Wilkes University Curriculum Committee

PROPOSAL SUBMITTAL FORM

Directions:
- Use this set of forms for all proposals sent to the Curriculum Committee.
- Pages 1-3 of this document are required. Any unnecessary forms should be deleted from the packet before submissions. If multiple forms are needed (course addition, course deletion, etc), simply copy and paste additional forms into this packet.
- Note that all new programs (majors and minors), program eliminations, significant program revisions and all general education core revisions must be reviewed and approved by the Provost and Academic Planning Committee (APC) prior to submission to the Curriculum Committee. The Provost will make the decision if a program revision requires APC review.
- Completed and signed forms are due no later than the second Tuesday of every month. Submit one signed original hard copy and a scanned electronic copy with all signatures to the Chair of the Curriculum Committee.

1. Originator: Donald Mencer
   Department of Chemistry
   Phone and email: x-4626 / mencer@wilkes.edu

2. Proposal Title: Approval of CHM118/117 for General Education (Area II)

3. Check only one type of proposal: (double click on the appropriate check box and change default value to “checked”).
   
   ☐ New Program. (Major or Minor Degree Programs). This requires prior review and approval by the Provost and APC.
   ☐ Elimination of Program. (Major or Minor Degree Programs). This requires prior review and approval by the Provost and APC.
   ☐ Program Revision. Significant revisions to a program require review and approval by the Provost. The Provost determines if review and approval by APC is necessary.
   ☒ General Education Revision. Submissions only accepted from the General Education Committee (GEC). Must be reviewed and approved by the Provost.
   ☐ Creation of new departments, elimination of existing department. This requires prior review and approval by the Provost and APC.
   ☐ Course additions or deletions not affecting programs (such as elective courses, transition of “topics” courses to permanent courses).
   ☐ Change in course credit or classroom hours.
   ☐ Incidental Changes. Includes changes in course/program title, course descriptions, and course prerequisites. (Although these changes do require approval by the Curriculum Committee, they do not go before the full faculty for approval).
   ☐ Other (Specify)
4. Indicate the number of course modification forms that apply to this proposal:

___1___ Course Addition Form (plus syllabi)
_______ Course Deletion Form
_______ Course Change Form

5. Executive Summary of Proposal.
   
   Briefly summarize this proposal. The breadth and depth of this executive summary should reflect the complexity and significance of the proposal. Include an overview of the proposal, background and reasoning behind the proposal and a description of how the proposal relates to the mission and strategic long-range plan of the unit and/or university. For incidental changes a one or two sentence explanation is adequate.

The Chemistry Department would like to add CHM118/117 (courses already listed in the Bulletin) as approved “General Education Courses Which Satisfy the Core Requirements And Are Required For Graduation” in Area II, The Scientific World. The Chemistry Department already has two other 100 level Chemistry offerings that are approved as such: CHM105 (a 3 Credit lecture only non-science major course) and CHM115/113 (the 3 credit lecture + 1 credit lab courses taken by science majors).

6. Other specific information. (Not applicable for incidental changes.)

   What other programs, if any, will be affected by this proposal? Describe what resources are available for this proposal. Are they adequate? What would be the effect on the curriculum of all potentially affected programs if this proposal were adopted? Include any potential effects to the curriculum of current programs, departments and courses.

   CHM118/117 courses are a 4 credit (3 Cr. lecture plus 1 Cr. lab) taken by our ME, EE, and Eng. Management undergraduate students. This course was developed in AY 2013-2014 in coordination with the Engineering programs (not including Environmental Engineering). The course was developed and a proposal to add the course to the University curriculum passed through the Curriculum Committee and the Full Faculty in AY2013-2014. The course description has been added to the University Bulletin. The course is offered twice each year (fall and spring) with the larger enrollments in the fall (fall 2015 enrollment > 100 as of the date of this proposal). This course was explicitly designed to replace the CHM115/113 requirement for those majors as delineated in the curriculum proposal that was approved in AY2013-2014 (attached).

   Adding this course to the list of “General Education Courses Which Satisfy the Core Requirements And Are Required For Graduation” in Area II, The Scientific World will permit the students enrolled in this course to satisfy the requirement for at least one (1) of the two (2) courses (in Area II) must contain a laboratory component. The faculty of our Department believes the course to be suitable for this purpose as it was designed to incorporate components that address the Student Learning Outcomes (SLO) for Area II.

   The course could ultimately be taken by others in order to satisfy the Area II requirement that at least one (1) of the two (2) courses (in Area II) must contain a laboratory component. However, since it
has been developed to explicitly serve the needs of our engineering majors, that group of students will most certainly represent the majority of students to enroll in / complete the course.

7. Program Outline. (Not applicable for incidental changes).
   A semester-by-semester program outline as it would appear in the bulletin for a new program or any modified program with all changes clearly indicated.

See original proposal (attached).

8. Signatures and Recommendations. (please date)
   - Signatures of involved Department chair(s) and Dean(s) indicate agreement with the proposal and that adequate resources (library, faculty, technology) are available to support proposal.
   - If a potential signatory disagrees with a proposal he/she should write "I disagree with this proposal" and a signed statement should be attached to this submission.

   Donald E. Mencer / Chair
   Print Name/Title: Department of Chemistry / chair(s)
   Signature: [Signature]
   Date: 5 Nov. '15

   David R. Carey
   Print Name/Title: Department of Electrical Engineering & Physics / chair(s)
   Signature: [Signature]
   Date: 6 Nov. 15

   Henry J. Casler
   Print Name/Title: Department of Mechanical Engineering and Engineering Management / chair(s)
   Signature: [Signature]
   Date: Nov. 06, 2015

   William Hudson, Dean
   Print Name/Title: College of Science & Engineering Dean(s) of any potentially affected College/School.
   Signature: [Signature]
   Date: Nov 5, 2015

   Rachelle Dix
   Print Name: Registrar
   Signature: [Signature]
   Date: Nov 5, 2015

   Provost (For new programs, program elimination, significant program revisions and revisions to the General Education curriculum).
   Provost should check here ______ if this proposal is a program revision AND the significance of the revision requires review and approval by APC prior to Curriculum Committee.

   Print Name / Chair, Academic Planning Committee.
   Signature: [Signature]
   Date: [Date]

   Print Name / Chair, General Education Committee.
   Signature: [Signature]
   Date: [Date]
Wilkes University Curriculum Committee

PROPOSAL SUBMITTAL FORM

1. Originator: Thyagarajan Srinivasan
   Dept. of Electrical Engineering and Physics
   Phone: 4811, Email: thyagarayan.srinivasan@wilkes.edu

2. Proposal Title: Replacing chemistry courses for engineering majors (except Environmental Engineering)

3. Type of proposal: Program Revision.

4. Indicate the number of course modification forms that apply to this proposal: 2 Course Change Forms and Syllabi.

5. Executive Summary of Proposal:
   Proposed courses, CHM 118-General Chemistry and CHM 117-General Chemistry Laboratory, will replace the courses CHM 115 and CHM 113, respectively, for all engineering majors except Environmental Engineering. The course content has been realigned to meet the curricular and accreditation requirements of electrical and mechanical engineering programs.

6. Other specific information. Environmental engineering majors take a sequence of two chemistry courses whereas other engineering majors take only one chemistry course. So, the proposed realignment is needed for all EE, ME, and EGM majors.

7. Program Outline. CHM 118 will replace CHM 115 and CHM 117 will replace CHM 113 in the first semester of the Recommended Course Sequence for all engineering programs EXCEPT Environmental Engineering.

8. Signatures and Recommendations.

   Jamal Ghoreshte, Interim Chair of Mechanical Engineering
   Brian Whitman, Chair of Environmental Engineering and Earth Sciences
   Amy Bradley, Chair of Chemistry Department
   Susan Hritzak, Registrar

   Thyagarajan Srinivasan, Interim Chair of Electrical Engineering
   Dale Bruns, Dean of the College of Science and Engineering
   Terese Wignot, Interim Provost

   3/17/14
   3/18/14
   3/18/14
CHM-118 Introductory Chemistry for Engineering

Course Information

This is a one-semester introductory chemistry course for engineering students. It covers topics covered in the regular two-semester general chemistry course. The content of the course has been chosen in consultation with faculty members from engineering. Knowledge of chemistry is paramount for engineers since they design and fabricate devices, and build structures with materials whose properties are determined by their chemical makeup. This course will offer an engineering focus to chemistry. It will use critical thinking approaches to solve problems, not just recipes and it will provide skills that will be useful beyond the course itself.

- **Time/Location:** BREIS-316 MWF:12:00-12:50 PM, T:4:30-5:20 PM.

- **Instructor:** Henry J. Castejon. CSC-416, henry.castejon@wilkes.edu, www.chem.wilkes.edu/~castejon.

- **Office:** MF:2:00-4:00 PM, W: 2:00-3:00 PM.

- **Textbook:** General Chemistry, D. A. McQuarrie, P. A. Rock and E. B. Gallogly, 4th Ed. (Suggested), GENERAL CHEMISTRY-Atoms First, J. E. McMurry and R. C. Fay, 2nd Ed. (Suggested).

- **Evaluation and Grading:**
  
  - **Exams** - There will be three (3) exams and a cumulative final exam. The exam dates are: Tue. Sep. 24, Tue. Oct. 22 and Tue. Dec. 03.
  
  - **On-line Quizzes** - You may use class notes and/or your textbook, but you must do them by yourself alone. The quizzes will be timed and must be completed in a single session. Sufficient time is provided so no excuses for missed quizzes due to personal circumstances or technical difficulties will be accepted.

<table>
<thead>
<tr>
<th>Quiz opens</th>
<th>Quiz closes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thu. Sep. 12, 5:00 PM</td>
<td>Sun. Sep. 15, 11:59 PM</td>
</tr>
<tr>
<td>Thu. Sep. 26, 5:00 PM</td>
<td>Sun. Sep. 29, 11:59 PM</td>
</tr>
<tr>
<td>Thu. Oct. 31, 5:00 PM</td>
<td>Sun. Nov. 03, 11:59 PM</td>
</tr>
<tr>
<td>Thu. Nov. 14, 5:00 PM</td>
<td>Sun. Nov. 17, 11:59 PM</td>
</tr>
<tr>
<td>Thu. Dec. 05, 5:00 PM</td>
<td>Sun. Dec. 08, 11:59 PM</td>
</tr>
</tbody>
</table>
CHM-118 Introductory Chemistry for Engineering

Course Information

This is a one-semester introductory chemistry course for engineering students. It covers topics covered in the regular two-semester general chemistry course. The content of the course has been chosen in consultation with faculty members from engineering. Knowledge of chemistry is paramount for engineers since they design and fabricate devices, and build structures with materials whose properties are determined by their chemical makeup. This course will offer an engineering focus to chemistry. It will use critical thinking approaches to solve problems, not just recipes, and it will provide skills that will be useful beyond the course itself. This course is accompanied with the laboratory class component: CHM 117, for which is a requisite.

Course Objectives

Major Course Objectives
Students in all chemistry courses are expected:

- To demonstrate proficiency in analysis, organization, interpretation, and presentation of chemical data.

- To express chemical concepts with quantitative relationships and to interpret the results obtained from the use of these quantitative relationships in terms of the chemical concepts conveyed in this format.

- To use written communication in a cogent and coherent form that A4. To develop critical thinking and problem-solving skills in synthesizing information.

- To appreciate the relevance of chemistry to everyday life.

- To recognize that the various areas of chemistry are interrelated and require integration of basic chemical principles, including chemical formulae and nomenclature, chemical reactions and stoichiometry, chemical equilibria and acid-base theory, and molecular structure.

Specific Course Objectives: Students in this chemistry course are expected:

- Students should understand measurement, uncertainty in measurement, significant figures, the scientific method, and problem solving (calculations) in chemistry.

- Students should understand concepts concerning the classification of matter.

- Students should understand the development of the concepts of atomic theory and the fundamental properties of particles, including atomic symbols, atomic weights, the concept of the mole and Avogadro's constant.

- Students should understand concepts about quantum numbers and electronic configuration, and how these relate to classifying the elements using periodic law and result in the periodic properties of the elements.

- Students should understand what chemical compounds are, how oxidation states relate to their composition, and the system of nomenclature used to name them.
1. MATTER AND MEASUREMENT

2. PERIODICITY AND ATOMIC STRUCTURE

3. MOLECULAR STRUCTURE

4. CHEMICAL CALCULATIONS: FORMULAS, EQUATIONS AND MOLES

5. LIQUIDS, SOLIDS, GASES AND PHASE CHANGES

6. CHEMICAL KINETICS AND CHEMICAL EQUILIBRIUM

7. APPLICATION OF AQUEOUS EQUILIBRIA
### Proposed

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Introductory Chemistry Laboratory for Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Number</td>
<td>CHM117</td>
</tr>
<tr>
<td>Course Credit Hours</td>
<td>1</td>
</tr>
<tr>
<td>Classroom Hours</td>
<td>0</td>
</tr>
<tr>
<td>Lab Hours</td>
<td>3</td>
</tr>
<tr>
<td>Course Description</td>
<td>Experiments are performed to reinforce the concepts learned in the CHM 118 lectures.</td>
</tr>
<tr>
<td>Potentially affected programs</td>
<td>Mechanical Engineering, Electrical Engineering, Engineering Management</td>
</tr>
</tbody>
</table>

**Explanation of the proposed change:**

The content of the course is identical to that in CHM 113. The sequence of experiments is different.
Grading

The grade will depend on scores on lab reports and practical exams as follows. Both the manipulative and intellectual sides of the course will be graded. The scores will be added together as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 graded lab reports</td>
<td>60%</td>
</tr>
<tr>
<td>Midterm practical exam</td>
<td>15%</td>
</tr>
<tr>
<td>Final practical exam</td>
<td>15%</td>
</tr>
<tr>
<td>Notebook and/or Quizzes</td>
<td>10%</td>
</tr>
</tbody>
</table>

Since this is a lab course, the major portion of the grade will be for doing the experiment correctly. Since it is only a one credit course, the average work load should be about six hours, one in preparation, three in lab and two hours in calculations (most calculations should be done in lab) and filling in the report. If you are spending more time than this, you are probably overdoing the lab write-up.

We strongly suggest that you carefully read the relevant section of the lab manual before attempting to carry out the experiment. If you do not understand something, seek advice from your T.A. A short quiz (10 minutes) may be administered at the beginning of each lab period. They will involve and develop your ability to make approximations and obtain ball park answers to a variety of questions.

Students often find that they can complete experiments more quickly if they prepare a flow chart. Think about why certain weighings must be exact and others are approximate.

Report Format

Traditionally, writing of lab reports for this course has been the source of great anxiety and many complaints from your predecessors in freshman chemistry. Students have expended far too much on writing (or typing) lengthy treatises in an attempt to impress the graders with sheer bulk. In order to make life easier for students and instructors, we are now providing detailed fill in the blanks report forms with each experiment. These forms and your original data sheet will constitute the entire report. Some details to keep in mind:

1. Please staple together all pages that you hand in.

2. Be certain that you complete the identification section on the first page of each report. It is also advisable to put your surname on each additional page, in the event of staple failure.

3. It is expected that most reports will be handwritten. If you are the only person who can read your handwriting, it would be advisable to print the report or find a typewriter.
Lab Notebooks

You are expected to keep a current laboratory notebook. You are expected to record several classes of information in it:

- It is your notebook, not ours. Use it to take notes of the pre-lab lectures. Leave room to edit or correct what you thought you saw or heard. This information will help you with the labs and lab reports.

- All of the numbers and units pertaining to the experiment. This information must be recorded directly in your notebook, not on scraps of paper, since even if it is transferred once, there is danger of digits being interchanged, etc.

- All the observations you have made. This includes smells, colors and color changes. It includes the size and shape of solid crystals, abrupt changes in temperature, or any other phenomena. When in doubt, record it.

- Any changes in procedure. If you diluted a reagent down from a concentrated stock solution, record it. If there was a dead cockroach in your flask, when you did a titration, record it. When in doubt, record it.

- The notebook must be current and consecutive. All your semester’s work must be available to you at any time. The completeness will be checked on a periodic basis by the instructor.

**Warning!** At the outset let us warn you of a fatal error. Do not fail to bring your pocket calculator with you to lab and do all the calculations of the experiment while you are in the laboratory with materials and equipment at hand and can still remember what you have done. To fail to do this is fatal! Do your weighing computations as soon as you have done the weighing and before you pour out a sample. Before you leave the balance be sure you have written down the weights correctly. Do all your calculations of titrations, etc., as soon as you have finished them. In this way, you will immediately detect any errors such as failing to write down the initial buret reading, etc., and can correct them before you empty the buret and dispose of the solution. Before you leave the lab, do the relative error calculations on a set of measurements so you can be sure they are close enough together to be acceptable.

Miscellaneous Problems

- If you are absent see or call the instructor as soon as possible to arrange a time for a make-up lab. On the day you come to do your make-up lab, you must present a Dean’s excuse for your
• Your reports must be in by the beginning of your regularly scheduled period of the week following completion of the experiment. You will be penalized 5% of the total possible points for each additional day that a report is handed in late. If you have a problem which causes you to carry out the experiment on a day other than your regular lab day, the deadline for the report remains unchanged. Extensions will be granted only by instructor.
Wilkes University
Chemistry for Engineering
CHEM-118 Section A (MWRF 10-10:50am)
Fall 2015

Mrs. Taela Donnelly
Cohen Science Center 312
taela.donnelly@wilkes.edu
Phone Ext. 7914

Office Hours: Tuesday/Thursday 2-4pm; Fridays 1-2:30pm, or by appointment

Course Description: This one-semester, introductory chemistry course is specifically for engineering students to offer an engineering focus to chemistry. It covers topics covered during the regular 2-semester general chemistry course. Knowledge of chemistry is important for engineers in order to design and fabricate devices, and build structures with materials whose properties are determined by their chemical makeup. This course is to provide engineering students with the basic chemical foundation to be applied in their engineering careers.

Co-requisite: Introductory Chemistry Lab for Engineering (CHEM 117)


OWL Online Registration link: http://login.cengagebrain.com/course/E-X7FG3KAEZRB8P

Homework Problems: Suggested problems are provided for each chapter (see schedule). Homework will not be graded, but it is highly encouraged that you work on these problems in preparation for exams and quizzes. In addition, worksheets may be distributed in class, which will be collected and counted towards your quiz grade.

Quizzes: Quizzes will be given both online using OWL or in class. Quizzes will be randomly given during the semester to ensure students are keeping up with homework assignments and material covered in class. In class quizzes can be given at the start of class; if you are late you will miss a quiz. No make up quizzes will be given (no exceptions). Lowest quiz grade will be dropped at the end of the semester.

Exams: Three (3) hour-long exams will be given throughout the semester (see tentative schedule). All exam dates are tentative. Should a university wide closing or delay occur please watch your email for notification on the rescheduling of the exam.
Academic Policies

Students are required to adhere to the University Code of Honor and the academic regulations as published in the Student Handbook and the University Bulletin.

Behavior: Make sure you are on time to class! If you are late, please enter the classroom as quietly as possible. In addition, please be respectful to those around you in the class. This means no talking/whispering (except during in-class worksheets and review sessions), use of cell phones, etc. during class time. Finally, please also wait to pack-up to leave until class is formally dismissed.

Tentative Schedule: Exam Dates are subject to change

Chapter 1: Introduction to Chemistry
- #13, 17, 22, 31, 38, 41, 43, 44, 46, 52, 54, 58, 60, 64

Chapter 2: Atoms and Molecules
- #10, 13, 15, 18, 20, 26, 27, 31, 38, 40, 42, 47, 53, 59, 65, 66, 73, 74, 76, 78

Chapter 3: Molecules, Moles and Chemical Equations
- #11, 13, 17, 26, 27, 30, 31, 34, 41, 43, 47, 49, 51, 54, 59, 63, 66, 67, 69

Exam 1: Includes Material from CH 1-3

September 24, 2015

Chapter 4: Stoichiometry
- #10, 13, 16, 23, 29, 30, 39, 40, 45, 47, 54, 55, 57

Chapter 5: Gases
- #15, 19, 27, 30, 32, 40, 42, 45, 52, 56, 58, 63, 71, 73, 77, 78

Chapter 6: The Periodic Table and Atomic Structure
- #10, 11, 15, 17, 20, 21, 31, 38, 39, 44, 54, 55, 67, 70, 74

Chapter 7: Chemical Bonding and Molecular Structure
- #9, 11, 24, 26, 36, 40, 43, 48, 63, 69, 72, 73

Exam 2: Includes Material from CH 4-7

October 22, 2015
Wilkes University
CHM 117: Introductory Chemistry Lab for Engineers
Fall 2015
Monday 1-3:50pm (Section L1)

Mrs. Tacla S. Donnelly
Chemistry Department
Cohen Science Center 312
tacla.donnelly@wilkes.edu
(570) 408-7914

Office Hours: Tues/Thurs 2-4pm, Friday 1-2:30pm or by appointment

Required Materials: A bound laboratory notebook (a composition notebook is acceptable), approved safety goggles/glasses, and a calculator. Reading glasses are not acceptable unless side shields are attached. No contacts, shorts, or open-toe shoes should be worn in lab. A lab jacket is recommended but not required.

Preparation: You must read the experiment and prepare your laboratory notebook prior to coming to lab. In addition, you must complete the prelab assignment that correlates to the upcoming experiment and turn it in at the start of the lab. It is recommended that you re-write the questions and your answers to the prelab in your notebooks so you may use it as a reference during the experiment. All experiments, prelab assignments and lab report forms can be found at the following website:

http://www.chem.wilkes.edu/~castejon/chemistry_laboratory/chm117.html

Attendance: students are required to attend ALL lab sessions. If you miss an experiment (with a valid, documented excuse) you must notify the instructor BEFORE the actual lab. The lab should be make up THAT WEEK as all chemicals and equipment for that experiment will be available. Miss 1 lab without a valid excuse, or no effort to make up the lab results in a FAILURE of the course.

To make up a lab, you must contact your instructor to request the makeup. Once approved, you must contact an instructor from another lab section and request permission to attend their section. As all lab sections can only hold 24 students, you must make sure you are attending a section that has room for you.

Lab Reports: Lab report forms are found on the above website. Lab reports are due one (1) week from the completion of the experiment (unless otherwise stated by your instructor). Any late reports will receive a 25% deduction for each day it is late.

Laboratory Notebooks: Each experiment should be written up appropriately in your lab notebooks prior to coming to lab (see policies for details). NO PRINTOUTS OF THE EXPERIMENT FROM THE WEBSITE ARE ALLOWED IN LAB. You must only use