

## ANSC 4305 AGRICULTURAL GENETICS

Instructor: Scott Ericsson  
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Office Hours: (MW) 1:00-4:00 pm

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Spring 2016  
Time: Web-delivered  
Meeting Place: Web-delivered

This web-delivered course will be accessible through Blackboard. Class correspondence will be through Blackboard or student's SRSU email account.

### Course Description:

This course is designed to introduce students to the quantitative genetic principles applied to mating and selection of domestic livestock and wildlife. The course integrates Mendelian principles with biometrical and statistical probability techniques for proper application to breeding, selection, inbreeding, line breeding, and pedigree information for progressive animal and plant breeding. The influences of gene frequency, heritability, and genetic relationships on the gene pool of populations is integrated into this course. The course includes application of the Hardy-Weinberg law and statistical correlation and regression as applied to selection of superior genetic lines of animals.

### Program Learning Outcomes:

Student will demonstrate that he/she is able to:

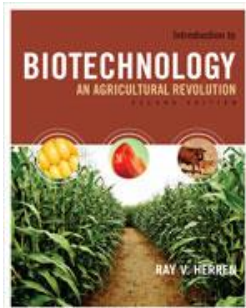
1. Recognize and be able to utilize animal breeds from a variety of domestic species
2. Comprehend the role of nutrition in the production of food animals
3. Understand the processes involved in producing meat products from a variety of domestic food animals
4. Select breeding animals using genetic information

### Course Objectives:

By the end of the course, you will be able to understand:

- Cell functions.
- Genetics and biotechnology applications.
- Genetic engineering.
- Genetically modified organisms.
- Cloning.
- Potential dangers of biotechnology.

Text: Required. The below item is necessary to achieve success in this class.



Introduction to Biotechnology, 2nd Edition  
Ray V. Herren University of Georgia, Athens (Emeritus)  
ISBN-10: 1435498372  
ISBN-13: 9781435498372  
432 Pages Hardcover  
Previous Editions: 2005  
©2013 Published

<http://www.cengagebrain.com/shop/search/9781435498372>

Amazon: <http://www.amazon.com>

Barnes & Noble: <http://www.barnesandnoble.com>

Exams:

There will be two midterms and a final exam which will be available on Blackboard. Exams will cover readings, PowerPoint presentations and study guide materials. The final exam will only cover materials scheduled after the second midterm.

Grading:

Midterm 1	100 points
Midterm 2	100 points
Final	100 points
Total 300 points	

Grade assignment: A =100-90; B = 89-80; C= 79-70; D = 69-60 and F= < 60.

Exam schedule:

Midterm 1 – Friday, February 26.

Midterm 2 – Friday, April 1.

Final – Wednesday, May 4.

16 week calendar (subject to change)

Week    Presentation Order of Topics:

Readings and Assignments:

1            Chapter 1. The Phenomena of  
              Biotechnology.

- Syllabus
- Textbook - Chapter 1
- Lecture slides – Chapter 1
- Study Guide – Chapter 1

2	Chapter 2. The Historical Development of Biotechnology.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 2</li> <li>• Lecture slides – Chapter 2</li> <li>• Study Guide – Chapter 2</li> </ul>
3	Chapter 4. Cells: The Foundation of Life.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 4</li> <li>• Lecture slides – Chapter 4</li> <li>• Study Guide – Chapter 4</li> </ul>
4	Chapter 5. The Principles of Gene Transfer.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 5</li> <li>• Lecture slides – Chapter 5</li> <li>• Study Guide – Chapter 5</li> </ul>
5	Chapter 6. Producing Genetically Modified Organisms.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 6</li> <li>• Lecture slides – Chapter 6</li> <li>• Study Guide – Chapter 6</li> </ul>
6	Chapter 7. Animal Cloning. Midterm Number 1.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 7</li> <li>• Lecture slides – Chapter 7</li> <li>• Study Guide – Chapter 7</li> </ul>
7	Chapter 8. Plant Cloning. Chapter 9. Biotechnology in Plant Science.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 8</li> <li>• Lecture slides – Chapter 8</li> <li>• Study Guide – Chapter 8</li> <li>• Textbook - Chapter 9</li> <li>• Lecture slides – Chapter 9</li> <li>• Study Guide – Chapter 9</li> </ul>
8	Spring Break	
9	Chapter 10. Biotechnology in Animal Reproduction.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 10</li> <li>• Lecture slides – Chapter 10</li> <li>• Study Guide – Chapter 10</li> </ul>
10	Chapter 11. Biotechnology in Medicine.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 11</li> <li>• Lecture slides – Chapter 11</li> <li>• Study Guide – Chapter 11</li> </ul>
11	Chapter 12. Biotechnology in the Food Industry. Midterm Number 2.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 12</li> <li>• Lecture slides – Chapter 12</li> <li>• Study Guide – Chapter 12</li> </ul>
12	Chapter 13. Biotechnology in Ecology.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 13</li> </ul>

		<ul style="list-style-type: none"> <li>• Lecture slides – Chapter 13</li> <li>• Study Guide – Chapter 13</li> </ul>
13	Chapter 14. Consumer Concerns about Biotechnology.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 14</li> <li>• Lecture slides – Chapter 14</li> <li>• Study Guide – Chapter 14</li> </ul>
14	Chapter 15. Ethical Issues and Biotechnology.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 15</li> <li>• Lecture slides – Chapter 15</li> <li>• Study Guide – Chapter 15</li> </ul>
15	Chapter 16. Careers in Biotechnology.	<ul style="list-style-type: none"> <li>• Textbook - Chapter 16</li> <li>• Lecture slides – Chapter 16</li> <li>• Study Guide – Chapter 16</li> </ul>
16	Final Exam	