JOHNS HOPKINS
SCHOOL of NURSING

COURSE NUMBER AND TITLE

NR.110.206 Chemistry with Lab

CREDITS

4 credits

PRE- AND COREQUISITES

None

COURSE DESCRIPTION

The course introduces the core concepts of matter and energy, atomic structure, the periodic system, chemical bonding, nomenclature, stoichiometry, weight relationships, gases, solutions, chemical reactions, thermodynamics, equilibrium, acids, bases and buffers. The course includes a virtual laboratory component designed to complement lecture topics. The course content provides the foundation of general chemistry necessary for students who are interested in applying to health profession programs.

OBJECTIVES

The course objectives are organized in line with the program outcomes. At the end of the course, the student will be able to:

1. Interconvert amount of substance between moles, mass and molecular weight.
2. Use conversion factors in calculations involving solids, liquids, gases, solutions, heat and energy.
3. Calculate and express solution concentrations in various ways, such as mass percent, parts per million, mole fraction, molality, and molarity.
4. Write balanced chemical equations and distinguish between different types of chemical reactions.
5. Describe the major components of an atom, write symbols for isotopes and calculate the average masses of elements.
6. Predict direction of change in reactions at equilibrium and measure reaction rates.
7. Predict the types of intermolecular forces within a compound.
8. Describe the geometry and polarity of molecules and predict their physical properties.
9. Describe the properties of acids and bases and measure their concentrations in solutions.

REQUIRED TEXTBOOKS AND OTHER COURSE MATERIALS

Armstrong, J. (2015). *General, organic, and biochemistry: An applied approach (2nd ed.)*. Stamford, CT: Cengage Learning.

Required Lab Program: Students must purchase access code to Late Nite Labs in order to access the lab component of this course.

Required Homework Program: Students must purchase access code to Cengage OWLv2 in order to access the required learning materials for this course.

Access to a reliable computer and internet connection: It is recommended that students using Windows- based computers should have the Windows 7 or newer operating system, and that Mac users have OS 10.6 or later. We also recommend that you use the most updated version of Google Chrome as your web browser for this course. Other operating systems and web browsers may not be fully supported by the Blackboard and Late Nite Labs software. Please see the Blackboard course site and the Late Nite Labs website for detailed system requirements.

SUMMARY OF LEARNING ASSESSMENTS/ASSIGNMENTS

LEARNING ASSESSMENT/ ASSIGNMENT	COURSE OBJECTIVES ADDRESSED	WEIGHT TOWARD FINAL COURSE GRADE
Module Graded Quizzes, 10 quizzes in total	1, 2, 3, 4, 5, 6, 7, 8, 9	20%
Module Homework Assignments, 10 assignments in total	1, 2, 3, 4, 5, 6, 7, 8, 9	20%
Completion of Lab Sessions and Lab Assignments & Reports, 10 lab sessions in total	1, 2, 3, 4, 5, 6, 7, 8, 9	30%
Midterm Exam	1, 2, 3, 4, 5, 6, 7, 8, 9	15%
Final Exam	1, 2, 3, 4, 5, 6, 7, 8, 9	15%

LEARNING ASSESSMENTS/ASSIGNMENTS

Homework Assignments

Weekly homework assignments are provided online via OWLv2. There are 10 homework assignments in this course. Three attempts are allowed for each question or each group of questions.

Graded Module Quizzes

These quizzes are designed to test your mastery of the material covered in each module and keep you on track in your reading. They are not timed. The quizzes are open book and open notes. One attempt is allowed for each quiz.

Lab Sessions

Laboratory sessions are held at the Late Nite Labs (LNL) website at http://latenitelabs.com/. You are required to complete the lab procedures and related lab assignments or lab reports for each lab. There are ten labs in total. The maximum point possible for each lab session is 100 points. If you miss a lab session, you will receive 0 for the lab component of that module. There are no makeup labs. An average of 60% must be achieved in the lab component of the course in order for you to pass the course.

Exams

Comprehensive exams consisting of multiple choice and short answer questions will be given to assess student understanding of course content. They are open book, open notes and timed. Only one attempt is allowed for each exam. There are no makeup exams.

Supplemental Material

Throughout the course, you will find Practice Questions under the “Optional Learning Activities” section in each module. In addition, eTextbook is also available if you prefer to read the textbook online. These activities provide self-assessment of the information presented in the lectures and the textbook and are not graded or counted towards your final course grade.

ACADEMIC POLICIES

For a full list of academic policies, please see the current academic catalog and handbook.

COURSE POLICIES

All course assignments must be turned in by the specified due date and time. Once the due date and time have passed, 10% of the total points you have earned on the assignment will be deducted per day (per 24 hour period). There are no makeup or extra credit assignments allowed, and assignments submitted more than 7 days late will not receive credit. Please contact the course instructor prior to the due date in the case of extenuating circumstances.

GRADING SCALE

RANGE	LETTER GRADE	GRADE POINT
97 – 100	A+	4.0
93 – 96	A	4.0
90 – 92	A-	3.7
87 – 89	B+	3.3
83 – 86	B	3.0
80 – 82	B-	2.7
77 – 79	C+	2.3
73 – 76	C	2.0
70 – 72	C-	1.7
67 – 69	D+	1.3
63 – 66	D	1.0
60 – 62	D-	0.7
<60	F	0

HONOR CODE

Students enrolled in the Johns Hopkins University School of Nursing are expected to conduct themselves in a manner that upholds the values of this institution of higher education. Each student is obligated to refrain from violating academic ethics and maintaining high standards of conduct. In addition, the School of Nursing upholds the professional code of ethics established in the Code of Ethics for Nurses (ANA, 2015). Each student is held accountable for adhering to the American Nurses Association Code of Ethics. For the full Johns Hopkins School of Nursing Honor code, please see the current academic catalog and handbook.

EXAM INTEGRITY & STUDENT IDENTITY VERIFICATION

This course may require the use of technology and/or software to ensure exam integrity and verify the identity of the student taking the exam. Additional information and directions will be provided in the course website.

COMMUNICATION POLICY

Students may communicate with the instructor by email, which is provided in the Contact Information area. The instructor will respond to students within 48 hours. Assignment feedback will be provided to students within two weeks of submission.

All official communication, notices, & announcements will be distributed through student JHU-SON e-mail accounts via blackboard. The student is accountable for checking this account regularly and for all course communication sent to it.

Students are responsible for reading “Netiquette” which is located under Syllabus & Course Info on the Blackboard site. Netiquette provides simple guidelines for civil on-line discourse & behavior, that participants are to follow and expect of one another.

DISABILITY SERVICES

If you have a disability and may require accommodation in this course, please contact the *Office of Student Affairs* at (410) 955-7545 or SON-DSS@jhu.edu to discuss your specific needs.

COURSE SCHEDULE

Module	Learning Activities & Resources	Learning Assignments/ Assessments
Welcome – Start Here	Familiarize yourself with Blackboard and Late Nite Labs	Discussion Board: Introduce Yourself Avoiding Plagiarism Module
Module 1: **Measurements in Science**	Armstrong, J. (2015). *General, organic, and biochemistry: An applied approach (2nd ed.)*. Stamford, CT: Cengage Learning. • Chapter 1: Measurements in Science and Medicine Review the lecture materials posted in the module for this week.	Module 1 Homework Module 1 Quiz Module 1 LNL Lab & Assignment
Module 2: **Atoms, Elements and Compounds**	Armstrong, J. (2015). *General, organic, and biochemistry: An applied approach (2nd ed.)*. Stamford, CT: Cengage Learning. • Chapter 2: Atoms, Elements and Compounds Review the lecture materials posted in the module for this week.	Module 2 Homework Module 2 Quiz Module 2 LNL Lab & Assignment
Module 3: **Chemical Bonds Part I**	Armstrong, J. (2015). *General, organic, and biochemistry: An applied approach (2nd ed.)*. Stamford, CT: Cengage Learning. • Chapter 3: Chemical Bonds Review the lecture materials posted in the module for this week.	Module 3 Homework Module 3 Quiz Module 3 LNL Lab & Assignment
Module 4: **Chemical Bonds Part II**	Armstrong, J. (2015). *General, organic, and biochemistry: An applied approach (2nd ed.)*. Stamford, CT: Cengage Learning. • Chapter 3: Chemical Bonds	Module 4 Homework Module 4 Quiz Module 4 LNL Lab & Assignment

Module	Learning Activities & Resources	Learning Assignments/ Assessments
	Review the lecture materials posted in the module for this week.	
Module 5: Heat, Energy, Properties of Gases and States and Properties of Matter	Armstrong, J. (2015). *General, organic, and biochemistry: An applied approach (2nd ed.)*. Stamford, CT: Cengage Learning. • Chapter 4: Energy and Physical Properties Review the lecture materials posted in the module for this week.	Module 5 Homework Module 5 Quiz Module 5 LNL Lab & Assignment
Exam 1	Review content in Module 1 through Module 5	
Module 6: Properties of Solutions	Armstrong, J. (2015). *General, organic, and biochemistry: An applied approach (2nd ed.)*. Stamford, CT: Cengage Learning. • Chapter 5: Solution Concentration Review the lecture materials posted in the module for this week.	Module 6 Homework Module 6 Quiz Module 6 LNL Lab & Assignment
Module 7: Chemical Equations and Reactions, Mass Relationships and Heats of Reactions	Armstrong, J. (2015). *General, organic, and biochemistry: An applied approach (2nd ed.)*. Stamford, CT: Cengage Learning. • Chapter 6: Chemical Reactions Review the lecture materials posted in the module for this week.	Module 7 Homework Module 7 Quiz Module 7 LNL Lab & Assignment
Module 8: Combustion and Precipitation Reactions, Reaction Rate, Activation Energy and Chemical Equilibrium	Armstrong, J. (2015). *General, organic, and biochemistry: An applied approach (2nd ed.)*. Stamford, CT: Cengage Learning. • Chapter 6: Chemical Reactions Review the lecture materials posted in the module for this week.	Module 8 Homework Module 8 Quiz Module 8 LNL Lab & Assignment

Module	Learning Activities & Resources	Learning Assignments/ Assessments
Module 9: **Acids and Bases**	Armstrong, J. (2015). *General, organic, and biochemistry: An applied approach (2nd ed.)*. Stamford, CT: Cengage Learning. • Chapter 7: Acids and Bases Review the lecture materials posted in the module for this week.	Module 9 Homework Module 9 Quiz Module 9 LNL Lab & Assignment
Module 10: **Buffers**	Armstrong, J. (2015). *General, organic, and biochemistry: An applied approach (2nd ed.)*. Stamford, CT: Cengage Learning. • Chapter 7: Acids and Bases Review the lecture materials posted in the module for this week.	Module 10 Homework Module 10 Quiz Module 10 LNL Lab & Assignment
Exam 2	Review content in Module 1 through Module 10	