

in exotic collections and managing the risk of zoonotic diseases. We will cover both specific information on animal disease and an introduction to clinical pathology, as it applies to the management of wild animals in captivity. Prerequisites: DS 3118 Anatomy and Physiology I, BY 3002 General Microbiology, or Permission of Instructor. 2 hours Lecture and 3 hours Laboratory — 3 credits

SA 4124

Pathology and Diseases of Small Animals

This is an advanced course addressing the basis of development of disease and the effect the process induces on tissues, organs, and the body. The last third of the course examines specific diseases or disease conditions of small animals. Prerequisites: DS 3118 Anatomy and Physiology I, BY 3002 General Microbiology, or Permission of Instructor. Spring semester. 2 hours Lecture and 3 hours Laboratory — 3 credits

SA 4129

Clinical Pathology

This subspecialty of pathology is concerned with the theoretical and technical aspects (methods or procedures) of chemistry, bacteriology, virology, mycology, parasitology, immunology, hematology, and biophysics as they pertain to the diagnosis of disease and the care of animal patients. This course stresses deductive reasoning. Prerequisites: SA 4124 Pathology and Diseases of Small Animals, DS 3118/3221 Anatomy and Physiology I and II, or Permission of Instructor. Fall semester. 2 hours Lecture and 3 hours Laboratory — 3 credits

SA 4222

Reproduction of Small Animals

This course deals with the special problems encountered in small animal reproduction. An extensive laboratory emphasizes manipulation of the reproductive system, application of techniques utilizing hormones, fertilization, fetal development and in vitro manipulation of murine gametes and embryos. Prerequisites: SA 4121 Small Animal Management and DS 3118/3222 Anatomy and Physiology I and II, or Permission of Instructor. Fall semester. 2 hours Lecture and 3 hours Laboratory — 3 credits

SA 4224

Nutrition for Exotic Animals

This course deals with the special nutritional problems posed by wild animals in captivity. Zoos contain hundreds of species, each representing a digestive strategy

for a specific ecological niche. Adapting a substitute diet to meet these varied needs is a challenge. Students will combine information on natural history, historical records, and domestic animal models to design feeding programs for captive wildlife. Prerequisites: CH 2003 Principles of Organic Chemistry or CH 2120 Organic Chemistry I. 2 hours Lecture and 3 hours Laboratory — 3 credits

SA 4225

Small Animal Research Techniques

Students are introduced to all phases of research from literature search, planning and performing experiments, to the writing of a research paper. Further experience is gained in anesthesia, surgical techniques, and animal models of human disease. Transgenic technology is discussed extensively and techniques are introduced in the laboratory. Techniques that reduce the number of animals used in research are stressed. Prerequisites: Required: SA 4121 Small Animal Management, DS 3118/3222 Anatomy and Physiology I and II or BY 2223 Comparative Anatomy and BY 4257 Comparative Physiology, or Permission of Instructor. Recommended: SA 4222 Reproduction of Small Animals. Spring semester. 2 hours Lecture and 3 hours Laboratory — 3 credits

Employment Program

SA 2370

Employment Program

Each student is required to spend 500 hours in approved employment related to the student's major. Registration for each Employment Program must occur prior to the beginning of a relevant experience. Registration materials are available from the Office of Career and Life Education, located in Segal Hall — 4 credits

** All or part of the course will be taught at an off-campus location. Students must provide their own transportation.*

ANIMAL SCIENCE - LARGE (AS)

AS 1000

Survey of Animal Agriculture

Large Animal Science students, matriculating from approved High School Vo-Ag programs, may receive 3 elective credits at the end of their freshman year at Delaware Valley College. Contact the Large Animal Science Department for application procedures — 3 credits

Course Descriptions

AS 1006

Introduction to Animal Science

The lectures present an overview of management and production practices for dairy, beef, horses, sheep, swine, and poultry. The associated laboratories acquaint the student with working procedures in common practice. 2 hours Lecture and 3 hours Laboratory — 3 credits

AS 1045

Livestock Industries and Careers

A course emphasizing the variety of production systems and careers which exist in the beef cattle, sheep, swine, poultry, and horse industries. This overview provides the basis for students selecting production courses in their senior year and aids in developing a career focus. Required of Large Animal Science students. Elective for other students. 2 hours Lecture — 2 credits

AS 1101

Stable Management

An introductory level course designed to emphasize the management and practical care of equine facilities and horses. Required management participation involves time commitments in addition to regularly scheduled class hours. 3 hours Lecture and 2 hours Laboratory — 3 credits

AS 2116

Livestock Evaluation

This course emphasizes the factors that contribute to livestock utility. The relationship between the live animal and the carcass is covered as well as an introduction to livestock judging and oral reason presentation. The various systems of production, testing and grading are also given prominence. 2 hours Lecture and 3 hours Laboratory — 3 credits

AS 3000, 4000

Selected Topics I and II

Special projects designed to meet individual needs of students in the specialized fields of agriculture. Projects will be arranged on a one-to-one basis with a department faculty member and with the approval of the Department Chairperson. Total Selected Topics credits accepted toward graduation is limited to 2 credits. 3 hrs of student/faculty instruction per week, 1 credit each.

AS 3123

Animal Husbandry Techniques

The course presents an overview of techniques associated with handling, restraint, injections, and identification of livestock. Additional management techniques are performed on college livestock as livestock production schedules require. 1 hour Lecture and 3 hours Laboratory — 2 credits

AS 3209

Advanced Selection of Livestock

This course is designed to instruct the student in the comprehensive judging and selection of livestock, as well as live animal pricing and grading. The student will also receive an in-depth study of reasons, preparation and presentation. Prerequisite: Livestock Evaluation or Permission of Instructor. 3 hours Laboratory — 1 credit

AS 3210

Mare and Foal Management

An advanced course involving the care and management of breeding, pregnant and foaling mares. Care of newborn foals during the first six months of life are emphasized. Prerequisite: Horse Breeding Management. Time outside of regular class hours is required — 3 credits

AS 4014

Beef Science

This course provides an in-depth review of the beef industry and includes cow-calf, stocker, and feedlot production. Included is a study of the theory and practice of feeding, breeding and overall management of beef cattle. Prerequisites: Animal Feeding and Nutrition, Physiology of Reproduction and Livestock Genetics. Time commitment required outside of regularly scheduled class hours. 2 hours Lecture and 3 hours Laboratory — 3 credits

AS 4016

Seminar (Animal Science)

The study of recent research and development in the field of Animal Science with special emphasis on oral presentations. Prerequisite: Speech. 1 hour of Lecture and Discussion — 1 credit

AS 4027

Sheep Science

This is a comprehensive introduction to the feeding, breeding, housing, care and management of sheep. While the lectures focus on current practices employed in both large and small operations, the lab-

oratories offer opportunities to apply management practices and to visit a variety of commercial operations in the area. Prerequisites: Animal Feeding and Nutrition and Genetics of Livestock. Two of Lecture and three hours of Laboratory — 3 credits

AS 4028
Swine Science

This course provides a thorough introduction to all aspects of swine production and management. The lectures cover current practices regarding nutrition, breeding, housing, and health care, while laboratories provide opportunities to apply management techniques. Time commitment required outside of regularly scheduled class hours. 2 hours Lecture and 3 hours Laboratory — 3 credits

AS 4029
Poultry Science

This course is a broad study covering the breeds and varieties of poultry used commercially for meat and eggs. It includes the production methods, management practices, marketing procedures, processing systems and techniques commonly current in the poultry industry. Time commitment required outside of regularly scheduled class hours. 2 hours Lecture and 3 hours Laboratory — 3 credits

AS 4041
Senior Research

Selected seniors engage in supervised investigations involving library work and laboratory or field experiments related to Animal Science. Requirement: Permission of Department Chairperson. 1-3 credits

AS 4051
Current Topics

This is a research and discussion course that emphasizes topics of current interest to the animal and dairy industries. May be repeated to a maximum total of 2 credits. 1 hour Lecture and Discussion — 1 credit

AS 4106
Principles of Animal Nutrition

A study of the principles and fundamentals of nutrition in livestock. Emphasis is placed on comparative relationships of good nutrients to metabolic processes in domestic animals and on current research and development in the field of animal nutrition. Prerequisite: Introduction to Animal Science, Principles of Organic Chemistry or Organic Chemistry I. Permission of Instructor. 2 hours Lecture and 3 hours Laboratory — 3 credits

AS 4111
Yearling Horse Sale Management

An advanced course involving the management of yearling horses including sales preparation, development of a consignment, sales advertising, video taping sales horses, and working a yearling sale. Prerequisite: Horse Breeding Management. Time outside of regular class hours is required — 2 credits

AS 4130
Advanced Livestock Judging

This course provides intensive training in selection of livestock using subjective and objective measurements as well as the use of oral reasons to explain and defend decisions. An intercollegiate Livestock Judging Team will be selected from students taking this course. Due to considerable travel and time required, enrollment is limited and a 2.2 academic average is required. In addition, the course begins one week prior to the start of the Fall Semester. Prerequisite: Advanced Selection of Livestock. 3 hours Laboratory — 1 credit

AS 4214
Animal Diseases

A study of prevention, recognition, and treatment of diseases in animals, with emphasis on domestic livestock and consequences of disease to production agriculture and human health. Prerequisites or corequisite: Anatomy and Physiology. 3 hours Lecture — 3 credits

AS 4219
Horse Breeding Management

A course designed to acquaint the student with the operation of a horse breeding farm. Teasing, breeding, foaling, mare and stallion care, and foal care are emphasized. Students manage the College's breeding facility. Required management participation requires time commitments in addition to regularly scheduled class hours. 2 hours Lecture and 3 hours Laboratory — 3 credits

AS 4221
Equine Exercise Physiology

This course involves a survey and the critical evaluation of the current concepts regarding the physiological and environmental factors associated with exercise in the horse. Prerequisite: DS 3118/3221 Anatomy and Physiology or ES 3217 Equine Anatomy and Physiology and permission of the Animal Science Department Chair. This course is offered on the campus of Rutgers University, New Brunswick, NJ as part of a credit exchange program. Elective for full-time

Course Descriptions

Delaware Valley College students only. 3 hours
Lecture — 3 credits

AS 4223

Advanced Equine Nutrition

An advanced course in equine feeding and nutrition emphasizing current research being conducted in the field and the application of research findings to current problems associated with feeding the equine athlete. This course is offered on the campus of Rutgers University, New Brunswick, NJ as part of a credit exchange program. Elective for full-time Delaware Valley College students only. 3 hours Lecture — 3 credits

AS 5000

Hartpury Exchange

A semester exchange with the Hartpury College in Gloucestershire, Great Britain for qualified Large Animal Science Majors. Students will pursue coursework in Animal Science and Livestock Production from the British perspective. Spring semester of Junior year. Minimum 3.0 GPA and permission of the Department. Contact the Large Animal Science Department for application procedures.

AS 2370

Employment Program

Each student in Animal Science is required to spend 24 weeks (500 hours) in approved jobs related to the student's major. Registration for each Employment Program must occur prior to the beginning of a relevant experience. Registration materials are available from Career Services, located in Segal Hall. 24 weeks of On-the-Job-Training — 4 credits

BIOLOGY

BY 1113, 1214

Biology I and II

An introduction to biology. These two courses emphasize the organization, structure and basic principles governing the lives of all organisms at the molecular, cellular, tissue and organ system, organism and population levels. The courses are a continuum and are to be taken in sequence. Biology I includes cytology, energetics, genetics, kinds of organisms, and nervous and circulatory systems. Biology II continues with organ systems of animals and plants, reproduction, development, behavior, ecology and evolution. The laboratory involves a dynamic study of these principles with the use of living materials as much as is feasible. Biology I is a prerequisite for

Biology II. This is the introductory biology sequence required for Biology majors. 3 hours Lecture and 3 hours Laboratory each — 4 credits each

BY 1115, 1216

Natural Science I and II

Natural Science I introduces some of the basic physical and chemical principles that affect our world and then concentrates on the biological principles that pertain to living things in general and human beings in particular. The concepts build from the cellular level to the systems level and then to the organism as a whole. Natural Science II is a continuation of Natural Science I and begins with a study of basic ecological concepts. It builds to an examination of the roles humans have played in creating some of the problems we face today as well as the roles we may play to help alleviate them. Topics include population growth, energy sources, and air, water, solid waste, and toxic waste pollution. Natural Science I (or permission of the Department Chairperson) is a prerequisite for Natural Science II. Not available to Biology majors and does not substitute for an introductory biology course. 3 hours Lecture each — 3 credits each

BY 1116, 1217

Biological Science I and II

An introduction to the study of life featuring: molecular and cellular biology; genetics; metabolism; survey of the animal kingdom; animal organ systems and embryology; survey of the botanical kingdoms; seed plant structure, function, and development; behavior; evolution; and ecology. Biological Science I is a prerequisite for Biological Science II. This is the introductory biology sequence for majors other than Biology majors. Permission of Department Chairperson is required for Biology majors. 2 hours Lecture and 3 hours Laboratory each — 3 credits each

BY 2001

Botany

Plant structure, function, and development are studied in this course, followed by a survey of the botanical kingdoms, stressing reproductive cycles and evolution. Laboratory slides and specimens are complemented by field work. Prerequisite: Biology II or Biological Science II. 3 hours Lecture and 3 hour Laboratory — 4 credits

BY 2003

Genetics

This course includes a study of Mendelian principles, population genetics, and the modern molecular con-