu	Reproductive Biology
Nancy Dreschel	312 Ag Sc In	863-4197	ndreschel@psu.edu	Small Animals/Behavior
Tara Felix	351 Ag Sc In	865-0065	tfelix@psu.edu	Beef Nutrition
Erika Ganda	308 AVBS	865-4084	ganda@psu.edu	Microbiome
Kevin Harvatine	321 Ag Sc In	865-6334	kjh182@psu.edu	Nutritional Physiology
Elizabeth Hines	315 Ag Sc In	865-3267	eah405@psu.edu	Swine
Lisa Holden	339 Ag Sc In	863-3672	lholden@psu.edu	Dairy
Alexander Hristov	352 Ag Sc In	863-3669	anh13@psu.edu	Dairy Nutrition
Camilla Hughes	306 AVBS	865-7024	chkh@psu.edu	Reproductive Biology

FACULTY MENTORS CONTINUED,

Tae Kim	317 AVBS	867-3203	taekim@psu.edu	Genomics
Dan Kniffen	320 Ag Sc In	865-7809	dkniffen@psu.edu	Beef Cattle
Andrea Kocher	314 Ag Sc In	863-3957	alg917@psu.edu	Horses
Gino Lorenzoni	306 Ag Sc In	863-7302	agl20@psu.edu	Poultry
Wansheng Liu	311 AVBS	867-1673	wul12@psu.edu	Genomics
Ramesh Ramachandran	306 AVBS	865-5202	RameshR@psu.edu	Molecular Neuroendocrinology
Montana Riggs	317 Ag Sci In		mrr5507@psu.edu	Poultry
Danielle Smarsh	315 Ag Sc In	865-7810	dxs1172@psu.edu	Horses
Burt Staniar	316 Ag Sc In	865-0698	wbs14@psu.edu	Horses
Claire Stenhouse	309 AVBS		cms9086@psu.edu	Reproductive Biology
Jacob Werner	101 Central Bio Lab	865-1495	jrw140@psu.edu	Veterinary Medicine
Ben Williamson	307 Ag Sc In	867-4917	bcw13@psu.edu	Livestock

Undergraduate Program Support Assistant

Molly Martin	109B A	863-3664	mjf217@psu.edu

Animal Science Minor
Department of Animal Science

The Animal Science minor is designed for students who wish to supplement their academic major with studies in animal science.

Requirements

Students are required to complete a minimum of 20 credits, at least six of which must be at the 400 level. A grade of C or better must be obtained in each course in order to complete the minor. The core of prescribed courses develops a foundation in the various basic disciplines of animal science. Additional courses may be selected by the student to emphasize the production/management of beef cattle, companion animals, dairy cattle, horses, poultry, sheep, or swine, or to emphasize genetics, nutrition or physiology.

Prescribed courses:

AN SC 201(4): Animal Science
AN SC 290(1): Careers in Animal Agriculture
AN SC 207(2): (FD SC) Animal Products Technology **AND**
AN SC 208(1): (FD SC) Animal Products Technology Lab **OR**
AN SC 300(GN)(3): Integrated Animal Biology
AN SC 301(3): Principles of Animal Nutrition

Additional Courses:

The student must select 3 credits from the following list:

AN SC 305(3): Companion Animal Nutrition
AN SC 306(3): Swine Production and Management
AN SC 308(3): Sheep and Goat Production and Mgmt.
AN SC 309(4): Beef Cattle Production and Management
AN SC 310(3): Dairy Cattle Production and Mgmt.
AN SC 311(4): Poultry Production and Management
AN SC 327(4): Horse Production and Management

The student must select, in consultation with the Minor Coordinator, at least 6 credits at the 400 level from the following list:

AN SC 410(4): Advanced Dairy Herd Management
AN SC 413(3): Transgenic Biology
AN SC 415(3): Companion Animal Behavior
AN SC 418(3): Nutrient Management in Agricultural Systems
AN SC 419W(3): Applied Animal Welfare
AN SC 420(4): Animal Nutrition and Feed Technology
AN SC 421(3): Poultry Evaluation and Selection
AN SC 422W(3): Dairy Cattle Evaluation and Selection
AN SC 423(3): Comparative Physiology of Domestic Animals
AN SC 424(3): Livestock Breeding Evaluation and Selection
AN SC 425(3): (VB SC) Principles of Avian Diseases
AN SC 426(2): Advanced Judging and Selection
AN SC 427(3): Milk Secretion
AN SC 429(3): Advanced Beef Cattle Production
AN SC 431(4): Physiology of Mammalian Reproduction
AN SC 432(1): Techniques in Cattle Reproduction
AN SC 437(3): Equine Facilitated Therapy
AN SC 450(3): Dairy Farm Management Systems
AN SC 447(3): Equine Exercise Physiology
AN SC 457(3): Equine Reprod. and Breeding Farm Mgmt.
AN SC 467W(3): Equine Nutrition and Feeding
AN SC 480(3): Animal Growth and Development

Procedures for Enrollment

Students enroll in the minor via LionPATH after they have completed 29.1 or more credits. For additional information contact the Undergraduate Program Coordinator, Dr. Robert E. Mikesell, 109E AVBS Building, University Park, PA 16802, phone (814) 865-2987. Email address: rem9@psu.edu.

Equine Science Minor

Department of Animal Science

The Equine Science Minor is designed for students who wish to supplement their academic major with studies in equine science.

Requirements

Students are required to complete a minimum of 22 credits, at least 6 of which must be at the 400 level. A grade of C or better must be obtained in each course in order to complete the minor. The core of prescribed courses develops a foundation in the basic discipline of animal science and equine science. Additional courses may be selected by the student to emphasize other special areas of interest.

Prescribed Courses: (all must be taken)

AN SC 107(3)	FA/SP	Introduction to Equine Science and Industry
AN SC 201(4)	FA/SP	Animal Science
AN SC 217(2)	FA/SP	Introduction to Horse Judging
AN SC 327(4)	FA	Horse Production and Management

Additional Courses: (take 3 credits)

ANSC 437(3)	FA*	Equine Facilitated Therapy
ANSC 447(3)	FA	Equine Exercise Physiology
ANSC 457(3)	FA	Equine Reproduction and Breeding Farm Management
ANSC 467(3)**	SP	Equine Nutrition and Feeding

Additional Courses: (take 6-7 credits of which 3 or more must be at the 400 level)
Cannot be used elsewhere in minor

AN SC 117 (2)	SP	Equine Marketing
ANSC 317(3)	SP	Horse Handling and Training
ANSC 415(3)	SP	Companion Animal Behavior
ANSC 418(3)	FA	Nutrient Management in Agricultural Systems
ANSC 419(3)	FA	Applied Animal Welfare
ANSC 420(4)	SP	Animal Nutrition and Feed Technology
ANSC 423(3)	SP	Comparative Physiology of Domestic Animals
ANSC 427(3)	SP	Milk Secretion
ANSC 431(4)	FA	Physiology of Animal Reproduction
ANSC 437(3)	FA*	Equine Facilitated Therapy
ANSC 447(3)	FA	Equine Exercise Physiology
AN SC 457(3)	FA	Equine Reproduction and Breeding Farm Management
AN SC 467(3)**	SP	Equine Nutrition and Feeding
AGRO 423(3)	FA	Forage Crop Management
VBSC 403(3)	FA	Principles of Animal Disease

*offered in even numbered years
**Writing Across the Curriculum designation

Procedure for Enrollment

Students enroll in the minor in LionPATH after completing at least 29.1 credits or after being accepted into a major. For additional information, please contact the Program Coordinator, Ann Macrina, 322 Ag Sc In Building, University Park, PA 16802, (814) 863-4202, alm106@psu.edu.

Preparing for an Equine Science Minor

Once you have completed 29.1 credits or have entered a major, you are eligible to enroll in the Equine Science minor. This information is intended to answer your questions related to things to do and courses you might take while you are waiting to get to this point. Remember, as you proceed, that you must achieve a minimum grade of a C for all courses in the minor.

Semester	Courses to take/things to do
1	Courses to take: • AN SC 107 (FA/SP) Things to do: • Email Ann Macrina (alm106@psu.edu) and ask to be added to the Canvas Equine Minor Group as a pre-minor • Consider finding a club or activity you enjoy. Equine-related choices include o Block & Bridle Equine Committee o Collegiate Horsemen's Association at Penn State o Penn State Equine Research Team o Penn State Equestrian Team o Penn State Dressage Team o Penn State Western Team
2	Courses to take: • AN SC 217 (FA/SP) • AN SC 117 (SP) Things to do: • Continue your club/activity • Check the Canvas site for possible internships or summer job ideas, but also look on your own
3 or 4	Courses to take: • AN SC 201 (FA/SP) – pre-requisite for AN SC 327 Things to do: • Become a committee chair or officer in your club/activity
4	Courses to take: • Catch up on any courses not previously taken

POULTRY AND AVIAN SCIENCE MINOR

Department of Animal Science
College of Agricultural Sciences

The Poultry and Avian Science (P A S) Minor is designed for students who wish to supplement their academic major with studies focused on the biology and management of avian species, with an emphasis on domestic fowl. In recognition of the diverse career opportunities in the modern poultry and game bird industries, the minor is designed to also accommodate students with primary interests in agribusiness management, food science, and wildlife science. The University's Poultry Education and Research Center is used extensively for supplementing classroom work with hands-on laboratories. The flexibility of the minor permits program planning commensurate with an individual's interests and professional goals and should enhance the student's ability to compete for related positions in industry, government, and academia (graduate or professional school).

REQUIREMENTS

Students are required to complete a minimum of 19 credits (9 at the 400 level). The three prescribed courses provide a foundation of knowledge pertaining to both avian sciences and the commercial poultry industry, while additional courses selected by the student will allow for further specialization in the foundation animal science disciplines, agribusiness management, food science, and wildlife and fisheries science. In addition, credits from poultry or avian internship experiences and/or independent study projects may also be applied towards meeting the requirements of the minor. A grade of C or better is required for all courses in the minor.

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PRESCRIBED COURSES (10 CREDITS)

AN SC 211(3): Introduction to Avian Biology (Sem: 1-4)
AN SC 311(4): Poultry Production and Management (Sem: 5-7)
AN SC 425(3): Principles of Avian Diseases (Sem: 6-8)

*ADDITIONAL COURSES (9 CREDITS)

The student must select 3 credits from the following:

AG BM 302(3):	Food Product Marketing
AG BM 338(3):	Agribusiness in the Global Economy
AN SC 207(2):	Animal Products Technology
AN SC 208(1):	Animal Products Technology Laboratory
AN SC 300(3):	Integrated Animal Biology
AN SC 301(3):	Principles of Animal Nutrition
AN SC 322 (3):	Animal Genetics and Selection
*AN SC 395(1-3):	Animal Science Internship
W F S 300(2):	The Vertebrates
W F S 301(2):	Vertebrate Laboratory

The student must select 6 credits from the following:

AG BM 407(3):	Farm Planning and Financial Management
AG BM 408(3):	Financial Decision Making for Agribusiness
AG BM 420(3):	Agribusiness Markets and Prices
AG BM 460(3):	Managing the Food System
AN SC 418(3):	Nutrient Management in Agricultural Systems
AN SC 420(4):	Animal Nutrition and Feed Technology
AN SC 421(3):	Poultry Evaluation and Selection
AN SC 423(3):	Comparative Physiology of Domestic Animals
*AN SC 496(3):	Independent Studies
FD SC 408(2):	Food Microbiology
FD SC 409W(3):	Laboratory in Food Microbiology
FD SC 411(2):	Managing Food Quality
FD SC 415(3):	Science and Technology of Muscle Foods
VB SC 420(3):	General Animal Pathology
WFS 406(1):	Ornithology Laboratory
WFS 407(3):	Ornithology
WFS 447W(3):	Wildlife Management

*AN SC 395 and AN SC 496 must have a poultry or av

PROCEDURES FOR ENROLLMENT

Students can enroll via LionPATH after they have completed 29.1 credits or more. For additional information contact the Assistant Professor of Poultry Science and Avian Health, Dr. Gino Lorenzoni, 306 Ag Sci Industries Bldg., University Park, PA 16802, phone (814) 863-7302. Email address: agl20@psu.edu

Penn State Animal Science Clubs

Department of Animal Science

PennState College of Agricultural Sciences

BLOCK AND BRIDLE CLUB

The Penn State Chapter of the National Block and Bridle Club is open to any Penn State student with an interest in the animal industries. Exciting club activities include the welcome back picnic, industry tours, and the fall and spring meat sales. The club also holds an annual "Beef up the Blood Supply" spring blood drive and collects "Blood for Bats" for the Philadelphia Zoo. Club members have a chance to travel to Harrisburg for the Keystone International Livestock Exposition, to help with the judging contest. Each spring, the club holds the annual Little International Livestock Exposition, where students have the opportunity to learn hands on how to prepare the exhibit horses, sheep, swine and beef cattle. Every year the club participates in the National Block and Bridle Convention. Club meetings are held the first and third Thursday of each month in 101 ASI Building. Advisers: Dr. Dan Kniffen, 320 ASI, 814-865-7809, Morgan Brumbaugh, 814-863-0831 & Mr. Ben Williamson 307 ASI, 814-867-4917.

COLLEGIATE HORSEMEN'S ASSOCIATION AT PENN STATE (CHAPS)

The Collegiate Horsemen's Association at Penn State (CHAPS) is a club for all Penn State equine enthusiasts. Members participate in horse-related activities such as mare groomings, industry-related activities and trips, various equine related demonstrations (round penning, mounted shooting, etc.), and socials. Many of our CHAPS members get involved with the Penn State Quarter Horse Breeding Farm, Penn State's Annual Quarter Horse Sale, and the Penn State equestrian teams. CHAPS meetings will be every other Tuesday of the month. Time and location will be announced. Advisers: Ms. Andrea Kocher, 314 ASI, 863-3957, alg917@psu.edu

DAIRY SCIENCE CLUB

The Dairy Science Club is open to Penn State students from all colleges who have an interest in the dairy industry. Major emphasis is placed on promotional, educational, and service events. Club activities are numerous and include the Nittany Lion Fall Classic Holstein Consignment Sale, Holiday Cheesebox Sale, Dairy Days Cow Camp, Spring Judging Contest, and the Dairy Exposition fitting and showmanship competition. Other events include public service activities such as various workshops and contests held for dairy youth across Pennsylvania. Club members travel to other states during the annual spring break trip. Recent domestic destinations included Texas and Arizona.. International destinations have included Italy, the Netherlands, and Costa Rica. Penn State has been recognized as the nation's outstanding student chapter by the American Dairy Science Association many times over the last 10 years. The Penn State Dairy Science Club meets every other Wednesday evening at 7:00 p.m. in 101 ASI Building. Advisers are Mr. Dale Olver, 349 ASI, dro105@psu.edu, and Dr. Chad Dechow, Almquist Research Center, cdd1@psu.edu.

MEAT SCIENCE CLUB

The Penn State Meat Science Club is open to both graduate and undergraduate students and focuses on careers and general interest in the meat industry. Speakers from different segments of the industry attend meetings in order to inform our members about their jobs and opportunities that may be available for food science & animal science majors. Student-led fundraisers include the following: manufacturing beef jerky, processing flavored hot dogs, as well as clothing sales. While our club grows, we have social events and industry tours, for example touring Bell and Evans poultry processing facility. We are lucky to have the Penn State Meat Science Lab that provides our group with hands-on learning opportunities in a safe, USDA-inspected meat processing facility. Adviser: Dr. Jonathan Campbell, 16A Meats Lab, 814.867.2880, meatscience@psu.edu

POULTRY SCIENCE CLUB

The Penn State Poultry Science Club is open to any student with an interest in poultry and avian species. Emphasis is placed on educational, service, and social events and activities. The two most anticipated events each year are the trip to Atlanta for the International Poultry Trade Show and College Student Career Program and the Spring Banquet. Other club activities include the fall and spring semester educational tours, community service projects (Heifer International, and Easter baskets for the Food Bank), the fresh turkey sale at Thanksgiving and numerous social activities. The Poultry Science Club has been consistently recognized nationally. The Club has won the National Scrapbook of the Year competitions and has been recognized as the National Club of the Year numerous times. Check out our web page at https://agsci.psu.edu/students/clubs/poultry-science for more information. The Penn State Poultry Science Club typically meets on the 1st, 3rd and 5th Wednesday of each month at 5:30 p.m. Come join us for dinner and a guest speaker. For more information, contact Montana Riggs, 317 ASI, mrr5507@psu.edu.

Penn State Animal Science Clubs

Department of Animal Science

PennState
College of Agricultural Sciences

PRE-VET CLUB (sponsored by the Department of Veterinary and Biomedical Sciences)

The Pre-Vet Club is designed to allow students interested in veterinary medicine as a career to interact with each other and provide an opportunity to gain experiences relevant to veterinary medicine. The club meets every other Monday evening to discuss current and upcoming activities and events as well as to listen to and interact with guest speakers from many different aspects of veterinary services, veterinary schools and animal-related activities. Club activities include offering a variety of faculty directed wet laboratories, volunteer experiences with local animal shelters, THON, and other social events. An organized trip to the annual American PreVeterinary Medical Association (APVMA) Symposium occurs every year. The club organizes opportunities to meet with admission officers of veterinary schools and visits to nearby veterinary schools. For more information, contact Dr. Robert Van Saun at rjv10@psu.edu: http://www.clubs.psu.edu/up/prevetclub/.

SMALL AND EXOTIC ANIMAL CLUB (SEAC)

Small and Exotic Animal Club (SEAC) strives to educate the Penn State community about current animal issues. The purpose of this group is to promote the improvement of animal welfare, increase education about small and exotic animals, and provide animal-oriented volunteer opportunities. The club strives to bring our members up close and personal with the animals we talk about through speakers with animal ambassadors and trips. Some of our activities include volunteering at T&D Cats of the World, trips to zoos and local farms, social events like formals and movie nights, and participating in events through the College of Agriculture. The club is open to any student with the desire to learn about a wide variety of animals and animal-related topics. Adviser: Dr. Nancy Dreschel, 312 ASI, 814-863-4197, nad5@psu.edu

PENN STATE COLLEGIATE CATTLEWOMEN CLUB

Penn State Collegiate Cattlewomen is a club available to students from any college who have an interest in cattle, both beef and dairy. Major emphasis is placed on promotional activities, educational events, and social events that will forge a closer bond among collegiate men and women with an interest in the animal industry. Important activities include the "Raise the Grade" Cattleschool, farm and industry tours, Meat-In Day, and attendance to the National Cattlemen's Beef Association Cattle Industry Annual Convention and Trade Show, where the American National Cattlewomen hold their annual meeting. Our goal as a club is to be a connection between the cattle industry and the university by providing accurate information at our various events. Collegiate Cattlewomen club meetings are held the second and fourth Thursdays of the month at 7 pm in 324 ASI. Advisers: Dr. Daniel Kniffen, 320 ASI, 814-865-7809, dmk28@psu.edu

Penn State recognizes that extracurricular activities contribute to the development of a well-rounded individual. The University provides many opportunities for entertainment, supplemental education, or involvement. Within the Penn State system there are some 400 student organizations.

Penn State Animal Judging Teams

Department of Animal Science

PennState College of Agricultural Sciences

DAIRY CATTLE JUDGING TEAM

The Dairy Cattle Judging Team is selected from interested students who attend workouts at the beginning of fall semester. Four student judges make up each Penn State team. Contest opportunities include the PA All-American Dairy Show in Harrisburg, World Dairy Exposition in Madison, Wisconsin, and North American Livestock Exposition in Louisville, Kentucky. Intensive training sessions are held at the Maryland State Fair and at outstanding farms around the nation. Contestants place classes, give reasons, and meet students from other universities. For more information, contact Mr. Dale Olver at dro105@psu.edu.

HORSE JUDGING TEAM

Members of the Penn State Horse Judging Team are selected from those students who have demonstrated their ability and interest in applying the "form and function" to selection of American Quarter Horses. Students interested in the team should enroll in AN SC 217-Introduction to Horse Judging (spring) prior to enrolling in AN SC 426-Advanced Judging and Selection (fall) and competing for a position on the team. The four-member team and one alternate compete at the All-American Quarter Horse Congress, Columbus, OH, and The AQHA World Quarter Horse Show in Oklahoma City, Oklahoma. Contestants place and give reasons on both halter and performance classes. Further practice in judging can be obtained in AN SC 327 and in special sessions scheduled for students interested in contest competition. For more information, contact Mr. Brian Egan at (814) 863-0569 or began@psu.edu.

LIVESTOCK JUDGING TEAM

The Penn State Livestock Judging Team is open to any student within the University who has a sincere interest in the improvement of meat animals utilizing modern techniques of evaluation and methods of selection. Students interested in the team should enroll in AN SC 324-Value Determination of Meat Animals (fall) and AN SC 424-Livestock Breeding, Evaluation and Selection (spring) prior to enrolling in AN SC 426-Advanced Judging and Selection (fall) and competing for a position on the team. The team of five to ten competes at four regional contests and two national intercollegiate contests: All-East, various universities east of the Mississippi; Keystone International, Harrisburg, PA; Main Event, Dayton, OH; American Royal, Kansas City, MO; and North American International at Louisville, KY. Students judge market and breeding beef cattle, sheep and swine, and provide oral reasons on selected classes. Performance records are incorporated in a variety of classes. For more information, contact Mr. Ben Williamson at (814) 865-1362 or bcw13@psu.edu.

POULTRY JUDGING TEAM

The Penn State Poultry Judging Team gives students the opportunity to attend two events per year. These poultry judging events consist of table egg quality, meat-carcass quality, breeder performance, and breed phenotype characteristics. The fall contest is held in Arkansas and the spring event takes place in Louisiana. By participating in the Poultry Judging Team, the benefit to students is four-fold: (1) provides decision analysis skills associated with genetic potential of poultry breeds; (2) provides decision analysis of poultry commodity quality (eggs/meat); (3) provides potential employers with information about students' association with extra-curricular activities related to poultry industry; and (4) provides students with interaction among national agricultural programs and students. For more information, contact Montana Riggs at mrr5507@psu.edu.

Penn State Animal Research Teams

Department of Animal Science

PennState College of Agricultural Sciences

PENN STATE EQUINE RESEARCH TEAM

The Penn State Equine Research Team is a club that is open to anyone with an interest in equine research. This team presents an opportunity for undergraduate students to gain exposure to this field, as well as develop a basic understanding of the "real world" of equine research. The meetings provide a setting for students with the same interests to engage in informal and enlightening discussion of equine science. This club is also a great opportunity for students to learn about graduate school opportunities here at Penn State, and across the country. Members will have the opportunity to help with research projects being carried out throughout the year, as well as gain hands on experience and insight into the world of equine research. Equine Research Team meetings will be the 3rd Tuesday of the month at 5:45 PM in 324 ASI. Adviser: Dr. Burt Staniar, 316 ASI, 814-865-0698; Dr. Danielle Smarsh, 315 ASI, 814-865-7810.

PENN STATE CENTER FOR REPRODUCTIVE BIOLOGY AND HEALTH RESEARCH TEAM

The CRBH Research Team's main goal is to assist in observations of estrus behavior and general health checks of dairy cows used for reproductive biology research. Each student will have the opportunity to interact with graduate students and postdoctoral associates in reproductive biology at meetings, learn about current research projects and why this research is likely to benefit both agriculture and human medicine. Through biweekly meetings, we discuss how to get involved in research and in the world of reproduction to help students find new interests within the field. Advisers: Dr. Adrian Barragan, axb779@psu.edu, Dr. Franciso Diaz, fjd10@psu.edu, and, Dr. Claire Stenhouse, cms9086@psu.edu.

PENN STATE SWINE RESEARCH TEAM

The Penn State Swine Research Team is a club designed to provide undergraduate students at Penn State an opportunity to gain experience working with swine. Members of the club will work on handling nursing piglets, helping with the farrowing process, and learning hands-on skills by weighing pigs at the Swine Research Center on campus. The data gained from this research is then applied to larger farming operations to support sow nutrition, piglet growth, and improve overall meat quality. This club offers research opportunities outside of the team related to working with finishing pigs on and off campus, as well as many leadership opportunities. This club is open to all students with an interest in swine research. Adviser: Dr. Elizabeth Hines, 353 ASI Building, eah405@psu.edu