ABG 200A
Integrated Animal Biology I

The course is designed to provide foundation level understanding of principles contributing to integrated animal biology and expose students to some recent advances in the respective disciplines. Students write and present two projects: the first is a brief description of proposed Ph.D. research project, the second is the student's perception of the next research step given the current state of knowledge in a specific field chosen from recent research advances involving interdisciplinary animal biology.

2009 Syllabus

ABG 200A
2:10-3:30 Monday and Thursday
1338 Meyer Hall
Berger and DePeters

Schedule

September 24	Berger	Introduction
September 28	Berger	Reproduction
October 1	Berger	Reproduction
October 5	Adams	Endocrinology
October 8	Adams	Endocrinology
October 12	DePeters	Nutrition
October 15	DePeters	Nutrition
October 19	Student presentations	
October 22	Student presentations	
October 26	Tucker	Behavior
October 29	Tucker	Behavior
November 2	Millam	Environment
November 5	Millam	Environment
November 9	Medrano	Genetics
November 12	CABA tour	
November 16	Medrano	Genetics
November 19	Radke	Immunology
November 23	Radke	Immunology
November 30	student presentations	
December 3	student presentations	

Final 8AM on December 11.

Grading will be based on student presentations (15% for first and 25% for second), participation in class discussions (20%), and a final exam (40%).

The first series of student presentations will be **10** minute presentations on **proposed Ph.D.** research. A written description of the project (3-5 pages) will be due on October 19. This description should include background and hypothesis as well as species used to test the hypothesis. The second series of student presentations will again be **10** minutes long and be based your decision of the most important next step to undertake, your hypothesis of the mechanism, and experimental design to test your hypothesis following Dr. Jim Ireland's work on ovarian oocyte reserve. He has mentioned previously that prenatal nutrition affects adult ovarian oocyte numbers in dairy cows and will be giving a seminar in 2154 Meyer at noon, November 9, Physiological Significance of the High Variation in Antral Follicle Count during Ovarian

Follicular Waves in Young Adult Cattle. A three to five page paper about your idea of the next research step, hypothesis, and experimental design will be due on November 30.

2010 course syllabus

ABG 200A
2:10-3:30 Tuesday and Thursday
1338 Meyer Hall
Berger and DePeters

Schedule

September 22	Berger	Introduction	Discussion Responsibility
September 27	Berger	Reproduction	
September 29	Berger	Reproduction	
October 4	Adams	Endocrinology	
October 6	Adams	Endocrinology	
October 11	DePeters	Nutrition	
October 13	DePeters	Nutrition	
October 18	Student presentations		----------
October 20	Student presentations		----------
October 25	Radke	Immunology	
October 27	Radke	Immunology	
November 1	Millam	Environment	
November 3	Millam	Environment	
November 8	Kebreab	Modeling Biological Systems	
November 10	Fadel	Modeling Biological Systems	
November 15	Murray/Maga	Genetics /Policy on Transgenetic Animals	
November 17	Murray/Maga	Genetics /Policy on Transgenetic Animals	
November 22	Tucker	Animal Behavior	
November 29	student presentations		
December 1	student presentations		

December 7 6-8 PM Wednesday final exam time

Grading will be based on student presentations (15% for first and 25% for second), participation in class discussions (20%), and a final exam (40%).

The first series of student presentations will be **10** minute presentations on **proposed Ph.D.** research. **This is not about your M.S. research.** A written description of the project (3-5 pages) will be due on October 18. This description should include background and hypothesis as well as species used to test the hypothesis. Your approach to testing the hypothesis is very important; this is described as the experimental design. (This should answer what your manipulations are (such as being moved up and down alleys at a walking pace for an hour at midnight while a sound system plays waltz music at 20 decibels), your controls, and what you are going to measure--such as growth rate by body weight or changes in body length, estimating crude protein in the diet by Kjeldahl analysis of nitrogen [not how one does the analysis], measuring testosterone by ELISA,[not how long one incubates with primary antibody, etc.] We realize that you are just beginning to think about your research project. You should get to your hypothesis by the 6 minute mark in your talk.

The second series of student presentations will again be **10** minutes long and be based your decision of the most important next step to undertake, your hypothesis of the mechanism, and experimental design to test your hypothesis following currently published information on a recent paper chosen for the class. A three to five page paper about your idea of the next research step, hypothesis, and experimental design will be due on November 29. The specific paper will be provided after the first assignment.

ABG200B Integrated Animal Biology
Instructor: Prof Mary E. Delany

This ABG core course is designed to advance student thinking and communication about the "biology of *their* research organism" and the disciplines they will need to become knowledgeable about in order to conduct their research, and to provide an opportunity to write a mini-proposal. The course emphasizes self-education as well as training for both oral communication skills (weekly student talks) and writing skills (writing and editing).

The philosophy behind ABG200B organization is rooted in the "*feeling for the organism*" exemplified by Nobel Prize Laureate Barbara McClintock. That is, the best research will be conducted by those who fully understand the biology of their organism as they will be able to interpret research data in the context of the system. This philosophy is taken a step further to emphasize the special features of the Animal Biology Graduate Group, that currently high quality and cutting-edge research is often conducted at the interface of disciplines, yet students must have a strong understanding of single disciplines to combine such aspects in their research programs.

The syllabus and schedule for ABG200 B are developed independently each year depending on the students enrolled and their research areas of interest with regard to "species-orientation" and "disciplinary-foci".

The main topics covered in the class and sections of the Handbook Project:

1. Animal care regulations and issues for animals used in research (for animals at research, on farm or in the wild); the scientific method
2. Biology of the organism (life history and natural history of the species studied by the students)
3. Animal Husbandry, care and management (of their research species)
4. Discipline – One (definition, history, seminal discoveries, and as relates to student interests/research questions)
5. Discipline – Two (definition, history, seminal discoveries, and as relates to student interests/research questions)
6. Integration of the two disciplines (why? as relates to student research projects)
7. Research mini-proposal (utilizes the structure of the CA&ES Jastro-Shields proposal and promotes them to submit a proposal for the spring call).

Related topics are covered by Prof Delany (or guests, e.g., Prof Joy Mench has lectured, also Dan Sehnert for topic 1) in advance of the individualized student talks (non-Powerpoint, chalk-talks). Students develop a chapter on each of the above topics which contribute to the "Handbook Project". Students are paired as editing partners and share the chapters in development throughout the quarter with each other and with Prof Delany.

Grades are based on: oral presentations (students receive feedback in the form of a review sheet on each presentation or via a meeting (students present on *every* topic)); participation in class discussions (students are required to ask questions of other students' presentations; they are required to edit the chapters of their writing partner); the Handbook.

ABG200B Example organisms and disciplinary topics from the last four years:

2011 ABG200B
Species interests of the students:
green crab; black bear; swine; dairy goat; dairy cattle; white sturgeon
Disciplinary/topical interests of the students:
Reproduction, stress physiology, mathematical and statistical modeling, parasitology, epidemiology, immunology, bacteriology, molecular genetics, reproductive technologies, endocrinology, physiology, nutrition, membrane biology

2010 ABG200B
Species interests of the students: striped bass, commercial dairy cow, Rhesus macaque, green crab, dairy goat, pig
Disciplinary/topical interests of the students: behavior, reproduction, livestock ecology, ruminant nutrition, food science/tech (dairy), stress physiology, watershed science, endocrinology, cancer biology, sperm physiology, cryobiology

2009 ABG200B
Species interests of the students: chicken, cattle (dairy), Orange-winged Amazon parrot, Common murre and Western grebe, pig, mouse.
Disciplinary/topical interests of the students: nutrition, env livestock management/lvstck ecology, stress physiology, immunology, behavior, cognitive neuroscience, avian physiology, nutrition/energetic, endocrinology, vascular physiology, entomology, reproductive physiology, reproductive toxicology.

SYLLABUS
ABG 401 - Ethics and Professionalism in Animal Biology
Spring 2011
Meyer 1135

INSTRUCTOR: Joy Mench
jamench@ucdavis.edu
752-7125
Office hours by appointment (2154 Meyer)

TEXTBOOKS

National Academy of Sciences (NAS) 2009. On Being a Scientist: A Guide to Responsible Conduct in Research, Third Edition.

Stenek, N.H. 2007. Introduction to the Responsible Conduct of Research. Revised edition. NIH Office of Research Integrity.

COURSE OUTLINE

Week 1 (March 28) ***Introduction*** to course
Reading: Stenek chapter 1
Using case studies – an example (handouts and discussion)

Week 2 (April 4)	***Animal Subjects*** *Reading:* Stenek chapter 4; NAS 24-28 Case study 1: animal care and use
Week 3 (April 11)	***Conducting research***: ***Minimizing bias*** *Reading:* Stenek chapters 2, 5 & 6; NAS pg. 8-18, 43-47 Case study 2: conflict of interest Case study 3: selecting data for publication
Week 4 (April 25)	***Disseminating research*** *Reading:* Stenek chapter 9; NAS 19-42; Case study 4: data ownership Case study 5: authorship
Week 5 (May 2)	***Confidentiality and conflicts*** *Reading:* Stenek chapter 10 Case study 6: peer review Case study 7: confidentiality

Week 6 (May 9)	***People Issues*** *Reading:* Stenek chapters 7 & 8 Case study 8: collaborative relationships Case study 9: conflicts of commitment
Week 7 (May 16)	***Mentoring*** *Reading:* NAS 4-7; handouts General discussion
Week 8 (May 23)	***Science and Society – Dealing with the Public*** *Reading:* NAS 48-50; handouts Case studies (for fun only!)

GRADING

60%	Participation
40%	Case study reports (5% per case study)