

A - New Course Proposal V. 7.2022 : Entry # 2111**DEAN Decision**

Approved

Date

09/22/2022

Is this course intracollegiate or intercollegiate?

Intracollegiate

DEAN Comments

This proposal was developed at the request of Drs. Erb, Bauer and Andy Bills

SCHOOL EPC Decision

Approved

Date

22/10/06

SCHOOL EPC Comments

Chemistry proposal for a new course was discussed. Members noted that the early support for students who struggle with general chemistry is beneficial. The inclusion of a new CHM-1009 course allows for a two semester (1008 +1009) equivalent of the current first semester course (CHM-1010). Members noted support from administration as well. The committee unanimously voted to approve the proposal, as-is.

Begin Form**Today's Date**

08/19/2022

Your Name:

Brian Augustine

Your Email:baugusti@highpoint.edu**Are you a Department Chair?**

No

Department Chair Name

Todd Knippenberg

Email address of your Department Chairmknippen@highpoint.edu

A - New Course Proposal V. 7.2022 : Entry # 2111

By checking below I am certifying that my department chair has seen and approved the new course that is in this proposal

Yes

Please select the appropriate school overseeing this proposal:

Natural Sciences

Which semester is this course to be taught for the first time?

Spring 2023

Information for the Registrar

Choose the department designator for your proposed course from the list below.

CHM

Proposed Course Number

1009

Is this course cross listed?

No

Does this course replace a current course?

No

Enter the title of your proposed course

Problem Solving in General Chemistry Part II

Enter the catalog description of your proposed course

This course is designed to promote mastery of fundamental chemical concepts necessary to succeed in General Chemistry II (CHM 1020) and beyond if needed. This course is a continuation of the principles and problem solving strategies developed in CHM 1008. Topics covered include gas laws, thermochemistry, quantum concepts, period trends, bonding theories, Lewis structures and intermolecular forces. Prerequisite: CHM 1008. Co-requisite: CHM 1011. Course consists of three lecture hours per week.

Choose your proposed course's number of credits from the list below

3

How will the course be graded?

Letter grade

Please select the course repeat option for your proposed course:

Students may receive unlimited credit for repeating this course

Offering cycle for your proposed course:

A - New Course Proposal V. 7.2022 : Entry # 2111

Spring semester

Does your course have any prerequisites?

Yes

Please list all prerequisites this course requires:

CHM 1008

Is this new course being proposed because of a proposal for a new or revised major or minor?

No

Gen Ed and Academic Programs**Is this course part of Gen Ed?**

- No

Does this course count towards a major or a minor?

No, it does not count toward any particular major or minor

Will this course fulfill any of the below University academic program requirements?

- This course does not fulfill academic program requirements

Information for Curriculum Review**Rationale for new course & consistency with departmental mission**

Description and rationale for course included in attached course proposal including example syllabus.

Please list all student learning outcomes for this course

Identify and distinguish between pure substances and mixtures and elements and compounds. SI Units, conversions between units, and dimensional analysis. Precision and accuracy and significant figures in calculations. Chapter 1 Homework (from CHM 1008)

Final Comprehensive Exam

Discovery of and components of the atom. Inter-converting masses and moles or number of particles. Chapter 2 Homework (from CHM 1008)

Final Comprehensive Exam

Understand how atoms form molecules and ions and compounds of each. Inorganic nomenclature, formula weights, and percent composition. Chapter 3 Homework (from CHM 1008)

Final Comprehensive Exam

Understanding stoichiometry. Balancing equations, empirical and molecular formulas, quantitative info from balanced equations, limiting reactants, and theoretical yields. Chapter 4 Homework (from CHM 1008)

Final Comprehensive Exam

A - New Course Proposal V. 7.2022 : Entry # 2111

Chemical reactivity, properties of aqueous solutions, precipitation reactions, acids and bases, redox reactions, solution concentrations, solution stoichiometry Chapter 5 Homework (from CHM 1008)
Final Comprehensive Exam

Gas laws and their applications, gas mixtures and partial pressures, kinetic molecular theory of gases, molecular effusion and diffusion, and real gases. Chapter 6 Homework
Quiz / Exam / Final Comprehensive Exam

The nature of energy, First Law of Thermodynamics, and enthalpy. Enthalpies of reaction, calorimetry, Hess's Law, enthalpies of formation. Chapter 7 Homework
Quiz / Exam / Final Comprehensive Exam

Wave vs. particle nature of light, quantum numbers and electron configurations. Chapter 8 Homework
Quiz / Exam / Final Comprehensive Exam

Periodic trends, metals, nonmetals, and metalloids and their trends Chapter 9 Homework
Quiz / Exam / Final Comprehensive Exam

Lewis symbols, the octet rule, ionic vs covalent bonding, Lewis structures, bond polarity, and bond enthalpies. Chapter 10 Homework
Quiz / Exam / Final Comprehensive Exam

Molecular shapes, VSEPR theory, orbital overlap, and hybrid orbitals. Chapter 11 Homework
Quiz / Exam / Final Comprehensive Exam

Understand the intermolecular forces that exist among liquids utilizing physical and chemical properties, vapor pressure, and phase diagrams Chapter 12* Homework
Quiz / Exam

To understand the chemical and physical properties of solutions through solubility, concentration, and colligative properties Chapter 14* Homework
Quiz / Exam

*Note: Chapters 12, 14 are not covered on the ACS First Semester General Chemistry exam, and thus are not assessed on the final examination, but will be on the final regular hour exam.

Please list any units or content areas that will be required for all sections of this course

See prior question

Please list any assignments, tests, or other assessments that will be required for all sections of this course

See prior question

Please list any readings or other materials that will be required for all sections of this course

Textbook Chaps 6 - 14

Please list any course policies that will be required for all sections of this course

Student must be co-enrolled in CHM 1011 (General Chemistry I Laboratory)

A - New Course Proposal V. 7.2022 : Entry # 2111

If you would like to specify anything about how requirements for contact hours must be met for all sections of this course, please indicate below (e.g., if any experiential learning activities will replace seat time)

N/A

Is there anything else the reviewing parties should know about this new course proposal that hasn't already been asked/addressed?

See attached proposal. The combination of CHM 1008/1009/1011 will result in the equivalent course coverage as CHM 1010/1011. Any student who has completed the three course sequence will have the equivalent coverage as students who have completed the CHM 1010/1011 combination and all majors and minors requiring CHM 1010/1011 can be completed with CHM 1008/1009/1011.

Sample Syllabus

- [CHM-1009-proposal-2022-final.pdf](#)