

CHEM 174
Live, Learn & Eat: The Food of Chemistry
Fall 2007

- INSTRUCTOR:** Dr. Sally A. Wasileski
- OFFICE:** RBH 246C
- PHONE:** 232-5169
- EMAIL:** swasiles@unca.edu
- OFFICE HOURS:** Mondays 9:30 – 10:30 am & 1:30 – 2:30 pm
Tuesdays 8:00 – 9:00 am
Fridays 9:00 – 10:00 am
- CLASS TIME:** Tuesdays and Thursdays 1:45 – 4:45 pm, RH 239 & 212
- REQUIRED MATERIALS:** *The Omnivore's Dilemma: A Natural History of Four Meals*,
Michael Pollan, Penguin Press (2006); ISBN# 1594200823
- bound laboratory notebook, with numbered pages and duplicate copies
(see bookstore section for CHEM 111, 145)
- splash-proof safety goggles (see bookstore section for CHEM 111, 145)
- RECOMMENDED MATERIALS:** three-ring binder with separator pages
calculator
- COURSE WEBSITE:** http://facstaff.unca.edu/swasiles/CHEM174/chem174_home.htm
username: CHEM174
password: jellybean
- CLUSTER WEBSITE:** <http://www.unca.edu/foodforthought/>
- PREREQUISITES:** none

UNCA INTEGRATIVE LIBERAL STUDIES PROGRAM:

The Integrative Liberal Studies (ILS) program emphasizes the integration and synthesis of knowledge across traditional disciplinary boundaries. The ILS program invites students to deepen their understanding of complex contemporary issues through interdisciplinary topics and courses. Topical Clusters, like the Food for Thought cluster (Cluster 9), bring the perspectives of several different disciplines to bear on a particular issue or subject area.

All UNCA students are required to complete one Topical Cluster, consisting of at least three courses, for a total of 9 credit hours or more. No more than 3 of the 9 credit hours a student applies toward the Topical Cluster may have the same course prefix (e.g., CHEM). Of these courses, one must be designated as ILS Social Science (ILSS) and one as ILS Natural Science (ILSN). Throughout the experience, students engage in a range of co-curricular activities that enrich their academic experience.

FOOD FOR THOUGHT CLUSTER OBJECTIVES:

Food for Thought: Engaging the Citizen in the Science and Politics of Food Information, Food Consumerism, Nutrition and Health

The Food for Thought cluster focuses on developing the student as an informed consumer of food by providing a platform for discussion of what we eat, why we eat, where our food comes from and its journey from production to consumption, and how food affects our bodies and health. Across the semesters of participation in the cluster, we hope you will gain insight into the often hidden ways that food consumption impacts us on both the individual and collective levels. As human beings, our bodies and our societies are interlinked by numerous processes, many of which can be understood by investigating the dynamics of food in chemical, biological, and social systems. Whether or not you are enrolled in this cluster, our primary goal for students is an enhanced, interdisciplinary understanding of the interplay of these systems and a more attuned sense of how food is a civic issue. For more information, please visit the Food for Thought Cluster webpage (<http://www.unca.edu/foodforthought/>) where you can learn more about activities occurring during the semester, resources on contemporary food issues, local food events, and the work of students in this and other cluster courses.

COURSE OBJECTIVES:

At the successful completion of this course, you will be able to:

utilize the scientific method to evaluate how the chemical and physical properties and changes in food are influenced by the ingredients and preparation methods.

correlate the method and accuracy of a scientific measurement of food ingredients to how the measurement results are utilized in food labeling in order to evaluate your own food choices as an informed consumer.

analyze the complexity and multidisciplinary of food production and distribution in order to evaluate your own food choices as an informed consumer.

POLICIES:

(1) COMMITMENT:

- a. Class will meet on Tuesday and Thursday afternoons for lecture discussion, demonstrations, laboratory experiments, exams, group project work, student presentations, and other course business.
- b. Work on group projects will also require time outside of class.
- c. Participation in cluster activities, which includes interaction with students in other UNCA courses, will also require time outside of class.

(2) PREPARATION: *You will be expected to have completed any reading assignments prior to coming to class in order to actively participate in the lecture discussion and laboratory experiments.* You are encouraged to ask questions and be involved in the lecture discussion.

(3) LATE ASSIGNMENTS: *Late assignments will be penalized by 50% of the total possible points.* Missed exams or presentations will be assigned a grade of zero unless extreme circumstances justify the absence.

(4) ATTENDANCE:

- a. Lecture and lab will start promptly at 1:45.
- b. *Attendance and punctuality is required.*
- c. Since there is only once section of CHEM 174, you will **not** have the opportunity to make up missed experiments.

(5) ATTIRE AND BEHAVIOR IN THE LABORATORY:

- a. You **must** come to lab in appropriate attire or you will not be permitted into the lab. Appropriate attire includes, but is not limited to: closed-toed shoes, long pants, shirts with sleeves, hair tied back, and is deemed appropriate at the discretion of Dr. Wasileski.
- b. You must wear safety goggles in the lab at all times even if you are cooking or doing calculations.
- c. Calm and courteous behavior is required in the laboratory. Horseplay is not tolerated.
- d. Full attention to your experiments and lab-mates is required in the laboratory. Therefore, listening to music through headphones or earbuds or talking on cellular telephones will not be permitted in the laboratory.

(6) CANCELLATION AND MAKE-UPS: Laboratory periods missed due to weather, acts of God, University-wide events, or out-of-town assignments will be made up on the weekend or at other times that are acceptable to the largest number of students and equipment availability.

(7) **HONOR SYSTEM, CHEATING AND PLAGIARISM:**

“Any act of plagiarism or cheating is academic dishonesty. A person who knowingly assists another in cheating is likewise guilty of cheating. According to the instructor's view of the gravity of the offense, a student may be punished by a failing grade or a grade of zero for the assignment or test, or a failing grade in the course. If it seems warranted, the instructor may also recommend to the Provost dismissal or other serious university sanction.” [Course Catalog, University of North Carolina at Asheville, Volume 40, 2005-2006, p. 26]

Cooperative work is an important part of science. Laboratory work and group projects are assigned for groups of three-to-five students. You are encouraged to work together on fundamentals of laboratory reports and pre-laboratory assignments. ***However, all work that is graded for an individual grade must be completed by the individual receiving credit.*** Group work is to be completed with equal contribution of all group members. However, it is vitally important to recognize and prevent cheating and plagiarism in the preparation of your individual and group project reports.

- Cheating includes but is not limited to: copying from another person's paper, falsifying data, submitting work that you did not do yourself.
- Plagiarism includes but is not limited to: failure to acknowledge/reference another's work, acknowledging/referencing another's work as your own, illegally or inappropriately reproducing previously published or copyrighted material.

Cheating, plagiarizing, or other Academic Dishonesty will not be tolerated and punishment to the full extent allowed by the University of North Carolina at Asheville will be pursued.

(8) **DISABILITY ACCOMMODATIONS**

If you require accommodations to access course activities or materials, they must be approved by the Director of Liberal Arts Learning and Disability Services. Documentation of the disability with suggestions for needed accommodations must be filed with the Liberal Arts Learning and Disabilities Service Office at the earliest possible time. Once the need for accommodations is established, a meeting of all parties must be scheduled to discuss course expectations and what accommodations would be appropriate.

Contact Ethan Fesperman at (828) 232-5050 or efesperm@unca.edu for more information.

GRADING:

Laboratory (25%)

Attendance and Participation	5%
Laboratory Notebook	10%
Assignments & Reports	15%

Lecture (75%)

Attendance and Participation	5%
Homework & Writing Assignments	25%
Midterm Exam	10%
Final Exam	15%
Harvest Bounty Shared Meal Assignments	5%
Final Media Project	15%

ATTENDANCE AND PARTICIPATION: This portion of the laboratory and lecture grade is based on attendance and active participation in group activities (i.e., experimental work in the laboratory, Harvest Bounty Shared Meal, media project) and in class discussions. To ensure full credit, you must be an equal team member in all group projects, be prepared and actively participate in class activities and discussions, and attend all laboratory and lecture class meetings.

LABORATORY NOTEBOOK: All laboratory experiments will be thoroughly documented in a bound laboratory notebook following the protocol set by the UNCA Department of Chemistry (see separate handout).

LABORATORY ASSIGNMENTS AND REPORTS: After finishing the experimental work in the laboratory, an assignment or report will be due for each laboratory experiment. The details of which are included at the end of each laboratory handout.

HOMEWORK AND WRITING ASSIGNMENTS: Throughout the semester, weekly homework and writing assignments will be given. Homework assignments serve as material review and practice for exam questions. Writing assignments will reflect student understanding and participation in the class reading assignments and participation in class and cluster activities. Separate handouts will be given for each assignment.

EXAMS:

- (1) Exams will be given during class time.
 - a. The MIDTERM exam will be given on Thursday, October 4.
 - b. The FINAL exam will be given on Tuesday, December 11, 2007 during the regular final-exam time slot at 11:30 am.

- (2) Exams will be cumulative, but will focus on topics discussed since the previous exam. All lecture, laboratory and assigned reading material is applicable test material.

HARVEST BOUNTY SHARED MEAL ASSIGNMENTS: All students enrolled in Food for Thought courses will participate in a shared meal event (to take place Saturday, September 29 from 5:00 – 8:00 pm). This event will include pre and post assignments; such assignments will be detailed at the Food for Thought Meet and Greet on Thursday, August 30 (12:30 pm in Highsmith 221 & 222). If you are unable to participate in the shared meal, you must let Dr. Wasileski know in writing by September 4.

MEDIA PROJECT: At the end of the semester, students will work in groups to develop and film a video detailing some scientific aspect of food or cooking. *This is your opportunity to star in your own cooking show!* Some class time will be devoted to filming the student projects, but time outside of class will be required for scripting and editing the final video.

GRADING SCALE:

90 – 100%	A	85 – 89%	A–
81 – 84%	B+	77 – 80%	B
74 – 76%	B–	70 – 73%	C+
65 – 69%	C	60 – 64%	C–
50 – 59%	D	0 – 49%	F

TEXT:

Due to the uniqueness and multidisciplinary nature of CHEM 174, there is no available text that uses the format Dr. Wasileski will be using for covering the scientific content in this course. Therefore, Dr. Wasileski will provide lecture notes and other supplementary material on the course website as far in advance as possible.

We will be reading the following text throughout the course:

The Omnivore's Dilemma: A Natural History of Four Meals,
Michael Pollan, Penguin Press (2006)
ISBN # 1594200823

Please refer to the Food for Thought Cluster website for additional text resources recommended by the cluster faculty at <http://www.unca.edu/foodforthought/>.

CLUSTER ACTIVITIES: Participation in the following Food for Thought Cluster activities is required:

- (1) Food for Thought Cluster Meet and Greet: Thursday, August 30, 2007, 12:30 – 1:30 pm, Highsmith 221 & 222. This informational session will discuss the Food for Thought ILS cluster, cluster events and participation, and other cluster activities going on throughout the semester.
- (2) Harvest Bounty Shared Meal: Saturday, September 29, 2007, 5:00 – 8:00 pm, Alumni Hall in Highsmith. The shared meal will be a multidisciplinary production, consumption, and academic analysis of a student-prepared meal, involving all students participating in Food for Thought cluster courses during the Fall 2007 semester. See separate handout for details and relevant assignments.
- (3) Farm Tour: Thursday, September 13, 2:30 – 5:30 pm. Additional information will be provided about transportation and writing assignments.
- (4) North Asheville Tailgate Market: Saturday mornings through September, Lot C (horseshoe lot connecting University Heights and Edgewood Roads). CHEM 174 students must attend at least one tailgate market. See separate handout for writing assignment.
- (5) Lunch and Learn: Thursdays 12:30 – 1:30 pm throughout the semester (see cluster website for exact dates). Participation in at least one Lunch and Learn event is required. See separate handout for details and relevant writing assignment.
- (6) HWP 373 001 – Food Politics and Nutrition Policy (Dr. Lanou) – UNCA Food Guidelines Advisory Committee Meeting: Students in CHEM 174 will be sharing information learned in CHEM 174 to students in HWP 373 001 by participating in a shared activity across courses. The assignment involved will be related to a laboratory report on sodium content in foods available on UNCA's campus.

TENTATIVE LECTURE SCHEDULE: (This schedule is only tentative and additional or less material may be covered, time allowing)

# of Lectures	Topics
1	Chemical and Physical Properties
2-3	Intramolecular Interactions
3-4	Intermolecular Interactions
2-3	Energy and Molecular Transformations
2-5	Food Chemistry Case Studies

TENTATIVE LABORATORY SCHEDULE:

Date	Experiment
8/23	Cookie Lab – part 1
8/28	Cookie Lab – part 2
9/4	Ion Chromatography of Sodium in Foods – part 1
9/11	Ion Chromatography of Sodium in Foods – part 2
9/18	Ion Chromatography of Sodium in Foods – part 3
9/25	Candy Lab
10/2	Chromatography of Spinach
10/16	Flavor Molecules – part 1
10/23	Flavor Molecules – part 2
10/30	Bomb Calorimetry
11/6	Wintergreen Synthesis from Aspirin
11/13	Group Projects Dietary Guidelines Advisory Committee Meeting Prep
11/20	Group Projects Dietary Guidelines Advisory Committee Meeting w/ HWP 373
11/27	Group Projects

**CALENDAR OF SHARED EVENTS FOR FOOD FOR THOUGHT CLUSTER
(see www.unca.edu/foodforthought/activitiesandevents.htm for updated schedule)**

Date	Times	Event
8/30	12:30-1:30p	Lunch Time Meet and Greet – Planning for Shared Meal
9/8	9:30a-12:30p	Farm Tour at Hickory Nut Gap Farm
9/13	2:30-5:00p	Farm Tour at Warren Wilson College (our class)
9/29	5:00-8:00p	Harvest Bounty Shared Meal
10/4	12:30-1:30p	Lunch and Learn 1 – Local Food Movement
10/18	12:30-1:30p	Lunch and Learn 2 – Soils or Compost Expert
11/1	12:30-1:30p	Lunch and Learn 3 – Environmentalism through Food Expert
11/15	12:30-1:30p	Dietary Guidelines Advisory Committee Meeting
11/20	3:10-4:45p	Dietary Guidelines Advisory Committee Meeting (our class)
11/29	12:30-1:30p	Dietary Guidelines Advisory Committee Meeting

IMPORTANT DATES:

August	20	Classes begin
		Late Registration
	24	Last day drop/add Full Semester
		Last day registration Full Semester
	27	Withdrawal period with W grade begins
September	3	Labor Day Holiday – No Classes
October	6	Fall Break begins – No Classes
	10	Classes resume
	24	Last day to withdraw Full Semester Course
November	21	Thanksgiving Holiday begins – No Classes
	26	Classes resume
December	3	Classes end
	4	Reading Day – No Classes until 6:00 pm
	5	Finals begin
	11	Finals end
	14	Grades due