

# CHEMISTRY 141

FALL 2015

**CLASS SCHEDULE:**                      **Section 10A**    MWF – 10:45-11:50 AM (**P206**)  
   **Section 12A**    MWF – 12:00-1:05 PM (**P201**)  
**INSTRUCTOR:**                            Dr. Nichole Powell  
**OFFICE LOCATION:**                   Pierce 210  
**OFFICE HOURS:**                        Designated hours:  
   **Mon and Wed** 1:40 – 3 pm  
   **Thurs** 9:40 – 10:40 am (**By Appt Only**).  
   You may stop by my office at any other time or make an  
   appointment via email. My schedule is posted on my door.  
   The last 15 minutes of most class sessions will also be  
   reserved for answering questions.  
**CONTACT INFORMATION:**              **Email:** nichole.powell@emory.edu **Telephone:** 770-784-8396

## COURSE DESCRIPTION/OBJECTIVES:

General Chemistry I (CHEM 141) is the first of a two-semester course sequence designed to introduce you to the fundamental terminology, principles, and theories of chemistry. The topics taught will provide you with the skills and competencies needed in higher level chemistry courses.

**Learning Goals.** The primary learning goals for this class are for you to:

- Utilize critical thought and reasoning to understand chemical behavior at the microscopic and macroscopic levels.
- From your knowledge of chemistry and chemical systems, be able to develop solutions to problems which you have not encountered before.
- Understand the role of chemistry in everyday life.

**Content Goals.** You will be expected to master these areas of chemistry:

- The scientific method
- Conversion between different measuring systems
- Significant figures
- The structure of the atom
- Nomenclature
- Molecular mass and moles
- Stoichiometry
- Reactions in aqueous solution
- Molarity
- Gases
- Quantum theory and electromagnetic radiation
- Electron configurations
- The periodic table
- Bonding
- Molecular geometry and hybridization
- Coordination compounds and crystal field theory
- Intermolecular forces

## CLASS MATERIALS (REQUIRED):

1. "Chemistry" 12<sup>th</sup> Ed. by Chang (including solutions manual)
2. Subscription to CONNECT. This is included with textbooks purchased from the bookstore.

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3. Scientific calculator (must be brought to every class). Calculators that can download and/or store information, can automatically solve equations or perform conversions, or can be programmed, are not allowed on quizzes/exams. The two calculators which are allowed are TI-30Xa or 30X II. These are generally available from places like Amazon or WalMart for under \$15. Any other calculators will have to be checked and approved by the instructor. Students will not be allowed to borrow calculators from their classmates during class assignments, quizzes, or exams. The use of cell phones and PDAs will not be allowed.

For Lab – must have before your first lab meeting

4. Laboratory manual: sold by the Chemistry Department.
5. Carbon-copy lab notebook.
6. Safety glasses: sold by the Chemistry Department.

### COURSE COMPONENTS:

#### **LECTURE:**

Lectures will emphasize the concepts and skills necessary for you to understand and investigate chemical behavior. It is also important that you become conversant with the language chemists use. Research on learning shows that explaining concepts helps you to better understand and retain the material that just merely listening to an explanation. It is therefore important that you prepare for each class, actively participate in lecture and ask questions when you do not understand the concepts. To help you understand the course material each class session will involve you working in groups to solve problems and explain your problem-solving strategy.

A goal of this course is for you to understand and relate the course material to chemical principles encountered in everyday life. To meet this goal, on each exam you will be expected to give a real world example (not covered in class or discussed in your text) and explanation of a concept from each of the chapters covered on that exam.

#### Attendance

You are expected to attend each class period. You are allowed 3 absences in lecture and NO absences in lab. Each absence exceeding 3 absences will result in a corresponding point deduction from your final course grade (eg. 4 absences= 1 pt, 5 absences= 2 pts etc). There are no excused absences. Being cited 2 times for any combination of the following behaviors will count as 1 absence: arriving more than 10 minutes late for class, walking in and out of class (unless you are sick), leaving class early, being inattentive or working on other assignments during class.

You are responsible for all material covered in the lecture even if you were absent.

#### Graded Assignments

Graded assignments (includes graded homework and learning modules) will be given throughout the semester. The assignments will usually be housed on Blackboard. Graded assignments will include chapter quizzes/homework which will usually be due within 48 hrs after we have completed the chapter in class.

#### Non-graded Assignments

You are expected to complete all assignments regardless of whether or not they will be graded. You are expected to work all in-chapter and end of chapter problems in your textbook unless otherwise noted.

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### Pop Quizzes

Pop quizzes will be given during the first 5 minutes of class throughout the semester. These quizzes are unannounced and will be used to assess your understanding of the course content. Pop quizzes will primarily assess the content covered in the previous class session. Your lowest pop quiz grade will be dropped. Bonus pop quiz points may be earned during lecture for completing assigned problems during a given time period. These bonus points count only towards the pop quiz grade and may not exceed the maximum number of pop quiz points available during the semester. There is a limit on the number of bonus points you may earn per class.

### Examinations

Four (4) exams are scheduled during the regular class period. No make-up examinations will be given. Excuses including the reason for missing an exam must be presented **before** the scheduled exam- this may be done by email or sending a note to class. If the excuse is accepted, the grade obtained on the final exam will count in place of the missed exam. If your excuse is not accepted you will receive a zero for that exam. You may only be excused from missing 1 exam.

### Anticipated Exam Schedule:

Exam	Material Covered	Projected Date
I	Ch. 1 – Ch. 3.8	Friday, Sept. 18
2	Ch. 3.9. – Ch. 5.6	Wednesday, Oct. 7
3	Ch. 5.7 – Ch. 9	Friday, Nov. 6
4	Ch. 10, 23, 11	Friday, Dec. 4

Exam dates are subject to change. The sections to be covered in each exam will be announced in class.

**Final Exam** – will be given during the final exam period.

**Section 10A** on Friday, December 11 at 2 - 5 pm.

**Section 12A** on Monday, December 14 at 2 - 5 pm.

The final examination is mandatory and will be comprehensive. Any material discussed during the semester may be included in this exam. Final exams will not be returned.

### **LABORATORY:**

Laboratory sessions are designed to reinforce the concepts learned in lecture while exposing you to the skills necessary to investigate scientific questions. Laboratory sessions will be three hours per week. Each session will begin with a pre-lab meeting during which you will do the pre-lab quiz for that week's experiment and a post-lab quiz on the previous week's experiment. You will submit a lab report for each experiment – the due date is given in your lab syllabus. Please consult your laboratory syllabus all information regarding labs.

### **COURSE GRADE:**

Your course grade will be computed as follows:

Graded Homework	4%
Learning Modules	2%
Pop Quizzes	3%
Exams (4)	56%
Final Exam (Cumulative)*	15%
Laboratory <sup>#</sup>	20%
Total	100%

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\* Your final exam grade may be used to replace your lowest Exam grade with the following exceptions: 1) If you have a zero on an exam due to missing the exam without a valid excuse no grade may be replaced, including the zero. 2) If you missed an exam with an accepted excuse only the grade for the excused exam may be replaced.

#Consult your laboratory syllabus for grading details.

### Grading Scale

A = 93 – 100    A- = 90 – 92    B+ = 87 – 89    B = 83 – 86    B- = 80 – 82    C+ = 77 – 79  
C = 73 – 76    C- = 70 – 72    D+ = 67 – 69    D = 60 – 66    F = below 60 F

Note: You must have a passing grade in both lecture and lab to pass the course. If you fail either the lecture or the lab you will receive an “F” in the course.

Final course grades will only be available in OPUS. Final exam grades will not be distributed.

### Errors in grading:

Exams should be reviewed immediately upon return for grading or addition errors. If there appears to be an error, submit your request for a regrade **in writing** no later than three days after the exam was returned in class. The Regrade Request form is available in Blackboard.

### HONOR CODE

It is expected that you will adhere to the Honor Code. It is expected that you will not cheat, contribute to or condone the cheating of others. You are therefore expected to submit your own best effort on all assignments. Exams will not be proctored unless it is believed that the Honor Code is being violated. Pens/pencils and a non-programmable calculator are the only tools you are allowed to bring to and use in exams (no cell phones). Having a cell phone during a quiz/exam will be treated as a violation of the Honor Code. Unless otherwise specified, collaboration is not allowed in any assignment to be submitted – including laboratory reports. You may collect data in groups however you may not collaborate with other students when completing lab report sheets/formal summaries/reports.

### CRITICISM/FEEDBACK

Criticism/feedback is given in a variety of ways – dependent on the type of assignment. Below is the key for criticism/feedback given on quizzes/exams.

CAL – calculation error  
CON – inadequate understanding of concept  
CVF – problems with conversion factor  
FORM – incorrect formula or wrong use of formula  
SFU – problems with significant figures and/or units

For essays/formal reports, criticism/feedback is given in the form of a grading rubric, which provides details on the grading of each area assessed.

### “RULES OF ENGAGEMENT”

Class should be an environment that is conducive to learning and free from distractions that could interfere with the learning process. Expectations regarding class deportment and interpersonal interaction will be discussed on the first day of class. Below are a few general notes.

- You are expected to arrive to class on time and stay for the entire class period (no walking in and out of class unless you are sick).
- You are expected to be attentive and participate during class.
- You are expected to bring your textbook and calculator to class.

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- Laptops are only allowed in class if you have an e-textbook or it serves as your primary means of taking notes. You must request permission from me before bringing your laptop to class. If you are caught doing anything inappropriate (ie. not what is currently being done in class), this privilege will be revoked.
- Cell phones are not allowed in class. You will be asked to leave the class if you are caught texting or using your phone.
- You must be appropriately dressed for class and lab. No undergarments should be visible.

### Q&A SESSIONS

A question and answer session will be conducted in the class session prior to each exam.

### BLACKBOARD

Blackboard will be the primary means of communicating outside of class. It will also house supplementary course resources. Students are also expected to read the Blackboard site regularly.

### AVAILABLE RESOURCES

- **Need help?** – please come to office hours at the first sign of trouble. You should also attend the weekly SI sessions even if you think you have mastered the material.
- **Need more problems?** - the textbook "Chemistry: A Molecular Approach" by Tro (including solutions manual) is available as a course reserve in the library (1 hr limit).

### ACCOMMODATION

Students who believe that they may need accommodation in this course are encouraged to contact the Access and Disability Services Resources (ADSR) ([adsroxford@emory.edu](mailto:adsroxford@emory.edu); 770.784.4690) as soon as possible to ensure that such accommodations are implemented in a timely fashion.

### ADDITIONAL INFORMATION

Quiz and Exam keys will be posted on Blackboard. Exam keys are posted 24 hrs after the exam is returned in class. It is very important that you spend time reworking questions you had difficulty with before looking at the exam key. If you are still having difficulty after consulting the key – please see me for help.

### COURSE SCHEDULE

Chap. 1	Chap. 8
Chap. 2, sections 1-7	Chap. 9
Chap. 3	Chap. 10
Chap. 4, sections 1-5, 7	Chap. 23, sections 3-5, 7
Chap. 5	Chap. 11, sections 1-3
Chap. 7	

\* The learning objectives for each chapter are available on Blackboard.

The course schedule is subject to change.

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### Welcome to CHEM 141!

In order for you to become fluent and proficient in a foreign language (eg. Spanish or French) you have to spend time practicing (reading, writing, and speaking) the language. Chemistry is like a foreign language and in order to become proficient you must spend time reading (textbook), writing (solving many problems, and a variety of problems), and speaking (explaining concepts and using the correct terminology) Chemistry. All activities and assignments given in this course are to help you become proficient in Chemistry. I encourage you to have an open mind, actively participate in class and lab, and consistently spend time practicing Chemistry!

**Student work submitted as part of this course may be reviewed by Oxford College and Emory College faculty and staff for the purposes of improving instruction and enhancing Emory education.**

### PRELIMINARY HOMEWORK/ GRADED ASSIGNMENT:

- Read article on HOW TO PASS CHEMISTRY (BLACKBOARD under COURSE DOCUMENTS)
- Assignments in **TOOLS FOR ACADEMIC SUCCESS:** (BLACKBOARD under ASSIGNMENTS)
- Syllabus quiz (BLACKBOARD under ASSIGNMENTS)

### TO BE COMPLETED BY THE SECOND WEEK OF CLASS (SEPTEMBER 4<sup>th</sup>)

- 1) Sensory Preference Self-Test **BRING RESULTS TO CLASS ON FRIDAY, SEPTEMBER 4<sup>th</sup>**
- 2) Workshop on Time Management
- 3) Workshop on College Reading Strategies

### TO BE COMPLETED BY THE THIRD WEEK OF CLASS (SEPTEMBER 11<sup>th</sup>)

- 4) Workshop on Concept Mapping
- 5) Workshop on Test Preparation
- 6) Workshop on Overcoming Test Anxiety

# CHEMISTRY 141- POWELL LAB SCHEDULE

*Fall 2015*

Week	Experiment no.	Date	Experiment title
1	Introduction	Sept. 1	
2	Exp. 1	Sept. 7 – 11	Precision of Laboratory Glassware
3	Exp. 2	Sept. 14 – 18	Composition of an Alloy, Avogadro's number
4	Exp. 3	Sept. 21 – 25	Chemical Properties
5	Exp. 4	Sept. 28 – Oct. 2	Physical Properties
6	Exp. 5	Oct. 5 – 9	Chemical Reaction Stoichiometry
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7	Exp. 6	Oct. 19 – 23	Aqueous Reactions
8	Exp. 7	Oct. 26 – 30	Gas Laws
9	Exp. 8	Nov. 2 – 6	Titration I: Standardization of NaOH
10	Exp. 9	Nov. 9 – 13	Titration II: Vitamin C
11	Exp. 10	Nov. 16 – 20	Synthesis of a Complex Salt
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12	Wrap-up	Nov. 30 – Dec. 4	

NOTE: The lab schedule is subject to change, depending on the pace of the course. Changes will be announced in class and posted online.