Instructor: Dr. David Clevette (david.clevette@doane.edu)
Office: Doane College, Crete Campus, Lied 201
Work Phone: (402) 826-8244
Catalog Description: Through lecture and lab experience, students will be exposed to and will demonstrate an understanding of basic concepts in chemistry such as nomenclature, stoichiometry, thermochemistry, the periodic table, electronic structure and bonding. Prerequisite: Two years of high school algebra or any college mathematics course. 4 credits.

READINGS:

Note: This is a standalone book and does not contain an access code for the online homework. The access code will be purchased separately online using a credit card or PayPal on the Pearson website (accessed through this Blackboard course.) Alternatively, you can purchase the eText at this time along with the access code, in which case you can choose whether or not to have the physical textbook.

COURSE GOALS & OBJECTIVES:
This course meets the Doane College Foundational Areas of Knowledge (FAK) outcomes for Scientific Perspectives:

Students will gain a greater understanding of scientific thinking and applications using core ideas in a course that includes a laboratory or field experience. Students will consider the complexities of scientific methodologies in one or more disciplines of the natural sciences, the scientific context of issues they will confront as informed citizens, and the scientific impact on the global community. Students will work to:

1. Employ methods of science for inquiry in a scientific discipline
2. Develop their scientific literacy and ability to critically evaluate scientific information

Other Global Learning Outcomes include:
• Read and interpret graphs and data.
• Demonstrate the quantitative skills needed to succeed in General Chemistry.

Primarily, these outcomes will be assessed through graded online tutorials, homework, exams, and online laboratory modules. Additionally, these outcomes will be assessed through online conversations with individual students as they progress throughout the course.
COURSE MATERIAL:

Chapter 1 – Matter, Measurement, and Problem Solving
Chapter 2 – Atoms and Elements
Chapter 3 – Molecules, Compounds, and Chemical Equations
Chapter 4 – Chemical Quantities and Aqueous Reactions
Chapter 5 - Gases
Chapter 6 – Thermochemistry
Chapter 7 – The Quantum Mechanical Model of the Atom
Chapter 8 – Periodic Properties of the Elements
Chapter 9 – Chemical Bonding I: Lewis Theory
Chapter 10 – Chemical Bonding II: Molecular Shapes, Valence Bond Theory, and Molecular Orbital Theory

ON-LINE LEARNING STRATEGIES & ASSESSMENTS:

Blackboard:

By enrolling in this course you are automatically enrolled in this Blackboard course (bb2.doane.edu), 16SUM: General Chemistry I Sec 1. You will find a menu on the left side of the screen with some links.

The most important link is Learning Modules. Each Learning Module contains all of the information you will need for certain Chapter Sections. Within each Learning Module you will find:

- Learning Objectives – specific goals
- Lectures – what I have prepared for this course
- YouTube Videos – what others have prepared
- Mastering Chemistry Assignment description – graded

Pearson Mastering Chemistry:

For first-time registration:
http://www.pearsonmylabandmastering.com/northamerica/masteringchemistry/students/get-registered/index.html

For login access after registered:
https://www.masteringchemistry.com/site/login.html

On the Pearson website, you are guided through the registration process.

For the payment, the Pearson registration process allows you to purchase access online using a credit card or PayPal.

Enroll in this course: General Chemistry I Summer 2016
Course Code: MCCLEVETTE51973
On the Pearson website you will also find access to the eText (if purchased) as well as the Study Area which includes optional extra lessons, practice quizzes, and video. There is online coursework assessment done through the Mastering Assignments, Quizzes, and Exams (see below).

For each Learning Module there is one Assignment and one Quiz that is comprised of different types of questions as described below:

**Assignments:**

1. **Tutorials** – These usually have some introduction along with the questions and offer hints to help you answer the questions. These allow multiple attempts at answering with some feedback when incorrect. These are designed to be an introduction to the topic.

2. **Activities** – Pause and predict videos, key concept videos, or interactive worked examples. Some of you may find it useful to do these questions before the tutorials, but should be completed before the end-of-chapter questions.

3. **End-of-Chapter** – These are selected questions from the end-of-chapter problems. These questions do not offer hints, but allow multiple attempts at answering. Some of the questions have feedback.

There will be no more than ten (10) Assignment questions for each Learning Module. The description of the Assignment (at the end of the Learning Module) includes the average level of difficulty (1 = easy to 5 = hard), and the estimated length of time that most people take to complete. There is not time limit on the Assignments and you may stop and re-start these Assignments at any time.

**Quizzes:**

As you finish each Learning Module Assignment, there is a short timed quiz consisting of 5 questions to complete in 10 minutes. These questions are from the test bank and are multiple-choice type questions.

**OnLine Sessions:**

There will be three OnLine Sessions to be completed just prior to each exam. These sessions are intended to review strengths and weaknesses and to have an opportunity to discuss future learning strategies. You can ask questions of me and I will ask you questions.

I will conduct these video sessions with you on Skype. You will need to create a Skype account if you haven’t done so already, and you need to e-mail me your Skype user name. I plan for these sessions to be about 30 minutes long and they will be graded. The grade depends on how well you can answer selected questions and communicate the answers effectively.
Grading of OnLine Sessions:

20 points – can answer all questions with little help, and is able to communicate effectively.

15 points – can answer most questions, but with frequent help, and is able to communicate effectively.

10 points – has difficulty on many questions, and needs frequent help, but is able to communicate adequately.

5 points – answers few questions correctly, and is able to communicate at a basic level.

0 points – no answers are correct, and is unable to communicate at a basic level.

Online ChemLabs:

Virtual lab experiments will be conducted through OnlineChemLabs. Go to "onlinechemlabs.com" and enter DOACHMSU16 in the green registration box. This opens a student registration page, and then you will be guided through the verification and payment process. The price for the labs is $30 total, payable through PayPal. The labs are autoscored and then the scores are reviewed and posted by the instructor. The labs for this course are as follows:

For Exam 1 (due by June 11):
1. Laboratory Techniques
2. Density
3. Combustion

For Exam 2 (due by July 2):
4. Synthesis and TLC
5. Calorimetry
6. Error Analysis

For Exam 3 (due by July 23):
7. Spreadsheets and Linear Regression
8. Absorbance
9. NMR

Exams:

Timed exams will be administered both through the Mastering Chemistry website and through the Blackboard Course.

A timed online exam means that although searching is allowed, it is also time consuming, and you may not complete the exam if you spend too much time searching. Be prepared before you begin. Have no distractions.

One half of each exam will be from test bank questions (mostly multiple choice) administered through Mastering Chemistry. These will be similar to the questions you have seen on the Mastering Chemistry Quizzes.

The other half of each exam will be administered through the Blackboard Course. These are questions that I write. Some questions will be in a different format, requiring you to write an extended answer or to defend your answer/conclusion. Some questions are hypothetically phrased so that you will not be able to find the answer by searching.
COURSE PROGRESSION AND PACING:

This is a 9-week course. Exams are given every 3 weeks. There are 10 Chapters and 26 Learning Modules to be completed (about 9 Learning Modules per exam). In order to complete the course material on time, you should be completing at least 3 Learning Modules and one Lab each week. There are 3 due dates for the course corresponding to the exam due dates. All of the Learning Modules (Assignments and Quizzes) and Online Chem Labs within each Exam group must be completed by those due dates (see Course Schedule below.) You may take the exams at any time up to and including the due date. However, you must first complete an OnLine Session with me before each exam. Failure to do this will result in zero points for that OnLine Session.

COURSE SCHEDULE

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Learning Modules</th>
<th>Online Chem Labs</th>
<th>Exams and DUE DATES</th>
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</thead>
<tbody>
<tr>
<td>1 - Matter, Measurement, and Problem Solving</td>
<td>Classification of Matter Measurement Problem Solving Modern Atomic Theory</td>
<td>Laboratory Techniques Density Combustion</td>
<td>EXAM 1 Ch. 1-3 by <strong>Saturday, June 11</strong></td>
</tr>
<tr>
<td>3 – Molecules, Compounds, and Chemical Equations</td>
<td>Stoichiometry Solution Concentration and Solubility Chemical Reactions The Ideal Gas Law Mixtures of Gases, Stoichiometry with Gases Kinetic Molecular Theory of Gases Thermochemistry and Calorimetry Hess’s Law, Standard Heats of Formation</td>
<td>Synthesis and TLC Calorimetry Error Analysis</td>
<td>EXAM 2 Ch. 4-6 by <strong>Saturday, July 2</strong></td>
</tr>
<tr>
<td>4 – Chemical Quantities and Aqueous Reactions</td>
<td>Light and the Bohr Model of the Hydrogen Atom Quantum Mechanics and Atomic Orbitals The Periodic Table and Electron Configurations Periodic Trends Ionic Bonding, Octet Rule, Lattice Energy Lewis Structures Bond Lengths and Bond Energies VSEPR Theory, Predicting Molecular Geometries Valence Bond Theory and Molecular Orbital Theory</td>
<td>Spreadsheets and Linear Regression Absorbance NMR</td>
<td>EXAM 3 Ch. 7-10 by <strong>Saturday, July 23</strong></td>
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<td>5 – Gases</td>
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<td>6 -Thermochemistry</td>
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GRADING:

Your course grade will be determined from an accumulation of total points:

<table>
<thead>
<tr>
<th>Component</th>
<th>Number</th>
<th>Points each</th>
<th>Points total</th>
<th>% of Total</th>
<th>Minimum total points to pass the course</th>
</tr>
</thead>
<tbody>
<tr>
<td>OnLine ChemLabs</td>
<td>9</td>
<td>50</td>
<td>450</td>
<td>37.5%</td>
<td>135 out of 450</td>
</tr>
<tr>
<td>Exams (Blackboard)</td>
<td>3</td>
<td>50</td>
<td>150</td>
<td>12.5%</td>
<td>45 out of 150</td>
</tr>
<tr>
<td>Exams (Pearson)</td>
<td>3</td>
<td>50</td>
<td>150</td>
<td>12.5%</td>
<td>45 out of 150</td>
</tr>
<tr>
<td>Assignments (Pearson)</td>
<td>26</td>
<td>10</td>
<td>260</td>
<td>21.7%</td>
<td>78 out of 260</td>
</tr>
<tr>
<td>Quizzes (Pearson)</td>
<td>26</td>
<td>5</td>
<td>130</td>
<td>10.8%</td>
<td>39 out of 130</td>
</tr>
<tr>
<td>OnLine Sessions</td>
<td>3</td>
<td>20</td>
<td>60</td>
<td>5%</td>
<td>18 out of 60</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1200</strong></td>
<td></td>
<td><strong>1200</strong></td>
<td><strong>100.0%</strong></td>
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SPECIAL NOTE: The last column in the table represents a minimum total score in each component category in order to pass the course. **Failure to achieve the minimum score out of any category is an automatic failure of the course no matter how many points are obtained in the other categories.** These set points were set at 30% of the total points in each category.

Course Grade:
A course grade will be established using the following cutoff point values:

- A 1020 (85%)
- B 900 (75%)
- C 780 (65%)
- D 660 (55%)

+/- grades may be assigned when your score is close to the above cutoff point values.

ACADEMIC INTEGRITY:

In accordance with Doane's Academic Dishonesty Policy any act of dishonesty in pursuing course work will be penalized. If it is a first act (no reported incidents in any course) the penalty is an assignment of zero points for the particular piece of work involved. Second and subsequent acts of dishonesty will be handled by the Vice President for Academic Affairs. Each act of dishonesty will be reported to the Academic Affairs office. For this particular course, acts of dishonesty include representing someone else's work as your own on exams, quizzes, labs or assignments.

NOTE: The procedures in this course are subject to change in the event of extenuating circumstances.