BROOKHAVEN COLLEGE
CHEM-1412-26001: General Chemistry I, 4 Credit Hours
Summer II 2017: MTWR (9:00 - 11:00 AM) Lecture @ X3005
MW (12:00 - 4:00 PM) Lab @ X3033

Instructor: Gbenga A. Oyedepo, Ph.D
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Office Hours: Tuesday (11AM – 1 PM) & Thursday (11 AM – 1 PM)

Textbook: Chemistry by Openstax, ISBN 9781938168390 or get a free electronic copy online at https://openstaxcollege.org/textbooks/chemistry

Prerequisites
CHEM 1411 within the last five years with a grade of "C" or better. One of the following must be met: 1) DREA 0093 or 2) English as a Second Language (ESOL) 0044 or (3) have met the Texas Success Initiative (TSI) Reading standard.

Course Description
This course is for science and science-related majors. It is a continuation of Chemistry 1411. Topics include states of matter, phase diagrams and intermolecular interactions; reaction kinetics, chemical equilibrium, modern acid-base theory, buffers, chemical thermodynamics, colligative properties of solutions, electrochemistry and nuclear chemistry. Topics may further include transition-metal chemistry, an introduction to organic chemistry and qualitative inorganic analysis. (3 Lec., 3 Lab.) Coordinating Board Academic Approval Number 4005015703

Student Learning Outcomes
Upon successful completion of this general chemistry course for science majors, students will:
• State the characteristics of liquids and solids, including phase diagrams and spectrometry.
• Articulate the importance of intermolecular interactions and predict trends in physical properties.
• Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
• Identify and balance oxidation-reduction equations and solve redox titration problems.
• Determine the rate of a reaction and its dependence on concentration, time, and temperature.
• Apply the principles of equilibrium to aqueous systems using Le Chatelier’s Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
• Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
• Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.
• Define nuclear decay processes.
• Describe basic principles of organic chemistry and descriptive inorganic chemistry.

Upon successful completion of this laboratory portion of this course, students will:
• Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
• Demonstrate safe and proper handling of laboratory equipment and chemicals.
• Conduct basic laboratory experiments with proper laboratory techniques.
• Make careful and accurate experimental observations.
• Relate physical observations and measurements to theoretical principles.
• Interpret laboratory results and experimental data, and reach logical conclusions.
• Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
• Design fundamental experiments involving principles of chemistry and chemical instrumentation.
• Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

Core Objectives
CHEM 1412 is part of the Life and Physical Sciences Foundational Component Area 030.

i. Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method.
ii. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.
iii. The following four Core Objectives must be addressed in each course approved to fulfill this category requirement:
   (A) Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information;
   (B) Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication;
   (C) Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions;
   (D) Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Attendance:
• Students should attend all classes and labs.
• It is the responsibility of the student to obtain from classmates all missed material due to absence.
• It is the student’s responsibility to keep up with any necessary schedule changes.
• Your attendance and class participation will impact your grade.
• Absences are excused only with the permission of your instructor.
• Any missed graded work will be a zero unless prior arrangements were made with the instructor.
• Office hours are for clarification of materials previously presented to you in lecture; they are not a more convenient time for you to hear the lecture.
• See the schedule of classes for the last day to withdraw.

Grading:

Scale:
A: 90-100%  B: 80-89%  C: 70-79%  D: 60-69%  F: 59% or less

Lecture average = 80% of final course grade
Laboratory average = 20% of final course grade

Points will be accumulated from the following assessments:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Description</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-Term Exams</td>
<td>Three exams</td>
<td>40%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Cumulative ACS Final exam</td>
<td>20%</td>
</tr>
<tr>
<td>Group Activities</td>
<td>Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Participation</td>
<td>Attendance, Group Assignments, Answering/Asking Questions, etc.</td>
<td>10%</td>
</tr>
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No make-up exams will be given, and exams cannot be taken early. If there is an emergency, you MUST contact me BEFORE the exam. Missed exams without notification and proper documentation will be scored as a zero!

*Please note that Apperson forms will be needed for all exams.

Calculator: Scientific calculator that has function keys for natural logarithms (ln key) and base 10 logarithms (log key) and perhaps other features for statistics, %, etc. Note: Using a phone for a calculator is not permitted!

Chemistry Laboratory Policies and Information

Pre-lab Activity
Brookhaven chemistry experiments require a pre-lab activity. The purpose of the pre-lab is to ensure that you understand the experiment and all related safety procedures. The required pre-lab activities for most CHEM 1412 labs are:

1. Open the folder for the experiment in the ecampus Lab Community.
2. View any required lab videos.
3. Download and print the experiment.
4. Read the experiment and outline the general steps of the procedure in your own handwriting. This procedure summary should be no more than one page in length.
5. Record any required physical constants.
6. Examine the provided data tables. Complete the provided tables or create ones if needed. Think about how you are going to acquire the information necessary to fill them out.
7. Answer all pre-lab questions.

Be sure you know how to do all the calculations required in the experiment prior to coming to
lab. If you can’t do the calculations, then seek help before lab.

If you have not completed the pre-lab correctly, and in full, you will not be permitted to attend lab.

The Experiment
There will be a short safety and technique discussion and demonstration at the beginning of each lab period. If you come to lab late, you will not be admitted to the lab class. Observations, data collection, results, and calculations will be completed in lab. You are expected to wear appropriate clothing and protective eyewear (fully-enclosed goggles) at all times. No flip-flops or open-toed shoes are permitted in the chemistry laboratory.

Post Lab
At the end of lab you will write your lab report. You may discuss your results with other students but your report is an individual effort. Be careful not to plagiarize. Lab reports are due at the end of the lab period on the completion of the experiment. Late reports will not be accepted. The quality of calculations and reasoning will have as much impact on your grade as your experimental results.

Lab Attendance Policy
• All registered students must attend a mandatory safety lab during the first scheduled lab period.
• Successful completion of the mandatory safety lab is required to continue in the course.
• If you arrive late for any chemistry lab, you will not be permitted to stay, and you will receive “0” for that lab.
• If you have not completed the pre-lab correctly, and in full, you will not be permitted to attend lab.
• There are no make-up chemistry labs.
• If you miss three chemistry labs, you must withdraw from the class or your course grade will be an “F”.

Things to Bring to Lab
• Safety Goggles.
• Calculator.
• Lab manual or any necessary e-campus downloads:
  ▪ Some labs are to be downloaded and printed from e-campus. It is your responsibility to check the schedule and bring your printed copy to lab. Copies of the e-campus labs will not be available in lab.
• Completed advance study assignment
• Written one-page summary of the lab procedure
• Textbook to use as a reference or to review worked examples.

Lab Reports
• Show all of you work. All calculations must be shown to receive credit for your answers on advance study assignments and lab report data pages. Remember to include units and report answers to correct number of significant figures.
• All lab work must be done in blue or black ink. No erasures or white-outs permitted. Draw a single line through mistakes and changes.
• Each page must be signed and dated.
• Be neat; I must be able to read your work to grade it.
• Record all data, observations and calculations on the lab report & data pages. Do not record data on extra paper. Data on loose pieces of paper will be taken up & destroyed.
• Every lab must be completed and handed in at the end of the lab period.

**You will not be permitted to participate in lab, and will be given a grade of “0” if:**

A. Your Advance Study and/or Written Procedure are not complete.
B. You arrive late
C. You do not have your safety goggles or you are not wearing your safety goggles
D. You have not completed the safety lab
E. You don’t have the lab book or eCampus download
F. You didn’t check the schedule & prepared for the wrong lab
G. You didn’t check the eCampus student lab notes and make the changes in your lab book and written procedure
H. You leave before the lab is complete
I. You have missed three labs
J. You are wearing open toe shoes or sandals.

Note: If you miss lab, partial credit is not given for the advance study assignment & procedure.

**Additional Information**

• **NO LAB PARTNERS**; you will work individually in the lab unless instructed otherwise by your lab instructor.
• **NO FOOD or DRINKS IN LAB**; any found will be thrown away.
• **NO SANDALS OR OPEN TOE SHOES IN LAB**.
  • Book bags, back-packs, coats etc must be kept in the cubbies provided, not on the lab benches.
  • **CLEAN UP YOUR BENCH BEFORE YOU LEAVE**; points will be deducted for failure to clean up.

**BHC Safety Goggles Policy:**

**“NO GOGGLES, NO LAB”**

• You must wear Safety Goggles in the Chemistry Lab at all times
• You must purchase your own goggles and bring them to lab.
• Goggles must be all enclosed, the frame touching your face all around the edges of the goggles, not safety glasses with side shields.
• If you wear glasses your safety goggles need to fit over your glasses.
• Bring your goggles to the first lab. You will label your goggles with your name & store them in your lab drawer.
• If you drop the course it is your responsibility to collect your goggles, some time during your scheduled lab period. All unclaimed goggles will be discarded at the end of the semester.
**Academic Ethics:**
Brookhaven College may initiate disciplinary proceedings against a student accused of scholastic dishonesty. Scholastic dishonesty includes statements, acts, or omissions related to submission of someone else’s work as your own. Scholastic dishonesty may also involve, but is not limited to, one or more of the following acts: cheating, plagiarism, collusion, use of annotated texts or instructor’s editions, use of information about exams posted on the Internet or electronic medium, and/or falsifying academic records.

**Examples of cheating:**
- Talking during an exam.
- Passing notes during an exam.
- Looking on your neighbor’s paper during an exam.
- Using a programmable calculator.
- Using a phone or blackberry or Bluetooth device etc.
- Copying another’s lab advance study assignment and or lab procedure.
- Plagiarizing anything.
- Telling another student what was on the test.

**Institutional Policies**
Brookhaven College Institutional Policies can be found at the following link: https://www.brookhavencollege.edu/syllabusaddendum
You may request a hard copy of these policies from your instructor.

**Financial Aid Statement**
Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes. Withdrawals may affect your eligibility to receive further aid and could cause you to be in a position of repayment for the current semester. Students who fail to attend or participate after the drop date are also subject to this policy.

**Americans With Disabilities Act:**
Brookhaven College will adhere to all applicable federal, state and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. Please contact Brookhaven College Special Services at 972-860-4878.

**Emergency/Inclement Weather Procedures:**
Students may monitor local radio and television stations. Students may also refer to the Brookhaven College web page www.brookhavencollege.edu for the Inclement Weather announcement on the front page. The announcement will be posted immediately following the decision to close the college.

**Religious Holidays/Observances:** Students who will be absent from class for the observance of a religious holiday must notify the instructor in advance. Please refer to the college catalog section on Student Responsibilities.
STOP BEFORE YOU DROP:
For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop. You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges.
For more information, you may access: https://www.brookhavencollege.edu/syllabusaddendum

**Dr. Oyedepo reserves the right to amend this syllabus as necessary.**