Spring 2018
The Biochemistry of Wine
Chem 183
Jan – May 2018
6:30-8:15pm
Instructor: Michael Cohen
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e-mail: orthowine@gmail.com, cohenmm@cofc.edu
Office hours: By appointment.

Course prerequisites: one year college level biology or chemistry

Course description:
An express course that details the workings of wine from a chemical and biochemical point of view. The science of how wine is grown, fermented, stored and bottled is but one aspect of the science involved. The impact of wine and its chemical components on the human body is also assessed and the long term ramifications of wine consumption are explored. The students utilize their academic word text from the syllabus as a basis to investigate a wine of their own choosing. Each week a critical thinking paper is submitted for each of the five different topics covered in the lectures. Feedback and suggestions are made during the semester to improve the document being created.

Learning objectives:
Topics:
• What makes wine such a unique elixir that it has positive and negatives effects on the human body
• The scientific exploration of vineyard location, climate, irrigation, fertilization, structured growth, harvesting, fermentation and storage of wine will all be covered
• Medical research and case studies will be incorporated into the curriculum to develop a deeper understanding of human physiology
• The complex world of fermentation and all it’s additives and manipulations will be covered
• The breakdown and chemical alteration of wine as it ages

Learning methods:
• The student is exposed to text curriculum to impart basic knowledge. This is to be digested and reworked into authentic written documents each week. This begins to explore complex writing skills as it pertains to science.
• Through interactive dialogue, the students develops reasoning methods for testing hypothesis of human biochemistry
• Critical thinking is required by way of independent research on a wine of their own choosing
• Construction of a science document with unique and independent thoughts. These need to be corroborated by references
• Evaluating wine production techniques with a thought on either streamlining the procedure or finding new pathways for a better product
The course will support the School of Science and Math learning goals:

- **Effective Communications:** The students are encouraged to participate in interactive lecture discussion of material. Case study analysis will effect this goal.

- **Ethical Awareness:** Students will recognize and be able to appraise ethical dilemmas involved in Science and Math industries. Medical science will be incorporated into the curriculum to expose the student to medical issues as they pertain to alcohol production and consumption.

- **Global Awareness:** Students will exposed to the international contributions of scientists who have expanded the base knowledge of chemistry as it pertains to alcohol. The role of chemistry in creating unique wines from around the world will be stressed. The need for future scientific discovery as it pertains to wine creation will be stressed.

- **Problem Solving Ability:** Students will be tasked with creating beer, analyzing this in a laboratory setting and submitting their scientific discovery for grading. Additionally, students will select a wine of their choosing for a laboratory analysis of alcohol content and reducing sugars, and submit their findings for grading. Lecture material will provide directional assistance in this creation.

**Recommended text:**

*The Biochemistry of Wine*

By Michael Cohen, DO FAAOS

Spiral bound book offered by the book store

**Academic Integrity:** The College of Charleston’s Honor Code is in effect in this course. Any student caught cheating will receive a failing grade in the course and additional action may be taken. Cheating includes copying someone else’s work in exams, quizzes, and assignments. It includes using notes and other aides during exams when not authorized to do so, collaborating with others for take-home exams, using someone else’s idea’s without referencing them, or turning in an assignment for this class that was submitted, in whole or in part, for another class. Cheating also includes the allowing of one’s work to be copied by another and doing work for another student. If you are unclear about what constitutes cheating, please see the Instructor.

**Students Needing Access Parity (SNAP)** – We provide services and accommodations for students with disabilities (physical, psychological, learning or attentional) that have been documented by a qualified MD or psychologist. Documentation must meet criteria published in the SNAP brochure and on our website http://disabilityservices.cofc.edu. Accommodations are decided on a case-by-case basis and are determined by the type and severity of the disability and the essential elements of the course the student is taking. Accommodations are designed to provide access to education and to circumvent or reduce the effect of the disability as much as possible, not to give advantage or guarantee success.

**Grades:**

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<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>92-100</td>
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<tr>
<td>A-</td>
<td>89-91.9</td>
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<td>B+</td>
<td>86-88.9</td>
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<tr>
<td>B</td>
<td>81-86</td>
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<tr>
<td>B-</td>
<td>79-80.9</td>
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<tr>
<td>C+</td>
<td>77-78.9</td>
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<td>C</td>
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<td>C-</td>
<td>70-71.9</td>
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<td>D+</td>
<td>67-69.9</td>
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<td>D</td>
<td>60-66.9</td>
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<td>F</td>
<td>59 or less</td>
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**Factors in Grading:** The students have a weekly deadline of submitting papers of 2 pages in length. These sectors are directly related to course lecture material, but pertain to their individually selected wine of study for the semester

Papers are delivered to Dropbox and analyzed by myself for several factors

- Content
- Knowledge of subject matter
- Individual thought and presentation thereof
- Clarity of content

Each paper will be reviewed on a weekly basis and suggestions/improvements will be sent back to students to correct or add to

Each submission is based upon a 20 point total, so that as the final paper is submitted, a total of 100 points is possible.

**Class attendance and participation:** Attendance is important. Due to the in depth coverage of the subject matter, missing one class can be difficult to make up on your own. Research indicates that class discussion/participation fosters enhanced learning for all members of the class.

- Anyone missing more than 2 classes may be deemed ineligible for a grade of ‘A’
- Anyone missing more than 3 classes may be deemed ineligible for a grade of ‘B’
- Anyone missing more than 4 classes may be deemed ineligible for a grade of ‘C’
- Anyone missing more than 5 classes may be deemed ineligible for a grade of ‘D’

*Attendance is only excused for medical or other serious and legitimate reasons.* Students MUST submit documentation for any absence considered for excuse.