#### NORTHWEST CHRISTIAN UNIVERSITY

#### ***GENERAL AND ORGANIC CHEMISTRY***

##### CHEMISTRY 121 – Fall 2017

##### MW 1:00- 2:40 pm

LAB F 1:00 – 2:50 pm (section I)

LAB M 10:00 – 11:50 pm (section II)

Instructor: Heike McNeil Phone: 684-7285

Office: PFB 206 Office Hours: by appointment

##### E-mail: hmcneil@nwcu.edu

**REQUIRED TEXT and MATERIALS:**

* *General, Organic, and Biochemistry* , 11th edition, Bettelheim, Brown & March, *2009* (10th edition is ok)
* *Laboratory Experiments for General, Organic, and Biochemistry, 8*th or edition, Bettelheim and Landesberg, 2013 (7th edition is ok)
* *Scientific Calculator*

**GOALS:**

The purpose of this course is to introduce the concepts of general chemistry and beginning organic chemistry and to teach the student to apply the concepts in the laboratory section of the course. This course covers important general chemistry and provides a basis to understanding the chemistry of the human body.

**COURSE OBJECTIVES:**

After successfully completing CHEM 121, the student will demonstrate proficiency in each of the following subject matters by scoring 70% or higher in the relevant sections of the exams:

* Fundamental Quantities and Measurements
* Matter and Energy
* Atoms
* Chemical Bonding
* Chemical Reactions
* States of Matter
* Solution Chemistry
* Rates of Reaction
* Chemical Equilibrium
* Acids and Bases
* Nuclear Chemistry
* Basics of Organic Chemistry – Structure and Nomenclature
* Alkanes and Alkenes

**GRADE ASSESSMENT:**

Your grade will be assigned based on your performance in the following areas:

 Attendance (ON TIME) 30 pts

 Homework (10 @ 10 pts each) 100 pts

######  Quizzes ( 2 @ 15 pts each) 30 pts

######  Mid-Term Exams (3 @ 100 pts each) 300 pts

 Final Exam 100 pts

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######  TOTAL: 560 pts

A total of 336 points is required for a passing grade. Assignment of course grades will follow an approximate breakdown of A: 90% / B: 80% / C: 70% / D: 60% but is subject to the instructor’s discretion.

**LABORATORY WORK:**

The laboratory experience is a vital part of this course. The key is: **Be prepared**. You are required to read the laboratory experiment and do any pre-lab questions *prior* to walking into the laboratory. You will take a quiz over the laboratory material prior to performing each experiment to ensure that you are prepared adequately. If you come to lab unprepared, you WILL be asked to leave. Students are expected to attend the laboratory at the scheduled time. Failure to complete the laboratory work or to hand in all of the assigned laboratory reports will result in a failing term grade, regardless of the total points earned. Late Laboratory reports will result in a lowered grade (3 points per day). If you have to miss class you may drop the report in my box or have another student bring your assignment to class. Your lowest laboratory report as well as your lowest quiz score will be dropped.

Your conclusion must be typed – handwritten conclusion will not be graded and result in a loss of at least 5 points. Detailed instructions on how to write a laboratory report will be on BeaconLearning.

**GRADE ASSESSMENT:**

Laboratory Reports ( 8 @ 15 pts each) 120 pts

Laboratory Quiz ( 8 @ 5 pts each ) 40 pts

A total of 100 points is required for a passing grade. Assignment of course grades will follow an approximate breakdown of A: 95% / B: 85% / C: 75% / D: 65% but is subject to the instructor’s discretion.

**HOMEWORK:**

Homework is due as indicated in the calendar. Homework is a VERY important part of this course. Its purpose is to help you get ready for exams and to keep you up to speed in class. You NEED to take homework assignments very seriously – they are worth a lot of points. You can get help if you need, BUT you need to do it BEFORE THE ASSIGNMENT IS DUE. Late homework will **not** be accepted. Period. No exceptions. Homework assignments are worth 10 points each, 10 of the 11 assignments will count towards your grade.

You are encouraged to work together, discuss problems, ask questions of the instructor, etc., but what you finally write down on the paper must be your own solution of the problem. Do not forget that you must take the exams as an individual, not a group – do not allow yourself to be carried by the group.

**QUIZZES & EXAMS:**

The schedule of exams is shown in the calendar. You will have sixty minutes to complete each exam, 15 minutes to complete a quiz. Make-up exams will be allowed very rarely and only at the discretion of the instructor. During the exams cell phones will not be allowed. It is preferred that you leave your phone at home on exam day. You are NOT allowed to use your phone as a calculator. TOUCHING your phone during the exam will result in an automatic F on the test.

**HINTS FOR SUCCESS:**

*Believe you CAN succeed* and be willing to work hard! Stay up to date! This class moves at a quick pace. Catching up is tough to do - work on your time management skills so there will be enough time in your life for school, work, play and last, but not least, SLEEP! Really, Chemistry is not that hard – IF you study!

*Consult your calendar.* I will not remind you every time an assignment is due. This is YOUR responsibility. Attendance AND participation is essential in this class. Show up for class ON TIME - **YOU** are responsible for any class material that you miss, and for getting assignments in to me on time (you can drop them in my box or have another student bring them to class). Attendance WILL make the difference if your grade is borderline. If you miss class, you need to ask another student for their notes and copy them. If you miss class, YOU are responsible for getting notes and reading the assigned material. PLEASE DO come to my office for help BUT DO NOT ASK ME FOR HELP IF YOU HAVE NOT READ THE MATERIAL !!!!!

*Read the assigned text ahead of time* and do the assigned homework. This way you can come to class and be prepared to ask questions. Attend office hours or come by to see me even if it is just to introduce yourself or to get a few clarifications. Please do get help when you need it. And don’t wait until you’re REALLY lost!

OH - and one more thing: **Please do not ask me about extra credit**. There is NO EXTRA CREDIT. But… NO, NO, NO. This class contains material that is crucial to your success in other science classes and most likely to your professional career. Nothing can be substituted for learning and understanding the material!

**Academic Policies:**

General undergraduate academic policies are found in the *NCU Catalog 2012-2013,* available online at <https://www.nwcu.edu/academics/registrar/catalog>.

**Academic Honesty:** Our University’s mission assumes the highest principles of virtue and ethics in the intellectual life. Plagiarism, cheating, and any other form of academic dishonesty are not acceptable and will not be tolerated. If a student cheats on a test or assignment, he/she will receive a zero for that work and, depending on the severity of the offense, possibly a grade of “F” in the course. All incidents will be reported in writing to the Vice-President for Academic Affairs and to the Vice President for Student Development, who may consider additional actions, including dismissal from the University and/or denial of application for readmission.

**Disability Services:** If you need special accommodations because of a documented disability whether it is psychiatric, learning, physical or sensory, you must process your request with Ms. Bethany Dilla, the designated Disability Officer. Contact Ms. Dilla in the Pomajevich Faculty Building, by phone at 684-7282, by e-mail at: bdilla@nwcu.edu, and/or refer to the *Disability Services Handbook* (available online) for the policy and detailed procedures regarding academic accommodations. **Contact should be made prior to the beginning of each semester so that the Disability Officer can make reasonable accommodation for each eligible student.**

**Calendar**

August

Wednesday, August 30th Matter, Energy & Measurement (Chapter 1)

September

Friday, September 1st **Chapter 1 (Significant Digits); *Laboratory Safety Instruction***

Monday, September 4th ***Labor Day Holiday***

Wednesday, September 6th Atoms, Electron Configuration (Chapter 2)

Friday, September 8th *LAB 1**Density Determination (#2) Section 1*

Monday, September 11th *LAB 1**Density Determination (#2) Section 2*

Monday, September 11th Atomic Theory (Chapter 2) **Homework 1 due**

Wednesday, September 13th Periodic Table, Periodic Properties

Friday, September 15th *LAB 2**Separation of a mixture (#3)* ***LAB 1 due***

Monday, September 18th *LAB 2**Separation of a mixture (#3)* ***LAB 1 due***

Monday, September 18th **Quiz 1**, Octet Rule, Bonds (Chapter 3) **Homework 2 due**

Wednesday, September 20th Bonding, Naming Compounds

Friday, September 22nd NO LAB

Monday, September 25th Naming Compounds, Polar Molecules***LAB 2 due (in class)***

Wednesday, September 27th Chapter 3 finish, Moles (Chapter 4)

Friday, September 29th *LAB 3 Empirical Formula (#5)*

October

Monday, October 2nd *LAB 3 Empirical Formula (#5)*

Monday, October 2nd Balancing Equations (Chapter 4) **Homework 3 due**

Wednesday, October 4th REVIEW

Friday, October 6th **EXAM I (Chapters 1,2,3, part of 4)**

Monday, October 9th  Molecular Stoichiometry (Chapter 4)

Wednesday, October 11th Gases, Solids and Liquids (Chapter 5) **Homework 4 due**

Friday, October 13th *LAB* ***4***  *Charles’ Law (#11)*  ***LAB 3 due***

Monday, October 16th *LAB* ***4***  *Charles’ Law (#11)*  ***LAB 3 due***

Monday, October 16th Phase Diagrams, Gas Laws (Chapter 5)

Wednesday, October 18th Solutions, Solubility (Chapter 6) **Homework 5 due**

Friday, October 20th HELP SESSION / Calculations ***LAB 4 due (in class)***

Monday, October 23rd Concentrations (Chapter 6)

Wednesday, October 25th **QUIZ 2**, Reaction Rates (Chapter 7) **Homework 6 due**

Friday, October 27th *LAB 5**Solubility and Solutions (#14)*

Monday, October 30th *LAB 5**Solubility and Solutions (#14)*

Monday, October 30thEquilibrium, Le Chatelier (Chapter 7)

November

Wednesday, November 1st Calculations (Chapter 7) / REVIEW **Homework 7 due**

Friday, November 3rd **EXAM II (Chapters 4\*, 5, 6, 7)**

Monday, November 6th Acids and Bases (Chapter 8)

Wednesday, November 8th Titration, Buffers ( Chapter 8)

Friday, November 10th *LAB 6**Chemical Equilibrium (#17)* ***LAB 5 due***

Monday, November 13th *LAB 6**Chemical Equilibrium (#17)* ***LAB 5 due***

Monday, November 13th Titration, Buffers, Chapter 8 Calculations

Wednesday, November 15th Nuclear Chemistry (Chapter 9) **Homework 8 due**

Friday, November 17th *LAB 7 Vinegar Titration (#19)* ***LAB 6 due***

Monday, November 20th *LAB 7 Vinegar Titration (#19)* ***LAB 6 due***

Monday, November 20th Half Life, Fission & Fusion (Chapter 9)

Wednesday, November 22nd Organic Chemistry (Chapter 10) **Homework 9 due**

Friday, November 24th **Thanksgiving**

Monday, November 27th Functional Groups, Alkanes (Chapter 10 & 11) ***LAB 7due (in class)***

Wednesday, November 29th Chapter 11; Alkanes / Building models **Homework 10 due**

Homework 11 due

December

Friday, December 1st *LAB 8 pH and Buffer Solutions (#18)*

Monday, December 4th *LAB 8 pH and Buffer Solutions (#18)*

Monday, December 4th Building Organic Models / REVIEW **Homework 11 due**

Wednesday, December 6th **ACE DAY**

Friday, December 8th **EXAM II (Chapters 8, 9, 10, 11)**

***LAB 8 due*** by Monday, December 11th 5:00 pm

**COMPREHENSIVE FINAL EXAM: TUESDAY, December 12th, 2017 3:15pm**