ANIMAL BIOLOGY GRADUATE (ABG)

College of Agricultural & Environmental Sciences

ABG 200A — Integrated Animal Biology I (3 units)

Course Description: Natural history, management, historical and current uses, and specialized disciplinary features of model and novel animal systems used in research. Development of conceptual approaches in organismal biology to improve experimental design and interpretation of interdisciplinary research studies.
Prerequisite(s): BIS 101 or BIS 101V; or consent of instructor, or equivalent course; graduate standing.
Learning Activities: Lecture/Discussion 3 hour(s).
Enrollment Restriction(s): Limited to 20 students; Pass One restricted to Animal Biology Graduate Group students.
Grade Mode: Letter.

ABG 200B — Integrated Animal Biology II (3 units)

Course Description: Natural history, management, historical and current uses, and specialized disciplinary features of model and novel animal systems used in research. Development of conceptual approaches in organismal biology to improve experimental design and interpretation of interdisciplinary research studies.
Prerequisite(s): ABG 200A.
Learning Activities: Lecture/Discussion 3 hour(s).
Enrollment Restriction(s): Limited enrollment; Pass One restricted to Animal Biology Graduate Group students.
Grade Mode: Letter.

ABG 201 — Mastering Your Masters (1 unit)

Course Description: Guided and mentored development of scientific, professional skills and personal development for masters candidates in the Animal Biology Graduate Group.
Learning Activities: Seminar 1 hour(s).
Enrollment Restriction(s): Restricted to Animal Biology graduate students.

Grade Mode: Letter.

ABG 202 — Grant Procurement & Administration (2 units)

Course Description: Topics include: structure of grants, attention to specifications, concise persuasive writing, and grant budgeting. Identify grant opportunities, write a persuasive research grant proposal, and administer grants.
Prerequisite(s): ABG 200B.
Learning Activities: Lecture 1 hour(s), Discussion/Laboratory 1 hour(s).
Enrollment Restriction(s): Limited to 12 graduate students; Pass One restricted to Animal Biology Graduate Group students.
Grade Mode: Letter.

ABG 203 — Advanced Animal Welfare (3 units)

Course Description: Advanced animal welfare. Key concepts used when evaluating and understanding the welfare of animals kept by humans. Topics include animal pain, stress, cognition, motivation and emotions. Critical discussion of primary literature.
Prerequisite(s): ANS 103; or consent of instructor.
Learning Activities: Lecture 3 hour(s).
Enrollment Restriction(s): Open to graduate students only.
Repeat Credit: May be repeated 1 time(s) every other year, when topic differs.
Grade Mode: Letter.

ABG 205 — Advanced Nutritional Energetics (3 units)

Course Description: History of nutritional energetics. Evaluation of energy transformations associated with food utilization. Energy expenditures at cellular, tissue, and animal levels as affected by diet and physiological state. Current and future feeding systems.
Prerequisite(s): ABI 102, ABI 103, (NPB 101 or NPB 101V); or the equivalent courses.
Learning Activities: Discussion/Laboratory 1 hour(s), Lecture 2 hour(s).
Enrollment Restriction(s): Limited to 30 students.
Grade Mode: Letter.

ABG 211 — Advances in Animal Biotechnology & Genetics (3 units)

Course Description: Introduction to advanced techniques used for assisted reproductive technologies in mammals and birds, genetic engineering, gene editing, stem cell biology. Offered in alternate years.
Prerequisite(s): NPB 121; (BIS 101 or BIS 101V); or consent of instructor.
Learning Activities: Lecture/Discussion 3 hour(s).
Enrollment Restriction(s): Pass One restricted to graduate students.
Grade Mode: Letter.

ABG 250 — Mathematical Modeling in Biological Systems (4 units)

Course Description: Model development and evaluation including sensitivity analyses using R. Four principle modeling methodologies included: algebraic functions of biological processes, physiological-based compartmental models, linear programming and meta-analysis. Fundamental background and understanding of mathematical modeling principles in biological systems.
Prerequisite(s): MAT 016A; MAT 016B; STA 100; or equivalents required; graduate standing; more than one course in statistics recommended; ABI 102 or BIS 102 recommended or equivalent course in biochemistry.
Learning Activities: Lecture/Discussion 4 hour(s).
Enrollment Restriction(s): Limited enrollment.
Grade Mode: Letter.

ABG 251 — Gastrointestinal Microbiology of Livestock (3 units)

Course Description: Microbiology of the gastrointestinal tract of ruminants and other livestock species; its relation to improving livestock production.
Prerequisite(s): Graduate standing.
Learning Activities: Lecture 3 hour(s).
Grade Mode: Letter.

ABG 255 — Physiology of the Stress Response (2 units)

Course Description: Definition of Stress; Physiological mechanisms of adaptation to stress; Hormonal control of the systemic stress response; Mechanisms of the cellular stress response; Discussion of current trends in stress physiology and current methods for studying the stress response.
Prerequisite(s): Graduate standing.
Learning Activities: Lecture/Discussion 2 hour(s).
Cross Listing: MCP 255.
Grade Mode: Letter.

ABG 290 — Seminar in Animal Biology (1 unit)

Course Description: Seminar on advanced topics in animal biology. Presentations by members of the Animal Biology Graduate Group and guest speakers.
Prerequisite(s): Graduate standing.
Learning Activities: Seminar 1 hour(s).
Repeat Credit: May be repeated.
Grade Mode: Satisfactory/Unsatisfactory only.

ABG 290C — Research Conference (1 unit)

Course Description: Student presentations of research in Animal Biology and discussions among participating students and Animal Biology faculty.
Prerequisite(s): Consent of instructor; graduate standing.
Learning Activities: Discussion 1 hour(s).
Repeat Credit: May be repeated.
Grade Mode: Satisfactory/Unsatisfactory only.

ABG 298 — Group Study in Animal Biology (1-5 units)

Course Description: Group study in Animal Biology.
Prerequisite(s): Consent of instructor; graduate standing.
Learning Activities: Lecture.
Repeat Credit: May be repeated 2 time(s).
Grade Mode: Letter.

ABG 299 — Research (1-11 units)

This version has ended; see updated course, below.
Course Description: Research with a faculty member in Animal Biology Graduate Group.
Prerequisite(s): Consent of instructor; graduate standing.
Learning Activities: Discussion/Laboratory 3-33 hour(s).
Repeat Credit: May be repeated.
Grade Mode: Satisfactory/Unsatisfactory only.

ABG 299 — Research (1-12 units)

Course Description: Research with a faculty member in Animal Biology Graduate Group.
Prerequisite(s): Consent of instructor; graduate standing.
Learning Activities: Variable.
Repeat Credit: May be repeated.
Grade Mode: Satisfactory/Unsatisfactory only.
This course version is effective from, and including: Fall Quarter 2026.

ABG 300 — Methods in Teaching Animal Biology (2 units)

Course Description: Practical experience in the methods and problems of teaching animal biology. Includes analysis of laboratory exercises, discussion of teaching techniques, grading scientific essays, preparing for and conducting discussion or laboratory sections, formulating quiz and exam questions under instructor supervision.
Prerequisite(s): Consent of instructor; graduate standing.
Learning Activities: Lecture/Discussion 2 hour(s).
Repeat Credit: May be repeated 3 time(s).
Grade Mode: Satisfactory/Unsatisfactory only.

ABG 396 — Teaching Assistant Training Practicum (1-4 units)

Course Description: Teaching assistant training practicum.
Prerequisite(s): Consent of instructor; graduate standing.
Learning Activities: Variable 3-12 hour(s).
Repeat Credit: May be repeated.
Grade Mode: Satisfactory/Unsatisfactory only.

ABG 401 — Ethics & Professionalism in Animal Biology (2 units)

Course Description: Case studies and discussion of ethical and professional issues for animal biologists, including the use of animals in research and teaching, patenting and intellectual property, consulting and conflict of interest, scientific integrity, dealing with the media, and mentoring relationships.
Learning Activities: Discussion 2 hour(s).
Enrollment Restriction(s): Restricted to graduate standing; Pass One restricted to Animal Biology graduate group students.
Grade Mode: Letter.