Course prerequisites: one year college level biology or chemistry

Course description:
This course will explore the understandings of chemistry and its application in the creation of alcoholic beverages. Beer, wine and spirit will be broken down to the molecular level to gain an understanding of how fermentation works to create such radically different alcoholic beverages available in the market place. Laboratory analysis will be conducted in conjunction with the course.

Course objectives:
Topics:
- Learn of the basic components of beer and how they are manipulated to create differing flavor profiles
- Create a basic spirit by distillation and analyze impurities within
- Evaluate the contribution of wood and its components in the creation of alcohol
- Understand the biochemistry behind sensory analysis and how it impacts organoleptics with respect to the wine industry

Learning methods: The class is broken up into three sections: wine, spirit, beer. The start of class teaches the nuances of microbiology in regards to the creation of beer. The students will make their own beer with the ability to manipulate the process from learned objectives in lecture. From this, the beer is used as a base for creation of a white spirit that will be distilled to strength determined in a laboratory setting. Distillation chemistry will be taught with an emphasis on elimination of impurities in technique. The final section of the course will be on wine chemistry in a didactic setting. All concepts including fermentation, aging in wood, and transition of organoleptics in wine.

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. Field trips to a brewery and a distillery will provide the student an opportunity to interact with experts in their particular field
- Ethical Awareness: Students will recognize and be able to appraise ethical dilemmas involved in Science and Math industries
- Global Awareness: Students will be exposed to the international contributions of scientists who have expanded the base knowledge of chemistry as it pertains to alcohol
- Problem Solving Ability: Students will be tasked with creating beer and spirit during the course. This will be conducted in conjunction with the laboratory section. Lecture material will provide directional assistance in this creation.
**Recommended text:**

*The Chemistry of Alcohol*
By Michael Cohen, DO FAAOS
Spiral bound book offered by the book store

**Academic Integrity:** The College of Charleston’s Honor Cof C 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 aids 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>Score Range</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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<tr>
<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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<tr>
<td>C-</td>
<td>72-76.9</td>
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<tr>
<td>D+</td>
<td>67-69.9</td>
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<tr>
<td>D</td>
<td>60-66.9</td>
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<tr>
<td>F</td>
<td>59 or less</td>
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**Factors in Grading:** there will be two mid term examinations. The first is the creation of beer during the first section of the course culminating in a laboratory analysis of this product. The second mid term will be the creation and explanation thereof of a neutral spirit created from the beer base from the first mid term exam. A laboratory section where distillation is accomplished with purification of heads, hearts and tails is included. The final exam will have an emphasis on the last section of the course which is wine chemistry, but the final exam will be COMPREHENSIVE for the entire course. The final exam will count 50% towards the final grade.

Class participation, attitude, and demeanor will be noted by the instructor and used to swing grades up or down.

**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.