

FDSC 2603
Kitchen Science
Fall, 2017

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Texts and Supplies:

- Lopez-Alt, J.K. 2015. *The Food Lab: Better Home Cooking Through Science*. W.W. Horton & Co. New York
- Herbst, S.T. and Herbst, R. 2007 or 2013. *The New Food Lover's Companion*, 4th (or 5th) Ed. Barron's Educational Series, Hauppauge, NY
- Supplemental Readings as Assigned – When readings are assigned, they will be listed in Course Content for that lesson on Blackboard. Information from assigned readings will also be included on exams.
- Student Response System (Clickers): Each class period points will be given for attendance and class activities as recorded using the Student Response System (clickers). Students must have the response devices to obtain these points.

Course Description:

FDSC 2503- Kitchen Science


In recent years science has found its way into the kitchen and cooking into laboratories and food processing plants. This course is designed to integrate science and cooking to help students appreciate the chemical and physical properties of foods and understand how the processes used when handling, preparing, and storing foods affect these properties.


Course Objectives:

1. To provide the students with knowledge of the basic science of food, including the chemical and physical properties of foods, and how these affect food behavior and safety during handling, storage, preparation, and serving.
2. To enable the students to apply the scientific knowledge gained to understanding why foods are handled in certain ways and why ingredients behave as they do.
3. To encourage critical thinking in the application of scientific principles to foods.

TENTATIVE Class Schedule

(Text reading assignments associated with each lecture are given in the Content section for each topic on Blackboard. Links to Additional Required Reading Assignments, i.e. those not from the texts, and to other supplemental material also can be found on Blackboard. Students are responsible for all Text Assignments and for Additional Readings so it is strongly recommended that students check Blackboard for assignments.)

Date/ Tues	Topic	Date/ Thurs	Topic
Aug 22	Course Introduction Why study kitchen science?	Aug 24	Chemical Composition And Physical Structure Of Food
Aug 29	Heat and Heat Transfer Heating and Cooling Foods	Aug 31	Water <i>Introductory Assignment Due</i>
Sept 5	Acidity and pH	Sept 7	Fats: Structure & Basic Properties
Sept 12	Exam 1	Sept 14	Dispersions
Sept 19	Dispersions (Part 2)	Sept 21	Carbohydrates: Structure & Basic Properties
Sept 26	Applying the Science: Starch in Foods Types of Sugar	Sept 28	Applying the Science: Crystallization
Oct 3	Alternative Sweeteners & Salt	Oct 5	Exam 2
Oct 10	Proteins: Structure & Basic Properties Enzymes and Enzymatic Browning	Oct 12	Non-enzymatic Browning Applying the Science: Milk and Dairy Products
Oct 17		Oct 19	Applying the Science: Fermented Dairy Foods

Oct 24	Applying the Science: Eggs	Oct 26	Applying the Science: Muscle Foods
Oct 31	Applying the Science: Muscle Foods (Part 2)	Nov 2	Exam 3
Nov 7	Science of Baking	Nov 9	Science of Baking (Part 2)
Nov 14	Composition, Structure and Preparation of Plant Materials	Nov 16	Food Spoilage and Food Preservation
Nov 21	No Class Assignment: Science of the Thanksgiving Turkey		
Nov 28	Molecular Gastronomy – Taking the Science Forward	Nov 30	Exam 4
Dec 5	Review for Final	Dec 7	No Class
Final Exam – Dec. 14 8:00 am – 10:00 am			

Grading:

4 Exams (see schedule) @ 150 pts.	600 pts.
Final Exam – Comprehensive	(150 pts.)
Introductory Assignment	10 pts.
Written Assignments (2@25)	50 pts.
Thanksgiving Video Assignment (Attendance and Participation 11/23)	7 pts.
Attendance (1 pt/period, except first week)	20 pts.
Class participation	58 pts.
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Total Possible Points	745 pts.

Exams

Exams will usually be returned to students 1 week after they are given. Students should review exams and ask any questions regarding grades before the next hourly exam. No changes will be made to an exam grade after the next hourly exam.

Make-up Exams

- Students who know before an exam that they have a conflict with taking an exam on the published date should contact the instructor before the exam to make arrangements for taking it at an alternate time.
- Students missing an exam should contact the instructor within 24 hours of the scheduled exam regarding arrangements for making up the exam. A missed exam generally may be taken if arrangements are made for this before the exams are returned in class. If a time for a make-up exam cannot be arranged before the exams are returned, the instructor and the student will examine other options for making up the missed exam.
- Students not contacting the instructor within the designated 24 hour period will receive a 0 on the missed exam. Use of the final to replace a zero on a missed exam will not automatically occur and must be approved by the instructor before the final is taken. If this approval is not obtained, the final will replace the student's lowest graded exam and the zero will be the grade for the missed exam.

Final Exam

The comprehensive final exam is optional. If a student chooses to take the final and if the grade on the final is higher than their lowest test grade, the grade on the final will be used to replace the lower grade. If a student takes the final and does not score higher than their lowest test grade, the final will not count. The final cannot replace a 0 for a missed exam without prior approval by the instructor. If this approval is not obtained, the final will replace the lowest graded exam if higher than that score.

Introductory and Written Assignments

Instructions for the Introductory Assignment can be found on Blackboard. Note this assignment is due the second week of classes and will serve as attendance and class participation points for the first week.

Instructions for the other Written Assignments will be posted on Blackboard after the first hourly exam. There are 2 of these assignments, due on the dates indicated on the posted instructions section under Assignments on Blackboard. These assignments will be accepted at any time between when the instructions are posted and the designated due dates. The first submission will be accepted after the due date but points will be deducted at a rate of 10% for each calendar day the work is late. No assignments will be accepted after the due date for the second submission.

All work is to be submitted through the Assignment section on Blackboard and instructions for posting assignments are provided in this section. Please read and follow these instructions to

assure work is submitted properly for grading. It is recommended that students keep copies of all work turned as a safeguard in case questions arise about the work.

Grammar and spelling will count for 10% of the grade on each assignment submission. Students are encouraged to contact the Quality Writing Center at 575-6747 if assistance is needed with writing.

Attendance and Participation

According to UA Academic Regulations “Students have the responsibility to attend classes and to actively engage in all learning assignments or opportunities provided in their classes. Students should treat class attendance as mandatory.”

(<http://catalog.uark.edu/undergraduatecatalog/academicregulations/#attendancetext>). In accordance with this regulation, attendance and participation assessments are part of this class.

Attendance points will be given for each lecture period (after the first week). Attendance will be recorded using the student response system (clickers). Students should also sign the provided sign-in sheets. These will be used as a backup should the clickers not work for a class period. Signing the sheets will not substitute for using the clicker.

During each class period students will be asked to participate in short review/reinforcement questions using the response system (clickers). Responses will be graded with 1 point will be given for correct answers when a question has a correct answer or for participation when there is not a “correct” answer to the question asked or when the question is asked to introduce a topic so the student is not expected to know the answer. Students answering questions incorrectly will receive ½ point per question for attempting to answer the question.

Absences falling within the definition of an Excusable Absence (see above reference for definition) will be given attendance points and the class average for participation points for the days of excused absences. Students seeking an excused absence should discuss the nature of their absence with the instructor.

To allow students time to get clickers and to get them registered, only attendance points will be given before the first exam. Clickers will be used to take attendance but sign-in sheets will also be used for those not having clickers. All students are encouraged to get their clickers and start using them as early as possible in the semester to assure they are working correctly by the first exam. After the first exam, students not having clickers will not receive attendance points or points for class participation.

Grading scale:

Grades are assigned as a rounded percentage of the possible points (because people always ask, the GPA value for each grade is shown in parentheses):

90% to 100%	A	(4.00)	70% to 76%	C	(2.00)
87% to 89%	B+	(3.33)	67% to 69%	D+	(1.33)
80% to 86%	B	(3.00)	60% to 66%	D	(1.00)
77% to 79%	C+	(2.33)	Below 60%	F	

Blackboard

The Blackboard website for this class provides information and materials for students and should be considered an integral part of the course. Students are encouraged to refer to this website frequently.

Class Announcements will appear under the Class header on the Home Page. Links to other information are in the tan box on the left side of the Home Page. Information that can be accessed here includes:

- A copy of this Syllabus/Course Schedule
- Course Materials. This is the most critical information on the site. Included in this section:
 - Abridged lecture notes. These will consist of the PowerPoint slides with information deleted on each slide. Some students like to print these and complete them during the class lectures as an aid for taking notes. This is not a requirement, however, because of the nature of the material and because many of the slides may contain graphics you will find it hard to duplicate, you may find it helpful. Some students find they learn better by taking notes on their own and then using their notes along with the lecture outlines to study. The abridged notes for the first 2 lectures will be provided as handouts as well as being available on Blackboard. This will give you an opportunity to decide if you think it is worth the effort to print the slides in this format for future classes. **PLEASE REMEMBER:** These are not the complete lectures. Lectures will provide more information on the topics and this information along with that obtained from both the readings in the texts and assigned supplemental readings will be included on exams. It is strongly recommended that students not use the lecture notes printed from Blackboard as their only source of course information.
 - Text assignments – the chapters and/or specific pages students are expected to read to reinforce lecture content
 - Additional Required Readings – short (usually no more than 5 pages) readings from materials other than your texts. Each has been chosen to add depth to the material from the texts/lectures and students are expected to read these materials. Material from these assignments will be included on exams.
 - Terminology to Know – key food terms that you should know will be listed here. Many of these will be discussed in readings from the text and all are included in Food Lover's Companion.
 - Review Quiz - This quiz is optional. It is provided to encourage you to review the material from the lecture while it is still fresh in your mind. It will only be available until the beginning of the next class period. All questions for the quiz were taken from study materials designated for this topic (Powerpoint presentation, videos shown in lecture and text readings) so you are strongly encouraged to go back to these materials to find answers for questions you missed. If you are unsure about an answer after looking at the material, be sure to discuss the question with the instructor.
- Assignments –
 - Assignment submission instructions

- Instructions for completing the Introductory Assignment and the Written Assignments
- Submission links for each assignment
- My Grades – Grades are posted here so students can monitor their progress in the course.
 - Grades on exams will be posted after the exam is returned in class. If there is an issue with a grade on an exam, it is your responsibility to monitor the posts in this section to be sure any grade changes are made, when appropriate, and to alert the instructor if a problem arises. (See Exam section above about time limits for grade changes on exams).
 - Grades for attendance and class participation will be up-dated throughout the semester (generally at the time exam grades are posted). Students should remember that although these categories on Blackboard say 20 points for attendance and 58 points for class participation, these points are being accumulated throughout the semester so early in the semester your number will be low and should increase as the semester progresses. Students should monitor these scores to assure their clicker is functioning properly. Please report any questions or concerns about clicker points to the instructor as soon as they are detected. Corrections in scores will not be made at the end of the semester if they resulted from problems that should have been corrected early in the semester.

Inclement Weather

University-wide cancellation of classes will be announced via RazAlert. If inclement weather results in canceling a class, students will continue to be responsible for the material to be covered that day and should use the abridged notes posted on Blackboard along with the reading assignment(s) as a guide for studying the material for the missed lecture. If I feel the material needs additional explanation, you will be informed via email regarding the availability of this information. Material for days missed due to weather will be included on the next exam. If weather should result in an extended cancellation of classes, additional information will be posted in the announcement section of Blackboard on procedures for assuring the class progresses during this period so that it does not get too far off the schedule.

If classes are cancelled the class period before an exam, the exam will still be given on the scheduled date and, unless you are notified by a class announcement and/or email all material indicated on the schedule for inclusion on that exam will still be included. If classes are canceled on an exam date, the exam will be given at the next class meeting.

Should it be necessary to cancel this class when the entire University is not closed, the class cancellation will be posted as a Class Announcement on Blackboard and an email will be sent to each student. So, if there is bad weather in the forecast, be sure to check your email and/or monitor Class Announcements. It is your responsibility to keep your inbox cleaned out so you can receive class messages.

Students are encouraged to use good judgment in deciding whether or not to attend class in bad weather. If the weather is bad enough that traveling to class may be hazardous, students will not be penalized for missing the class period.

Academic Integrity and Student Responsibilities:

As a core part of its mission, the University of Arkansas provides students with the opportunity to further their educational goals through programs of study and research in an environment that promotes freedom of inquiry and academic responsibility. Accomplishing this mission is only possible when intellectual honesty and individual integrity prevail.

Each University of Arkansas student is required to be familiar with and abide by the University's 'Academic Integrity Policy' which may be found at <http://provost.uark.edu/> Students with questions about how these policies apply to a particular course or assignment should immediately contact their instructor.

There are companies that will try to lure you into selling the notes you take in this class. Don't let these companies take advantage of you. Selling my notes to any commercial service is considered a violation of my intellectual property rights and/or copyright law as well as a violation of the U of A's academic integrity policy. Continued enrollment in this class signifies intent to abide by the policy. Any violation will be reported to the Office of Academic Initiatives and Integrity.

Additional Student Responsibilities:

- A. If, as a student, you have specific concerns about the course or need special accommodations to participate in the course, please contact the instructor in person or by e-mail. Students registered with CEA should check with the instructor to confirm that their accommodation information has been received.
- B. You are to notify the instructor *in writing* within the first two weeks of the course of any religious observances which will necessitate an absence from class.
- C. If you plan to participate in sanctioned judging trips, professional society meetings, and similar events, you are to submit a letter from the sponsor of the activity outlining the reason for your absence from class. It is preferred that this letter be provided to the instructor at least two weeks prior to the trip or event.

Use of Computers and Cell Phones During Class:

Students are welcome to use a laptop computer to take notes in class. Students caught using computers for things other than taking class notes will be asked to leave class that day and will lose in-class computer privileges for the remainder of the semester.

Cell phones are not allowed to be used in class except during the designated mid-lecture break. Students whose phones ring may be asked to leave class. **Please be considerate of your fellow students and put your cell phone away during class.**

Emergency Procedures

Many types of emergencies can occur on campus; instructions for specific emergencies such as severe weather, active shooter, or fire can be found at emergency.uark.edu.

Severe Weather (Tornado Warning):

- Follow the directions of the instructor or emergency personnel
- Seek shelter in the basement or interior room or hallway on the lowest floor, putting as many walls as possible between you and the outside
- If you are in a multi-story building, and you cannot get to the lowest floor, pick a hallway in the center of the building
- Stay in the center of the room, away from exterior walls, windows, and doors

Violence / Active Shooter (CADD):

- **CALL-** 9-1-1
- **AVOID-** If possible, self-evacuate to a safe area outside the building. Follow directions of police officers.
- **DENY-** Barricade the door with desk, chairs, bookcases or any items. Move to a place inside the room where you are not visible. Turn off the lights and remain quiet. Remain there until told by police it's safe.
- **DEFEND-** Use chairs, desks, cell phones or whatever is immediately available to distract and/or defend yourself and others from attack.

Clicker Registration and Policies

We will be using Turning Technologies Response Devices, otherwise known as clickers, for this class. If you have already purchased a clicker and registered it, then you do not need to purchase another clicker or need to register it again. If you purchase a new clicker at the University Bookstore, it will include a four-year license for \$69. If you purchase a used clicker, or have a clicker that you purchased prior to Fall 2014, then you will need to purchase a Turning Account license card at the University Bookstore and apply that license to your account. The use of ResponseWare will not be permitted for this class.

In order **to receive points** in this class when using a clicker, you must complete all of the following steps by Exam 1:

- **Purchase your clicker from the University Bookstore. They will have the correct model in stock.**
- **Create a Turning Account and register your clicker.**
- **Set your clicker to the correct channel for each class.**
- **While polling is open, press the button corresponding to the correct answer.**

Participation with clickers will account for 21 attendance points and 69 participation over the course of the semester. See the section on Attendance and Participation earlier in this Syllabus to see how these points will be assigned.

Even if you have already registered your clicker, it is recommended that you log into your Turning Account at <https://account.turningtechnologies.com/> and ensure that you have 3 checkmarks on the top of your dashboard.

Academic Integrity And Clickers

Bringing a fellow student's clicker to class is cheating and a violation of the Academic Integrity Code. If you are caught with a remote other than your own or have points registered for a class that you did not attend, you will forfeit all clicker points and may face additional disciplinary action.

Important Links:

Registering your Clicker: <https://tips.uark.edu/create-student-clicker-account/>

Getting Started Using your Clicker: <https://tips.uark.edu/getting-started-with-student-clickers/>

Troubleshooting your Clicker Registration: <https://tips.uark.edu/clickerhelp>