NOVA SOUTHEASTERN UNIVERSITY
Halmos College of Natural Sciences and Oceanography

CHEM 1300H - General Chemistry I/Lab Honors

I. Course Information

Course: CHEM 1300H - General Chemistry I/Lab Honors
Semester Credit Hours: 4.0
Course CRN and Section: 20109 - DA1, 20110 - DA2
Semester and Year: Fall 2017
Course Start and End Dates: 08/21/2017 - 12/10/2017
Building and Room: Carl DeSantis Building - 3045

II. Instructor Information

Professor: Maria Ballester
Email: mballest@nova.edu
Office Hours:

Day	Time	Location
TR	8:00am - 10:30pm	Parker 121

III. Class Schedule and Location

CRN	Day	Date	Time	Location	Building/Room
20109	MWF	08/21/2017 - 10/06/2017	7:55 AM - 8:45 AM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-3045
20109	W	08/23/2017 - 10/04/2017	9:00 AM - 11:45 AM	Ft Lauderdale/Davie Campus	Parker Building-258
20109	W	10/11/2017 - 10/11/2017	8:00 AM - 10:00 AM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-3045
20109	MWF	10/16/2017 - 12/01/2017	7:55 AM - 8:45 AM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-3045
20109	W	10/18/2017 - 11/29/2017	9:00 AM - 11:45 AM	Ft Lauderdale/Davie Campus	Parker Building-258
20109	T	12/05/2017 - 12/05/2017	8:00 AM - 10:00 AM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-3050
20110	MWF	08/21/2017 - 10/06/2017	7:55 AM - 8:45 AM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-3045

20110	F	08/25/2017 - 10/06/2017	9:00 AM - 11:45 AM	Ft Lauderdale/Davie Campus	Parker Building-258
20110	W	10/11/2017 - 10/11/2017	8:00 AM - 10:00 AM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-3045
20110	MWF	10/16/2017 - 12/01/2017	7:55 AM - 8:45 AM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-3045
20110	F	10/20/2017 - 12/01/2017	9:00 AM - 11:45 AM	Ft Lauderdale/Davie Campus	Parker Building-258
20110	T	12/05/2017 - 12/05/2017	8:00 AM - 10:00 AM	Ft Lauderdale/Davie Campus	Carl DeSantis Building-3050

IV. Course Description

This course and the related lab is the first part of a two-semester sequence that studies the laws, principles and theories of atomic structure, molecular structure and bonding, stoichiometry, states of matter/solutions, energetics, oxidation reduction, and laboratory chemistry, including their applications. Prerequisites: MATH 1200; Honors students only. Frequency: Every Fall.

V. Course Objectives / Learning Outcomes

1) Describe the atomic structure, molecular structure and bonding
2) Describe stoichiometry, states of matter/solutions, energetics, and oxidation reduction
3) Demonstrate competent and prudent testing practices of chemical principles in the laboratory and describe how data collected in the laboratory is interpreted scientifically

VI. Materials and Resources

Book Url: NSU Book Store

Section Required Texts and Material:

Principles of Chemistry: A Molecular Approach with Mastering Chemistry
Author: Tro
Publisher: Pearson
Year: 2016
Edition: 3rd
ISBN-13: 9780321971166

Laboratory Manual for Principles of General Chemistry
Author: Beran
Publisher: Wiley
Year: 2014
Edition: 10th
ISBN-13: 9781118621516

Section Supplemental Material:

Non Programmable Scientific calculator. TI-30 for example.

Section Recommended Texts and Materials:

Molecular Model Kit
Publisher: Pearson
Year: September 15, 1997
Edition: 1 edition
ISBN-10: 0139554440
ISBN-13: 9780139554445

VII. Course Schedule and Topic Outline

Course Schedule:

Week of	Lab Experiment	Lab Reports
Aug 21	No Labs	
Aug 28	Safety/Excel (Excel hand out available online)	Assignment
Sep 4	Take Home: Dry Lab 2B and 2C	Assignment
Sep 11	EXP 5: Percent Water in a Hydrated Salt	Full Lab Report
Sep 18	EXP 7: Empirical Formula	Results Only
Sep 25	EXP 8: Limiting Reagent	Results Only
Oct 2	Experiments 9 and 10: Volumetric/Vinegar Analyses (combining both experiments using acetic acid)	Full Lab Report
Oct 10	No Labs Midterm Week	
Oct 16	Take Home: Dry Lab 2A	Assignment
Oct 23	Redox Titration (hand out available online)	Results Only
Oct. 30	EXP 12: Molar Mass of a Volatile Liquid	Results Only
Nov 6	EXP 13: $CaCO_3$ Analysis and Molar Volume of CO_2 (we will be using $KClO_3$ instead of $CaCO_3$!)	Results Only
Nov 13	EXP 25: Calorimetry	Results Only
Nov 20	No Labs	
Nov 27	Lab Practical	

Lectures Schedule

Week of	Topic
Aug 21	Atoms and molecules – The classification of matter – Physical and chemical changes and properties Energy – Units of measurement – Atomic Theory – Discovery of electron – Laws of Atomic theory
Aug 28	Discovery of subatomic particles – Periodic Table – Elements, compounds, atom, theories, composition of Atom – Chemical bonds – Elements and compounds – Naming ionic compounds
Sep 07	Naming molecular compounds – Mole concept – Composition of compounds – Empirical and molecular formula – Writing and balancing chemical equations
Sep 04	**University Closed on Monday** – Reaction stoichiometry – Limiting reactant problems – Percent yield and theoretical yield
Sep 11	Solution concentration and solution stoichiometry – Aqueous solutions and solubility
Sep 18	Molecular, total ionic and net ionic equations – Precipitation reactions – Acid-Base and Redox reactions
Sep 25	States of matter, gas laws – Applications of ideal gas law – Mixture of gases – Partial pressures
Oct 02	Collecting gas over water – Kinetic molecular theory – Real gases
Oct 9	https://appcentral.nova.edu/app/coursewizard/course-wizard (Please check course wizard for your date and room assignment)
Oct 16	Thermochemistry - Heat, work – Calorimetry – Enthalpy
Oct 23	Exothermic and endothermic reactions – Standard heats of formation
Oct 30	Stoichiometry of thermochemical equations – Hess's law – Nature of light, atomic spectra – The wave and particle Nature of light
Nov 06	Quantum mechanics – Bohr model, quantum numbers – Shapes of orbitals – Periodic table – electron configurations – Electron configurations
Nov 13	Periodic trends – Ions, electron configuration – Chemical Bonds – Electronegativity
Nov 20	Lewis structures- Polarity -Octet Rule exceptions – Bond energies- Bond lengths- Metal bonding
Nov 27	VSEPR Theory – Molecular geometry – Hybridization – Molecular Orbital Theory

Week of	Topic
Dec 04	**Final Exam Week** https://appcentral.nova.edu/app/coursewizard/course-wizard (Please check course wizard for your date and room assignment)

VIII. Assessments

Warning: Dates and Rooms Can Change!
Class schedule is subject to modification, but not without prior notification.

Exam I: **September 15, 2017**
Exam II: Day, time, and location: http://www.fcas.nova.edu/coursewizard/
Exam III: **November 10, 2017**
Exam IV: **December 1, 2017**
Final exam: Day, time, and location: https://appcentral.nova.edu/app/coursewizard/course-wizard

IX. Grading Criteria

Final Grade:

- The grades are computed by weighing lecture grade (75%) and laboratory grade (25%).
- The lecture grade will be based on four examinations. The first three exams will be conducted during the class time (class exams) and the final exam is comprehensive.
- Class exams will be based on the material covered up to and including the material discussed in the previous class, unless otherwise noticed. The exams may have both multiple choice, and free response questions.
- The laboratory grade will depend on (a) Pre-lab quiz /preparation (b) Safety, behavior in lab, work quality (c) Quality of write-up, data presentation (d) Calculation, quality of results (e) Conclusions, explanation of results, error analysis.
- If calculations were performed in Excel complete the following actions before printing out the spreadsheet:
  Print Cell Headings: Click Page Layout tab > Print Titles icon > Sheet tab > Print > Check the box for "Row & Column Headings" and "Gridlines" > Click Ok.
  To Print Formulas: Click Ctrl + `. The formulas should be visible. Print the spreadsheet with the formulas. To hide the formulas, click Ctrl + ` again.
- If you have a question about a grade, please make an appointment to see me in my office. Grades will not be discussed in any other setting (before/after class, etc.).
- Make-up exams will only be given for students who provide appropriate documentation for excused absences in a timely fashion. Make-up labs can only be done while the experiment is set up.
- Late assignments and reports will not be accepted and will receive a zero score.
- Final grades will be rounded up or down to the nearest whole number.
- **Homework Assignments**: Homework questions will not be graded but required to be done and along with quizzes count for 10% of your grade. You are expected to be able to answer any end-of-chapter questions in your textbook. In addition, you are required to do the end-of-chapter questions on the www.masteringchemistry.com website by the due time; this is essential to help you understand the lecture materials and improve your problem-solving skills. You are responsible to register on the masteringchemistry.com website within the first two weeks of class.
- **Please remember that you earn your grades; faculty does not "give" grades.**

Grading Scale:

The final grade is subject to the following weighting distribution and grading scale:

Lecture Grade (75% of final grade)			Lab Grade (25% of final grade)			Final Grade			
Test 1	15%		Lab Reports	60%		85 and above	A	60 - 64.9	C+
Test 2	15%		Practical Exam	15%		80 - 84.9	A–	55 - 59.9	C
Test 3	15%		Quizzes	20%		75 - 79.9	B+	50 - 54.9	D

Test 4	15%		Lab Notebook	5%		70 - 74.9	B	Below 50	F
PBL assignments	5%					65 - 69.9	B–		
Mastering Homework	5%								
Final Exam	30%								

X. Course Policies

General Policy:

- ALWAYS check before class begins in case of any changes. You will be responsible for all assignments regardless of lack of notice by the professor. It is your responsibility to check the course assignments. The professor is not responsible for your ability to access the course assignments, if there is an issue with your home network or computer please use the school library prior to class: https://appcentral.nova.edu/app/coursewizard/course-wizard
- Any other time please set an appointment through email. ANY email sent after 5pm is considered OUTSIDE OF OFFICE HOURS, and will take up to 24 hours for a response; if the email is send during the weekend the response will take at least 48 hours. If you haven't received a response in 48 hours, please resend your email.
- Plagiarism in any form is absolutely not tolerated. Although some intellectual discussion among groups about solutions to problems is acceptable, all assignments must ultimately be done individually. In lab, the only shared information allowed is collected data (among members of the same lab group). Academic dishonesty (cheating, plagiarism, etc.) on exams and projects will be dealt with harsh penalty, at minimum with a failing grade in the course.
- Attendance will be taken at the beginning of each class. Although attendance is not mandatory, you are responsible for any material and announcements missed.
- The only excusable absences/lateness are those that are medical emergencies/illnesses that prevent you from attending class, and approved University functions. The professor retains the authority to deny any absence or tardiness that is not approved or officially documented.
- If you anticipate missing class (or has missed class) due to medical issues for one week or longer, contact your professor as soon as possible, and take your documentation to the disability office, located in the Rosenthal Building. This office will review your documentation, and contact the professor.
- It is the student's responsibility to obtain notes on missed material from other students.
- You should use the textbook as your primary reference book and study manual. If you have trouble understanding something discussed in class or from an assigned reading, the first places to look for help are the lecture notes and the textbook.
- Problems are assigned to enable you to practice the principles learned in lecture, and to assist you in preparing for quizzes and exams. Success in the course is dependent in great measure on your ability to solve these problems.
- Appropriate classroom behavior is required. Disruptive behavior, including (but not limited to) talking and/or sleeping during class, will not be tolerated.
- Please silence your electronic devices before you enter the classroom.
- You will need a scientific calculator, and it must be used only for computing purposes during exams.

XI. University Policies

Students should visit http://www.nova.edu/academic-affairs/nsu-syllabus-policy.html to access additional required college-wide policies. It is your responsibility to access and carefully read these policies to ensure you are fully informed. As a student in this class, you are obligated to follow these college-wide policies in addition to the policies established by your instructor.

The following policies are described on this website:

- Academic misconduct
- Last day to withdraw
- Email policy
- Student course evaluations

- Student responsibility to register
- Student responsibility for course prerequisites

Academic Resources

Nova Southeastern University offers a variety of resources that may aid in student success. Among these resources are:

Accommodations for students with documented disabilities: For more information about ADA policy, services, and procedures, students may call the Office of Student Disability Services at 954-262-7189 or visit http://www.nova.edu/disabilityservices.

Tutoring and testing center:

Students are encouraged to use the free, individualized tutoring services offered by the Tutoring and Testing Center (TTC). TTC provides a supportive atmosphere in which tutors and students work collaboratively on improving students' writing, math and/or science skills. http://www.nova.edu/tutoring-testing/index.html