

Veterinary Genetics
Animal Sciences / Dairy Science 362
Spring 2014

Lectures: 8:50 MWF, room 209, Animal Sciences Building
Laboratories: Wednesdays- 6th floor labs

Instructors: Dr. Hasan Khatib	Dr. Brian Kirkpatrick
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Office hours: please make an	Office hours: please make an
Appointment by email	appointment by email

<u>Date</u>	<u>Lecture / Lab</u>
March 24	Biotechnology and animal production
March 26	Science and ethics of genetic engineering and animal cloning: International perspectives
March 28	PCR applications
March 31	Gene expression: methods and applications
April 2	Genetics of reproduction
April 4	Epigenetics I
April 7	Epigenetics II: Nutritional
April 9	Animal health and genetics I
April 11	Animal health and genetics II
April 15	Genetic mutations in horse racing
April 16	Exam I (Dr. Khatib)
April 18	Is it inherited?
April 21	Whole-genome association studies
April 23	Structural variant polymorphisms
April 25	Coat color genetics -- dogs
April 28	Prions and TSEs
April 30	Genetic variation in TSE susceptibility: Scrapie, BSE and vCJD
May 2	RNAi, antisense technology
May 5	Chapman Lecture
May 7	Pharmacogenetics & individualized medicine
May 9	Gene therapy OR Biomarkers, NanoMedicine and DNA Sequencing as biomarker
May 13	Final Exam (Dr. Kirkpatrick), 10:05 am-12:05 pm

Laboratory

In the first week's lab session you will self-identify groups of four who will work together on two projects for the remaining weeks of the course. You will work on one project during weeks 1-3 and work on the second during weeks 4-6. As a group you will be required to submit a lab report detailing the work you conducted and your results for each project. The first lab report is due at the end of week 4 and the second is due at the end of week 7.

Laboratory projects:

1. Gender identification of DNA from bovine hair samples
2. Identification of microorganisms in food

Required supplementary reading materials will be provided on the course web site.

Course web site: <https://learnuw.wisc.edu/>

User name and password are the same as you use for My UW.

Assignments, handouts, grades, and other materials will be available to students at this address.

Course email discussion group:

A class email can be accessed at ansci362-301-s14-jgg@lists.wisc.edu

Students are encouraged to direct questions or comments concerning subject matter to the course discussion group. Usually a question or concern of one student will be shared by several others.

Class announcements also will be made via this email list.

Expectations of students:

- Study reading assignments prior to class time.
- Come to class prepared to discuss the material and share your insights and understandings with other students in the class.
- Participate actively as both a listener and a speaker in class discussions.
- Inform faculty in writing in advance when absence from class is anticipated.

Modes of instruction:

- Virtually all of the basic concepts and principles are explained in the reading assignments available on the course web site. We will rely heavily on students studying these materials to gain an understanding of the topics. Lectures will not be used to reiterate the material in the text.
- Class time will be used to develop understanding and application of the concepts and principles that are presented in the reading assignments.
- We will use student-to-student interaction to share knowledge among students, identify and clear up misconceptions, practice communication in the language of animal genetics, and discuss issues and options in animal molecular genetics.

Grading: The elements of the final grade are:

Quizzes will be given at the beginning of many class periods. Quizzes will be focused only on that day's reading assignment. They will be designed to test that the assignment has been studied before class. They will not test mastery of the subject. On random days no quiz will be given, but students should

prepare for a quiz at the beginning of each class. We plan to have quizzes on 40 to 50% of lecture periods.

Daily discussion or group activity of some kind will take place during most lecture periods.

Groups will prepare and submit at the end of the activity a consensus summary of the group's work.

Lab assignments or reports will be due after each lab project period. Specific instructions will be provided for each lab.

Two Exams are scheduled; each will cover the previous 3-4 weeks of lectures and labs.

Final grade will weight these elements as follows:

Quizzes/homework	10%
Daily discussion	20%
Lab assignments	20%
Exams	50%