

# General Chemistry, Chm 205 & 206 Sections C and E with Dr. Bruce Mattson – Spring Semester, 2017 Syllabus & Course Information

**Chm 205 and 206** are paired lecture and laboratory courses in introductory chemistry. I am your instructor for both. These courses are the second half of a two-semester sequence. We will study Chapters 12 – 19, and parts of Chapters 11 and 23 from our textbook this semester.

**Fit to Mission.** By now you have encountered the Mission Statement of Creighton University (<http://www.creighton.edu/about/mission>). The fifth and sixth paragraphs are especially pertinent to freshmen continuing with the transition to the spiritual and academic life at Creighton:

*Creighton exists for students and learning. Members of the Creighton community are challenged to reflect on transcendent values, including their relationship with God, in an atmosphere of freedom of inquiry, belief and religious worship. Service to others, the importance of family life, the inalienable worth of each individual and appreciation of ethnic and cultural diversity are core values of Creighton.*

*Creighton faculty members conduct research to enhance teaching, to contribute to the betterment of society, and to discover new knowledge. Faculty and staff stimulate critical and creative thinking and provide ethical perspectives for dealing with an increasingly complex world.*

**Jesuit Charisms.** To learn more about how the Jesuits teach us to live the Mission, read the central Jesuit charisms (see <http://www.creighton.edu/cte/preparing-teach/mission-and-identity>): “A charism is a grace or talent granted by God... At a Jesuit university, these charisms help to define how we interact with... each other.” The most common charisms are:

<b><i>Cura personalis</i></b>	<i>Care for the whole person: body, mind and spirit Dedication to promoting human dignity Being open to and accepting a person's religious, spiritual and cultural development</i>
<b><i>Faith that Does Justice</i></b>	<i>Seeking justice for all God's creatures, especially the poor and marginalized Working actively for and with the poor, and to be just as active in reflecting on God's presence in their work and their relationships</i>
<b><i>Finding God in All Things</i></b>	<i>An invitation to spiritually encounter God's beauty in everything we come to know in our lives Accomplished through an ongoing process of personal discernment</i>
<b><i>Women and Men for and with Others</i></b>	<i>More than just giving and providing service to those in need, but working with or alongside of those we serve to promote solidarity Recognizing that all humans have physical, emotional, and spiritual needs</i>

Think about how these charisms apply to chemistry, to our class, to your relationship with each other and with me, to the study of chemistry and learning together. Read these again from time to time and use them to interpret your experience in our class together. May they guide and inspire you to be your very best. The Chemistry Department has a Mission Statement that closely reflects these charisms:

## Chemistry Department Mission Statement

The Department of Chemistry is committed to excellence in its programs. It works to help both its students and faculty discover their talents and abilities to the fullest, instilling critical and creative thinking. The Department specifically is committed to challenging its students to think and act as scientists and responsible citizens, by offering a diverse set of lecture courses and teaching approaches, as well as a significant amount of experience in laboratory work. The Department is also committed to offering its faculty the opportunity to grow as scholars and teachers. By their example and by presenting opportunities for such activity, the faculty members of the Department encourage students to participate in scholarly endeavors, especially independent research. We emphasize the values of trust, respect for others, and personal and professional integrity by acting in this way and by expecting our students to do the same.

### **As a student, you can live the mission and model the charisms:**

- First and foremost: Believe in yourself and your ability.
- Help each other learn. Chm 205 and 206 are not graded on a curve, so we are not in a competition for good grades. We are all trying to be successful.
- Treat each other with respect and dignity.
- Attend class every time, be prepared, attentive and fully engaged.
- Reflect on the beauty, the simplicity as well as the complexity of the various chemical concepts, and especially how the concepts work together to help us understand how nature works from a chemistry point of view.
- Ask questions when something is unclear. Others are likely confused on the same point.
- Take thorough and complete notes – write down key discussion points – anticipate answers during discussions – and be ready to explain things to the person next to you.
- Study chemistry (do homework) daily. This is a great chance to form a study group.
- Behave in a professional manner, as expected of a Creighton student

### **Why should you do these things?**

- You will be fully engaged in classroom activities, maximizing learning.
- You may develop a love for chemistry.
- You will develop powerful skills that can be used to interpret the world around us, and to critique and analyze things you hear being promulgated by non-scientists.
- Conducting yourself professionally is a sign of maturity and personal integrity.
- You will have a better chance of earning a good grade in the course.
- You will have a better chance of making a positive impression on me. Over the next few semesters, you may think of me for a possible reference (for student leadership programs, scholarships, pharmacy school application, etc.). You have an opportunity this semester in lecture and lab to make a favorable impression.

### **Items I consider for Letters of Recommendation: Your Checklist**

- Intellectual aptitude
  - Did I earn a grade of B or better in lecture and a B+ or better in lab?
  - Did I perform at the 75<sup>th</sup> percentile or better on the national standardized final exam?
- Mature, reliable, dependable, professional
  - Were my exam scores consistent?
  - Did I show initiative? Did I finish assigned problems and seek help if needed?
  - Was I motivated and did I exhibit good classroom and laboratory work habits and work ethic (attentive, focused, actively engaged in learning, completed worksheets before leaving class)?
  - Did I turn in all work on time, such as lab reports, and on-line data?
  - Was I punctual to class and lab? Was I ready so class could start on time?
  - Was my behavior dignified and professional?
  - Did I show leadership qualities by setting a good example?
  - Was I consistently prepared for class and lab? Did I bring my calculator to lecture and lab? Did I bring my safety glasses to lab? Did I bring my computer when it was assigned?
- Integrity (moral principles and core values)
  - Was I honest (truthful, forthright, straightforward, candid, open)?
- Working with others, interpersonal relationships
  - Was I respectful of others (courteous, polite, considerate, kind, and civil)?

### **Avoid distracting behavior.** As a courtesy to your fellow students and to me...

- arrive on time and avoid coming and going during class.
- do not sleep, whisper, daydream, study other subjects, etc.
- put away your cell phone and your laptop and participate in learning wired-free during class time. If you have a smart watch, do not use that in web mode during class.

## Part 1 Chm 205

- 1. Chm 205.** This course is designed for students with a good background in chemistry and math, especially algebra, setting up and solving word problems, use of scientific notation, and logarithms. For most students, Chm 205 consists of topics that contain a significant amount of new material over the high school treatment of the topic. (The Chm 206 specific syllabus follows.)

This syllabus contains course information that will be of use throughout the semester. The syllabus is our agreement as we work our way through the course. All policy questions are answered herein. Deviating from the agreement will not occur in fairness to the class as a whole.

As your chemistry professor, I wish you success in the course. I am here to help you! My best advice is to stay on schedule! Catching up is difficult and never as effective as staying on top from the start. The "A" and "B" students do their homework every day, typically working on chemistry about two hours for every one hour lecture. By doing so, they learn and retain the concepts. Cramming simply does not work in a science skills application course and almost always leads to unfortunate results on the comprehensive final exam.

- 2. Textbook and Calculator.** Required for the course:

Text: **Chemistry**, by McMurry, Fay, and Robinson, 7th Edition.

Simple scientific calculator (non-programmable)

- 3. Course website.** This course is supported by a website. The site includes all of the course information, copies of handouts, previous years' exams, etc. Link to it from the website [mattson.creighton.edu](http://mattson.creighton.edu). Click on Chm 205 or Chm 206.
- 4. Office, Phone, e-Mail.** My office is Hixson 262; e-Mail: [brucemattson@creighton.edu](mailto:brucemattson@creighton.edu). Stopping by my office is always the best idea for getting help. Contacting me by e-mail also works well.
- 5. Office Hours.** Office hours are those hours during which I am in my office (HL-262) and available for answering questions and discussing and studying chemistry. On my office door, I post a weekly schedule. I have many office hours throughout the week. Check my door to see if I am available. When my door is open, you are welcome to come in! If you prefer an appointment, sign up on my door for a time.
- 6. Attendance Policy.** I require attendance. I feel that I have information that will be useful and interesting I know that attending my lectures will help you on the exams.
- 7. Learning Objectives and assigned homework problems.** Learning objectives and assigned problems are provided at the end of each chapter. For example, in Chapter 12, these are on pages 481 and 482. Working problems is the single most important way to prepare for tests. Use my office hours to ask questions about these problems. You should work problems on a daily basis. Perhaps form a Study Group! Assigned problems often appear on exams. Bring your homework to class.
- 8. Homework Quizzes (HWQ).** There is one 20-minute homework quiz associated with each unit and it is given approximately halfway through each unit. The homework quiz will generally cover the material presented starting on the day prior to the previous exam and the ensuing lectures, but will not include material from the lecture given two days earlier. You may use your homework and it will be handed in along with your quiz. Scores are in the range of 0 – 5 points and these serve as bonus points on the next exam. There are no make-up homework quizzes. Exam scores of over 100% will be recorded as 100%.
- 9. Course Content.** A day-by-day (calendar) list of activities is included with this information. Changes and adjustments to the content are possible.
- 10. In-class homework activities.** For a portion of most lectures, you will work in a small group on one or more chemistry problems. This will give you a chance to try the calculations and concepts that we just discussed. I will help you if you are stuck and could check your work when you are done.
- 11. Unit Exams.** The five unit exams cover 7 – 8 lectures each. The exams are based on the lecture material, assigned material from the text and the homework problems. You will be allowed to use a non-programmable calculator on the exams. Each of the exams is worth 100 points. Exams will be returned as soon as possible after the exam date, usually by the next class meeting. If you are not present when the exams are returned, you may pick your exam up during my office hours.

**Re-grading policy.** A grade appeal for an exam must be made to me within three school days of the date on which the exam is returned to the class. I make electronic scans of your exams and re-grading is done from the scans. After three school days the grade book is closed and re-grading for additional points will no longer be possible.

**12. Missed exams.** Taking the exam at the assigned time is expected. If you cannot take the exam at the assigned time, you should have a pre-approved excuse with appropriate paper documentation. Other excuses, regardless of how compelling, constitute being absent from exam. Avoid missing exams! There are two types of missed exams: **Excused** and **Absent from Exam**.

- **Excused exams** include documented reasons for being absent, such as being out of town for CU sports participation, attending an important family function such as a wedding or a funeral, a court appearance, a sanctioned campus function and the like. You must provide me with approved documentation (such as a copy of the wedding invitation) in order for it to be considered an excused absence. Being ill with an authenticated medical excuse that requires hospitalization or departure from campus for purposes of recovery is considered an excused absence – the easiest way to authenticate your medical excuse is to have your college dean's office send an e-mail to all of your professors stating that you have a medical excuse for not attending any classes or labs. (Notes from Student Health or a doctor's office for an illness contracted shortly before the test does not count as an excused absence.) I reserve the right to not accept a particular excuse. Missed exams with excused absences can be made-up as soon as possible after the actual exam, but not after the exams are returned in class – this means that the exam must be completed by 9:30 AM on the next day that the class meets. Excused absence exams that are not completed before the exams are returned in class are reclassified as **Absent from Exam**.
- **Absent from exam = Make-up Exam.** Failure to take the exam with your classmates, except for an excused absence, constitutes being Absent from Exam. This includes becoming sick the day or night before the exam, accidentally sleeping through the exam, feeling unprepared to take the exam, or failing to complete an excused absence exam on time. Students who are classified as Absent from Exam will be given a make-up exam. The format of the make-up exam may be different from the missed exam. Make-up exams must be completed within ten school days of the original exam (except for Exam 5, which must be completed before 4 pm Friday, April 28, 2017), after which the score will be entered as zero. Students with excuses from their dean's office for prolonged absences will have ten days starting with their first day back in classes. Students are allowed only one make-up exam per semester. Additional absences will receive a grade of zero. Make-up exams are not returned but may be reviewed in my office.

**13. Tutorial Help.** Chemistry majors have been hired to serve as tutors. The tutor schedule will be posted on the course website as soon as it is available. Tutors are available Sunday — Thursday evenings from 6 – 9 PM. I recommend that you use my office hours as your first choice, however. We will also have a dedicated personal course tutor who will attend lectures and conduct reviews. Details will be announced in class. Our dedicated classroom tutor is Monika Satkauskas.

**14. Final Exam.** The final exam is a comprehensive exam covering the entire semester and is worth 100 points. There are 70 questions on the final. Your score on the final will equal your national percentile or the percent right out of 70, whichever is greater.

**15. Course Grade.** You will receive periodic grade reports via e-mail. The course is worth 600 points in total. Please note that your grade in this course is wholly determined by your exam grades. There is no other way to earn points, so be prepared for each exam by attending class, doing your homework, and making sure you understand all concepts. Course points are distributed as follows:

Exams 1 – 5:	500 points
Final Exam	100 points
<b>Total</b>	<b>600 points</b>

The grade you will be assigned can be determined as follows. Note: These are absolute cut-offs.

<b>A</b>	<b>≥ 90.00%</b>
<b>B+</b>	<b>≥ 85.00%</b>
<b>B</b>	<b>≥ 80.00%</b>
<b>C+</b>	<b>≥ 75.00%</b>
<b>C</b>	<b>≥ 70.00%</b>
<b>D</b>	<b>≥ 60.00%</b>

**16. Cell phones, e-tablets and laptops.** Use of cell phones (calling, texting) during class is not allowed. Cell phones must be left in backpacks, purse, etc. Laptops and electronic tablets cannot be used in class.

**17. What if Creighton is closed?** If the University is closed for the day due to weather, we will not meet. Sometimes the University has a late start, which allows the grounds crew to clear the parking lots. If the University opens at 10 AM, Section C will start at 10 AM, rather than 9:30 AM. If the University opens at 10:30 or later, both lectures are cancelled. [Note: This item is different for Chm 206 – see below.](#)

**18. Dropping the course?** If you have a D or F grade at midterm, you may wonder about dropping the course. The last day to drop the course with a W is Monday, March 20<sup>th</sup>. The e-mail grade reports I send out will indicate what you need to achieve on all subsequent exams (including the final) in order to improve your grade. Note: Incomplete grades are not intended for students who need to make up a large portion of the course or retake the entire course. Conditions for an “I” are: A student may be given a grade of “I” if circumstances beyond his/her control prevent him/her from completing the required work during the normal term. It is assumed that the student is otherwise passing the course except for a few assignments that can reasonably be completed in a proscribed time.

**19. Academic Integrity.** The University has an established policy on academic dishonesty. The University defines the term to include “representing the work of others to be one’s own (cheating on an exam), tampering with the experiments of others, defacing or tampering with library or student materials or facilitating dishonesty on an exam.” The latter point is understood to include situations where you notice cheating occurring but do not report it immediately. In General Chemistry, the most blatant forms of academic dishonesty include: (a) copying the work of others on exams, (b) sharing information with others about exams (both during the exam or between class periods, (c) using notes when notes are not allowed (in calculator slip covers, palms of hands, baseball caps, slips of paper tucked away, and so on), (d) making changes on graded materials that have been returned to you, (e) working together on take-home exam problems when that is expressly forbidden, (f) cell phone photographing or texting exam information or answers, (g) sharing calculators during the exam (with someone who forgot theirs), and so on.

As a member of the Creighton community, promise yourself and Creighton to join others:

- ❖ committing ourselves to the pursuit of knowledge throughout our lives and to developing the skills that we have been given.
- ❖ acknowledging our obligation to respect all women and men and to use wisely the resources of the world around us.
- ❖ solemnly promising to uphold the highest moral and ethical standards and thus to bring credit to the College by our life and our work.

Any act of academic dishonesty tarnishes and diminishes the worth of each of these promises. Remember your promises. Keep your promises. Live up to your promises. Extend these promises into lifelong promises to yourself and others. You will not be disappointed.

In the event that you are accused of engaging in academic dishonesty, you will receive a “0” for the exam. The incident will be reported in writing in accordance with the protocol set forth by the College of Arts and Sciences. For details, see the website [www.creighton.edu/ccas/](http://www.creighton.edu/ccas/) then follow links: Current Students > Student Resources > Policies and Procedures > Code of Conduct. Students accused of academic dishonesty have the right to an appeal.

The following pledge appears on each exam, and I will remind you to read and sign it each time.

***Academic Integrity Pledge***

In keeping with Creighton University’s ideals and with the Academic Integrity Code adopted by the College of Arts and Sciences, I pledge that this work is my own and that I have neither given nor received inappropriate assistance in preparing it.

**20. Appealing the final grade.** After I have determined your final grade, I do consider cases that are within 0.7% of the next cut-off (3.5 points). IF you are that close to the next better grade AND your score on the final exam is at least as good as the grade you desire, you will get the better grade. NO other cases will be considered in fairness to the class as a whole.

## Part 2 Chm 206

### CHM 206 Course Syllabus (Dr. Mattson)

### General Chemistry Laboratory Spring Semester 2017

### Section CC Thursdays at 8:00 AM and EE Thursdays at 11:00 AM

**Instructor:** Dr. Bruce Mattson Office: HLS 262; email: [brucemattson@creighton.edu](mailto:brucemattson@creighton.edu)

**Teaching Assistants:**

**Section CC:**

Daniel Breiner

email: [DanielBreiner@creighton.edu](mailto:DanielBreiner@creighton.edu)

Ali Cunningham

email: [AlisonCunningham@creighton.edu](mailto:AlisonCunningham@creighton.edu)

Alex Lang

email: [AlexLang@creighton.edu](mailto:AlexLang@creighton.edu)

**Section EE:**

Samantha Jarman

email: [SamanthaJarman@creighton.edu](mailto:SamanthaJarman@creighton.edu)

Remmy Rocha

email: [remmyrocha@creighton.edu](mailto:remmyrocha@creighton.edu)

Noah Yoshida

email: [NoahYoshida@creighton.edu](mailto:NoahYoshida@creighton.edu)

**Website** for Chm 206 with Dr. Mattson (you can link to it from the Chm 205 website)

**Introduction:** The experiments in this course have been designed to complement the topics covered in CHM 205, General Chemistry II Lecture. This course consists of a laboratory period that will begin with a discussion of the experiment to be done. As a student in this course, you must come to lab sufficiently prepared. All experimental work will be done during the lab period.

**Lab specific Objectives: You will...**

- understand the chemical principles that pertain to each experiment.
- participate in laboratory experiences designed to cover concepts related to Chm 205.
- maintain responsible work habits in the laboratory.
- report your findings honestly and will not take credit for work done by others.
- know how to experimentally determine various quantities including mass, volume, concentration, density, quantity of heat, and molar mass.
- learn how to prepare inorganic substances from carefully conducted chemical reactions.
- properly use the following equipment and glassware: analytical balances, burettes, volumetric pipettes, Mohr pipettes, and graduated cylinders.
- be able to understand an experimental procedure, perform it, and obtain accurate results.
- handle chemicals in a safe manner.
- maintain a laboratory notebook, recording experimental procedures, data, and observations for each experiment in such detail that the experiment could be repeated by another individual using only your laboratory notebook. You should record all data and observations in a complete and organized manner.
- analyze experimental data and draw appropriate conclusions from the data.
- prepare graphs using Microsoft Excel and interpret the data from them.
- identify sources of error in an experiment and explain how they affect the results.

**Required Materials:** (Items 1 – 3 available from the Chemistry Stockroom)

- 1) General Chemistry II Laboratory Manual, Spring 2016
- 2) Laboratory Notebook (You can continue to use your notebook from fall semester.)
- 3) Safety goggles or approved safety glasses. I will provide a storage drawer if you wish to store them in lab.
- 4) Scientific calculator
- 5) A personal laptop computer is recommended, however, we will provide computers if you do not have one.

**Safety.** You must follow the safety regulations at all times in the laboratory. Safety regulations are in place to protect you and those around you. You must know and observe all of the safety rules listed in the laboratory manual. If you have safety glasses that were not purchased from the Chemistry Department Stockroom, you must check with me to ensure that they meet Creighton and OSHA safety standards.

**Chemical Waste Disposal.** All chemical wastes will be disposed of in the proper waste containers. Do NOT put any chemicals in the sinks or wastebaskets unless specifically instructed to do so.

**Breakage.** You are responsible for equipment broken or damaged. If you owe more than \$10, you must pay the Stockroom before receiving the replacement.

**Cleaning Up.** Before leaving the lab each day, you must make sure that the bench-top, balances, and the area around the balances are clean.

**Grading:** There are 600 points possible in Chm 206 – twelve experiments at 50 points each. Chm 206 grade cut-offs are the same as Chm 205 cut-offs.

**Missing partner?** Notify me (Dr. Mattson) if your partner is absent. I will pair you with another unpaired individual or make other arrangements. Do not join another group on your own.

**Can't attend lab?** Notify me (Dr. Mattson) ahead of time (not after the lab is over). With a valid excuse, you can attend the other section of lab. In cases where the lab cannot be made up, there will be a make-up lab on Tuesday, 26 April 2016. Only one lab can be made-up at the end of the semester; subsequent absences are graded as zero.

**TAs:** We will have three undergraduate TAs to aid with safety and to help answer questions and provide tips in the lab. Each TA will work closely with four of the stations in the lab.

**University Closure.** If the university is closed, the lab is cancelled and the course point total will be reduced by 50 pts for each closure. The first closure will reduce the point total for the course from 600 to 550 pts, and so on. If the University has a 10:00 AM late start, Section CC will not have lab, but Section DD will have lab.

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**Laboratory reports.** Each experiment is always worth 40 points and the weekly quiz is worth 10 points for a total of 50 pts. A template cover sheet for the experiment to be performed is given on the next page – these will be passed out at the start of lab each week. A few comments on each part:

**Part 1. General appearance, purpose, and quality of pre-lab notes.** This section is worth 5 points.

**Part 2. Experimental Details, Observations, Calculations and Results.** This section is worth 10 – 20 points. A number of experiment-specific items are called for here. Treat this section like a checklist for completion of the experimental requirements. Read carefully! Sometimes you are instructed to attach a graph, sometimes you submit data to your TA electronically, and sometimes nothing additional is called for. Watch your units and significant figures!

**Part 3. Conclusions** (3 pts)

**Part 4. Sources of error** (typically 3 pts). If you feel like something went wrong, especially if your results seem inaccurate, you should address that issue here. If everything went well, it is appropriate to state, "No errors noticed." Note: In many cases where an error is known to have occurred (e.g. you spilled a reagent), you can simply repeat part or all of the experiment if time allows.

**Part 5. On-line results.** (0 – 20 pts) Most experiments have a component in which you and your lab partner together submit one set of data for the pair of you. The results are analyzed carefully for proper use of units and significant figures, and your calculations are checked. The link to the on-line data form is given at the lab website (see above). The data are collected in a Google Form which is time-stamped. For best results, submit your data before you leave lab. Data submitted after the deadline may not be graded, but 40% credit will be awarded if the results are submitted by 11:59 PM on the day of the lab.

### Penalty points

1. Lack of participation in pre-lab: 5 – 50 pts  
Arrive on time! Late penalties of 1 point per minute (starting after the quiz period) apply. Sleeping or not participating (not paying attention) is the same as being absent.
  2. Lab report late  
Lab reports are usually due at the start of class on Wednesday following the lab experiment (no later than 9:30 AM for Section CC, and no later than 11:00 AM for Section EE). You may hand them in earlier – even immediately following lab. A lab report handed in later on Friday is penalized 3 points. If it is handed after Friday, the late penalty is Saturday/Sunday/Monday: 8 pts, Tuesday: 13 pts; Wednesday: 18 pts. After Wednesday, the **report portion** counts for no credit. Note: your quiz score and on-line score will always be counted for full credit.
  3. Safety violations 5 – 50 pts  
Any activity deemed to be unsafe will result in a safety penalty of no less than 5 points. Not wearing safety goggles will result in a 5 point penalty for each occurrence.
  4. Misuse of laboratory time (e.g., using cell phone, texting) 5 – 10 pts  
One of the course objectives is: "You will maintain a responsible work habit in the laboratory." Excessive visiting, fooling around, general misbehavior, misuse of cell phones (texting, talking) and similar activities is not allowed in the lab. Under most circumstances, students will receive one warning.
  5. Failure to clean up equipment, glassware and work area 5 pts  
Glassware must be left clean and well-organized for the next group of students. All of the equipment must be present. If you find the equipment dirty when you arrive, please notify Dr. Mattson and he will report the situation to the laboratory instructor of the previous section.
  6. Failure to return computer properly 5 pts
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Name: \_\_\_\_\_

CHM 206 GENERAL CHEMISTRY I

Partner: \_\_\_\_\_

LABORATORY, (DATE)

Lab Station: 1 2 3 4 5 6 7 8 9 10 11 12

EXPERIMENT (NAME OF EXPERIMENT)

CIRCLE YOUR SECTION: CC (8 AM) OR EE (11 AM)

**1. General appearance and quality, pre-lab notes**

**5 pts**

For use by the TAs: Was the main purpose/objective correctly stated?	_____ out of 2
How many pages long was the lab report, not counting attached graphs, etc.?	_____
How long was the portion attributed to pre-lab lecture (estimated to $\pm 0.1$ page)?	_____
Did student record in laboratory notebook thorough and detailed notes from laboratory lecture	_____ out of 1
Compared to the other reports you graded this week, how would you rate this report?	
In terms of clarity and easy-to-follow details and calculations? Best Good Fair Poor	Score: 1 ½ 0
In terms of thoroughness (good notes, details, observations)? Best Good Fair Poor	Score: 1 ½ 0
Score:	TA Score: _____ out of 5

**2. Experimental Details, Observations, Calculations and Results**

**10 - 20 pts**

i. Show all calculations ... Record all experimental data in your lab notebook with correct units and significant figures along with all observations, including things that went wrong.	(score)
ii. Show how you ...	(score)
iii. Attach graph of ...	(score)

**3. Conclusions.** Were the major conclusions discussed in a logical manner as they pertained to the experimental results?

\_\_\_\_\_ out of 3

**4. Sources of error (See Syllabus)**

**5. Submit your on-line results before 6:00 PM today (one per pair)**

**0 - 20 pts**

1. (2 pts) What ...
  2. (2 pts) Enter ...
- etc.

**6. BEFORE YOU LEAVE: TA initials indicating that your station is clean and no penalty points apply:**

Earned points: Lab report

\_\_\_\_\_ out of

On-line data:

\_\_\_\_\_ out of

Quiz score

\_\_\_\_\_ out of 10

Penalty points: (Reason: \_\_\_\_\_)

\_\_\_\_\_

Total score:

\_\_\_\_\_ out of 50

A = 45 - 50; B+ = 42.5 - 45; B = 40 - 42.5; C+ = 37.5 - 40; C = 35 - 37.5; D = 30 - 35

**Course communication:** All official course communication and announcements will take place via e-mail to your Creighton University e-mail account, and announced in class, if possible. It is your responsibility to check your Creighton e-mail regularly and to ensure that your inbox is empty enough to accept incoming e-mails.

**Academic Dishonesty:** In addition to the academic integrity statement given above for Chm 203, some additional lab-specific comments are: Cheating in any form will NOT be tolerated. This includes, but is not limited to, copying old or new lab reports, copying another student's lab reports, and/or falsifying data. You and your lab partner are welcome to discuss your answers and calculations with other students in the lab, with your TAs, and with me. The lab report, however, must be written in your own words and based upon your own work.

## January, 2017

Monday	Tuesday	Wednesday	Thursday	Friday
	Throughout Units 1 and 2, we will spend 5 – 10 minutes each class period with basic organic chemistry.	<b>11</b> Ch. 12. Solutions <b>Sections 12.1 – 12.3</b> Learning objectives and assigned problems on page 481. (Day 1)	<b>12</b>	<b>13</b> Ch. 12. Solutions <b>Sections 12.4 – 12.6</b> Learning objectives and assigned problems on page 481 - 482. (Day 2)
<b>16</b> Ch. 12. Solutions <b>Sections 12.7 – 12.9</b> Learning objectives and assigned problems on page 481 - 482. (Day 3)	<b>17</b>	<b>18</b> Ch. 12. Solutions <b>Catch-up</b> (Day 4)	<b>19</b> <b>Expt 1. Intermolecular forces (including syllabus quiz)</b>	<b>20</b> Ch. 13. Kinetics <b>Sections 13.1 – 13.3</b> Learning objectives and assigned problems on page 540. (Day 5) <b>HWQ-1 (5 pts) covering 12.1 – 12.9</b>
<b>23</b> Ch. 13. Kinetics <b>Sections 13.4 – 13.6</b> Learning objectives and assigned problems on page 540. (Day 6)	<b>24</b>	<b>25</b> Ch. 13. Kinetics <b>Sections 13.7 – 13.8</b> Learning objectives and assigned problems on page 540. (Day 7)	<b>26</b> <b>Expt 2. Beers law</b>	<b>27</b> Ch. 13. Kinetics <b>Sect 13.9 – 13.11</b> Learning objectives and assigned problems on page 541. (Day 8)
<b>30</b> <b>Exam 1 Chap. 12, 13.1 - 13.8, and organic</b> (Day 9)	<b>31</b>			

## February, 2017

Monday	Tuesday	Wednesday	Thursday	Friday
		<b>1</b> Ch. 13. Kinetics <b>Sect 13.12 – 13.13</b> Learning objectives and assigned problems on page 541. (Day 10)	<b>2</b> <b>Expt 3. Kinetics</b>	<b>3</b> Ch. 14 Equilibrium <b>Sections 14.1 – 14.3</b> Learning objectives and assigned problems on page 590. (Day 11)
<b>6</b> Ch. 14 Equilibrium <b>Sections 14.4 – 14.5</b> Learning objectives and assigned problems on page 590 - 591. (Day 12)	<b>7</b>	<b>8</b> Ch. 14 Equilibrium <b>Sections 14.6 – 14.8</b> Learning objectives and assigned problems on page 591. (Day 13)	<b>9</b> <b>Expt 4. Equilibrium</b>	<b>10</b> Ch. 14 Equilib'm <b>Sect 14.9 – 14.10</b> Learning objectives and assigned problems on page 591. (Day 14) <b>HWQ-2 (5 pts) covering 13.9 – 14.5</b>
<b>13</b> Chap. 15. Acids and Bases <b>Sections 15.1 – 15.7</b> Learning objectives and assigned problems on page 645. (Day 15)	<b>14</b>	<b>15</b> Chap. 15. Acids and Bases <b>Sect 15.8 – 15.10</b> Learning objectives and assigned problems on page 645. (Day 16)	<b>16</b> <b>Expt 5. MM of an acid</b>	<b>17</b> <b>Exam 2 Chap. 13.9 - 13.11, Ch 14, and Ch 15.1 – 15.7</b> (Day 17)
<b>20</b> Chap. 15. Acids and Bases <b>Sect 15.11 – 15.13</b> Learning objectives and assigned problems on page 645 - 646. (Day 18)	<b>21</b>	<b>22</b> Chap. 15. Acids and Bases <b>Sect 15.14 – 15.15</b> Learning objectives and assigned problems on page 646. (Day 19)	<b>23</b> <b>Expt 6. <math>K_a</math> and <math>pK_a</math> of Acetic Acid</b>	<b>24</b> Chapter 16 Aqueous Equilibria <b>Sections 16.1 – 16.3</b> Learning objectives and assigned problems on page 705. (Day 20)
<b>27</b> Chapter 16 Aqueous Equilibria <b>Sections 16.4</b> Learning objectives and assigned problems on page 705. (Day 21)	<b>28</b>			

## March, 2017

Monday	Tuesday	Wednesday	Thursday	Friday
		<b>1</b> Ch. 16 Aq Equilib Sections 16.5 – 16.8 Learning objectives and assigned problems on page 705. (Day 22) HWQ-3 (5 pts) covering 15.6 – 16.3	<b>2 Expt 7. Titration of a polyprotic acid</b>	<b>3</b> No class today, unless we are making up a snow day.
<b>B</b>	<b>R</b>	<b>E</b>	<b>A</b>	<b>K</b>
<b>13</b> Ch. 16 Aq Equilib Sect 16.9 – 16.10 Learning objectives and assigned problems on page 705. (Day 23)	<b>14</b>	<b>15</b> Ch. 16 Aq Equilib Sect 16.11 – 16.14 Learning objectives and assigned problems on page 705 - 706. (Day 24)	<b>16 Expt 8. Prep of a Buffer I</b>	<b>17 Exam 3 Chap. 15.8 – 15.15 and 16.1 – 16.9</b>  (Day 25)
<b>20</b> Ch. 17 Thermo Sections 1, 2, & 4 Learning objectives and assigned problems on page 746. (Day 26) <b>Last day to drop</b>	<b>21</b>	<b>22</b> Ch. 17 Thermo Sections 5, 7, & 8 Learning objectives and assigned problems on page 746 - 747. (Day 27)	<b>23 Expt 9. Prep of a Buffer II</b>	<b>24</b> Ch. Thermo Sect 17.9 – 17.11 Learning objectives and assigned problems on page 747. (Day 28)
<b>27</b> Ch. 18 Electroch Sections 18.1 – 18.5 Learning objectives and assigned problems on page 797. (Day 29)	<b>28</b>	<b>29</b> Ch. 18 Electroch Sections 18.6 – 18.9 Learning objectives and assigned problems on page 797 - 798. (Day 30) HWQ-4 (5 pts) covering 16.11 – 17.11	<b>30 Expt 10. K, <math>\Delta G</math>, etc.</b>	<b>31</b> Ch. 18 Electroch Sect 18.12 – 18.14 Learning objectives and assigned problems on page 798. (Day 31)

## April/May, 2017

Monday	Tuesday	Wednesday	Thursday	Friday
<b>3</b> Ch. 19 Nuclear Sections 19.1 – 19.3 Objectives and problems on page 834. (Day 32)	<b>4</b>	<b>5 Exam 4 Chap. 16.10 – 16.14, Chapters 17 and 18</b>  (Day 33)	<b>6 Expt 11. Nernst</b>	<b>7</b> Ch. 19 Nuclear Sections 19.4 – 19.6 Objectives and problems on page 834. (Day 34)
<b>10</b> Ch. 19 Nuclear Sections 19.7 – 19.9 Objectives and problems on page 835. (Day 35)	<b>11</b>	<b>12</b> Ch 11 Liq, Solids Sect 11.1 – 11.3 Objectives and problems on page 439. (Day 36)	<b>13</b> no lab this week	<b>14 Easter</b>
<b>17 Easter</b>	<b>18 Easter</b>	<b>19</b> Ch 11 Liq, Solids Sect 11.4, 11.6, 11.7 Objectives/problems on page 439. (Day 37) HWQ-5 (5 pts) covering Chapter 19	<b>20 Expt 12. Redox</b>	<b>21</b> Ch 11 Liq, Solids Section 11.8 & 11.9 Learning objectives and assigned problems on page 439 - 440. (Day 38)
<b>24</b> Catch-up & Review (Day 39)	<b>25</b> Please fill out your course evaluations! Your thoughts are much appreciated.	<b>26 Exam 5 Chap 19 &amp; 11</b>  (Day 40)	<b>27</b>	<b>28</b> Review for the final  (Day 41)
<b>May 1</b>	<b>May 2 Final Exam, 3:30 pm</b>			