

**Section 1. Proposal Information**

**Course Developer:**

*Brooke Taylor and Gary Mort*

Date: *01/06/2015*

Catalog year to take effect :

2014-2015 \_\_

2015-2016 X\_

**Revision in credits**

**/Contact Hours**

**Type of Proposal**

X Revised course

199 Experimental Course

299 Experimental Course

**Type of Course:**

X Lower Division Collegiate (transfer)

Professional/Technical (program requires)

Professional/Technical (stand-alone)

Developmental, numbered below 100

**Rationale:**

**How does this proposal further the goals of the program or department?**

The addition of one credit to CH 221 will help students better prepare for weekly labs. Students will focus on safety and lab techniques, review the lab, and complete pre-lab assignments and quizzes as a “pass” into lab that week. Completion of pre-lab activities will clarify the purpose of lab, create more time in lab for completion of the lab, including data analysis and communication of lab results.

**What evidence supports this proposal?**

Students are arriving at lab unprepared, are unclear of the purpose of the lab, and unable to complete the lab correctly and in a timely manner. Additionally, general chemistry is six credits at UO, four credits for lecture, two credits for lab, one as a lab lecture, the other for the lab itself. Making this change will align LCC with UO.

**(New courses) How do you know there is a demand for this course?**

**PREVIOUS Catalog/Course Information:**

Course Number: **CH 221** Course Title in Banner: **General Chemistry 1** (30 characters maximum)

Full Course Title in print catalog: **General Chemistry 1**

Prerequisites: **MTH 095 or above with grade of “C-” or better or pass placement test** Co-requisites: **None**

Grade Option: X Graded (with P/NP option)  Pass/No Pass only

|  |  |  |  |
| --- | --- | --- | --- |
| **Number / Type Credits** | **Term Minimum Contact** | **Term Maximum Contact** | **11-Week Term Contact** |
| 4 Lecture | 40 hours (lecture credits x 10) | 48 hours (lecture credits x 12) | 44 hours (lecture credits x 11) |
| Lec/Lab | hours (lec-lab credits x 20) | hours (lec-lab credits x 24) | hours (lec-lab credits x 22) |
| 1 Lab | 30 hours (lab credits x 30) | 36 hours (lab credits x 36) | 33 hours (lab credits x 33) |
| 5 **Total credits (sum)** | 70 **Total hours (sum)** | 84 **Total hours (sum)** | 77 **Total hours (sum)** |

**What will change in this course as a result of changing the credits?**

Course Description X Course Outline X Contact Hours

Course Outcomes  Other (explain):

**Section 2. Proposed Course Outline** (A general statement of course content that informs class syllabus construction.)

Course Number: **CH 221** Course Title for Banner: **General Chemistry 1** (30 characters maximum)

Full Course Title for print catalog: **General Chemistry 1**

Prerequisites: **MTH 095 or above with grade of “C-” or better or pass placement test** Co-requisites: **None**

Grade Option: X Graded (with P/NP option)  Pass/No Pass only

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Number / Type Credits** | | **Term Minimum Contact** | **Term Maximum Contact** | **11-Week Term Contact** |
| 5 Lecture | | 50 hours (lecture credits x 10) | 60 hours (lecture credits x 12) | 55 hours (lecture credits x 11) |
| Lec/Lab | | hours (lec-lab credits x 20) | hours (lec-lab credits x 24) | hours (lec-lab credits x 22) |
| 1 Lab | | 30 hours (lab credits x 30) | 36 hours (lab credits x 36) | 33 hours (lab credits x 33) |
| 6 **Total credits (sum)** | | 80 **Total hours (sum)** | 96 **Total hours (sum)** | 88 **Total hours (sum)** |
| **Original Course Description:** | | | | |
| First course of the traditional general chemistry sequence designed for science, engineering and health science majors.  Introduces measurement, atoms, stoichiometry, gases, thermochemistry and electronic structure and periodicity. Lecture and laboratory; lab emphasizes green chemistry. | | | | |

|  |  |
| --- | --- |
| **New Course Description (300 character limit):** | |
| First course of the traditional general chemistry sequence designed for science, engineering and health science majors.  Introduces measurement, atoms, stoichiometry, gases, thermochemistry and electronic structure and periodicity. Lecture and laboratory with oline lecture for Laboratory. Lab emphasizes green chemistry. | |
| **Original Course Outcomes and Proficiencies** | **Assessments Used** |
| What did the student ***know,*** what could the student ***do*** at the end of the course***,*** or what ***attitudes*** related to the subject would the student hold?  **Upon successful completion of this course, the student:** | What evidence did you gather that students have achieved course outcomes? (assessment tools include departmental tests, written products, portfolios, juried performances, quizzes and exams, or alternative assessments such as qualitative studies, capstone projects, external reviewers, etc.)  **How each outcome was assessed:** |
| gather, interpret, communicate, and analyze data and error to demonstrate understanding of basic chemical concepts and reactions | Weekly labs, homework, exams, in-class activities |
| apply unit analysis problem solving techniques or mathematical formulas, individually and in groups, with provided or data students collect in lab, to solve unit conversion, stoichiometry, gas law, thermochemical, solution, gas law and calorimetry questions | Homework, labs, exams, in-class activities and examples |
| use and describe real life situations as examples to demonstrate and explain key chemical concepts | Weekly labs, homework, exams, in-class activities and examples |
| use the vocabulary of chemistry to explain, discuss and solve problems about systems of measurement, properties of atoms, molecules and ions, stoichiometry, solutions, gases, thermochemistry, atomic structure and periodicity | Weekly labs, homework, exams |
| understand and explain the evolution of the atom from Dalton to quantum mechanics, fuel selection and ammonia synthesis | Weekly labs, homework, exams, in-class activities and examples, writing assignments |
| demonstrate chemical lab techniques | Weekly labs |
| **Upon successful completion of this course, the student will:**  **Lecture** | **How each outcome will be assessed:** |
| gather, interpret, and analyze data and error, and  communicate findings to demonstrate understanding of  basic chemical concepts and reactions | Weekly labs, homework, exams, in-class activities, pre-lab activity and quiz |
| apply unit analysis problem solving techniques or  mathematical formulas, individually and in groups, with provided data, to solve unit conversion, stoichiometry, thermochemical, solution, gas law and calorimetry questions | Homework, labs, exams, in-class activities and examples |
| use and describe real life situations as examples to demonstrate and explain key chemical concepts such as fuel selection and ammonia synthesis | Weekly labs, homework, exams, in-class activities and examples |
| use the vocabulary of chemistry to explain, discuss and solve problems about systems of measurement, properties of atoms, molecules and ions, stoichiometry, solutions, gases, thermochemistry, atomic structure and periodicity | Weekly labs, homework, exams |
| understand and explain the evolution of the atom from  Dalton to quantum mechanics, | Weekly labs, homework, exams, in-class activities and examples, writing assignments |
| **Lab**  demonstrate chemical lab techniques such as pipet use, weighing by difference, glassware selection and use, gravity filtration, vacuum filtration  working safely in the lab | Weekly labs, pre-lab activities and quizzes  Weekly labs, pre-lab activities and quizzes |
| maintain a scientific notebook, write lab reports  demonstrate understanding and awareness of  green chemistry, analyze greenness of labs  gather, interpret, and analyze data and error, and  communicate findings to demonstrate understanding of  basic chemical concepts and reactions  apply unit analysis problem solving techniques or  mathematical formulas, individually and in groups, with data students collect in lab, to solve density, stoichiometry, solution, calorimetry, and gas law questions | Weekly labs  Weekly labs, pre-lab activities  Weekly labs, pre-lab activities and quizzes  Weekly labs, pre-lab activities and quizzes |

**Original Course Content by Major Topics**

What topics were originally presented? What were the main activities of the course? What were the central themes?

Systems of measurement

Properties of atoms

Molecules and ions

Stoichiometry

Solutions

Gases

Thermochemistry

Atomic structure and periodicity

**New Course Content by Major Topics**

What topics will be presented? What are the main activities of the course? What are the central themes?

(See sample at <http://www.lanecc.edu/copps>

Same as original course

**Section 3. Curriculum Equity** <http://www.lanecc.edu/copps>

To promote an environment where all learners are encouraged to develop their full potential, this course will support Lane’s Curriculum Equity policy in the following way(s): General chemistry is a data based, evidence driven course. Students are encouraged to collect, analyze and interpret data, and to apply concepts and theories in class. General chemistry is a required course for a variety of science majors so all men, women, minorities, and people with disabilities will be encouraged to consider all kinds of occupations.

**Section 4. Required Signatures**

**Library Impact Statement**

Under accreditation standards, Library consultation is essential for new programs, new courses and for substantively revised courses when the revisions entail any change in library use.

**What assignments will require the use of library and information resources?**

Students may complete the hybrid pre-lab preparation activities on computers in the library.

Each academic area has a Liaison Librarian <http://www.lanecc.edu/library/services/liaison.htm> to help faculty identify materials to be ordered to support the curriculum. Make an appointment with the designated librarian to discuss the library needs of your course at least a week ahead of the deadline for submission.

**To be completed by Liaison Librarian:**

Library resources are adequate to support this proposal.

Additional resources are needed but can be obtained from current funds.

Significant additional Library funds/resources are required to support this proposal.

Liaison Librarian Date

**Divisional Approvals**

**Human, Physical, and Financial Resources (select one):**

Additional instructional costs (staff, materials, services or facilities) will be incurred to offer this course. Source of funding:

No additional instructional resources (staff, materials, services or facilities) are needed to offer this course.  
Explain:

**Divisional Recommendation (select one):**

The Academic Dean and Administrative Assistant have reviewed this course proposal and kept a copy for divisional files.

Faculty review of this course was completed within the division on      (date).

New course outlines have been prepared for the Divisional binder containing all current course outlines.

Office Administrator Date

**Fees (select one):**

We have completed a fee request form to be submitted to ASA upon course approval.

No special fees will be required for this course.

**Required Certifications:**

We have developed minimum course certification standards for this course to be filed with ASA to allow compliance with the faculty contract.

We have completed faculty certification form(s)  
(http://www.lanecc.edu/cops/faccertf.pdf )  
for this course to be filed with ASA and Human Resources so RIF grid information will be updated.

**Divisional Recommendation (select one):**

Pass  Do Not Pass

Academic Dean Date

**College Approval**

     

Curriculum Committee Chair Date Executive Dean for Academic Affairs Date

Curriculum Approval Committee hearing:       \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date Vice President for Academic & Date

Student Affairs