

NEW COURSE PROPOSAL

PROGRAM: BIOLOGICAL AND PHYSICAL SCIENCES

1. **Catalog Description of the Course.** *[Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory ___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]*

CHEM 105. INTRODUCTION TO CHEMISTRY (3)

Three hours of lecture per week.

Prerequisite: A passing score on the ELM Examination.

Introduces the basic principles and concepts in Chemistry. Topics covered include: measurements, units and unit conversion, scientific notation, stoichiometry, atomic structure, the concept of the mole, types of compounds, and problem solving.

GenEd: B1

2. **Mode of Instruction.**

	Units	Hours per Unit	Benchmark Enrollment
Lecture	3	1	40
Seminar			
Laboratory			
Activity			

3. **Justification and Learning Objectives for the Course.** (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) *[Use as much space as necessary]*

This course is the first semester of a two semester sequence that is generally an admission requirement for medical, veterinary, dental, or pharmacy schools. In combination with CHEM 312, CHEM 314, CHEM 315, and CHEM 400, or CHEM 312 and CHEM 318, this course completes the chemistry requirements for the Biology major.

Students who successfully complete this course will be able to:

- Describe the scientific method and how it is used to approach chemical problems
- Discuss the history of chemistry
- Explain the differences between elements, chemical compounds, ions, salts, and mixtures
- Calculate moles of species, determine limiting reagents, and calculate the yield of a reaction product
- Define acids, bases, pH, and hydrogen-ion concentration
- Discuss how and why acid-base reactions occur
- Explain how and why oxidation-reduction reactions occur
- Determine the energy change in a reaction
- Explain modern atomic theory and molecular structure

4. **Is this a General Education Course**

YES

NO

If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)	
B (Mathematics & Sciences)	X
C (Fine Arts, Literature, Languages & Cultures)	
D (Social Perspectives)	
E (Human Psychological and Physiological Perspectives)	

5. Course Content in Outline Form. *[Be as brief as possible, but use as much space as necessary]*

Units and Unit Conversion
Basic Math Skills for Chemists
Structure of Matter
The Units of Chemical Measurements
The Elements
Chemical Compounds and Mixtures
Chemical Reactions: An Introduction
Acid-Base Chemistry
Oxidation-Reduction Chemistry
Ionic Compounds
Energy and Chemical Reactions
Chemical Calculations
Chemical Formulas
Chemical Equations
Atomic Theory
Molecular Structure
Equilibria

6. References. *[Provide 3 - 5 references on which this course is based and/or support it.]*

S. Russo, M. Silver *Introductory Chemistry*, 2nd Ed., Addison-Wesley 2001.
M. Bishop *An Introduction to Chemistry*, Prentice Hall, 2002.
C. H. Corwin *Introductory Chemistry: Concepts and Connections*, 3rd Ed., Prentice Hall, 2001.

7. List Faculty Qualified to Teach This Course.

Dr. Philip Hampton, Dr. Simone Aloisio

8. Frequency.

a. Projected semesters to be offered: Fall X Spring Summer

9. New Resources Required.

None.

10. Consultation.

Attach consultation sheet from all program areas, Library, and others (if necessary)

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

Philip Hampton
Proposer of Course

1/8/03
Date