



Arizona Christian University

2625 E. Cactus Road, Phoenix, AZ 85032

Phone: 602-489-5300

General Chemistry II

Course Information:

Course Name – General Chemistry II

Course Number – CHM 152

Semester Offered - Spring 2012

Instructor Information:

Name - Dr. Warren Pettitt

Office location – Science Wing

Office phone – 602 489 5300 ext 119

email address – warren.pettitt@arizonachristian.edu

Office hours – T and Th from 8:30-11:30

Course meeting Days – Jan. 17th to May 12th

Course meeting Time – 9:30 – 10:20

Course meeting Place – SCI107

Course Description: Introduction to the general principles of chemistry for students planning a professional career in chemistry, a related science, the health professions, or engineering. Topics include solutions, kinetics, equilibrium, acids and bases, buffers, entropy and free energy, and electrochemistry. Weekly laboratory exercises emphasize quantitative techniques and complement the lecture material.

Prerequisites: *CHM151*

Course Student Learning Outcomes:

Intermolecular Forces

-Dipole-Dipole Forces

-London Dispersion Forces

The Liquid State

-Structural Model for Liquids

An Introduction to Structures and Types of Solids

-Types of Crystalline Solids

Structure and Bonding in Metals

-Bonding Models For Metals

-Metal Alloys

Molecular Solids
Ionic Solids
Vapor Pressure and Changes of State
-Vapor Pressure
-Changes of State
Phase Diagrams
-Applications of the Phase Diagram for Water
-The Phase Diagram for Carbon Dioxide
Solution Composition
The Energies of Solution Formation
Factors Affecting Solubility
-Structure Effects
-Pressure effects
-Temperature Effects (for Aqueous Solutions)
The Vapor Pressures of Solutions
-Nonideal Solutions
Boiling-Point Elevation and Freezing-Point Depression
-Boiling-Point Elevation
-Freezing-Point Depression
Osmotic Pressure
Reverse Osmosis
Colligative Properties of Electrolyte Solutions
Colloids
Reaction Rates
Types of Rate Laws
Determining the Form of the Rate Law
-Method of Initial Rates
The Integrated Rate Law
First-Order Rate Laws
Half-Life of a First-Order Reaction
Second-Order Rate Laws
Integrated Rate Laws for Reactions with More Than One Reactant
Reaction Mechanisms
A Model for Chemical Kinetics
Catalysis
-Heterogeneous Catalysis
-Homogeneous Catalysis
The Equilibrium Condition
-The Characteristics of Chemical Equilibrium
The Equilibrium Constant
Equilibrium Expressions Involving Pressures
Heterogeneous Equilibria
Applications of the Equilibrium Constant
The Extent of a Reaction
Reaction Quotient
Calculating Equilibrium Pressures and Concentrations
Solving Equilibrium Problems
Treating Systems That Have Small Equilibrium Constants
Le Châtelier's Principle
-The Effect of a Change in Concentration
-The Effect of a Change in Pressure
-The Effect of a Change in Temperature
The Nature of Acids and Bases
Acid Strength
-Water as an Acid and a Base
The pH Scale

Calculating the pH of Strong Acid Solutions
Calculating the pH of Weak Acid Solutions
-The pH of a Mixture of Weak Acids
-Percent Dissociation

Bases

Polyprotic Acids
-Phosphoric Acid
-Sulfuric Acid

Acid-Base Properties of Salts
-Salts That Produce Neutral Solutions
-Salts That Produce Basic Solutions
-Base Strength in Aqueous Solutions
-Salts That Produce Acidic Solutions

The Effect of Structure on Acid-Base Properties

Acid-Base Properties of Oxides

The Lewis Acid-Base Model

Acid-Base Equilibria

Solutions of Acids or Bases Containing a Common Ion
-Equilibrium Calculations

Buffered Solutions
-Buffering: How Does It Work

Buffering Capacity

Titrations and pH Curves
-Strong Acid-Strong Base Titrations
-Titrations of Weak Acids with Strong Bases
-Calculation of K_a
-Titrations of Weak Bases with Strong Acids

Acid-Base Indicators

Solubility Equilibria

Solubility Equilibria and the Solubility Product
-Relative Solubilities
-Common Ion Effect
-pH and Solubility

Precipitation and Qualitative Analysis
-Selective Precipitation
-Qualitative Analysis

Spontaneous Processes and Entropy

Entropy and the Second Law of Thermodynamics

The Effect of Temperature on Spontaneity

Free Energy

Entropy Changes in Chemical Reactions

Free Energy and Chemical Reactions

The Dependence of Free Energy on Pressure
-The Meaning of ΔG for a Chemical Reaction

Free Energy and Equilibrium

The Temperature Dependence of K

Free Energy and Work

Galvanic Cells
-Cell Potential

Standard Reduction Potentials
-Line Notation
-Complete Description of a Galvanic Cell

Cell Potential, Electrical Work, and Free Energy

Dependence of Cell Potential on Concentration
-Concentration Cells
-The Nernst Equation

- Ion-Selective Electrodes
- Calculation of Equilibrium Constants for Redox Reactions
- Batteries
 - Lead Storage Battery
 - Other Batteries
 - Fuel Cells
- Corrosion
 - Corrosion of Iron
 - Prevention of Corrosion
- Electrolysis
 - Electrolysis of Water
 - Electrolysis of Mixtures of Ions
- Commercial Electrolytic Processes
 - Production of Aluminum
 - Electrorefining of Metals
 - Metal Plating
 - Electrolysis of Sodium Chloride

Texts and Resources:

The book is General Chemistry by Chang and Overby, 6th edition.

Web site www.swcit.org/warren

Course Schedule:

<u>Scheduled Class lecture/ (M,W,F)</u>		<u>Reading</u>
1/18-1/20	Intermolecular forces	chapter 12
1/23-1/27	Intermolecular forces Quiz 1/25	
1/30-2/3	Types of solutions	chapter 13
2/6-2/10	Kinetics	chapter 14
2/13-2/17	Kinetics Exam 2/17	
2/20-2/24	Equilibrium	chapter 15
2/27-3/2	Equilibrium Quiz 2/29	
3/5-3/9	Acid and Base	chapter 16
3/12-3/16	Spring Break	
3/19-3/23	Acid and Base	

Exam 3/23

3/26-3/28 3/30	Acid-Base Equilibria and K_{sp} Day of Outreach	chapter 17
4/2-4/4 4/6	Acid-Base Equilibria and K_{sp} Quiz 4/4 Good Friday	
4/9-4/13	Thermodynamics	chapter 18
4/16-4/20	Thermodynamics Quiz 4/18	
4/23-4/27	Electrochemistry	chapter 19
4/30-5/7	Electrochemistry	
5/8-11	Finals	

Scheduled lab/ (Th)

- 1/19 Evaporation and Intermolecular attraction
- 1/26 Vapor Pressure of a liquid
- 2/2 Freezing point depression*
- 2/9 Rate law – crystal violet
Virtual Chem lab – Sucrose Problem
- 2/16 Rate law and order of reaction
- 2/23 Chemical equilibrium
Virtual Chem lab – Jello Problem
- 3/1 Break
- 3/8 Acid/Base titration*
- 3/15 Spring Break
- 3/22 Diprotic titration
Virtual Chem lab – Unknown acid and base problem
- 3/29 K_a of acetic acid*
- 4/5 K_{sp} of calcium hydroxide
Virtual Chem lab – Determining the solubility product
- 4/12 Evaluation of phosphoric acid in soft drinks
- 4/19 Electrochemistry*
- 4/26 Electroplating
- 5/3 Lead Storage Batteries

***Lab reports are required for the four labs indicated. These lab reports are due the following Thursday after the experiment is completed, unless otherwise stated.**

Course Evaluation:

Exams – There will be 2 exams and 1 comprehensive final.

Quizzes – 4 quizzes each worth 25 points

Homework questions:

Chapter 12 – 16,20,48,72,80,86

Chapter 13 – 8,16,22,32,48,54,56,62,70,76
Chapter 14 – 14,18,22,27,34,38,48,56, 64
Chapter 15 – 8,12,16,20,24,32,38,46,52,62
Chapter 16 – 4,16,20,32,42,48,52,56,74
Chapter 17 – 8,10,16,22,38,44,50,52,58
Chapter 18 – 10,18,24,26,28,30,44,56
Chapter 19 – 2,12,16,22,26,32,38,46,56

Virtual Chemistry Labs

4 worth 20 points each

To get ready to use the virtual lab I suggest you do 2 things before the 1st virtual lab is due:

- a. Go to <http://chemcollective.org/doc.php> and watch the “virtual lab video tutorial”.
- b. Then go to <http://chemcollective.org/doc.php> and practice using the “virtual lab step by step walkthrough”.

Study Time: Most University courses require that students spend a significant amount of time outside of class in individual study time. A guideline is to spend 2 – 3 hours per week for every credit hour. This means that in a 3 credit course 6 – 9 hours of outside study per week would be expected at a minimum. The actual in-class meeting time is short in University courses because it is expected that students work independently outside of class in order to meet the course requirements.

LABORATORY SAFETY:

Each person is individually responsible for safety with all laboratory materials and procedures. You are required to wear a fresh, clean, knee length laboratory coat and safety glasses for participation in laboratory exercises. Safety glasses are to be worn whenever relevant hazards exist (any time hazardous chemicals are poured, etc.). Failure to abide by common sense, the lab rules printed in this syllabus, and those announced by your instructor can result in dismissal from the lab. If you are unsure about the correct procedure, double check the written directions or ask your instructor.

GENERAL LABORATORY GUIDELINES

1. Do not perform unauthorized experiments. Do not use equipment without instruction. Do not touch any living specimens without directions from your instructor.
2. When working with living organisms treat them with respect and kindness.
3. Report all spills and accidents, no matter how small, to your instructor immediately.
4. Lab coats or safety glasses may be required whenever relevant hazards exist (e.g. safety glasses should be used any time hazardous chemicals are poured).
5. Cover any cuts or scrapes with a sterile waterproof bandage before attending lab.
6. Wash skin immediately and thoroughly if contaminated by chemicals or cultures.

7. Never pipette by mouth. Use mechanical pipetting devices.
8. Use an appropriate apparatus when handling any hot glassware.
9. Never leave heat sources unattended. When using hot plates, note that there is no visible sign that they are hot (i.e. they do not glow red when hot). Always assume that they are hot.
10. Keep chemicals away from direct heat or sunlight. Keep containers of alcohol, acetone, and other flammable liquids away from flames.
11. Do not allow any liquids to come into contact with electrical cords. Handle electrical connectors with dry hands. Do not attempt to disconnect electrical equipment that crackles, snaps, or smokes.
12. Do not pick up broken glassware with your hands. Use a broom and dustpan and discard the glass in designated glass waste containers; never discard in the waste paper basket with paper waste.
13. All materials, cultures, and organisms must remain in the laboratory.
14. Upon completion of laboratory exercises, place all materials in the disposal areas designated by your instructor. Leave the laboratory clean and organized for the next student.
15. Wash your hands with soap prior to leaving the laboratory.

Chemistry Lab Notebook -

One of the major goals of science is to be able to clearly and accurately describe results of experimentation and research. In order to achieve this goal, you will keep an accurate, chronological notebook of all lab work, using a scientific format. This is not meant to be a formal lab report, but a concise summary of experimentation performed. For *this* course, please follow these guidelines.

General Notebook Setup:

- Use a bound notebook (so pages cannot be torn out).
- Number all pages on the upper right hand corner in ink. The organized and neatly written lab goes on the right-hand side of each page. The left-hand side is for scrap and preliminary calculations.
- Leave two pages (pg 1 and 2) for your Table of Contents, which should include experiment titles and corresponding page numbers as they are performed. Leave one page (pg 3) for your "Contact List"; names, emails, phone numbers of lab partners go here.

Pages Numbered and Dated: When you begin writing on a new page, record the date in the upper right corner below the page number.

Ink Only, No WhiteOut: Use permanent blue or black ink for all entries. Think about a reasonable layout for your data (a table perhaps) before putting pen to paper. Get in the habit of writing everything in your lab notebook (no scraps of paper to lose). Do not erase, scribble-over, or whiteout anything; simply cross out errors with one line so they are still legible (e.g. *0.503 g* ~~*0.530 g*~~). You WILL get better at this.

Notebook Format (* to be completed before lab is performed) Prelab questions do not need to be copied into your notebook.

- **Title/Partner Name*:** The title should be descriptive; the title on your lab handout may not suffice.
- **Introduction*:** In a sentence or two, describe the reasons or objectives for completing the lab. Use your own words; do not paraphrase the lab manual writeup. Why are you doing this lab? What are you trying

to find out? In another sentence or two, explain how you will accomplish your task. Details such as “I will add 3 mL of HCl to 2.0 g zinc” are inappropriate. A statement such as “I will dissolve the metal sample in concentrated HCl” . . . , followed by a balanced equation, is appropriate.

- **Procedure:** Briefly summarize the procedure to be followed; use a flow chart, or outline, and/or drawings. If you number the steps, you will be able to refer to them later in the Observations section. You do NOT need to write out the procedure in complete sentences and do NOT copy directly from the lab manual. The first time you do an unfamiliar technique, include a description of how to assemble or any apparatus. Write the procedure with enough detail that a trained chemist could reproduce your results from what you wrote (for example, be sure to include elapsed times, instrument name, solution concentration, colorimeter wavelength, voltage, etc.).

Some instructors will insist on active tense (We added 30 mL . . .) while others will insist on passive tense (Zinc, 5.0 g, was allowed to react with . . .). I do not care which you use, and you may use an outline or bullet points.

- **Data:** Record the data during the experiment; do not record on scraps of paper for later transferal into your notebook. Be sure to use the correct number of significant digits; this will eliminate the need to specify exactly what dispensing device (eg. graduated cylinder vs. volumetric pipette) you used. Be sure to record actual measurements—for example, initial and final burette readings, starting and ending time, not the difference done in your head. Use data tables when appropriate; simple calculations may be included in the data table. Be sure to label all tables with a title; “Data Table” is fine, or “Data Table II” if there is more than one.

Observations: Report any observable occurrences (color change, precipitate, gas evolution, heat generation, etc.).

- **Calculations:** Include all pertinent calculations. For all calculations, express the equations in words first before showing the numbers used in the equation, or label each line. For example: concentration of substance = mass of (substance + beaker) – mass of beaker/molar mass/volume of solution, = x.x M. Do not show calculations of molar mass (e.g. $\text{H}_2\text{O} = 2 \times 1.01 + 16.00$) unless it is an intrinsic part of the experiment. Show work for calculations and express all answers to the correct number of sig figs and include units. For repetitive problems, provide one sample calculation. Summarize calculations in a table when appropriate. Be sure to label all tables.

- **Graphs:** Make graphs an appropriate size so they are clearly legible; all graphs must have a descriptive title. Typically you will show a best fit line or curve; often you will need to calculate the equation of the best fit line. You may draw graphs by hand or paste in a computer-generated graph.

- **Conclusions:** This is where you interpret the data you obtained. What do the calculations/ observations/graphs reveal? What theory was demonstrated? Compare your results with accepted values, or with the class values, and list percent error when applicable. State whether your results were too high or too low. Suggest sources of error that would have caused these experimental results. Hypothesize why the errors occurred and what might be changed to avoid these errors. Random error exists in all measurements and should NOT be mentioned. Human error (e.g. spills) and mistakes in recording data are NOT the same as experimental error; usually they are addressed by repeating the experiment.

- **Answers to Questions:** Rewrite the analysis/conclusion questions from the lab sheet and answer each question.

Lab Notebook Rubric. Chemistry labs are chosen to aid your understanding of chemical principles, practice manipulation of some typical lab apparatus, and teach you about scientific problem solving. Getting the “right answer” is much less important than understanding why an experimental result is questionable. Discussion with your lab partner is expected. However, **your notebook** should be in your own words, especially the Introduction and Conclusions.

I will not grade every section of every lab. Lab notebook pages will be collected approximately every third or fourth lab. I will likely grade different sections from each lab. Points may be deducted for wrong answers resulting from lack of preparedness, inattention, or gross sloppiness. The approximate point distributions are:

Introduction	3 pts
Procedure	5
Data/observations/calculations	15
Conclusions	10
Total	33 pts

I have LoggerPro software that you can download for free (it retails for \$189.00) from Vernier Scientific. This is the company that makes all the equipment we are using in the lab. Go to <http://www.youtube.com/watch?v=9UPPvB3ebUY&feature=related> for a short video about using LabQuest equipment and <http://www.youtube.com/watch?v=3nFPDNa2RCs&feature=related> for a short video on how the loggerpro software can be used.

Format for Lab Reports:

The reports are to be written INDEPENDENTLY by each student.

- Title of Experiment
- Name/Date of experiment / Name of lab partner
- Objective - 2 or 3 sentences describing the purpose of the experiment.
- References – List all references used including your lab manual. For each reference, include the title, author, and pages used
- Pre-Lab Questions – only if assigned. These should be done independently (not with other students). You can get help from the instructor
- Background – Discuss the theory behind the experiment and list any **equations** that are used in the experiment. Be sure to define each variable. Use MS Word equation editor for the equations. Also include pertinent safety hazards for the experiment.
- Procedure – Refer to the lab manual or other handouts. Document any changes to the procedure provided as you go along in the lab.
- Data and Results – attach copies of data sheets filled out during lab. If any printouts from an instrument or computer were obtained, they will also be attached in this section.
- Conclusions – This section should be written in complete sentences and should include the following:
 - First you should **summarize and interpret your results**.
 - Then **discuss the accuracy of your results**, and any **possible errors** in your experiment. Describe **how each of those errors affected your results** (made them erroneously high or low).
 - Talk about any **future experiments** you might conduct based on the outcome of this experiment. Propose alternate methods or **modifications** to the procedure that was performed.

- Post-Lab Questions – only if assigned. These should be done independently (not with other students). You can get help from the instructor.

Sample Lab Report **Synthesis of Acetaminophen**

By James Smith

Date Performed: January 25, 2009

Partner: Jane Do

Objective:

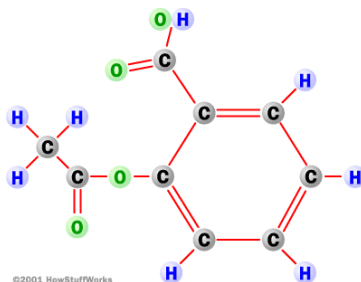
The objective of this experiment is to synthesize acetaminophen from p-aminophenol and acetic anhydride. The crude product will then be purified by recrystallization, and its purity determined by melting point and infrared spectroscopy.

References:

1. Pavia, D. L., Lampman, G. M., Kriz, G. S., Engel, R. G., *Introduction to Organic Laboratory Techniques, A small Scale Approach*, 2nd edition; Brooks/Cole: New York, 2005; pp. 68 – 71.
2. Coleman, W.F., Wildman, R. J., Featured Molecules: Acetaminophen, Aspirin, and Caffeine. *J. Chem. Ed.* [Online] **2003**, *80*, p. 176.
3. Fisher Scientific MSDS for p-aminophenol and acetic anhydride, www.fishersci.com.

Background:

Acetaminophen is commonly used as an analgesic to reduce pain and fever. It is prepared by the reaction of an amine (p-aminophenol) with an acid anhydride (acetic anhydride) to form an amide, as illustrated below.



The crude product is isolated by crystallization and filtration and purified by recrystallization. The expected melting point of pure acetaminophen is 169.5 – 171.0 °C. The infrared spectrum should contain the characteristic C=O stretch at 1700 cm⁻¹ and a weak secondary amine stretch around 3400 cm⁻¹.

Normal laboratory safety precautions were used with this experiment (safety goggles, lab apron, gloves). The acetic anhydride is a strong lachrymator (causes eyes to water) and is flammable. Care was taken to avoid contact, inhalation, and ignition sources around this chemical.

Pre-Lab Questions:

1. Acetaminophen has phenol and amide functional groups in its structure.
2. In the reduction of 4-nitrophenol to 4-aminophenol, the reducing agent is sodium borohydride.

Procedure:

The procedure was carried out according to the laboratory manual with the following deviations:

- A 5 mL pipet was used instead of a graduated cylinder to measure the water and acetic anhydride into the reaction mixture.
- The stir bar was removed from the reaction mixture prior to cooling it to room temperature.
- The product was transferred to an aluminum weighing dish instead of a watch glass.
- In addition to the melting point, an FTIR spectrum was taken of the product.

Data / Results / Calculations:

*Data, Results, and Calculations are contained in the attached sheets.

Conclusions:

Acetaminophen (1.579 grams) was successfully prepared in this experiment with a purified product yield of 56.9%. Analysis of the product by melting point determination and FTIR indicated the product to be of relatively high purity. The determined melting point was 168 – 169 °C, compared to a literature value of 169 – 171 °C. The FTIR spectrum included all the major peaks expected for this compound, a C=O stretch at 1722 cm⁻¹ and a secondary amine stretch at 3358 cm⁻¹.

There were some experimental errors which may have contributed to the loss in yield. The starting material, p-aminophenol, should have been colorless in appearance but was actually brown. The MSDS for this compound stated that it was sensitive to air and light, so it may have undergone degradation giving it a lower purity than expected. This would lead to a lower yield of product and lower product purity. Some of the crude product was also lost in transferring from the Buchner funnel to the weighing pan, causing a reduction in the product yield.

To improve the yield in this experiment, the starting material, p-aminophenol, should have been purified prior to use. The product solution should have been stored in a dark environment (i.e. in a drawer or with foil wrapped around the flask) to minimize photo-degradation. A second recrystallization of the filtrate from the Buchner filtration could have increased the product recovery. Overall, the synthesis was successful and with fine-tuning, could have produced a higher yield of product.

Post-Lab Questions:

1. Acetylation is used to protect primary amines from undergoing further reaction. Once acetylated, the amine is less susceptible to oxidation and less reactive to aromatic substitution. The amino group can be regenerated by hydrolysis in acid.

2. Aniline is basic because it has an "amino" group which can act as an acceptor of protons. Acetanilide has an "amide" group which is not basic because the lone electron pair is delocalized due to resonance with the adjacent carbonyl group.

Sites with Practice Quizzes:

<http://lrc-srvr.chemistry.ohio-state.edu/under/chemed/qbank/quizmain.htm>

<http://www.sciencegeek.net/APchemistry/APtaters/directory.shtml>

Assessment and Grading:

Assignments and their weight –

Tests – about 150 points each

Final – 250 points

Reports – 50 points each.

Quizzes – 25 points each

Lab Notebook – 100 pts.

Absence – Work will be allowed to be made up for excused absences (absences such as emergencies or sickness) but the reason for the absence must be communicated to me for a decision to be made. Work cannot be made up for unexcused absence.

Late Work – Work will not be accepted after the due date. Please communicate with me as soon as possible if circumstances arise that necessitate extensions be granted.

Letter Grades:

A – 90% to 100%

B – 80% to 89.5%

C – 70% to 79.5%

D – 60% to 69.5%

F - < 60%

Expectations for Students:

A. Attendance

1. Students are responsible to arrive for lectures and laboratory classes at the scheduled time. Tardiness is an interruption to instruction.
2. It is the student's responsibility to obtain pertinent information from other students or the instructor in the event of tardiness or absence.
3. In anticipation of absence from a scheduled quiz, test, or lab it is the students

responsibility to make arrangements in advance to take a quiz, test or perform a lab exercise at an alternate time that is mutually convenient and agreeable. Missed assignments will be averaged in as a zero on the course grade unless prior arrangements have been made. Missed tests that are excused may be made up within 1 week of the scheduled time they were taken. Arrangements to make up the test must be made as soon as the student returns to class.

4. Absence from 5 or more lectures is sufficient reason for the instructor to drop the student from the course with a failing grade.
5. There is no late work, if you have an emergency concerning any assignment please contact me as soon as possible.
6. Do not schedule any plane flights before all scheduled finals are over.

B. Reading

1. Most benefit will be derived from the course if the assigned reading is done prior to arrival at the lectures. You will find scanning the text to be insufficient in your preparation.
2. The instructor may assign additional reading.

C. Cell Phones and other electronic devices should not be on during class.

Accommodation and Special Needs - Your instructor is willing to make any reasonable adaptations for limitations due to any disability, including learning disability, in keeping with ACU policies and the Student Handbook. Any student with documented certifiable special needs should contact the office of the Academic Advisor on campus and they will inform me of the proper accommodations you require. If you have a special need, even on a temporary basis, it is your responsibility to contact this office as soon as possible to disclose your disability information and discuss your accommodation needs. Students are required to make their requests in writing using the *Accommodation Request and Documentation Form* and document their disability in accordance with ACU policies and procedures. Documentation of the disability must be current (not older than 1 year) and provided by a qualified health care professional such as a diagnosing or current physician, psychiatrist or psychologist. It must comply with the requirements for documentation outlined on the *Accommodation Request and Documentation Form*. Accommodations are not retroactive. ACU reserves the right to verify all professional documentation and determine reasonable accommodation for any disability, including learning disability. Please see the Student Handbook for current detailed information regarding accommodation and special needs.

Retention of Examinations and Assignments: Instructors will retain copies of student examinations and assignments not returned to students for one semester in case of dispute between a faculty member and a student in assigning or recording a grade. After that time, instructors may discard course materials in a manner that preserves student confidentiality.

E-mail Policy – Students are issued an official Arizona Christian University student email address when they are admitted to the University. These addresses all have the same form: firstname.lastname@arizonachristian.edu. This is the only electronic mailing address recognized by the University. Students are responsible for all official University communications, including attachments, transmitted to this address. ACU faculty and staff

are not responsible for forwarding email to personal email accounts that are not assigned by the University. Students are required to check their ACU email on a daily basis.

Withdrawal:

Last day for withdrawal without instructor signature – February 3rd, 2012

Last day for withdrawal with instructor signature – March 23rd, 2012

Disclaimer note - Include: *This syllabus is subject to modification. The instructor will communicate with students any changes.*