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**Course title and number ANSC 627 Carcass Composition and Quality**

Term Spring 2013

Meeting times and location T R 8 to 9:15 AM, KLBG 300

**Course Description and Prerequisites**

Survey of scientific literature regarding carcass composition; quality and palatability of meat animals; factors that affect differences among animals of the same species; the impact on value and usefulness.

**Objectives**

1. To survey the literature with respect to the current status of carcass composition and quality/palatability research;
2. To discuss the historical aspects of the development of grade standards for beef, pork and lamb carcasses;
3. To acquaint the student with important scientific methodology and the techniques necessary to be able to conduct research and interpret information on composition and quality/palatability;
4. To contrast and compare systems for carcass evaluation in the United States with systems from other countries throughout the world; and,
5. To relate how sex-class, breed and management affects carcass composition and quality/palatability of beef, pork and lamb.

**Student Learning Objectives**

1. The student will understand the basic scientific background behind USDA grade standards
2. The student will understand the basic statistical tools used to analyze palatability and composition research
3. The student will gain a basic understanding of the role of scientific articles in carcass composition and quality research.
4. The student will know the way that carcasses are graded/classified in major countries around the world.

**Instructor Information**

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| **Name** | **Jeffrey W. Savell** |
| Telephone number | Office: 979-845-3935; Home: 979-693-8906; Mobile: 979-255-6676 |
| Email address | j-savell@tamu.edu |
| Office hours | Variable |
| Office location | Room 348 KLBG |

**Lectures**

Lectures will consist of discussions of research papers and material from the textbook and other reading assignments. Students are encouraged to enter into discussions, and, at times, will be asked to make short presentations regarding research information especially if it relates to an area they have conducted research or have a special interest in.

**Tests**

The tests are take-home and are designed to allow the student to gather information from many sources and answer complex questions regarding carcass composition and quality/palatability. The tests will be given to the student near the end of each module and will be due one week later. This method of testing is the best way to measure learning of this complex material. Although students are requested to do their own work, I encourage joint discussions among students regarding complex issues. This interchange improves the learning process. Students are requested to use Endnote, a bibliographic tool, to help them with citations for their tests. You can get this software at software.tamu.edu. Also, please use the Journal of Animal Science styleguide for preparing answers to the tests including citations and bibliography.

**Research presentation**

Students will be required to make research presentations covering some issue that is related to the subject matter material from this course. The presentation is due at the end of the class and will comprise one-fifth of the final grade. Groups will be assigned to work together on these presentations, and dates for the presentations will be determined during the first couple of weeks of class.

**Examination and grading**

The schedule will be as follows:

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| **Item** | **Worth** | **Date Given** | **Date Due** |
| Examination A | 100 points | February 5 | February 12 |
| Examination B | 100 points | February 28 | March 7 |
| Examination C | 100 points | April 4 | April 11 |
| Examination D | 100 points | April 25 | May 7 |
| Team presentation | 100 points | April 30 |  |
| Total | 500 points |  |  |

Grades will be assigned as follows: 450 points or higher = A; 400 to 449 points = B; 350 to 399 points = C; 300 to 349 = D; and less than 300 = F.

**Attendance policy**

Because this is a graduate course, it is difficult for graduate students to be in class every time it meets. I encourage class attendance because this is a good way to learn from the interchange of ideas. I also understand the necessity to be gone from class conducting the research that will be used in this and following semesters to help increase the knowledge-base of students. Students who miss should check with me to obtain handout materials they miss.

**Lectures**

**Module 1--Prediction and Instrument Assessment**

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| --- | --- | --- |
| Lecture 1 | January 15 | Introduction |
| Lecture 2 | January 17 | Prediction equations in carcass evaluation |
| Lecture 3 | January 22 | Prediction equations in carcass evaluation |
| Lecture 4 | January 24 | Palatability evaluation of meat |
| Lecture 5 | January 29 | Determining carcass composition of meat animals |
| Lecture 6 | January 31 | Instrument assessment of live animals |
| Lecture 7 | February 5 | Instrument assessment of carcasses |

**Module 2--Pork**

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| Lecture 8 | February 7 | Pork carcass quality |
| Lecture 9 | February 12 | Pork carcass quality |
| Lecture 10 | February 14 | Pork carcass composition |
| Lecture 11 | February 19 | Pork carcass composition |
| Lecture 12 | February 21 | USDA pork carcass grading |
| Lecture 13 | February 26 | Pork composition & quality as influenced by sex-class and breed |
| Lecture 14 | February 28 | Pork composition & quality as influenced by growth promotants |

**Module 3--Beef**

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| Lecture 15 | March 5 | Beef carcass quality |
| Lecture 16 | March 7 | Beef carcass quality |
| Lecture 17 | March 19 | USDA beef quality grade development |
| Lecture 18 | March 21 | Beef carcass composition |
| Lecture 19 | March 26 | Beef carcass composition |
| Lecture 20 | March 28 | USDA beef yield grade development |
| Lecture 21 | April 2 | Beef composition & quality as influenced by sex-class and breed |
| Lecture 22 | April 4 | Beef composition & quality as influenced by growth promotants |

**Module 4--Lamb and World Grading/Classification Systems**

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| Lecture 23 | April 9 | USDA lamb quality grade development |
| Lecture 24 | April 11 | USDA lamb yield grade development |
| Lecture 25 | April 16 | Lamb composition & quality as influenced by sex-class, breed & growth promotants |
| Lecture 26 | April 18 | Carcass grading/classification systems of the world -- EU and Canada |
| Lecture 27 | April 23 | Carcass grading/classification systems of the world -- Japan |
| Lecture 28 | April 25 | Carcass grading/classification systems of the world -- Australia and New Zealand |

**List of books and references**

**Books and Book Chapters**

Berg, R.T., and Butterfield, R.M. 1976. "New Concepts of Cattle Growth." John Wiley & Sons, New York, NY.

Kempster, A.J., Cuthbertson, A., and Harrington, G. 1983. "Carcase Evaluation." Westview Press, Boulder, Colorado.

Lawrie, R.A. 1998. "Lawrie's Meat Science" (6th Edition). Technomic Publishing Company, Inc., Lancaster, Pennsylvania.

Lister, D. 1984. "In Vivo Measurement of Body Composition in Meat Animals." Elsevier Applied Science Publishers, London, England.

National Pork Producers Council. 1991. "Procedures to Evaluate Market Hog Performance" (3rd Edition). National Pork Producers Council, Des Moines, IA

Savell, J.W., and Cross, H.R. 1991. Reassessment of significant factors influencing carcase composition. In "Developments in Meat Science -- 5 (Lawrie, R.A., Ed.)," Elsevier Applied Science, London and New York.

Savell, J.W., and Smith, G.C. 2009. Meat Science Laboratory Manual (8th ed.). American Press, Boston.

Swatland, H.J. 1984. "Structure and Development of Meat Animals." Prentice-Hall, Inc., Englewood Cliffs, NJ.

**Journal Articles**

Ferrell, C.L., and Cornelius, C.L. 1984. Estimation of body composition of pigs. J. Anim. Sci. 58:903.

Hedrick, H.B. 1983. Methods of estimating live animal and carcass composition. J. Anim. Sci. 57:1316.

MacNeil, M.D. 1983. Choice of a prediction equation and the use of the selected equation in subsequent experimentation. J. Anim. Sci. 57:1328.

**USDA Grade Standards**

United States Standards for Grades of Carcass Beef

United States Standards for Grades of Lamb, Yearling Mutton, and Mutton Carcasses

United States Standards for Grades of Pork Carcasses

**Other Information**

History of Meat Grading in the United States

The Role of USDA's Beef Grading Program in the Marketing of Beef by Dr. Craig A. Morris, USDA

Journal of Animal Science Instructions for Authors

European Union COUNCIL REGULATION (EC) No 1183/2006 of 24 July 2006 concerning the Community scale for the classification of carcasses of adult bovine animals (codified version)

**Americans with Disabilities Act (ADA)**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit <http://disability.tamu.edu>

**Academic Integrity**

*For additional information please visit:* [*http://www.tamu.edu/aggiehonor*](http://www.tamu.edu/aggiehonor)

*“An Aggie does not lie, cheat, or steal, or tolerate those who do.”*