NorthWest Arkansas Community College
CHEM 1075 FUNDAMENTALS OF CHEMISTRY

Chem 1075: Spring 2007 CRN 23438  Fundamentals of Chemistry meets on MW 11am-1:00pm and F 11am-2pm in BH 1145

Instructor: Dr. Beverly Kelley at  
a) NWACC Office BH 1472, Phone 479-619-4370 (voice mail available)  
b) Email at bkelley@nwacc.edu  
c) Home Phone 479-273-5355 and leave message on voice mail

Weather: Severe Weather Phone 479-619-4377 for information on school closings.

Office Hrs:  
MWF 10:00-11:00am in BH 1472 / MW during class breaks (12-12:10pm) in BH 1145  
F 2:00-3:45pm in BH 1472 / F during class breaks (12-12:10 and 1-1:10pm) in BH 1145  
TuTh 7:00-7:30am in BH 1472 or BH 1140 / TuTh during class breaks (8:20-8:30am, 9:20-9:30am) in BH 1145  
TuTh between classes (10:20-10:30am) in BH 1140  
TuTh during class breaks (11:20-11:30am and 12:20-12:30pm) in BH 1140  
TuTh 1:20-3:30pm in BH 1472 or by appointment

Course Description: To provide a one semester overview of the fundamental concepts, laws and principles of chemistry to students with little or no chemistry background.

Materials Needed:  
Lab Manual– Introduction to Chemical Principles, A Laboratory Approach by Weiner and Peters  
Cheap ($10 or less) non-programmable calculator with exp or EE, log and ln functions.  
NO personal electronic devices, cell phone calculators, or programmable calculators will be allowed for exams.  
Index cards (to make flashcards)

Cell Phones: Please be courteous to others and put cell phones and pagers on quiet or vibrating mode during class.

Web Page: www.nwacc.edu and scroll to bottom of Home Page; click on Faculty Webs, then Kelley, Beverly

Email:  
Official college communication will occur via My NWACC Connection.  Go to www.nwacc.edu and click on My NWACC Connection at the lower left. You will be prompted to enter your user name and password. There is a phone number listed for Student Assistance. All students have been assigned an NWACC email account. Your email will be first initial+lastname@nwacc.edu

Computer access and use is required for this course. If you do not have computer access at home, there are numerous locations on campus where computers are available: Library, Learning Lab, 2nd Floor West Wing, Computer Wing, Common area behind elevators at front entrance.

Assignments: Homework problems will be assigned from each chapter (problems are dispersed throughout the chapter and are at the end of the chapter). Homework practice is vital for grasping concepts, practicing problem-solving, and enabling you to pass the course. These assignments will NOT be graded. Assigned problems can be found under Learning Goals on my web page. I have found that those students who do the homework are more likely to earn an A in this course.

Attendance: Will be taken using sign-in sheets. It is the responsibility of the student to sign the attendance sheet during every lecture. Students will not be allowed to sign the attendance sheet once lecture is dismissed. Attendance does count toward your grade. For each complete lecture attended, 2 points will be earned. Attendance points are prorated if you miss a portion of the lecture.

Lecture Notes: Lecture outlines to match up with the Powerpoint Lectures are currently posted on the Faculty Web Page. It is the students responsibility to print off outline pages and to take notes. If a lecture is missed, it is the student’s responsibility to get a copy of the notes from a classmate.

Powerpoint: Powerpoint lectures are not posted, printed or emailed to encourage class participation.

Safety Quiz: A Safety video, quiz and lecture must be completed before being able to participate in laboratory work. If you miss this in class, it must be completed outside of class to be able to do lab work. The safety video is on reserve in the library along with copies of the safety quiz. It may be viewed in the library if missed in class.

Safety: All safety regulations will be adhered to during this course. No food or drinks are allowed in the laboratory / classroom after the first week of classes till the last week of classes due to the nature of chemicals being in the classrooms. There are shelves outside the door for food and drinks to be placed and accessed during breaks. No climbing on tables or chairs. Goggles will be worn at all times when glassware or chemicals are in use in the
classroom: NO EXCEPTIONS! Be cautious when sitting at laboratory stations—I recommend cleaning with disinfectant to remove any chemicals that may have been left from previous classes before placing all of your belongings on the benchtop. Continued violation of safety regulations could result in deduction of attendance points. Extreme continued violation of safety regulations could result in being requested to leave the classroom.

Prob Sets: Take-Home Problem Sets will be assigned throughout the semester for practicing concepts talked about in class. Problem Sets can be found on my web page. The Problem Set will NOT be graded or taken up, but it will be like a “study guide” for the exams.

Practice Quizzes: Practice quizzes will be distributed at appropriate times throughout the semester to accompany the Take-Home Problem Sets. They will NOT be graded or taken up, but will serve as practice for the exams. I will bring keys to the quizzes so you can check your answers in class.

Experiments: The laboratory experience will consist of the following for EACH experiment:

<table>
<thead>
<tr>
<th>Advanced Study Assignment</th>
<th>5pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report Sheet</td>
<td>data &amp; conclusions completed during the experiment</td>
</tr>
</tbody>
</table>

TOTAL points earned each experiment = 20pts

Grades: Will be determined from the following components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 best of 5 Exams @ 125pts ea</td>
<td>500</td>
</tr>
<tr>
<td>11 Experiments @ 20pts ea</td>
<td>220</td>
</tr>
<tr>
<td>Attendance 44 days @ 2pts ea (4 “free” days)</td>
<td>80</td>
</tr>
<tr>
<td>Comprehensive Final Exam</td>
<td>200</td>
</tr>
</tbody>
</table>

TOTAL POSSIBLE = 1000

Grades will be determined based upon 90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, <60% = F

Make-Up Policy: There will be NO make-ups for any experiments. There will be NO make-ups for exams since the lowest exam will be dropped. If you have any conflicts with exams that you know of ahead of time, please let me know as soon as possible.

Important Dates:

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 15</td>
<td>Martin Luther King Holiday (No Class)</td>
</tr>
<tr>
<td>Jan 16</td>
<td>First Day of Class</td>
</tr>
<tr>
<td>Jan 30</td>
<td>Last Day to Drop 16 Week Class &amp; NOT Receive “W” on Transcript</td>
</tr>
<tr>
<td>Mar 19-23</td>
<td>Spring Break</td>
</tr>
<tr>
<td>Apr 6</td>
<td>Last Day to Drop 16 Week Class &amp; Receive “W” on Transcript</td>
</tr>
<tr>
<td>May 4</td>
<td>Last Day of Classes</td>
</tr>
<tr>
<td>May 9</td>
<td>Final Exam 11:00-1:00pm</td>
</tr>
</tbody>
</table>

Withdrawal: An important decision in protecting your grade point average! Science courses are 4-5 credit hours and a poor grade can have a negative impact on your GPA. If you have questions about what to do as the Withdrawal date approaches, see me and we can discuss pros and cons considering your performance in the class.

Suggestions for Success:

1. DO NOT miss class! Two absences add up to 6 hours of missed information—and chemistry is NOT a subject you can read about and teach yourself!
2. DO NOT arrive late! Missed information will leave gaps in your knowledge. It is also disruptive to the instructor and other students who have arrived on time. Also, the instructor has the right to give pop quizzes if promptness is a problem.
3. Start out ORGANIZED and STAY organized! I suggest a 3-ring binder along with tabbed dividers by chapter or by exam. It takes about the same amount of time to get organized as it does to hunt for a paper in a messy stack.
4. Make the MOST of your TIME! “Studies have shown that about one half of what is presented in lecture is not learned if you wait more than 24 hours to study your lecture notes. If you wait a week, figure on about 35% retention. The same studies show that about 90% of the lecture material is retained if you review the lecture on the same day...It is a huge waste of study time to postpone learning from your lecture notes.”¹ Include study time as a regular part of your schedule.
5. Be ACCOUNTABLE and find a STUDY PARTNER. Work homework together and drill each other on information from lecture. Meet at least once or twice a week. Practice! Practice! Practice!
6. Make FLASHCARDS. Cut index cards in half (to cut the cost), punch holes in one corner and bind together using a metal ring. Put information on these that require memorization. Use them to drill each other in small groups or study partners. Save these for review for the final exam.

7. **Study with DETAILS in mind.** Chemistry is a high-detail science that requires a lot of attention and precision when it comes to studying. Approach problem-solving calculations from the perspective of learning to reason rather than memorization. Practice without using notes or text to prepare for the exams.

8. **Use the Learning Lab!** Free science tutors and a small group study atmosphere are available. Check for a schedule of tutors.

### Test Taking Tips:

1. Confidence comes from being properly prepared—follow suggestions for success above.

2. Stamp out test anxiety by
   - A) being prepared (the more you know the less you fear)
   - B) trying relaxation techniques (deep-breathing, self-talk, visualization, distraction, etc)
   - C) stay focused on what you do know so your emotions can relax and your brain can remember.

3. Approach the test with a plan (Do what works for you!)
   - A) manage your time well
   - B) work portions you know best first
   - C) If you skip anything, mark it to come back to
   - D) **Never** leave anything blank
   - E) Exercise caution when “second-guessing” yourself
   - F) Check calculations if you have time left

### Test Taking Policies:

1. **No one can leave the room once the exam starts** until their test is completed and turned in

2. PLEASE use the restroom BEFORE the exam.

3. Due to the nature of information that can be stored, passed or retrieved using cell phones and personal electronic devices, all cell phones, pagers, and other electronic devices must be turned off and **put away**. Cell phones cannot be answered during exams.

4. No one can start taking the exam late after another student has turned in the exam and left the room. (Don’t be late!)

5. No sharing of calculators (notify me if you forget yours OR if your calculator malfunctions)

6. Scratch paper will be provided and must be turned in with the exam. Scratch paper is NOT graded—show work on the exam!

7. Bring your calculator! No programmable calculators or other electronic devices can be used as calculators.

8. Bring any “accessories” you may need—like tissue, cough-drops, etc. if you have a cold.

### Cheating:

Cheating will NOT be tolerated! Anyone caught cheating will have 35% of his total earned points deducted resulting in a drop in letter grade(s). Appropriate disciplinary action will also be taken.

### Disabilities Services:

If you are a student with a disability who will be requesting accommodations, you should contact the Office of DisAbility Services at the Student Development Center at 619-4109. Please see me as soon as possible to discuss accommodations.

### Disclaimer:

The Instructor reserves the right to make changes to the syllabus and the schedule as needed. Attendance is necessary to stay well-informed as to any changes.

### Tentative Schedule for Spring 2007

<table>
<thead>
<tr>
<th>Week #</th>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 15, 17, 19</td>
<td>Martin Luther King Jr Holiday</td>
<td>Lecture Chapter 2</td>
</tr>
<tr>
<td></td>
<td>No Classes</td>
<td>Introduction/Syllabus/Home Assignment: Read Ch. 1/ Print out Notes Ch. 2/Lecture Ch. 2</td>
<td>Lab Safety Video/ Quiz/ Lecture Exp. Handout: Meas &amp; Sig Fig</td>
</tr>
<tr>
<td>2</td>
<td>Jan 22, 24, 26</td>
<td>Lecture Ch. 2 and 3</td>
<td>Exp. 4 Densities of Liq &amp; Solids Lecture Ch. 4</td>
</tr>
<tr>
<td>3</td>
<td>Jan 29, 31, Feb 2</td>
<td>Lecture Ch. 3 and 4</td>
<td>Exp. 1 Prop/Changes in Matter Lecture Ch. 5</td>
</tr>
<tr>
<td>4</td>
<td>Feb 5, 7, 9</td>
<td>Lecture Ch. 5 and 6</td>
<td>Demo: Spectrum</td>
</tr>
<tr>
<td>5</td>
<td>Feb 12, 14, 16</td>
<td>Lecture Ch. 6 and 7</td>
<td>Exp. 9 Due today Lecture Ch. 7 and 8</td>
</tr>
<tr>
<td></td>
<td>Exp. 9 Names &amp; Formulas</td>
<td>Lecture Ch. 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exp. 9 Names &amp; Formulas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week</td>
<td>Lecture Topics</td>
<td>Lecture Topics</td>
<td>Lecture Topics</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Feb 19, 21, 23 | Lecture Ch. 8  
Exp. 10 Chem Equations (outside of class time) | Lecture Ch. 8  
Check Exp. 10 Answers (does not contribute to grade)  
Exp. 12 Types of Reactions |  |
| Feb 26, 28, Mar 2 | Lecture Ch. 9  
Exam 2 on Ch. 5-7  
Lecture Ch. 9 | Exam 2 on Ch. 5-7  
Lecture Ch. 9 | Exp. 7 %Oxygen in KClO₃  
Lecture Ch. 9 |
| Mar 5, 7, 9 | Lecture Ch. 10  
Lecture Ch. 10 | Lecture Ch. 10 | Exp. 5 Simplest Formula of a Compound |
| Mar 12, 14, 16 | Exp. 11 Mole Ratio for a Chem Reaction | Exam 3 on Ch. 8-10 | “Conversation Day” No Classes |
| Mar 19, 21, 23 | Spring Break  
NO CLASSES! |  |  |
| Mar 26, 28, 30 | Lecture Ch. 11  
Lecture Ch. 12 | Lecture Ch. 12  
Exp. 15 Molecular Models |  |
| Apr 2, 4, 6 | Lecture Ch. 13  
Lecture Ch. 14 | Lecture Ch. 14 and 15 |  |
| Apr 9, 11, 13 | Lecture Ch. 15  
Demo: Conductivity | Lecture Ch. 15 and 17 | Exp. 27 Meas of pH with Indicators |
| Apr 16, 18, 20 | Exam 4 on Ch. 11-14  
Lecture Ch. 17 and 18 | Lecture Ch. 17 and 18 | Lecture Ch. 18 |
| Apr 23, 25, 27 | Lecture Ch. 18  
Lecture Ch. 19 | Lecture Ch. 19 | Exp. 31 Preparation of Aspirin |
| Apr 30, May 2, 4 | Lecture Ch. 19  
Lecture Ch. 19 | Lecture Ch. 19 | Exam 5 on Ch. 15, 17-19 |
| May 7, 9, 11 | No Class (Finals Week)  
FINAL EXAM 11:00 | No Class (Finals Week) |  |

This Schedule is subject to change. Attendance is vital to being informed of those changes.

**Final Exam will be WEDNESDAY May 9th, 2007 at regular class time.**

Make NOTE of this on your calendar! Final Exam will be all multiple choice format. A “Scantron” form will be needed for the final exam.

---

**NorthWest Arkansas Community College**

**Emergency Building Evacuation Information and Procedures**

**PLEASE READ THIS CAREFULLY**

All college facilities are maintained and operated as safely as possible. However, there may be times when it is necessary to evacuate college buildings due to an emergency or in case of an emergency drill. When this happens, all building occupants need to be prepared to evacuate college buildings quickly and in an orderly manner. The following information and procedures are prepared so all occupants will know what to do in case of an emergency.

**General Information**

All college buildings except the Washington County Center are equipped with fire suppression sprinkler systems. Burns Hall and the Shewmaker Building have emergency evacuation alarm systems built into the buildings. At other college facilities, portable alarms would be used to signal building evacuation.

Our Public Safety Officers, Physical Plant employees and building Emergency Evacuation Coordinators are all trained to assist building occupants to safely evacuate the building.

Take the time to become familiar with your surrounding inside college buildings. Know where stairways and exits are located. In case of emergencies, building elevators will not be in use.

**Building Evacuation Procedures**

1. When the emergency evacuation signal is sounded in any college building, **immediately evacuate the building by going to the nearest exit.** Remember that building elevators are not in use during an emergency evacuation. Do not take excessive time to gather personal belongs. In an emergency, time is of the essence. The evacuation signals for college buildings are:

   - **Building**  
     - Burns Hall  
     - Shewmaker Building  
     - Washington County Center  
     - East Campus  
   - **Evacuation Signal**  
     - Siren and flashing white light  
     - Siren, flashing white lights and audible instructions to evacuate building  
     - Emergency horn and audible instructions to evacuate the building

2. Emergency Evacuation Coordinators assigned to specific sections of college buildings will assist building occupants who need
help evacuating college buildings or going to a place of safety inside the building. Class instructors and department supervisors can assist these coordinators by helping to identify building occupants who do need assistance.

3. Once outside the building go to the nearest safe assembly area beyond the building parking lots and wait there for further instructions or until the “all clear signal” is given to return to the building.

4. Do not go to your vehicle or attempt to leave the college campus until the “all clear” sign is given. We want to be able to account for all building occupants once everyone is outside the building. Emergency vehicles entering college parking lots would be hampered if automobiles were leaving the parking lots. In the event of a fire, hoses will be spread across the parking lots and exits thereby blocking vehicular traffic.

Thank you for your cooperation in observing these procedures. If you have any questions regarding this information or procedures, please contact us as soon as possible.
Acknowledgment of Course Syllabus

Course: Chem 1075 Fundamentals of Chemistry
Semester: Spring 2007
CRN: 23438
Instructor: Dr. Beverly Kelley

This is to acknowledge that I have access to a copy of the NWACC Course Syllabus for the course mentioned above 1) on the first day of class (hard copy) AND 2) electronically at NWACC.edu, Faculty Webs, Kelley, Beverly, Fundamentals of Chemistry. Dr. Kelley reviews the syllabus on the First Day of Class to explain details and answer questions concerning the course.

I understand that if I miss that First Day of Class that it is still my responsibility to read the syllabus in order to be informed of the requirements for this course. I also understand that I must meet the requirements specified in the syllabus in order to successfully pass this course. I also acknowledge that remaining enrolled in this course is automatic acceptance of those course requirements.

Student Name (PRINTED)___________________________________________
Student Name (SIGNED)____________________________________________
Date ___________________________