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# ANS6636

## Meat Technology

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### Overview

Chemistry, physics, histology, bacteriology, and engineering involved in the handling, processing, manufacturing, preservation, storage, distribution, and utilization of meat.

### Goals

Gain a better understanding of and appreciation for

- muscle components, their function and manipulation during live animal growth
- metabolic conversion of muscle to meat and factors affecting meat quality
- the microbial populations that impact food safety and security

### Course website:

E-learning support services; <https://lss.at.ufl.edu>

### Requirements

The student should have completed undergraduate coursework in biochemistry, biology, chemistry and microbiology. Each student needs to write a literature review and presents the review in the class.

### Literature review and Student presentation

- Students can select any topics related to meat technology but it is recommended to discuss with major advisors to select the topic
- Students need to inform their topics to main instructor (Dr. KC Jeong), no later than 9/1/2017 (5 PM)
- Due date for the literature review is Nov. 17 (5 PM). Email to Dr. KC Jeong
- The literature should follow the format of a *Review paper* in any scientific journals
- Students are required to present the literature review in class (Module V)

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Fall 2017

M,W,F 9:35-10:25, 156 ANS

Lead Instructor: K. C. Jeong, PhD

E-Mail: [kcjeong@ufl.edu](mailto:kcjeong@ufl.edu)

Phone: 352-294-5376

Office: Rm 200, 2055 Mowry Rd,

Office Hours: by appointment

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### Modules

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**8/28-9/15**

***Preharvest food safety - KC Jeong (kcjeong@ufl.edu)*** An inclusive survey of microbial organisms affecting meat safety.

**9/18-10/4**

***Post-harvest processing- SK Williams (wsallyk@ufl.edu)*** A comprehensive examination of factors affecting production and safety of meat and poultry products.

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**10/9-10/27**

***Muscle - Jason Scheffler (jmscheff@ufl.edu)*** A global overview of muscle, structure, and quality.

**10/30-11/22**

***Meat - Tracy Scheffler (tscheffler@ufl.edu)*** An in-depth examination of muscle to meat conversion and the factors that affect meat quality.

**11/27- 12/1**

***Student presentation- KC Jeong***

## Evaluation

Grades will be based on performance on 4 exams (4 x 100 pts) and a literature review/student presentation (100 pts). Each instructor administers an exam (100 pts) at the completion of the topic module. The literature review (50 pts) and student presentation (50 pts) will be graded by instructors based on quality of the literature review and presentation.

There is no final exam.

Plagiarism will result in no credit awarded for the literature review and presentation.

Course grades (500 total pts) are as follows

A (465 and above),

A- (450 - 460),

B+ (435-449),

B (415-434),

B- (400-414),

C+ (385-399),

C (365-384),

C- (350-364),

D+ (335-349),

D (315-334),

D- (300-314),

E (<300)

## *Lecture schedule*

### I. Pre-harvest food safety and one health approach (Dr. Jeong)

1 (8/28, M) Overview of meat safety

2 (8/30, W) Bacterial pathogens/virulence factors

3 (9/1, F) Bacterial pathogens/virulence factors

(9/4, M) No class (Labor day)

4 (9/6, W) Pre-harvest food safety

5 (9/8, F) Current topics in meat safety – antibiotic use on farms

6 (9/11, M) Source tracking

7 (9/13, W) One health concept for animal and public health

8 (9/15, F) Exam I

## II. Post-harvest processing (Dr. Sally Williams)

- 9 (9/18, M) Factors affecting proteins
- 10 (9/20, W) Muscle color
- 11 (9/22, F) Packaging
- 12 (9/25, M) Meat microbiology: Intrinsic Factors
- 13 (9/27, W) Meat microbiology: Extrinsic Factors
- 14 (9/29, F) Determining shelf life of muscle food products
- 15 (10/2, M) Group discussion
- 16 (10/4, W) Exam II
- (10/6, F) No class (Home coming day)

## III. Muscle (Dr. Jason Scheffler)

- 17 (10/9, M) Muscle types and structure
- 18 (10/11, W) Muscle design and structure<sup>3</sup>
- 19 (10/13, F) Microanatomy
- 20 (10/16, M) Microanatomy
- 21 (10/18, W) Contraction
- 22 (10/20, F) Growth and development
- 23 (10/23, M) Protein turnover
- 24 (10/25, W) Growth promotants, etc
- 25 (10/27, F) Exam III

## IV. Meat (Dr. Tracy Scheffler)

- 26 (10/30, M) Muscle metabolism and fiber type
- 27 (11/1, W) Muscle metabolism and fiber type
- 28 (11/3, F) Conversion of muscle to meat

- 29 (11/6, M) Conversion of muscle to meat
- 30 (11/8, W) Other postmortem changes
- (11/10, F) No class (Veterans day)
- 31 (11/13, M) Genetic aberrations and meat quality
- 32 (11/15, W) Tenderness
- 33 (11/17, F) Palatability
- 34 (11/20, M) Flavor
- (11/22, W) No class (Thanksgiving Holidays)
- (11/24, F) No class (Thanksgiving Holidays)

#### V. Student presentation (Dr. KC Jeong)

- 35 (11/27, M) Review of Section IV
- 36 (11/29, W) Exam IV
- 37 (12/1, F) Student presentation, group A (2 students, 25 minutes/student)
- 38 (12/4, M) Student presentation, group B (2 students, 25 minutes/student)
- 39 (12/6, M) Student presentation, group C (2 students, 25 minutes/student)

### Grades and Grade Points

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### Attendance and Make-Up Work

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

### Online Course Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of

these assessments are available to students at <https://evaluations.ufl.edu/results>.

### Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.” You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

### Software Use:

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

### Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation 0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)

### Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university’s counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,  
[www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)

#### Counseling Services

Groups and Workshops

Outreach and Consultation

Self-Help Library

Training Programs

Community Provider Database

Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)

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