

Zoo and Aquarium Studies 2010-2011

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Location of Program Offering: Macomb, Quad Cities, Shedd Aquarium

Program Description

The post-baccalaureate certificate program in Zoo and Aquarium Studies provides detailed knowledge about the biology of special groups of animals often kept in captivity like dolphins, seals, primates, big cats, canids, large birds, or large reptiles; background in the basic concepts and techniques of animal training; practical management skills required for working with people, budgets, and time at zoos or aquaria; information on policies and regulations that affect the operations of zoos and aquaria; practical, hands-on experience working with animals and with the personnel at a zoo or aquarium; network of people employed at local zoos and aquaria; access to available jobs at zoos or aquaria.

Requirements for Enrollment

Applicants to the Zoo and Aquarium Studies certificate program must have an undergraduate GPA of 2.75 (on a 4.0 scale) and have a bachelor's degree in one of the following majors: biology, zoology, ecology, environmental studies, animal science, psychology, or RPTA. Students must be able to meet the prerequisites of the courses required in the certificate program.

Certificate Requirements

I. Core Courses: 12 s.h.

ZOOL 578 Zoo/Aquarium Practicum (3)
ZOOL 584 Biological Studies in Zoos and Aquaria (3)
ZOOL 553 Animal Behavior (3)
or
ZOOL 585 Animal Training (3)
RPTA 489G Park Maintenance and Operations Management (3)
or
RPTA 526 Fiscal Management in Leisure Services(3)
or
MGT 500 Management of People and Organizations(3)
or
BIOL 583 Organizational Management in Zoos and Aquaria (3)

II. Electives: 6 s.h.

Electives should be selected in consultation with the adviser or Department Chairperson

ZOOL 410G Ornithology (3)
ZOOL 411G Entomology (3)
ZOOL 412G Mammalogy (3)
ZOOL 414G Ichthyology (3)
ZOOL 416G Marine Mammalogy (3)
ZOOL 430G Animal Physiology (3)

ZOOL 451G Animal Ecology (3)
ZOOL 452G Freshwater Biology (3)
ZOOL 460G Parasitology (3)
ZOOL 553 Animal Behavior (3) *if not used as a required course
ZOOL 554 Limnology (3)
ZOOL 561 Fisheries Management (3)
ZOOL 583 Bioacoustics (3)
ZOOL 585 Animal Training (3) *if not used as a required course
ANTH 410G Anthrozoology (3)
BIOL 440G Advanced Genetics (3)
BOT 423G Phycology (3)
SCED 490G Environmental Science Education for Elementary Teachers (3)
SCED 491G Biological Science for Elementary Teachers (3)
SCED 507 Science in the Early Childhood Classroom (3)
SCED 562 Science Curriculum in the Elementary School (3)
CONS 405G Soil and Water Conservation (4)
RPTA 580 Skills in Community Development (3)
IDT 516 Internet Resources for Education and Training (3)
AgTM 458G Agricultural Construction and Confined Animal Environments (4)
ANSC 422G Applied Ruminant and Non-Ruminant Nutrition (3)
ANSC 424G Physiology of Reproduction and Lactation (3)

TOTAL: 18 s.h.

Course Descriptions

Agricultural Technology Management

458G Agricultural Construction and Confined Animal Environments. (4) Addresses principles, design, and construction of wood, metal, and concrete structures in agriculture. Study of livestock manure and water systems, and environmental control of confined livestock facilities. *Prerequisite: AGTM 250 or permission of the instructor.*

Animal Science

422G Applied Ruminant and Non-Ruminant Nutrition. (3) Basic chemical and physiological principles as they apply to the nutrition of ruminants and non-ruminants. Consideration of common nutrition problems, feed additives, and growth stimulants. Two hours lecture, two hours lab. *Prerequisite: ANSC 222.*

424G Physiology of Reproduction and Lactation. (3) Principles of physiology and functioning of the endocrine system in relationship to reproduction, infertility, and lactation in farm animals. Three hours lecture. *Prerequisite: ANSC 112, BOT 200, and ZOOL 200.*

Anthropology

410G Anthrozoology. (3) Anthrozoology examines human-animal relationships from the perspective of anthropology with an emphasis on culture and its influence on attitudes toward animals. *Prerequisites: ANTH 110 or permission of the instructor; graduate standing in biology.*

Biology

440G Advanced Genetics. (3) Topics vary and may include molecular genetics, regulation of protein synthesis, mutagenesis, gametogenesis, and genetic control of differentiation and morphogenesis. *Prerequisites: BOT 200, ZOOL 200, BIOL 330, 340, and one year of chemistry; graduate standing in biology.*

583 Organizational Management in Zoos and Aquaria. (3) This course challenges future professionals in zoos and aquaria to contemplate the multiple disciplines and factors at work in this setting. Students will receive practical information and insight from seasoned professionals using real world examples and best practices from the zoo and

aquarium industry. Topics range from personal development, staff and resource management, and the future of zoos and aquaria. *Prerequisites: Acceptance in the post-baccalaureate certificate program in Zoo and Aquarium Studies.*

Botany

BOT 423G Phycology. (3) Morphology, taxonomy, physiology, genetics, and ecology of the algae, particularly freshwater forms. *Prerequisites: BOT 200 and ZOOL 200; graduate standing in biology.*

Conservation

405G Soil and Water Conservation. (4) The study of the maintenance of a quality environment through the conservation of soil and water resources. Four hours lecture.

Instructional Design and Technology

516 Internet Resources for Education and Training. (3) Focuses on developing skills in utilizing electronic mail and World Wide Web browsers to locate, download, and integrate Internet resources. Opportunities for students to develop Web pages and discuss issues and challenges surrounding the use of the Internet. *Prerequisite: Working knowledge of computers.*

Management

500 The Management of People and Organizations. (3) This course focuses on the theories and applications of managing people and organizations including the functions of management, organization behavior, organization theory, and human resource management. Topics include decision making/problem solving, planning and organizing, motivation, leadership, organizational change, communication, conflict, teamwork, human resource planning, performance appraisal, training and development, negotiations, and reward systems.

Recreation, Park and Tourism Administration

489G Park Maintenance and Operations Management. (3) Explores procedures and problems of recreation area operation with emphasis on planning and management for maintenance efficiency. Topics include planning, scheduling, standards, cost control, vandalism, etc. *Prerequisite: Permission of the instructor.*

526 Fiscal Management in Leisure Services. (3) This course examines the fiscal process in leisure service organizations, analyzes revenue production and expenditure alternatives, and identifies internal and external control mechanisms.

580 Skills in Community Development. (3) This course emphasizes the practical skills required to be an effective community developer, including conflict resolution, leadership, communication, and community capacity-building. The focus is on skill-building, as students are provided opportunities to practice new techniques. Topics will be modified as new technologies and other external factors impact the practice of community development. Graded S/U.

Science Education

490G Environmental Science Education for Elementary Teachers. (3) Provides teachers with background information related to various environmental concepts and issues through numerous activities, including field trips. Topics include map and compass reading, forests, woodlands, ponds, wetlands, rivers, predator/prey relationships, rocks, tree identification, minerals, water quality testing, and weather.

491G Biological Science for Elementary Teachers. (3) Designed to strengthen teachers' biological science background. Emphasis is on life science concepts from contemporary elementary curricula, stressing direct experience in laboratory activities. Topics include plant growth, development, physiology, propagation,

classification, microscope work, animal activity, microscopic work, animal activity, microscopic organisms, human biology, and outdoor biology.

507 Science in the Early Childhood Classroom. (3) This course is designed around a constructivist approach to early childhood science education (preschool-grade 3). The focus of this course is on children - how they experience the world, interact with each other, pose questions and problems, and construct knowledge. Topics will include integrated and thematic curriculum representing the life, earth, physical, and environmental sciences. Current research related to the brain and children's thinking, and curriculum models dealing with modeling, role playing, cooperative play, and the culture of the early childhood classroom will be emphasized. Alternative assessment models for the early childhood science classroom will also be examined.

562 Science Curriculum in the Elementary School. (3) An analysis of the latest curriculum innovations in elementary science education, and the application of recent discoveries in learning theory to the teaching of elementary science. Emphasis will be placed on the development of a contemporary philosophy of elementary science and its contribution to the total science program.

Zoology

410G Ornithology. (3) Identification, biology, ecology, and life histories of birds. *Prerequisites: BOT 200 and ZOOL 200; graduate standing in biology.*

411G Entomology. (3) Principles of entomology, including classification, general biology, and morphology. *Prerequisites: BOT 200 and ZOOL 200; graduate standing in biology.*

412G Mammalogy. (3) Identification, classification, distribution, and life histories of mammals. *Prerequisites: BOT 200 and ZOOL 200; graduate standing in biology.*

413G Herpetology. (3) Identification, classification, distribution, and biology of reptiles and amphibians. *Prerequisites: BOT 200 and ZOOL 200; graduate standing in biology.*

414G Ichthyology. (3) Identification, classification, distribution, and life histories of fishes. Field Trip estimate: \$10. *Prerequisites: BOT 200 and ZOOL 200; graduate standing in biology.*

416G Marine Mammalogy. (3) Survey of marine mammals with emphasis on taxonomy, anatomy, physiology, behavior, ecology, and conservation. Laboratory includes observational study of marine mammals at the Shedd Aquarium. *Prerequisites: BOT 200 and ZOOL 200; graduate standing in biology or related field.*

430G Animal Physiology. (3) Primarily mammalian physiology, concerning the functions of nervous muscular, respiratory, digestive, excretory, reproductive, and endocrine systems. *Prerequisites: BOT 200, ZOOL 200 and one year of chemistry; graduate standing in biology.*

451G Animal Ecology. (3) Relationships of animals in their environment. *Prerequisites: BOT 200 and ZOOL 200; graduate standing in biology.*

452G Freshwater Biology. (3) Common freshwater organisms and some of their relationships to one another, to their environment, and to humans. *Prerequisites: BOT 200 and ZOOL 200; graduate standing in biology.*

460G Parasitology. (3) The study of animal parasites. *Prerequisites: BOT 200 and ZOOL 200; graduate standing in biology.*

553 Animal Behavior. (3) The activities and responses of animals which facilitate survival under natural conditions. *Prerequisites: Graduate standing in biology.*

554 Limnology. (3) The study of inland waters and their biological, physical and chemical parameters. Outside field trips required. *Prerequisite: At least 18 hours of biology, introductory chemistry and physics; graduate standing in biology.*

561 Fisheries Management. (3) Techniques of study, maintenance, and improvement of fisheries resources. *Prerequisites: ZOO 414 or permission of the instructor; graduate standing in biology.*

578 Zoo/Aquarium Practicum. (3) Gain practical experience at organizations that hold captive animals, such as zoos, aquaria, oceanaria, or animal rehabilitation facilities. Experience includes legal issues, ethical issues, husbandry standards and methods, research methods, organizational structure and policy, and facilities management. Students must work a minimum of 120 hours at the facility. Graded S/U. *Prerequisites: Acceptance in the post-baccalaureate certificate program in Zoo and Aquarium Studies.*

583 Bioacoustics. (3) Survey of animal adaptations for producing and receiving sound. The effects of human-generated noise on wildlife is described. Techniques for recording sounds, and measuring amplitude and frequency, and time characteristics of sounds are demonstrated. Students will make recordings of animals in the field. Analysis of animal sounds using computer programs is required. *Prerequisite: One year of college physics, or permission of the instructor.*

584 Biological Studies in Zoo and Oceanaria. (3) This course discusses the types of studies suited to animals in a captive environment, current research trends, and new techniques being applied to animals in a zoo or oceanarium setting. Long-term monitoring of animals with known life histories provides unique research opportunities. Course covers topics on a variety of vertebrates and emphasizes research conducted at local zoos or oceanaria. Student research project required. *Prerequisites: At least one year of college-level biology, senior biology major, or permission of the instructor.*

585 Animal Training. (3) This course discusses concepts of training in a variety of animals. Techniques for observing behavior, operant conditioning, research, and husbandry/medical training are described. Laboratories include training demonstrations on animals at the Shedd Aquarium. *Prerequisites: At least one year of college-level biology or psychology, senior biology major, or permission of the instructor.*