Texas Tech University
College of Agricultural Sciences and Natural Resources
Department of Animal and Food Sciences

ANSC 4400
Advanced Meats Science and Muscle Biology
Course Syllabus

INSTRUCTORS: Dr. Mark Miller
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Class Time: Lecture Gordon W Davis Meat Science Laboratory RM 100 – Tuesday, Thursday 11:00-12:30
Lab Meat Lab 122 – Arranged times and locations.

Required Text: Principles of Meat Science, 4th ed. E. D. Aberle, J. C. Forrest, D. E. Gerrard, and E. W. Mills

Additional Required Reading:
Readings from scientific journals will be necessary to complete papers.

Student Outcomes and Expectations:
Upon completion of this class students will have an in depth knowledge on meat science, muscle ultra structure, meat chemistry, food safety and meat processing. Students will also have a good understanding of the meat and livestock industry. Students will be challenged to develop critical thinking skills, work in a teamwork group, improve both written and oral communication skills through both oral and written exams. Students are expected to attend class and lab on time. Regular attendance is expected of all students. Make-up exams will be allowed only under extenuating circumstances.

Grading:

New Product Development Product	200 points
3 Examinations	300 points
3 Written assignments from lab	300 points
2 part Final Exam	
Oral Examination	300 points
Written Examination	300 points
Total Possible Points	**1400 points**

Grading Scale: **A = 90% and above**
B = 80.0 to 89.9%
C = 70.0 to 79.9%
D = 60.0 to 69.9%
F = 59.9% and below

EXAM SCHEDULE:

Date	Exam
September 20, 2010	I
October 25, 2010	II
December 6, 2010	III
December 9th & 15th	**Final Exam**

Oral Final Exam – Thursday, December 9th , 2010
3:00 PM, Plainview, TX
Written Final Exam – Wednesday, December 15th – Comprehensive
7:30 AM– 10:00 AM, Gordon W Davis Meats Science Laboratory

The final exam consists of two parts. The oral examination will consist of traveling to a local beef processing facility to quiz students on processes pertaining to meat science and muscle biology. The written portion will be a combination of muscle identification and essay/short answer questions.

University Policies:

ADA Statement

Any student who because of disability may require special arrangements in order to meet course requirements should contact the instructor as soon as possible to make any necessary accommodations. Students should present appropriate verification from Acess Tech. No requirement exists that accommodations be made prior to completion of this approved university procedure. Classroom accommodations will be made fro students with disabilities at the request of the student.

Withdrawal from a Course

The last day to withdraw from a class for any student is list on the Web schedule. If students meet the deadline then students will receive and automatic "W," regardless of the current grade in the class.

Scholarship Dishonesty

It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standards of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offence and renders the offenders liable to serious consequences, possibly suspension. This includes but is not limited to cheating, plagiarism, collusion, falsifying academic records, misinterpreting facts, and any act designed to give unfair academic advantage to the student or the attempt to commit such an act. Further information can be found in the Student Handbook.

Absence for Observance of a Religious Holiday
A student who intends to observe a religious holy day should make that intention known to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holiday shall be allowed to take an examination or complete an assignment scheduled for the day within a reasonable time after the absence.

COURSE TOPICS:
Introduction – Overview of Meat Industry/Structure
Diet Health Relationships to Meat
Muscle Ultra-structure
Growth and Development
Muscle Contraction
Compositional relationships
Conversion of muscle to meat
Lipids and lipid oxidation
Postmortem control of tenderness
Prerigor processing
Meat microbiology
Storage and preservation of meat
Meat color
Meat Packaging
Measuring carcass composition
Grading
Sensory properties of meat
Product development
Meat safety issues
Changes in the red meat industry
Beta-agonsists
Biochemistry

LAB TOPICS:
September 1, 2, 3, 3:30 AM Field Trip Tour of Texas
September 15, Pig Evaluation and Harvest, 6:00 AM GW Davis Meat Lab
September 17, Anatomy Lab, 6:00 AM GW Davis Meat Lab
September 20, Evaluation/Fabrication of Pork Carcasses, 6 AM, GW Davis Meat Lab
September 22, Evaluate and Harvest Beef Cattle, 6 AM, GW Davis Meat Lab
October 6, Evaluate and harvest lambs, 6 AM GW Davis Meat Lab
October 7, Fabricate Beef, 6 AM, GW Davis Meat Lab
October 8, Fabricate Beef, 6 AM, GW Davis Meat Lab
October 20, Pre Rigor Harvest and Sausage processing, 6 AM, GW Davis Meat Lab
October 21, Lamb Carcass Evaluation/Fab, 6 AM, GW Davis Meat Lab
November 3, Sensory and Tenderization, 6 AM, GW Davis Meat Lab
November 17, Food Safety, HACCP, 6 AM, GW Davis Meat Lab
November 22, United Grocery Store- Retail Marketing and Meat Case Audit
6 AM, 98th and Quaker. Eat Breakfast at Market Street.
November 23, Field Trip Raider Red Meats/Dankworth
November 30, Curing and Smoking, 6 AM, GW Davis Meat Lab
December 1, Meat Emulsions, 6 AM, GW Davis Meat Lab
December 6, Field Trip Seaboard farms and BPI, 4 AM

LAB REPORTS ARE DUE:
Pork - October 7
Beef - October 21
Sheep - November 18

Lab Groups of 3 will be formed for the pork and lamb and the beef harvest. Students will be required to purchase their animal and follow it through the fabrication process. All weights will be recorded and a final paper will be submitted for the pork, lamb and beef harvest and fabrication. The paper must follow the Journal of Animal Science style and form guidelines, which can be found at ***http://jas.fass.org*** under the instructions to authors section. References must be cited properly according to JAS and must come from scientific sources such as journals, books, magazine articles, etc. The following is a list of journals which could be referenced.

The field trip across the meat and food industry of Texas will allow for students to obtain a hands on learning experience of the industry and will give students an opportunity to understand the lecture and lab information in a more real world way.

Canadian Journal of Animal Science
Food Technology – Institute of Food Technologists
Journal of Animal Science
Journal of Food Protection
Meat Science

These are only a few of the possible journals available in the library.