# University of North Texas at Dallas
## Spring 2017
### SYLLABUS

**CHEM 1420: General Chemistry**  
**3Hrs**

<table>
<thead>
<tr>
<th>Department of</th>
<th>Life and Health Sciences</th>
<th>Division of</th>
<th>Liberal Arts and Sciences</th>
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</thead>
</table>

**Instructor Name:** Dr. Muhammed Yousufuddin  
**Office Location:** DAL2 252  
**Office Phone:** 972-338-1528  
**Email Address:** myousuf@untdallas.edu

**Office Hours:** T 9-10 am, 1-4 pm or by Appt  
**Virtual Office Hours:** N/A

**Classroom Location:** DAL2 240 (Lecture and Recitation)  
**Class Meeting Days & Times:** TTh 4-5:20 pm, Th 3-3:50 pm

**Course Catalog Description:** Fundamental concepts, states of matter, periodic table, chemical structure and bonding, stoichiometry, oxidation and reduction, solutions and compounds of representative elements.

**Prerequisites:** Math 1100 D or equivalent  
**Co-requisites:** CHEM 1440

**Required Text:** Chemistry: A Molecular Approach 3rd Edition (Nivaldo Tro)  
**Recommended Text and References:** N/A

UNT Dallas Bookstore: phone: (972) 780-3652; e-mail: 1012mgr@fheg.follett.com |

**Course Goals or Overview:** To give students a foundation in scientific thought and process while developing an understanding of fundamental concepts in chemistry, states of matter, periodic table, chemical structure and bonding, stoichiometry, oxidation and reduction, solutions and compounds of representative elements.

**Learning Objectives/Outcomes:** At the end of this course, the student will

1. Be able to determine rate laws and rate constants if reaction given kinetic data
2. Be able to set up and solve equilibrium expressions for chemical equations, calculate values for equilibrium constants, and calculate equilibrium quantities
3. Demonstrate knowledge of different concentration expressions and the ability to convert from one to another
4. Be familiar with the relationship between entropy, enthalpy, and the spontaneity of chemical reactions
5. Be able to apply appropriate concentration values to changes in colligative properties (vapor pressure lowering, boiling point elevation, freezing point depression, osmotic pressure)
6. Be able to balance redox equations under acidic or basic conditions.
7. Be able to use standard potential values to determine the voltage of an electrochemical cell under standard and non-standard conditions
8. Be able to use electrical potential values to determine equilibrium constant of a redox reaction
9. Demonstrate the basic knowledge of nuclear reactions and be able to balance nuclear reactions
Course Outline
This schedule is subject to change by the instructor. Any changes to this schedule will be communicated in class.

<table>
<thead>
<tr>
<th>TOPICS</th>
<th>TIMELINE</th>
<th>Other deadlines</th>
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</thead>
<tbody>
<tr>
<td>Chapter 12: Solutions</td>
<td>Week of 1/16/17</td>
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<tr>
<td>Finish Chapter 12</td>
<td>Week of 1/23/17</td>
<td></td>
</tr>
<tr>
<td>Chapter 13: Chemical Kinetics</td>
<td>Week of 1/30/17</td>
<td>HW 12</td>
</tr>
<tr>
<td>Finish Chapter 13</td>
<td>Week of 2/6/17</td>
<td>HW 13</td>
</tr>
<tr>
<td>Test 1/Chapter 14: Chemical Equilibrium</td>
<td>Week of 2/13/17</td>
<td></td>
</tr>
<tr>
<td>Finish Chapter 14/Chapter 15: Acids and Bases</td>
<td>Week of 2/20/17</td>
<td></td>
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<tr>
<td>Finish Chapter 15</td>
<td>Week of 2/27/17</td>
<td>HW 14</td>
</tr>
<tr>
<td>Test 2/Chapter 16: Aqueous Ionic Equilibrium</td>
<td>Week of 3/6/17</td>
<td>HW 15</td>
</tr>
<tr>
<td><strong>Spring Break</strong></td>
<td>Week of 3/13/17</td>
<td>JAR due 10/20</td>
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<tr>
<td>Finish Chapter 16</td>
<td>Week of 3/20/17</td>
<td></td>
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<tr>
<td>Chapter 17: Free Energy and Thermodynamics</td>
<td>Week of 3/27/17</td>
<td>HW 16</td>
</tr>
<tr>
<td>Finish Chapter 17/Test 3</td>
<td>Week of 4/3/17</td>
<td>HW 17</td>
</tr>
<tr>
<td>Chapter 18: Electrochemistry</td>
<td>Week of 4/10/17</td>
<td>CIN oral on 4/14</td>
</tr>
<tr>
<td>Finish Chapter 18</td>
<td>Week of 4/17/17</td>
<td>HW 18</td>
</tr>
<tr>
<td>Test 4/Chapter 19: Radioactivity and Nuclear Chemistry</td>
<td>Week of 4/24/17</td>
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<tr>
<td>Finish Chapter 19</td>
<td>Week of 5/1/17</td>
<td>HW 19</td>
</tr>
<tr>
<td>FINAL EXAM</td>
<td>TBA</td>
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Course Evaluation Methods
This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

**Four Exams and one Final Exam**
- **Chapter Homework** – assigned problems from Mastering Chemistry
- **Journal Article Reviews** – a synthetic summary and review of a recently published journal article following the guidelines provided in the grading rubric.
- **Chemistry in the News Presentation** – a synthetic review of a recent news article relating to the study of chemistry (as a group presentation) following the provided rubric
- **Class Participation** – daily attendance and participation in class discussions
- **Quizzes** – Several in-class quizzes may be given at any time. This may be in lieu of attendance and participation

Grading Matrix:

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Value (points or percentages)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams</td>
<td>4 exams @ 100 pts ea</td>
<td>400</td>
</tr>
<tr>
<td>Final Exam</td>
<td>200 pts</td>
<td>200</td>
</tr>
<tr>
<td>Chapter Homework</td>
<td>8 @ 12.5 pts ea</td>
<td>100</td>
</tr>
<tr>
<td>Chemistry in the News written</td>
<td>50 pts ea</td>
<td>50</td>
</tr>
<tr>
<td>Journal Article Review</td>
<td>50 pts ea</td>
<td>50</td>
</tr>
<tr>
<td>CIN Group Presentation</td>
<td>50 pts ea</td>
<td>50</td>
</tr>
<tr>
<td>Attendance/Quizzes</td>
<td>15 @ 10 pts ea</td>
<td>150</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
<td><strong>1000</strong></td>
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Grade Determination will use the following guidelines:
- A = 1000 – 895 pts; i.e. 90% or more
- B = 894 – 795 pts; i.e. 80 – 89%
- C = 794 – 695 pts; i.e. 70 – 79%
- D = 694 – 695 pts; i.e. 60 – 69%
- F = 594 pts or below; i.e. less than 60%
University Policies and Procedures

Students with Disabilities (ADA Compliance):
The University of North Texas Dallas faculty is committed to complying with the Americans with Disabilities Act (ADA). Students' with documented disabilities are responsible for informing faculty of their needs for reasonable accommodations and providing written authorized documentation. Grades assigned before an accommodation is provided will not be changed as accommodations are not retroactive. For more information, you may visit the Student Life Office, Suite 200, Building 2 or call Laura Smith at 972-780-3632.

Student Evaluation of Teaching Effectiveness Policy:
The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my course and I consider the SETE to be an important part of your participation in this class.

Assignment Policy:
All assignment are due at the start of class with no partial credit given for late submission. Unless otherwise indicated, all assignments are due in hard copy and may not be emailed for credit. The only extra credit points given are for the 4 provided case studies.

Exam Policy:
Exams should be taken as scheduled. No makeup examinations will be allowed except for documented emergencies (See Student Handbook).

Academic Integrity:
Academic integrity is a hallmark of higher education. You are expected to abide by the University’s code of Academic Integrity policy. Any person suspected of academic dishonesty (i.e., cheating or plagiarism) will be handled in accordance with the University’s policies and procedures. Refer to the Student Code of Academic Integrity at http://www.unt.edu/unt-dallas/policies/Chapter%2007%20Student%20Affairs.%20Education.%20and%20Funding/7.002%20Code%20of%20Academic%20Integrity.pdf for complete provisions of this code.

In addition, all academic work submitted for this class, including exams, papers, and written assignments should include the following statement:

On my honor, I have not given, nor received, nor witnessed any unauthorized assistance that violates the UNTD Academic Integrity Policy.

Bad Weather Policy:
On those days that present severe weather and driving conditions, a decision may be made to close the campus. In case of inclement weather, call UNT Dallas Campuses main voicemail number (972) 780-3600 or search postings on the campus website www.unt.edu/dallas. Students are encouraged to update their Eagle Alert contact information, so they will receive this information automatically.

Attendance and Participation Policy:
The University attendance policy is in effect for this course. Class attendance and participation is expected because the class is designed as a shared learning experience and because essential information not in the textbook will be discussed in class. The dynamic and intensive nature of this course makes it impossible for students to make-up or to receive credit for missed classes. Attendance and participation in all class meetings is essential to the integration of course material and your ability to demonstrate proficiency. Students are responsible to notify the instructor if they are missing class and for what reason. Students are also responsible to make up any work covered in class during an excused absence. It is recommended that each student coordinate with a student colleague to obtain a copy of the class notes, if they are absent.

Students are expected to arrive on time for class and roll at the designated time. Being tardy or absent will affect the points earned for attendance and thus your overall grade.
Diversity/Tolerance Policy:
Students are encouraged to contribute their perspectives and insights to class discussions. However, offensive & inappropriate language (swearing) and remarks offensive to others of particular nationalities, ethnic groups, sexual preferences, religious groups, genders, or other ascribed statuses will not be tolerated. Disruptions which violate the Code of Student Conduct will be referred to the Office of Student Life as the instructor deems appropriate.

General Behavior:
Students are expected to conduct themselves in a professional and appropriate manner. You should expect to be silent when others are speaking, give your full attention to the professor or speaker, and refrain from reading newspapers or other distracting materials during class time.

Tobacco products of any kind are not permitted in the classroom.

Cell phones should always be on silent during class time.

Laptops and tablets may be approved for use in class for note taking on a provisional case-by-case basis.

Food is not permitted in the classroom although drinks are allowed as long as they are in a closed lid container.