ANS 6288
Experimental Techniques and Analytical Procedures in Meat Science

Spring 2022

Course Instructors

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Time & Location

Monday 10:40 – 11:30 am (Period 4)
Animal Sciences 201

and

Lab: Wed. 9:35 – 11:30 (Periods 3 & 4) *** or arranged ***
Please note: demand for equipment, time requirements of different experiments, availability of instructors, etc. are variable. **Meeting times (especially arranged hours) may differ from week to week**.

Course Description & Objectives

This course is designed to expose graduate students to common laboratory methods used in meat science and muscle biology.

Expected outcomes:
Upon completing this course, students are expected to:
1. Be able to propose recommendations for sample collection and processing procedures

and propose laboratory analysis method(s) based on a given attribute/target.
2. Explain principles underlying analyte quantification using UV/Vis/fluorescent spectroscopy and procedural considerations
3. Describe steps in SDS-polyacrylamide gel electrophoresis and Western blotting and modify and troubleshoot SDS-PAGE & Western blotting protocols / problems
4. Differentiate between fixation methods for histology
5. Describe principles and procedures employed to analyze and enumerate muscle food samples for spoilage and pathogenic bacteria
6. Summarize principles and considerations for subjective and objective assessments of texture analysis
7. Explain principles of PCR and conduct DNA gel electrophoresis
8. Conduct molecular subtyping using pulsed field gel electrophoresis
9. Describe procedures for determining antibiotic susceptibility and resistance of microorganisms

Prerequisites

Graduate standing
The student should have completed undergraduate coursework in biochemistry, biology, chemistry, and microbiology.

Textbooks

There is not an assigned textbook. Reading assignments and suggestions will be provided, and may come from scientific journals, online resources, book chapters, etc. These will be posted via the course website in Canvas.

Course website on Canvas

Our course Canvas website (login via https://elearning.ufl.edu/) will contain the syllabus, resources, and lesson material, provided as *PowerPoint* and *pdf* files.

Assessments

120   Lab reports/assignments (40 pts per instructor)
 30   Technique project presentation & report
150   total

Lab reports/assignments: May involve recording data, creating figures, reporting and evaluating results, addressing questions. At discretion of each instructor. Will be due ~1 wk after the lab is completed or 1 wk after assigned by the instructor. Students are required to attend and participate in lab activities in order to receive full credit for lab assignments.

Technique project: You will propose a technique/assay to develop. Ideally, this will be a procedure that you will use for your own research project in your lab. You will identify the objective of the assay, why this method was chosen, possible alternatives, and the reagents, procedures, and equipment (and approximate cost) necessary to use the technique. Problems

encountered or troubleshooting steps are recommended. The goal is to have a protocol that you could take into your lab and test immediately, or have a protocol that you have worked through/are working through in your lab currently. You can choose the technique, but it must be approved by the instructors by Jan 28.

Course schedule

Weekly Course Schedule (tentative)

Wk	Date	Topic	Instructor
1	Jan 5 – 7	Introduction to course	All
		Pre-harvest food safety – isolation of pathogens	Jeong
2	Jan 10 – 14	Pre-harvest food safety – isolation of pathogens	Jeong
3	Jan 17	MLK day - no class	Jeong
	Jan 18 – 21	Pre-harvest food safety – identification of pathogens	
4	Jan 24 – 28	Molecular subtyping of pathogens	Jeong
5	Jan 31 – Feb 4	Antibiotic susceptibility testing	Jeong
6	Feb 7 – 11	Sample processing and proximate analysis	T. Scheffler
7	Feb 14 – 18	Color and UV/Vis spectroscopy	T. Scheffler
8	Feb 21 - 25	SDS-PAGE and Western blotting	T. Scheffler
9	Feb 28 – Mar 4	SDS- Page and Western blotting	T. Scheffler
	Mar 7 – 11	Spring break	
10	Mar 14 – 18	Histology	T. Scheffler
11	Mar 21 – 25	Aseptic technique and media preparation	J. Scheffler
12	Mar 28 – Apr 1	Microbiological analysis of meat products for spoilage bacteria	J. Scheffler
13	Apr 4 – 8	Microbiological analysis of meat products for pathogenic bacteria	J. Scheffler
14	Apr 11 – 15	Assessing plant sanitation	J. Scheffler
15	Apr 18, 20	Student technique presentations	All

**Instructors may change lab topics based on sample or equipment availability

Important dates: Jan. 28   Technique chosen and approved by instructors
                      Mar. 4   Rough draft for review
                      Apr. 20, 22   Technique presentations
                      Apr. 25   Technique project final draft due
                      There is not a final exam.

For more information on UF policies on assigning grade points, please see
http://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Grades and Grading Policy

Grades are based on performance in the assessments (assignments and project). Grade assignment and corresponding percentage and point ranges are shown in **Table 3**.

Table 3: Grading scale (% of total points earned)

Grade	% score range
A	93.0 – 100.0
A-	90.0 – 92.99
B+	87.0 – 89.99
B	83.0 – 86.99
B-	80.0 – 82.99
C+	77.0 – 79.99
C	73.0 – 76.99
C-	70.0 – 72.99
D+	67.0 – 69.99
D	63.0 – 66.99
D-	60.0 – 62.99
E	≤ 59.99

Attendance and Zoom meeting

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Other important dates (besides quizzes and exams)

First class: Wed. Jan. 5th   Last class: Wed., Apr. 20th
No class: Mon. Jan. 17th (MLK Day); Mar. 7th – 11th (Spring Break)

Other important information

Technology requirements

Computer requirements for this course are consistent with UF policy for student computing requirements, and likely similar to your other classes: https://it.ufl.edu/policies/studentcomputing-requirements/

This course uses Canvas for providing course content. Please see links below for further information regarding privacy and accessibility of Canvas:
- Canvas (Infrastructure) privacy policy: https://www.instructure.com/policies/privacy
- Canvas (Infrastructure) accessibility statement: https://www.instructure.com/canvas/accessibility

Canvas Technology Requirements

Computers, Internet, and Web browsers: Canvas runs on Windows, Mac, Linux, iOS, Android, or any other device with a modern web browser. It is recommended to use a computer less than five years old with at least 1GB of RAM. It is recommended to have a minimum Internet speed of 512kbps. It is **strongly recommended** to not use a wireless connection, phone, tablet, or notepad for critical course tasks such as exams and discussions.
Canvas currently supports the following browsers: Chrome, Safari, Firefox, Edge. Canvas supports the last two versions of most browsers. It is **highly recommend** updating to the **newest version** of whatever browser you are using. Note that your computer's operating system may affect browser function. Failure to use one of these browsers will cause problems.
For more information on approved computers and browsers please visit:
https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-the-browser-and-computer-requirements-for-Canvas/ta-p/66   On this web page there is an area titled "Is My Browser up to Date?" Use it to check each computer and browser you may use in this course. There is another important area on "Browser Privacy Settings." Read the section(s) for any browser intended for use. For example, **Note that**: In browsers such as Safari, insecure content will never be displayed in the browser. Return to the page to check for updates on technology issues in Canvas.
If you encounter technical difficulties in this course, **contact the UF Computing Help Desk** right away to troubleshoot. https://helpdesk.ufl.edu/ or (352) 392-HELP. If the problem cannot be fixed immediately, **notify your instructor, and provide them with the Help Desk ticket number.**

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. Students should share their accommodation letter with the instructors and discuss their access needs as early as possible in the semester.
        0001 Reid Hall, 352-392-8565, https://disability.ufl.edu/students/get-started/

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. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at:
https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their

Canvas course menu under GatorEvals, or via ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/

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.

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. Visit the Student Honor Code and Student Conduct Code webpage for more information.

Campus Resources

Health and Wellness

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.

> ➢ *Counseling and Wellness Center:* Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services. Includes counseling services, groups and workshops, outreach and consultation, self-help library, and wellness coaching.

> ➢ *U Matter, We Care:* If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.

- ➢ *Student Health Care Center:* Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.

- ➢ *University Police Department:* Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).

- ➢ *UF Health Shands Emergency Room / Trauma Center:* For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.

Academic Resources

- ➢ *E-learning technical support*: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

- ➢ *Career Connections Center*: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

- ➢ *Library Support*: Various ways to receive assistance with respect to using the libraries or finding resources.

- ➢ *Teaching Center*: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

- ➢ Student Success Initiative, https://studentsuccess.ufl.edu/

- ➢ Student Complaints On-Campus: https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/