

Colonnade Program Course Proposal: Explorations Category

CHEM 109 General Education Proposal

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1. What course does the department plan to offer in Explorations?

CHEM 109 – Chemistry/Health Science

Which subcategory are you proposing for this course? (Arts and Humanities; Social and Behavioral Sciences; Natural and Physical Sciences)

Natural and Physical Sciences

2. How will this course meet the specific learning objectives of the appropriate subcategory. Please address all of the learning outcomes listed for the appropriate subcategory.

Following listed four learning objectives of Natural and Physical Sciences subcategory will meet in CHEM 109.

Students will:

Colonnade Learning Objective 1: Demonstrate an understanding of the methods of science inquiry.

CHEM 109 meets objective 1 by learning the scientific method through dimensional analysis methods.

Colonnade Learning Objective 2: Explain basic concepts and principles in one or more of the sciences.

Objective 2 meets by developing basic models to understand the structure-property relationships of organic and inorganic compounds.

Colonnade Learning Objective 3: Apply scientific principles to interpret and make predictions in one or more of the sciences.

CHEM 109 allows students to explore fundamental questions related to chemical reactions such as acid-base reactions through identifying properties of an atom from its position in the periodic table.

Colonnade Learning Objective 4: Explain how scientific principles relate to issues of personal and/or public importance.

CHEM 109 is designed to improve scientific literacy in chemical sciences by understanding the scientific method, making scientific predictions to hypotheses and theories.

3. Syllabus statement of learning outcomes for course. NOTE: In multi-section courses, the same statement of learning outcomes must appear on every section's syllabus.

Students who complete CHEM 109 will be able to

1. Apply the scientific method in basic principles including standards of measurement, properties of matter, atomic theory and the periodic table, chemical reactions and equations, solution properties, and gas laws.
2. Apply scientific theories, concepts, and principles to understand real-world problems.
3. Apply IUPAC rules to name organic chemical compounds related to biochemistry and biology.
4. Understand the scientific method, making scientific predictions, hypotheses, and theories relate to public importance.

4. Brief description of how your department will assess this course's effectiveness.

Outcome 1 is assessed at the end of the semester through selected questions from first two exams, and first four sets of quizzes. These assignments are specifically designed to assess understanding of the scientific methods through standards of measurement, properties of matter, atomic theory and the periodic table, chemical reactions and equations, solution properties, and gas laws.

Outcome 2 is assessed through selected questions from third and final exam, which are designed to assess understanding of acid-base reactions and properties of organic compounds in real world using chemical reactions.

Outcome 3 is assessed through selected quizzes, homework assignments, and exams. These assignments are designed to assess understanding of naming chemical compounds using IUPAC rules.

Outcome 4 is assessed through specially designed multiple questions in the final exam where students apply scientific methods, predictions, and hypotheses to solve problems in public importance.

5. How many sections of this course will your department offer each semester?

Currently, CHEM 109 offers four sections each semester.

6. A sample syllabus for this course. See below

Sample Syllabus

Chemistry 109: Chemistry for Allied Health Sciences

Textbook:

Principles of General, Organic and Biochemistry (2012 Edition) McGraw-Hill Publishing
By: Janice Smith ISBN : 978-0-07-351115-3 (2012 Edition)

Course Description:

A course designed to emphasize the practical aspects on inorganic, organic and biochemistry as related to human health. The course is offered specifically for students in the allied health programs, but is also recommended for students in physical education, recreation, health and safety and other disciplines dealing with human health. It does not count toward a major or minor in chemistry, but does satisfy general education requirement. No laboratory accompanies this course but CHEM 102 is recommended for students desiring laboratory experience.

Learning Outcomes:

Students who complete CHEM 109 will be able to

- Apply the scientific method in basic principles including standards of measurement, properties of matter, atomic theory and the periodic table, chemical reactions and equations, solution properties, and gas laws.
- Apply scientific theories, concepts, and principles to understand real-world problems.
- Apply IUPAC rules to name organic chemical compounds related to biochemistry and biology.
- Understand the scientific method, making scientific predictions, hypotheses, and theories relate to public importance.

Expectations:

Students enrolling in this course are expected to:

Attend class regularly and actively participate

Read the textbook before coming to class

Spend a minimal of 2 hours outside of class for each hour of lecture

Complete the homework assignments

Be present and on time for quizzes and exams
Ask questions inside or outside of class if you are having trouble

Attendance:

Attendance will not be a calculated part of your grade but there will be some in class assignments will be given. There will be NO make-ups for any of the following assignment types: in-class problem sets, homework problems or timed assessments. You must be present and on time for quizzes and exams. For missed exam or quiz, a valid and documented excuse (e.g. death in the family, school sponsored activity) is required; persons who are going to miss an exam or quiz must contact the instructor prior to the test to confirm that the absence is acceptable and schedule a prompt make-up test date and time. If you fail to do this, the professor is under no obligation to give a make-up test.

Calculator policy:

You will need a basic calculator that will add, subtract, multiply, and divide. YOU CANNOT use your phone, PDA or any/programmable scientific calculator in this class.

Cell phone policy:

Please refrain from using your phone in class for any purpose. Both you and your classmates pay a great deal of money to be here so please be considerate of others. If you are caught using a phone in class, 5 points will be deducted from your grade and you will be asked to leave the class. No make ups will be allowed for any missed information due to your absence.

Blackboard:

This course will make use of Blackboard (<http://ecourses.wku.edu>), to access all homework assignments as well as the following material: syllabus, supplemental information, lecture outlines, a record of student grades, and access to assignments. Most if not all of your grades will come from assignments completed online via Blackboard. All questions or problems regarding the general functionality of the Blackboard environment should be directed to the Help Desk (x5-7000 on campus, 745-7000 off campus) and not the professor.

Homework and Timed Assessments:

You must have access to Blackboard to complete your homework. Online homework due dates are listed in the syllabus and will not be reposted. You may complete the homework as many times as you like before the due dates. The computer will keep your highest score. Homework scores will be incorporated into your semester average as a mastery grade. Scoring will be out of 10 points per assignment: 80% or better on your homework is worth 10 points, 50-79% is worth 8, and less than 50% earns 5 point, if a sufficient effort has been made. Once a student has received 5 or more mastery points on an assignment a timed assessment will be unlocked. The timed assessment will be worth an additional 5 points. The assessments are timed to force students to practice answering questions without relying on the textbook. Once unlocked the assessments may be taken multiple times. They

will not be reposted once they are automatically removed from Blackboard on the due date. All homework and assessments will be due the day of the review session for that chapter. The online assignments will be removed by the start of class on their appropriate due date. It is possible to gain a total of 100 points during the semester for homework and another 50 for the timed assessments. Some chapters will have multiple homework assignments, which will be averaged to calculate the mastery grade for that section. In addition, practice homework assignments will be online for the entire semester. Practice homework will not be graded and are available as another study resource.

Quizzes and Exams:

For quizzes, tests, and exams, you may use only a NONPROGRAMMABLE scientific calculator. Portable computers, PDA's, cell phones, or other devices with programmable functions will NOT be allowed during testing times use of other CHEM 109; Page 3 of 4 devices will result in a zero for the exercise. Four tests will be given during the normal class time and a fifth during the final exam hour. All exams will be worth 100 points. Please see the attendance policy about exam make up. In class quizzes and problem sets will also be given as listed in the course outline. Four quizzes will be given this semester as listed in our class schedule and be worth 25 points each. Class problem sets will be done in class and will be graded for participation. They will be worth 5 points each.

Grading:

90-100% (675-750) A
80-90% (600-674) B
70-80% (525-599) C
60-70% (450-524) D
Below 60% (<449) F