The University of Oklahoma  
College of Arts and Sciences  
Department of Chemistry & Biochemistry  
Organic Chemistry in Italy Study Abroad Program  
CHEM 4970 – Culinary Chemistry and Culture in Italy (C3I)

I. COURSE INFORMATION:

Pre/Co-requisite: CHEM 3053  
Classes: Afternoons on Class days, some instruction on mandatory field trips  
Class Time: ca. 5:15 – 6:30 pm  
Text(s): Combination of handouts and online readings

II. COURSE DESCRIPTION:

This course covers the basics of wine and winemaking (enology), coffee brewing and coffee roasting, olive oil and pasta preparation and the chemistry behind these Italian culinary mainstays. Although a majority of the course will take place in a traditional classroom, the essential aspect of this course will be the experience of learning onsite concerning the growth of the grapes, processing, fermentation, aging, and bottling of wine, the roasting and brewing of coffee, the isolation of olive oil and preparation of pasta. There is great deal of Biochemistry and Organic Chemistry involved in the fermentation or roasting processes and understanding the chemistry behind the flavor, aroma, and color of wine, coffee and olive oil.

III. OBJECTIVES:

The overall objective regarding wine is for the student to understand the wine making process and techniques; be knowledgeable of the grape varieties, wine types, and wine regions; master the main metabolic pathways in alcoholic and malolactic fermentation; and to be able to relate the flavor, aroma, and color of wine to the class of organic compounds associated with each. The secondary objectives of this course are to increase the students’ understanding of the importance of wine in the European/Italian culture, the significance of the terroir of wine, and the technical aspects of winemaking. The overall objective regarding coffee is for the student to understand the chemical changes that occur upon roasting and how various brewing techniques result in extraction of flavor components. The secondary objectives are to understand the influence of varietals and processing of the coffee crop. The primary objective for the olive oil section is to understand the chemical components and stability of olive oil. The primary objective for the pasta section is to understand the chemical differences in various wheat types and changes that occur upon cooking. Due to the integrated nature of this Study Abroad program, the course will make direct and integrated connections between the Organic Chemistry covered “in the classroom” and chemical understanding of in culinary experiences “outside the classroom.”

IV. EVALUATION:

The course grade will be determined by the average of the quizzes, assignments, and Final Exam. The final letter grading for the lecture course will be as follows: A ≥ 90%, B = 89-80%, C = 79-70%, D = 69-60%, F = <60%.
COURSE GRADE

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<th>Points Possible</th>
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<tbody>
<tr>
<td>Final Exam</td>
<td>1@60</td>
<td>60</td>
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<tr>
<td>Quizzes</td>
<td>Best 6 out of 7@10</td>
<td>60</td>
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<tr>
<td>Culinary Journal</td>
<td>Multiple Entries</td>
<td>60</td>
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<tr>
<td>Assignments</td>
<td>8-12</td>
<td>60</td>
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<tr>
<td>Points Possible</td>
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<td>240</td>
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The Final Exam will be 60-points and will be free response question (short answer, essay, mechanism...). The questions on the exams will come from the prior lecture material, reading material, and material discussed during the field trips. The quizzes will consist of few free response questions for and be worth ten points. The questions on the quizzes will come from the prior lecture material and reading material. The quizzes will be given the beginning of class. Assignments may be highly variable in nature and will be graded both on participation and quality. The journal should detail your culinary experiences and document an increasing depth of understanding during the term.

V. GENERAL POLICIES:

Class Conduct:

All students are expected to follow proper classroom behavior and treat other students and the instructor with respect. Cellular phones must be turned off in class. Ringing/Vibrating phones are disruptive to the class. Texting during class is also disruptive and disrespectful to your fellow students and the instructor.

It is also important that the field trips are an extension of the classroom. It is important to be engaged in this essential educational experience and to treat the individuals at the wineries, vineyards and coffee roastery with respect and courtesy.

Accommodations:

Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities. Students requiring academic accommodation should contact the Office of Disability Services for assistance at (405) 325-3852 or TDD: (405) 325-4173. For more information please see the Office of Disability Services website http://www.sa.ou.edu/ods/index.html.

Make-up Policy:

Although the Instructors do not expect a student to miss an assignment in a Study Abroad course, if a student does miss an assignment for a legitimate, verifiable reason, the Instructors will work with the student to provide an opportunity for make-up work.

Extra-credit:

The Instructors reserve the right to give extra-credit, but currently does not plan to provide opportunities for extra-credit. If the Instructors choose to provide extra credit, all students will be given an equal opportunity for credit and it will most likely be based on
performance in the course. Please take full advantage of your time in and out of class, as well as staying up to date on all reading and practice problem. Performing well on the quizzes and exams negates the need for any extra-credit.

Academic Integrity and Honesty:

All students are expected to conform to college-level standards of ethics, academic integrity, and academic honesty. By enrolling in this course, you agree to be bound by the Academic Misconduct Code published in The University of Oklahoma Student Code (www.ou.edu/studentcode/OUStudentCode.pdf). For further clarification please see: www.ou.edu/provost/integrity-rights/.

All members of the community recognize the necessity of being honest with themselves and with others. Cheating in class, plagiarizing, lying and employing other modes of deceit diminish the integrity of the educational experience. None of these should be used as a strategy to obtain a false sense of success. The need for honest relations among all members of the community is essential.

Changes in the Syllabus:

As the course develops, it might be desirable/necessary to make appropriate changes in aspects of this syllabus. The Instructors reserve the right to make changes if desirable or necessary.

VI. EXAM SCHEDULE

Final Exam: June 27, 11:00-12:30

VII. CLASSES SCHEDULE

The schedule below is a preliminary outline of the semester. It is your responsibility to keep up with changes to this schedule.

Pre-Class and Rome: Importance of Wine in World History and Culture
Class 1: Redox Chemistry – Basic Organic Transformations in Fermentation and Ethanol Metabolism
Class 2: Wine/ethanol – Health Issues, both positive and negative
Class 3: Viticulture: Organoleptic Classification of Wines
Class 4: Viniculture and Viticulture: Grapes and Wine Styles
Class 5: Viticulture: Fermentation
Class 6: Viticulture: Winemaking and Production
Class 7: Coffee Brewing Techniques
Class 8: History of coffee production
Class 9: Chemical changes during coffee roasting
Class 10: Coffee types and processing
Class 11: Olive Oil
Class 12: Pasta
Class 13: Putting Science and Aesthetics Together