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OFFICE OF THE
SENATE COUNCIL**1. General Information**

1a. Submitted by the College of: ARTS & SCIENCES

Date Submitted: 12/17/2014

1b. Department/Division: Chemistry

1c. Contact Person

Name: Bert C. Lynn

Email: bclynn2@uky.edu

Phone: 859-218-6529

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

1d. Requested Effective Date: Semester following approval

1e. Should this course be a UK Core Course? No

2. Designation and Description of Proposed Course

2a. Will this course also be offered through Distance Learning?: No

2b. Prefix and Number: A&S 306

2c. Full Title: Spirit Chemistry

2d. Transcript Title:

2e. Cross-listing:

2f. Meeting Patterns

LECTURE: 3

2g. Grading System: Letter (A, B, C, etc.)

2h. Number of credit hours: 3

2i. Is this course repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester?

2j. Course Description for Bulletin: In this course, students will explore the production of distilled spirits. The production of distilled spirits involves three basic steps: selection and processing of a carbohydrate (starch or sugar), fermentation of the carbohydrate to produce ethanol and distillation of the ethanol. In these processes, substances are produced and concentrated in the ethanol that create the unique flavors and fragrances associated with the individual spirit. Seven distilled spirits (moonshine, vodka, gin, rum, tequila, bourbon and scotch) will be discussed in detail.

2k. Prerequisites, if any: Credit hours sufficient to be considered a junior or permission of the instructor.

2l. Supplementary Teaching Component:

3. Will this course taught off campus? No

If YES, enter the off campus address:

4. Frequency of Course Offering: Fall,

Will the course be offered every year?: Yes

If No, explain:

5. Are facilities and personnel necessary for the proposed new course available?: Yes

If No, explain:

6. What enrollment (per section per semester) may reasonably be expected?: 50-100

7. Anticipated Student Demand

Will this course serve students primarily within the degree program?: No

Will it be of interest to a significant number of students outside the degree pgm?: Yes

If Yes, explain: This course will be part of a multidisciplinary certificate program.

8. Check the category most applicable to this course: Not Yet Found in Many (or Any) Other Universities ,

If No, explain:

9. Course Relationship to Program(s).

a. Is this course part of a proposed new program?: Yes

If YES, name the proposed new program: An undergraduate certificate called "Distillation, Wine and Brewing Studies"

b. Will this course be a new requirement for ANY program?: Yes

If YES, list affected programs: Certificate

10. Information to be Placed on Syllabus.

a. Is the course 400G or 500?: No

b. The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from **10.a** above) are attached: Yes

Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1. How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2. How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3. How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4. Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5. How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6. How do course requirements ensure that students make appropriate use of learning resources?

7. Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8. How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (<http://www.uky.edu/UKIT/>)?

9. Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10. Does the syllabus contain all the required components? NO

11. I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

SIGNATURE|YATES|S W Yates|A&S 306 NEW Dept Review|20141015

SIGNATURE|ACSI222|Anna C Harmon|A&S 306 NEW College Review|20141218

SIGNATURE|YATES|S W Yates|A&S 306 NEW Dept Review|20141117

SIGNATURE|ACSI222|Anna C Harmon|A&S 306 NEW College Review|20141218

SIGNATURE|JMETT2|Joanie Eit-Mims|A&S 306 NEW Undergrad Council Review|20150331

Courses Request Tracking

New Course Form

<https://myuk.uky.edu/sap/bc/soap/rfc?services=>

Generate R

[Open in full window to print or save](#)

Attachments: Upload File

	ID	Attachment
Delete	4283	A&S 306 UGC Review Checklist.docx
Delete	4728	Spirit Chemistry Syllabus_03_30_15b.pdf

1

Select saved project to retrieve...

(*denotes required fields)

1. General Information

a. * Submitted by the College of: Submission Date:

b. * Department/Division:

c.

* Contact Person Name: Email: Phone:

* Responsible Faculty ID (if different from Contact): Email: Phone:

d. * Requested Effective Date: Semester following approval OR Specific Term/Year

e. Should this course be a UK Core Course? Yes No

If YES, check the areas that apply:

Inquiry - Arts & Creativity Composition & Communications - II

Inquiry - Humanities Quantitative Foundations

Inquiry - Nat/Math/Phys Sci Statistical Inferential Reasoning

Inquiry - Social Sciences U.S. Citizenship, Community, Diversity

Composition & Communications - I Global Dynamics

2. Designation and Description of Proposed Course.

a. * Will this course also be offered through Distance Learning? Yes No

b. * Prefix and Number:

c. * Full Title:

d. Transcript Title (if full title is more than 40 characters):

e. To be Cross-Listed ² with (Prefix and Number):

f. * Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours³ for each meeting pattern type.

<input type="text" value="3"/> Lecture	<input type="text"/> Laboratory ¹	<input type="text"/> Recitation	<input type="text"/> Discussion
<input type="text"/> Indep. Study	<input type="text"/> Clinical	<input type="text"/> Colloquium	<input type="text"/> Practicum
<input type="text"/> Research	<input type="text"/> Residency	<input type="text"/> Seminar	<input type="text"/> Studio
<input type="text"/> Other	If Other, Please explain: <input type="text"/>		

g. * Identify a grading system:

Letter (A, B, C, etc.)

Pass/Fail

Medicine Numeric Grade (Non-medical students will receive a letter grade)

Graduate School Grade Scale

h. * Number of credits:

i. * Is this course repeatable for additional credit? Yes No

If YES: Maximum number of credit hours:

If YES: Will this course allow multiple registrations during the same semester? Yes No

j. * Course Description for Bulletin:

In this course, students will explore the production of distilled spirits. The production of distilled spirits involves three basic steps: selection and processing of a carbohydrate (starch or sugar), fermentation of the carbohydrate to produce ethanol and distillation of the ethanol. In these processes, substances are produced and concentrated in the ethanol that create the unique flavors and fragrances associated with the individual spirit. Seven distilled spirits (moonshine, vodka, gin, rum, tequila, bourbon and scotch) will be discussed in detail.

k. Prerequisites, if any:

Credit hours sufficient to be considered a junior or permission of the instructor.

l. Supplementary teaching component, if any: Community-Based Experience Service Learning Both

3. * Will this course be taught off campus? Yes No

If YES, enter the off campus address:

4. Frequency of Course Offering.

a. * Course will be offered (check all that apply): Fall Spring Summer Winter

b. * Will the course be offered every year? Yes No

If No, explain:

5. * Are facilities and personnel necessary for the proposed new course available? Yes No

If No, explain:

6. * What enrollment (per section per semester) may reasonably be expected? 50-100

7. Anticipated Student Demand.

a. * Will this course serve students primarily within the degree program? Yes No

b. * Will it be of interest to a significant number of students outside the degree pgm? Yes No

If YES, explain:

This course will be part of a multidisciplinary certificate program.

8. * Check the category most applicable to this course:

Traditional – Offered in Corresponding Departments at Universities Elsewhere

Relatively New – Now Being Widely Established

Not Yet Found in Many (or Any) Other Universities

9. Course Relationship to Program(s).

a. * Is this course part of a proposed new program? Yes No

If YES, name the proposed new program:

An undergraduate certificate called "Distillation, Wine and Brewing Studies"

b. * Will this course be a new requirement^s for ANY program? Yes No

If YES^s, list affected programs::

Certificate

10. Information to be Placed on Syllabus.

a. * Is the course 400G or 500? Yes No

If YES, the *differentiation for undergraduate and graduate students must be included* in the information required in 10.b. You must include: (i) identify additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See SR

b. * The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable 10.a above) are attached.

¹ Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
² The chair of the cross-listing department must sign off on the Signature Routing Log.

- ☐ In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, require two hours per week for a semester for one credit hour. (from SR 5.2.1)
- ☐ You must also submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.
- ☐ In order to change a program, a program change form must also be submitted.

Rev 8/09

Submit as New Proposal Save Current Changes

General Course Information

- Full and accurate title of the course
- Departmental and college prefix
- Course prefix, number and section number
- Scheduled meeting day(s), time and place

Instructor Contact Information (if specific details are unknown, "TBA" is acceptable for one or more fields)

- Instructor name
- Contact information for teaching/graduate assistant, etc.
- Preferred method for reaching instructor
- Office phone number
- Office address
- UK email address
- Times of regularly scheduled office hours and if prior appointment is required

Course Description

- Reasonably detailed overview of the course
- Student learning outcomes
- Course goals/objectives
- Required materials (textbook, lab materials, etc.)
- Outline of the content, which must conform to the Bulletin description
- Summary description of the components that contribute to the determination of course grade
- Tentative course schedule that clarifies topics, specifies assignment due dates, examination date(s)
- Final examination information: date, time, duration and location
- For 100-, 200-, 300-, 400-, 400G- and 500-level courses, numerical grading scale and relationship to letter grades for undergraduate students
- For 400G-, 500-, 600- and 700-level courses, numerical grading scale and relationship to letter grades for graduate students. (Graduate students cannot receive a "D" grade.)
- Relative value given to each activity in the calculation of course grades (Midterm=30%; Term Project=20%, etc.)
- Note that undergraduate students will be provided with a Midterm Evaluation (by the midterm date) of course performance based on criteria in syllabus
- Policy on academic accommodations due to disability. Standard language is below:
 If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Course Policies

- Attendance
- Excused absences
- Make-up opportunities
- Verification of absences
- Submission of assignments
- Academic integrity, cheating & plagiarism
- Classroom behavior, decorum and civility
- Professional preparations
- Group work & student collaboration

UGE Review (1/20/15)
Committee Review ()
Comments

A&S 306
Spirit Chemistry
University of Kentucky,
Fall Semester, 2014

Lectures: TR, 11:00 – 12:15 a.m., CP-201, 3 credits

Instructor: Bert C. Lynn

Office Address: A053 ASTeCC Building

Email: bclynn2@uky.edu

Office Phone: 218-6529

Office Hours: 1:00 -2:00 on TR or by appointment (A053 ASTeCC)

Course Description: In this course, students will explore the production of distilled spirits. The production of distilled spirits involves three basic steps: selection and processing of a carbohydrate (starch or sugar), fermentation of the carbohydrate to produce ethanol and distillation of the ethanol. In these processes, substances are produced and concentrated in the ethanol that creates the unique flavors and fragrances associated with the individual spirit. Seven distilled spirits (moonshine, vodka, gin, rum, tequila, bourbon and scotch) will be discussed in detail.

Prerequisites: Credit hours sufficient to be considered a junior or permission of the instructor.

Student Learning Outcomes: After completing this course, student will be able to:

- 1) Describe the impact ethanol on the development of civilization, the history of ethanol production from the Neolithic era to modern times, the dark days of prohibition and modern uses of ethanol.
- 2) Describe in detail the overall process of ethanol production including the selection of fermentable materials, the biochemistry of malting and mashing, the biology of yeast, the engineering of distillation equipment and the analytical techniques that identify compounds in distilled spirits.
- 3) Classify and identify a range of olfactory responses (good and bad) to simple organic molecules and the chemistry behind these simple molecules.
- 4) Describe the metabolism and biological activity of ethanol.
- 5) Characterize seven distilled spirits in detail comparing and contrasting the processing and resulting chemical characteristics of each spirit.

Required Materials:

Textbook: No textbook is required for this course. Required reading and study materials will be provided by the instructor or posted on Blackboard.

Suggested readings:

- Rogers, A. (2014). *Proof: The Science of Booze*. New York, NY. Houghton Mifflin Harcourt Publishing Company.
- Lendler, I. (2014). *Alcoholica Esoterica*. New York, NY. Penguin Group.
- Gately, I. (2009). *Drink: A Cultural History of Alcohol*. New York, NY. Gotham Group.
- Broom, D. (2014) *The World Atlas of Whisky: New Edition*. London, UK. Octopus Publishing Group.

Course Assignments: A total of 400 points are available in this course. There will be two in class exams during the semester (200 points) and a final exam (100 points). The remaining 100 points will be earned through in class participation. Class participation will be based on completion of in-class questionnaires and in-class surveys of flavors and fragrances (organoleptic analysis) associated with different spirits (not graded). You must be present to participate and receive credit. Students with 100% participation will receive 100 points, 95% participation will receive 95 points, 90% participation will receive 90 points, etc. Students with excused absences will receive full credit for participation events missed.

* please note that class participation will not involve the consumption of alcohol

Exam Schedule:

Exam	Date	Time
I	Thursday, October 9	11:00
II	Thursday November 13	11:00
Final	Tuesday December 16	3:30

Course Grading Scale:

<u>Final Grade</u>	<u>Final Average</u>
A	89.50 – 100.0
B	79.50 - 89.49
C	69.50 – 79.49
D	59.50 – 69.49
E	59.49 and Below

Final Exam Information: Tuesday December 16, 10:30 am in CP-201

Mid-term Grade: Mid-term grades will be posted in myUK by the deadline established in the Academic Calendar (<http://www.uky.edu/Registrar/AcademicCalendar.htm>)

Important Dates:

September 1 - Monday - Labor Day - Academic Holiday

September 17 - Wednesday - Last day to drop a course without it appearing on transcript

October 20 - Monday - Midterm of 2014 Fall Semester

November 7 - Friday - Last day to withdraw from the University or reduce course load.

November 26-29 - Wednesday through Saturday - Thanksgiving - Academic Holidays

December 12 - Friday - Last day of classes

December 15-19 - Monday through Friday - Final Examinations

Course Policies:

Make-up Exams: *It is extremely important to take all exams when scheduled.* Formal written excuses consistent with University regulations will be required for each exam absence before a makeup exam can be scheduled. Makeup exams for students with excused absences will be scheduled in accordance with the student's schedule. Failure to take an exam or provide a formal written excuse consistent with University regulations will result in 0 credit for that examination. Notice of intended absence due to a religious holiday must be presented in writing two weeks before the first exam.

Dropping the Course: The last day to drop this course without it appearing on your transcript is September 17. The last day to withdraw from this course is November 7, except for urgent non-academic reasons related to extended illness or equivalent distress.

Excused Absences: Students need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor. Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754). Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

Verification of Absences: Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Academic Dishonesty: Per university policy, students shall not plagiarize, cheat, or

falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: <http://www.uky.edu/Ombud>. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of Student Rights and Responsibilities (available online <http://www.uky.edu/StudentAffairs/Code/part2.html>) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

Please note: Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

Accommodations due to disability: If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address: jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Classroom Behavior Policies: Students are expected to silence their cell phones before class starts and are expected to maintain proper classroom decorum.

**A&S 306
Spirit Chemistry
Department of Chemistry
University of Kentucky,
Fall Semester, 2014**

Tentative Lecture Schedule

- I. Introduction to distilled spirits
 - a. History alcohol production
 - b. Spirit categories (aged, not aged, barreled, not barreled)
 - c. Chemistry of alcohols
- II. Overall production process
 - a. Carbohydrate sources and processing
 - b. Fermentation
 - c. Distillation
- III. Ethanol Distillation
 - a. Still design
 - b. Laboratory stills
 - c. Moonshine stills
 - d. Commercial stills
- IV. Distillation products and by-products
- V. Analytical separation science
- VI. Flavors and Fragrances
 - a. Chemistry of fruit and floral tastes
 - b. Chemistry of fragrances
 - c. Ester chemistry
 - d. Barrel chemistry (lignin)
- VII. Ethanol metabolism and biological activity
- VIII. Moonshine
- IX. Vodka
- X. Gin
- XI. Rum
- XII. Tequila
- XIII. Bourbon
- XIV. Scotch