

Term Information

Effective Term Autumn 2017

General Information

Course Bulletin Listing/Subject Area Chemistry
Fiscal Unit/Academic Org Chemistry - D0628
College/Academic Group Arts and Sciences
Level/Career Undergraduate
Course Number/Catalog 1612
Course Title Peer-led Team Learning for Chemistry 1610 students
Transcript Abbreviation PLTL for Chem 1610
Course Description Provides a structure with which students can work actively in groups of 6 to 8 peers on challenging chemistry problems. This course will integrate with topics covered in Chemistry 1610. The activities will be challenging and relevant to course material and groups will work to discuss, collaborate and answer questions in the activity.
Semester Credit Hours/Units Fixed: 1

Offering Information

Length Of Course 14 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Satisfactory/Unsatisfactory
Repeatable No
Course Components Workshop
Grade Roster Component Workshop
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites Concur: Chem 1610
Exclusions Not open to students with credit for CHEM 1220 (123), 1620 (162), 1920H (202H), or 1250 (125).

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 40.0501
Subsidy Level General Studies Course
Intended Rank Freshman

Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Help students work actively on rich chemistry problems to facilitate learning of chemistry 1610 content.
- Work effectively with a diverse group of peers to solve challenging chemistry problems
- Build community among 1st year chemistry majors in the Department of Chemistry & Biochemistry

Content Topic List

- Introduction: Matter and Measurement
- Atoms, Molecules, and Ions
- Chemical Reactions and Stoichiometry
- Reactions in Aqueous Solutions
- Thermochemistry
- Electronic Structure of Atoms
- Periodic Properties of the Elements
- Basic Concepts of Chemical Bonding
- Molecular Geometry and Bonding Theories
- Gases
- Liquids and Intermolecular Forces
- Solids and Modern Materials

Attachments

- PLTL- 1612.docx: Syllabus

(Syllabus. Owner: Sutherland, Laura Nicolle Romrell)

Comments

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Sutherland, Laura Nicolle Romre	12/09/2016 01:34 PM	Submitted for Approval
Approved	Gustafson, Terry Lee	12/09/2016 01:47 PM	Unit Approval
Approved	Haddad, Deborah Moore	12/09/2016 02:57 PM	College Approval
Pending Approval	Nolen, Dawn Vankeerbergen, Bernadette Chantal Hanlin, Deborah Kay Jenkins, Mary Ellen Bigler Hogle, Danielle Nicole	12/09/2016 02:57 PM	ASCCAO Approval

CHEMISTRY 1612 – AUTUMN 2017



THE OHIO STATE
UNIVERSITY

Peer-led Team Learning for CHEM1610

1-credit hour, S/U graded

Mandatory corequisite: Chemistry 1610

Course Instructor: Dr. Faculty Office: Email:

PLTL Coordinator: Dr. Rebecca Ricciardo Office: 120B Celeste Lab Email: ricciardo.10@osu.edu

Peer Leader: As assigned

Workshop meetings: Once weekly for 1.5 hours, rooms as assigned

Required Materials: The course materials will be provided at the Workshop and through Carmen. The Chemistry 1610 textbook (Chemistry, The Central Science (13th Ed), Brown, LeMay, Bursten, Murphy, Woodward, & Stoltzfus) is strongly recommended. This textbook can be acquired at the OSU Bookstore.

Course Description: The Chemistry 1612 course provides a structure with which students can work actively in groups of 6 to 8 peers on challenging chemistry problems. This course will integrate with topics covered in Chemistry 1610. Workshops include groups of students discussing and solving challenging chemistry problems related to material covered in Chemistry 1610.

Activities for the workshops will be written and provided by the PLTL coordinator. The activities will be challenging and relevant to course material and groups will work to discuss, collaborate and answer questions in the activity. No answer keys will be provided, as groups are expected to reach consensus through thoughtful discussion. Workshops are not a recitation time, not extra teaching time nor a time for exam reviews. Students are expected to attend and participate in all Workshops using the activities provided. Workshops will meet weekly and peer leaders will facilitate groups.

Peer leaders are students that have successfully and recently completed chemistry 1610 and 1620 at Ohio State. Peer leaders are trained and meet weekly outside of the Workshops to learn how to properly facilitate activities. Peer leaders work to encourage groups to work together to solve problems. Peer leaders are not there to give answers, are not tutors, teachers nor recitation instructors. Rather their role is to facilitate group discussion and collaboration.

Course Goals: The goals of this course are meant to compliment the goals of the corequisite course Chemistry 1610.

- To help students work actively on rich chemistry problems to facilitate learning of chemistry 1610 content.
- Work effectively with a diverse group of peers to solve challenging chemistry problems.
- To build community among 1st year chemistry majors in the Department of Chemistry & Biochemistry.

Participation and Attendance: The main purpose of this course is to promote scientific reasoning through active learning. The active learning sessions happen through group discussion

and thus it is imperative that all students attend each Workshop and participate fully. Points will be awarded for participation and attendance. Students will receive full credit (10 points) for attending and participating in a weekly Workshop. Participate is defined as actively engaging in discussion with peers. Peer leaders will assess participation for group members. Students will receive half credit (5 points) for attending but not participating in a weekly Workshop. Students will receive no credit (0 points) for not attending a weekly Workshop.

Course Points:

12 Workshops at 10 points each for a total of 120 points.

Course Grade: This course will be graded Satisfactory/Unsatisfactory (S/U). Students must attend at least 75% of the Workshops earning a minimum of 75% of the points possible (90 points out of 120 points) in order to receive a Satisfactory (S) grade.

Course Content Structure: The content for the Workshops will follow closely with the content covered in Chemistry 1610. An outline of topics is listed below.

Workshop Topics

Chapter 1	Introduction: Matter and Measurement (1.1-1.6): The study of chemistry; classifications of matter; properties of matter; units of measurement; uncertainty in measurement; dimensional analysis
Chapter 2	Atoms, Molecules, and Ions (2.1-2.9): Atomic theory of matter; discovery of atomic structure; modern view of atomic structure; atomic weights; periodic table; molecules & molecular substances; ions & ionic compounds; naming compounds
Chapter 3	Chemical Reactions and Stoichiometry (3.1-3.7): Chemical equations; simple patterns of chemical reactivity; formula weights; Avogadro's number & the Mole; empirical formulas from analyses; Quantitative information from balanced equations; limiting reactants
Chapter 4	Reactions in Aqueous Solutions (4.1-4.6): General properties of aqueous solutions; precipitation reactions acids, bases & neutralization reactions; oxidation-reduction reactions; Concentrations of solutions; solution stoichiometry & chemical analysis
Chapter 5	Thermochemistry (5.1-5.8): Energy; The first law of Thermodynamics; enthalpy; enthalpies of reaction; calorimetry; Hess's Law; enthalpies of formation; foods and fuels
Chapter 6	Electronic Structure of Atoms (6.1-6.9): Wave nature of light; quantized energy & photons; line spectra & the Bohr model; wave behavior of matter; quantum mechanics & atomic orbitals; representations of orbitals; Many-electron atoms; electron configuration; electron configuration & the periodic table
Chapter 7	Periodic Properties of the Elements (7.1-7.8): Development of the periodic table; effective nuclear charge; size of atoms & ions; ionization energies; electron affinity; metals, nonmetals & metalloids; trends for group 1A & 2A metals; trends for selected nonmetals
Chapter 8	Basic Concepts of Chemical Bonding (8.1-8.8): Lewis symbols & the octet rule; ionic bonding; covalent bonding; bond polarity & electronegativity; drawing Lewis structures; resonance structures; exceptions to the octet rule; strength & length of covalent bonds
Chapter 9	Molecular Geometry and Bonding Theories (9.1-9.8): Molecular shapes; VSEPR model; molecular shape & molecular polarity; covalent bonding & orbital overlap; hybrid orbitals; multiple bonds; molecular orbitals; period 2 diatomic molecules
Chapter 10	Gases (10.1-10.9): Characteristics of gases; pressure; the gas laws; the ideal-gas equation; gas mixtures & partial pressures; kinetic-molecular theory of gases; molecular effusion & diffusion; real gases: deviation from ideal behavior
Chapter 11	Liquids and Intermolecular Forces (11.1-11.8): A molecular comparison of gases, liquids & solids; intermolecular forces; select properties of liquids; phase changes; vapor pressure; Phase diagrams; liquid crystals

Disability Services (SLDS): Students with disabilities that have been certified by Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; slds.osu.edu

Commitment to Diversity: The Department of Chemistry and Biochemistry promotes a welcoming and inclusive environment for all students and staff, regardless of race, gender, ethnicity, national origin, disability or sexual orientation. There is no tolerance for hateful speech or actions. All violations of this policy should be reported to the OSU Bias Assessment and Response Team (BART, studentaffairs.osu.edu/bias). The Department encourages diversity at all levels, particularly among the next generation of scientists. Students are encouraged to participate in organizations that provide support specifically for science and engineering students who are African-American, Asian, disabled, Hispanic, LGBTQ or women. These organizations are listed on the Colleges of Arts and Sciences (artsandsciences.osu.edu/stem-organizations) and Engineering (engineering.osu.edu/studentorgs) websites.

Violations of academic standards in General Chemistry will be referred to the University Committee of Academic Misconduct (COAM) as required by Faculty Rules. It is the responsibility of COAM to investigate all reported cases of student academic misconduct; illustrated by, but not limited to, cases of plagiarism and any dishonest practices in connection with examinations, quizzes, and graded assignments. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information see the Code of Student Conduct: http://studentaffairs.osu.edu/pdfs/csc_12-31-07.pdf