SYLLABUS
Food Fermentation
Food Science and Technology 5430
Spring 2018

Jan 8 – May 1
Tu Th 10:30 AM to 11:15 AM Lecture
Tu 11:30 AM-2:10 PM Lab

Rooms 114 (lecture) and 136 (lab) Parker Food Science & Technology Building

Instructors:  Hua Helen Wang  Valente Alvarez
             Food Science & Technology  Food Science & Technology
             219 Parker FST Building  335 Parker /144 Howlett Hall
             292-0579  292-7765, 688-4961
             Wang.707@osu.edu  Alvarex.23@osu.edu
             Office Hrs: by appointment  Office Hrs.: by appointment

Course assistants:  Benjamin Gelinas (gelinas.7@osu.edu), Theresa Pham,
                   (pham.314@osu.edu). Hao Lin (lin.1788@osu.edu)

Course description: Microbiology, biochemistry, and processing of fermented foods.

Pre-requisites: MICRO 4000.

Objectives: Students will become knowledgeable in the following topics:
• Identity, characteristics, and sources of microorganisms in food fermentations.
• Metabolic activities of microorganisms and their influence on product attributes.
• Interactions between microorganisms.
• Processing of fermented foods.
• Growth, maintenance, and preservation of microbial starter cultures.
• Problems that may arise during fermentations and solutions.

Textbook:
Microbiology and Technology of Fermented Foods
by Robert W. Hutkins, Blackwell Publishing
TP371.44 .H88 2006eb ebook

Recommended References:
Kosikowski, F.V. 1997. Cheese and fermented milk foods. Frank Kosikowski and
Vikram Mistry, Brooktondale, N. Y.
York: Chapman & Hall.

Grading Criteria:
Exam 1 100
Exam 2 100
Exam 3 (Final) 100
Group Project 100
Worksheets & Reports 100
Total 500

Grade Percentage
A 90.0 - 100
A- 89.0 - 89.9
B+ 88.0 - 88.9
B 80.0 - 87.9
B- 79.0 - 79.9
C+ 78.0 - 78.9
C 70.0 - 77.9
C- 59.0 - 69.9
D+ 58.0 - 58.9
D- 50.0 - 57.9
E 0.0 - 49.9

Academic Integrity (Academic Misconduct)

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University’s Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University’s Code of Student Conduct and this syllabus may constitute “Academic Misconduct.”

The Ohio State University’s Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: “Any activity that tends to compromise the academic integrity of the University, or subvert the educational process.” Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination.
Ignorance of the University’s *Code of Student Conduct* is never considered an “excuse” for academic misconduct, so I recommend that you review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If we suspect that a student has committed academic misconduct in this course, we are obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University’s *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact either Dr. Wang or Dr. Alvarez.

Other sources of information on academic misconduct (integrity) to which you can refer include:

The Committee on Academic Misconduct web pages ([oaa.osu.edu/coam/home.html](http://oaa.osu.edu/coam/home.html))

*Ten Suggestions for Preserving Academic Integrity* ([oaa.osu.edu/coam/ten-suggestions.html](http://oaa.osu.edu/coam/ten-suggestions.html))

*Eight Cardinal Rules of Academic Integrity* ([www.northwestern.edu/uacc/8cards.html](http://www.northwestern.edu/uacc/8cards.html))

**Resources for learning**

*Office for Disability Services*
150 Pomerene Hall
1760 Neil Ave.
Columbus, OH 43210-1297
Phone: (614) 292-3307
24-Hour Info Line: (614) 292-0870

*University Technology Services*
http://www.osu.edu/units/uts/

*The Center for The Study and Teaching of Writing*
http://www.cstw.ohio-state.edu/
485 Mendenhall Labs
Columbus, Ohio 43210
(614) 688-5865

*OSU Libraries*
http://www.lib.ohio-state.edu/
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<thead>
<tr>
<th>Date</th>
<th>Lecture Topics</th>
<th>Lab (Tue)</th>
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<tbody>
<tr>
<td>1/09/2018 (Tu)</td>
<td>Introduction/food fermentation (HW)</td>
<td>Aseptic Technique</td>
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<tr>
<td>1/11(Th)</td>
<td>LAB-taxonomy, role in preservation, and basic metabolism</td>
<td>Total Plate Counts of fermented foods (1/9)</td>
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<tr>
<td>1/16 (Tu)</td>
<td>LAB metabolism-carbohydrate</td>
<td>Gram Staining—Microscopy</td>
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<td>1/18(Th)</td>
<td>LAB metabolism-protein</td>
<td>(1/16)</td>
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<td>1/23 (Tu)</td>
<td>Starter cultures</td>
<td>TBA (1/23)</td>
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<td>1/25 (Th)</td>
<td>Phage resistance</td>
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<td>1/30 (Tu)</td>
<td>Milk/Cheese (VA)</td>
<td>Cheese (1/30)</td>
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<tr>
<td>2/1 (Th)</td>
<td>Fermented dairy products (VA)</td>
<td>Yogurt (2/6)</td>
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<td>2/6 (Tu)</td>
<td>Yogurt (VA)</td>
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<td>2/8(Th)</td>
<td>Vegetable fermentation (I)</td>
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<td>2/13(Tu)</td>
<td>Vegetable fermentation (II)</td>
<td>Sauerkraut #1 (2/13)</td>
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<td>2/15 (Th)</td>
<td>TBA</td>
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<tr>
<td>2/20 (Tu)</td>
<td>Vegetable fermentation (II)</td>
<td>Sauerkraut #2 (2/20)</td>
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<td>2/22 (Th)</td>
<td>TBA</td>
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<td>2/27 (Tu)</td>
<td>Beer (I)</td>
<td>Sauerkraut #3, Beer I (2/27)</td>
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<td>3/1 (Th)</td>
<td>Beer (II)</td>
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<td>3/6 (Tu)</td>
<td>Wine/Cider</td>
<td>Beer #2 (3/6)</td>
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<td>3/8 (Th)</td>
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<td>3/12-16</td>
<td>Spring break</td>
<td>Break</td>
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<td>3/20 (Tu)</td>
<td>Sausage fermentation (LK)</td>
<td>Sausage fermentation (LK) (3/20)</td>
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<td>3/22 (Th)</td>
<td>Mid-term exam (II)</td>
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<td>3/27(Tu)</td>
<td>Molds and Yeasts</td>
<td>Rice fermentation (3/27)</td>
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<td>3/29(Th)</td>
<td>Vinegar and food ingredients</td>
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<td>4/3(Tu)</td>
<td>Bread</td>
<td>Group project (2) (4/3)</td>
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<td>4/5 (Th)</td>
<td>Rice</td>
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<td>4/10</td>
<td>Soy-based fermented products (I)</td>
<td>Group Project #3 (4/10)</td>
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<td>4/12</td>
<td>Soy-based fermented products (II)</td>
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<td>4/17</td>
<td>Project presentation</td>
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<td>4/19</td>
<td>Project presentation (Last Day of class)</td>
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<td>5/1</td>
<td>Final (10:00-11:45AM)</td>
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