

FS 430/530 Dairy Products: Laboratory, Fall 2014

Course Syllabus

Labs: Mondays 2:10-5:00 p.m., FSHN 140, FSHN 103/155, FSHN 150, and WSU Creamery, as noted

Instructor: Michael Costello
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LABORATORY REQUIREMENTS

Attendance

Laboratory attendance is mandatory. It is each student's responsibility to inform the instructor of any university-associated activities in advance of the activity. It is the students' responsibility to acquire missed lecture handouts and notes. Laboratories require a great deal of preparation by instructor/TA and may be made up **only** under extenuating circumstances (see instructor).

Academic Regulations & Student Affairs Policy Regarding Absences

It is the policy of the Office of Student Affairs to assist students during crisis situations where they are unable to notify their instructors prior to a hurried emergency departure. The Office of Student Affairs will send professors an "Emergency Notification" in those instances where the student will be away for more than two days. The Office of Student Affairs will not issue notifications retroactively or for "one-day emergencies."

Laboratory Reports

- Each student is expected to maintain a hard bound laboratory notebook for this course. ***Bring your notebook to all lectures and labs.*** Lab books will be collected and graded three times during the semester.

Lab books should adhere to the following format.

Your name and the class (FS 430) should be on the cover.

Reserve the first two pages for a table of contents. As the weeks go by, add each lab exercise's page number to the table of contents.

Each lab report should be formatted as follows:

Title of the lab

Date that the exercise was performed.

Names of your partners

An introduction: What are the laboratories goals?

A list of materials and a methods section.

Data: You should have data tables prepared in advance, so that all you need to do is fill in the tables. Tables should be well-labeled. I should be able to look at your tables and be able to understand the data without having to refer to the manual or the methods section of the lab book.

If you wish, you may tape or paste in graphs or charts. If you do, you should sign your name so that half of your signature is on the page and the other half is on the pasted in chart.

Lab books will be graded on attention to format, neatness and clarity.

Eleven type-written reports are required (typically due the week following the lab; schedule enclosed in lab manual). The recommended format for notebook and reports is enclosed in the lab manual. Exceptions are noted. Eight of the labs are worth 10 points each and three more extensive reports are worth 20 points each(see below). Lab reports may be submitted as hard copies or by e-mail prior to deadline.

Laboratories 3, 4 and 6 will be facility tours. Your report will consist of preparing a flow diagram of the facility we tour with an explanation of what happens at each critical step.

Laboratories 7, 11, and 12: Projects, Data Integration and Report: As part of a team exercise, you will make ice cream, with and without emulsifiers and stabilizers. These products will be allowed to age in a poor quality freezer, which should facilitate ice crystal formation. Later in the semester, you will manufacture yogurt using two incubation temperatures that will favor one or the other bacterial species in the yogurt culture provided. In our last full lab, you will conduct a taste panel. Your written reports on each product is due on the last lab session. These integrated exercises should introduce you to scientific methodology. It should permit you to employ skills and knowledge you have gained in this class, as well as those in other classes you have previously taken. The reports (20 pts each) shall include a discussion of laboratories covering mix formulation, mix processing, mix analysis, and ice cream freezing, yogurt fermentation as well as sensory analysis. The reports and the presentation should represent the work of the team.

Late laboratory reports/projects will be docked 20% per day late.

Plagiarism

Neither intentional nor unintentional plagiarism will be tolerated in this course. Intentional plagiarism (cheating) is where one knowingly appropriates the work of others and passes it off as their own. Unintentional plagiarism

(misuse of sources) is the accidental appropriation of the ideas and materials of others due to lack of understanding of the conventions of citation and documentation. Any facts taken from sources that are not common knowledge or are not in the public domain shall be cited. Any quotations, even if you are quoting something that would otherwise be common knowledge (such as quoting from a dictionary or encyclopedia) should be cited. Using proprietary materials, such as pictures, sounds and videos, should be cited. If you are in doubt, cite the source of information.

Quizzes

There will be one quiz during the semester. Because the activity and content of the first laboratory session does not lend itself to report preparation, you will be tested on your understanding using a quiz.

Course evaluation

Laboratory notebooks and laboratory reports will be graded using strict, but clear criteria (read this manual). It is critical that you follow the guidelines included in this laboratory manual to earn high scores on graded laboratories. If anything is not clear to you, it is your responsibility to speak with the instructor *before* the project due date.

Component/Assignment	FS 430	FS 530
	1 credit Undergrad Points	1 credit Grad Points
Attendance/Participation	20	20
Quiz	10	10
Laboratory reports	110	110
Laboratory notebook (2)	60	60
Graduate Grant Proposal (total)	-	60
TOTAL =	240	300

Grading scale

A: (93% +)
A-: (89-92.9%)
B+: (85 – 88.9%)
B: (80 – 84.9%)
B-: (77 – 79.9%)
C+: (74 – 76.9%)
C: (70 – 73.9%)
C-: (65 - 69.9%)
D: (55 – 64.9%)
F: (< 55%)

Half-step grades (+/-) will be awarded to WSU students, as applicable, at instructor's discretion

FS 430/530 LABORATORY ASSIGNMENTS
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<u>Assignment</u>	<u>Due date</u>
Lab 1, August 25th. Dairy Tour (quiz = 10 pt)	No report, Quiz September 8st
Lab 2, September 8st. Milk Composition (10 pt)	Report due September 15
Lab 3, September 15th Milk Handling and Processing (10 pt)	Report due September 22
Lab 4, September 22nd. Milk processing and sanitation(10 pt)	Report due September 29
Lab 5, September 29th. Milk microbiology (10 pt)	Report due October 6th.
Lab 6, October 6th. Wastewater treatment (10pt) Lab books due	Report due October 13
Lab 7, October 13th Ice cream manufacture, the role of emulsifiers and stabilizers (20 pt)	Report due December 8th.
Lab 8, October 20th Filtration and drying (10pt)	Report due October 27th
Lab 9, October 27th. Milk Powder evaluation (10 pt)	Report due November 3rd
Lab 10a, November 3rd. Cheese making Lab 10b, November 10th, Cheese making (10 pt)	Report due November 17th
Lab 11, November 17th. Yogurt manufacture, the role of cultures (20 pt)	Report due December 8th.
Lab 12, December 1st. Sensory evaluation.(10 pt)	Report due Dec 8th
Lab 13, December 8th Sensory evaluation of cheese Lab books due.	No report due

<ul style="list-style-type: none"> • Late laboratory reports/projects will be docked 20% per day late.

FS 430/530 LABORATORY SCHEDULE

Day(s)	Activity	Meeting Location
Aug 25	Lab 1: Dairy Tour: WSU Dairy	FSHN 140
Sept 1	NO LAB, University Holiday	FSHN 140
Sep 8	(Quiz) Lab 2: Milk Composition	FSHN 140
Sep 15	Lab 3: Milk Handling and Processing	WSU Creamery
Sept 22 (M) & 24 (W)	Lab 4: Dairy Plant Sanitation	WSU Creamery
Sept 29, 30(T) & Oct 1 (W)	Lab 5: Milk Microbiology (For Wed, schedule time with TA, count microbiology plates)	FSHN 140
Oct 6	Lab 6: Waste Water Treatment	FSHN 140
Oct 13 and 14(T)	(QUIZ) Lab 7: Dairy industry ingredients: Role of emulsifiers and stabilizers in ice cream	FSHN 140 and WSU Creamery
Oct 20	Lab 8 Filtration and drying	FSHN Pilot Plant
Oct 27	Lab 9: Milk powder evaluation	FSHN 140
Nov 3	Lab 10a: Cheese Making 1	WSU Creamery
Nov 10	Lab 10b: Cheese Making 2	WSU Creamery
Nov 17	Lab 11: Yogurt manufacture	WSU Creamery
Nov 24 - 28	NO LAB: THANKSGIVING VACATION	
Dec 1	Lab 13: Sensory Evaluation	FSHN 148
Dec 8	Lab 14: Sensory evaluation of cheese	

Evidence of relationship between grading strategy and student learning outcomes:

Letter grades will correlate with the student's grasp of the material covered.

Tests and quizzes fill focus on the essential skills

Exams will be designed to take representative samples the student's recollection and comprehension of dairy manufacturing procedures. Students will also be expected to understand how and where sensory attributes and defect arise in the manufacturing process and how processes can be adjusted to improve the sensory quality of those products.

Attendance policy: number of excused absences before grade is impacted; justifying excused absences; Attendance cannot count for more than 25% of course grade. *WSU Academic Regulations & Student Affairs Policy Regarding Absences*. It is the policy of the Office of Student Affairs to assist students during crisis situations where they are unable to notify their instructors prior to a hurried emergency departure. The Office of Student Affairs will send professors an "Emergency Notification" in those instances where the student will be away for more than two days. The Office of Student Affairs will not issue notifications retroactively or for "one-day emergencies."

Instructor specific expectations: Cell phones and computers are to be off during this class. late papers; make-up exams, etc. *Academic Etiquette:* Do not carry on side conversations or read the newspaper during class. Please turn off cellular phones during class.

Instructional methods: Students will work cooperatively, but complete and submit assignments individually. This course will be a combination of field trips, laboratory assignments, practical, hands-on work, experimental design, and data evaluation. Class participation is essential.

Syllabus Food Science 430/530
FS 430/530 Dairy Products Laboratory