Che-107 - Principles of Chemistry (syllabus subject to change by instructor, see Moodle for updated versions)
Fall 2010
M T W F 11:30a -12:20p
Nobel Hall 201

Instructor:
Dr. Heather Haemig
Email: hhaemig@gustavus.edu
Office: NHS 206B; phone: x6333
Office Hours: Wednesdays 9-10am, Wednesday 1:30-2:30pm, and Thursday 11:30am-12:20pm. If none of these times work, please contact me to set up an appointment and I will be happy to meet with you at a time when we are both available.

Required Materials:
1. Text - Chang, General Chemistry: The Essential Concepts (6th Edition) and the 20 digit registration code to access Aris. If you are borrowing a copy and do not have this code, you may purchase one (described in the Aris set-up instructions on Moodle).
2. Scientific calculator capable of doing logarithm and exponential calculations (note: you do not need a graphing calculator)
3. Lab supplies: Safety goggles, bound carbon-copy lab notebook, and lab packet, all available from the Book Mark. (If you are in Discovery lab, there is a different lab packet.) You must also wear closed-toe shoes for all lab periods - see your instructor for his/her shoe preferences.

Online resources:
mharis.com: This is where you will do your homework assignments and view homework grades.
moodle.gac.edu: This is where you can find all other course information and handouts. You are responsible for checking this site frequently for new information. I may not notify you every time I post something.

We will look at both of these pages during the first week of class to insure that everyone knows how to access/use them.

Overview of Course:
Principles of Chemistry (Che-107) is an introductory chemistry course. This course provides a basic understanding of key chemistry principles. Topics covered will include the fundamental concepts of chemistry, including atoms, periodicity, stoichiometry, properties of gases, liquids, and solutions, acids and bases, chemical energetics, and bonding. Laboratory work is coordinated with lecture and is intended to illustrate principles and develop experimental skills.

This course is taught in five independent sections, each with a different professor entirely responsible for his or her own section. We all use the same textbook and laboratory program and closely follow the same sequence of lecture topics; however, exams, grading, and general course policies may differ from section to section. Be sure to check your syllabus for exam/quiz days and the policies for this section of Che-107.

Course Goals:
1. Learning the principles of chemistry
2. Foster critical thinking skills and learning to apply concepts to problem solving
3. Develop good observation and laboratory skills
4. Understand what it means to ask questions in chemistry and science
5. Have a fun and interesting semester!

**Lecture:**
Attendance at class lectures is important to your understanding of chemistry and is required for success in this course and future science courses you may wish to take. Attendance will not be formally recorded in lecture but I do expect you to attend all classes and hold you responsible for all that is discussed and/or announced in class. If you miss a lecture, you are responsible for getting the information and/or notes covered in class from a classmate – I will not provide it for you.

**Laboratory:**
You are required to attend all laboratory sessions. If you have specific concerns relating to the laboratory, please speak to your laboratory instructor. Most of the sections share a common manual, schedule, and attendance policy. Whichever section you are registered for, the laboratory program complements the lecture and you must pass both the lab and the lecture to receive a passing grade. Thus, even though the lab component is 20% of your grade, if you fail this portion you will receive an overall grade of F for the course.

Discovery lab students: Skills/concepts learned in laboratory will be tested. Experiments from the regular lab sections may show up on quizzes or exams if we discuss them during lecture. You should pay attention to these discussions in lecture even though you may not be doing that experiment in lab.

Please arrive on time, read the exercise ahead of time, do the pre-lab exercise, and analyze your data promptly. If you must miss a laboratory meeting, you must fill out a form as far ahead of time as possible (available on your laboratory Moodle course page) before you will be allowed to make up the experiment.

**Academic Honesty and Honor Code:**
Every student of Gustavus Adolphus College signs the following statement prior to enrollment and course registration:

‘As a community of scholars, the faculty and students of Gustavus Adolphus College have formulated an academic honesty policy and honor code system, which is printed in the Academic Bulletin and in the Gustavus Guide. As a student at Gustavus Adolphus College, I agree to uphold the honor code. This means that I will abide by the academic honesty policy, and abide by decisions of the joint student/faculty Honor Board.’

The following code will be signed on every examination:

‘On my honor, I pledge that I have not given, received, nor tolerated others’ use of unauthorized aid in completing this work.’

This code places the responsibility for academic honesty exactly where it should be - with the student. As a student of this college, you have promised to uphold the pledge and to abide by it. For my part, I will expect the honor pledge code to be signed by you on each exam that you take in this course. Any exam that is turned in without a signed pledge will not be graded without a discussion with me.

As described in more detail below, homework will be performed and turned in on-line this semester. Although I encourage you to work on chemistry problems and learn about chemistry
with your peers, in submitting your on-line homework, you are agreeing that you have upheld the honor code.

In laboratory it will be an honor code violation to use data other than that which has been collected by you and/or your group in your analyses (except under circumstances deemed appropriate by your instructor). Although you may be working with other people, you must still record all ideas, results, and analyses in your laboratory notebook. This, however, should not prevent your discussing and consulting with others that are not in your particular lab group.

An integral part of the honor code is non-tolerance of violations. Under our code, students are not expected to police others’ actions. Rather, you agree to report violations of which you become aware. Failure to do so will constitute an honor code violation in this class.

Any student found in violation of the academic honesty policy and honor code will receive a grade of 0 for that exam, homework or lab assignment. In addition, the office of the Dean of the Faculty will be notified of the nature of the offense. Repetition will result in an F for the course. If you have any questions about these policies, please come see me.

**Grading:**
The chemistry department views lecture and laboratory to be essential, complimentary parts of any chemistry course, including general chemistry. You must pass both the laboratory and lecture parts of Che-107 to receive a passing final grade. This means that even if you were to have an ‘A’ in the lecture part of the course, too many missed labs or low lab grades would result in a final laboratory grade of ‘F’ and a final course grade of ‘F’.

The breakdown of your final course grade will be as follows:
- Homework (12 best) 15%
- Exams (5) 35%
- Lab 20%
- Quizzes (4 best) 10%
- Peer Mentoring Participation 5%
- Final Exam 15%

Different items within a category may not be worth the same number of points (one quiz may be 25 pts and other 50 pts) but I will weight them the same so one quiz does not affect your grade more or less than another.

**Absolute exam grading scale:** Grade ranges for final grades, expressed as a percentage, are:

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<thead>
<tr>
<th>Grade</th>
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<tbody>
<tr>
<td>A</td>
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<td>D-</td>
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<td>F</td>
<td>&lt;60%</td>
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Note: Depending on the class performance, at the end of the semester AFTER the final, the cutoffs shown above may be lowered (but they will not be raised). That is the above absolute grading scale may be modified by a curve in the favorable direction if warranted. For example, the lower cut-off for an A- may be dropped to 88% instead of 90%- so it’s a good thing!

I will post exam grades on the course Moodle page to allow you to track your progress in this course. Laboratory grades will be posted on the Moodle page for your individual laboratory section. Homework grades are available on the ARIS website. If you want to quickly assess yourself, if you have a 95% average on the exams, then 35% of your grade is an A, 70% average
in lab means 20% of your grade is a C- etc. I do calculate and turn-in midterm grades to the registrar so I will provide those to you as well (confidentially).

**Peer Mentoring:**

To help you develop strong learning skills in the natural sciences and to better understand the ethos of scientific inquiry you will participate in a Peer Mentoring program. This program is funded with a grant to the College from the Howard Hughes Medical Institute (HHMI). Our goal is to help you be more successful in biology, chemistry, and other coursework.

Each week, you will meet with a small group of students that are enrolled in (BIO-101 or CHE-107) or both classes. The sessions are led by a talented junior or senior biology, chemistry or biochemistry major. The sessions involve hands-on, integrative activities where you will practice application of concepts, synthesis of material and gain an enhanced understanding. There are three main types of activities:

1. Lecture and Laboratory content reinforcement and practice: case studies, discussion, applied and integrative problems that are not assigned as homework.
2. Skill building: How to read technical material, effectively study, note-take, write clearly, analyze novel situations and use data to hone quantitative skills
3. How to be a good scientist: learn more about communication forums, useful library and databases, maintaining integrity, avoiding plagiarism, and developing collaborations.

You are required to sign up for a peer-mentoring group in the Peer Mentoring Center, Room 121, Nobel Hall of Science (NHS) on Wednesday, Sept 8th or Thursday, Sept 9th between 4:30 and 9:30 pm. If you are enrolled in either BIO 101 Principles of Biology or CHE 107 General Chemistry, you will sign up for a group that will focus solely on that class. If you are enrolled in both BIO 101 and CHE 107, you will sign up for a group that does activities that relate to both courses. Please bring your class and event schedule so you can choose the best time for you and your lifestyle. Peer mentors will be available to answer your questions during that time. Suggestion: identify classmates in your section and sign up with them.

You will meet with your group and peer mentor once a week in the Peer Mentoring Center, Nobel 121 or Nobel 222. Bring a notebook and a pen/pencil to your weekly peer mentoring session. You will not be allowed to use electronic devices of any kind (including phones, iPods, blackberries, personal electronic devices, etc.) during your peer mentoring session. Ten formal sessions are planned for the following weeks: Sept. 13, 20, 27, Oct. 11, 18, Nov. 1, 8, 15, 29, and Dec. 6. There will be no formal peer mentoring sessions during the weeks of the Nobel Conference (Oct. 3), Reading Break (Oct. 27) and Thanksgiving (Nov. 22); however, there will be open, voluntary forums during Nobel and Reading Break weeks. A list of the Peer Mentoring activities for the whole semester is on your course Moodle site. If you do not attend and actively participate in eight of the ten peer mentoring sessions, you will lose up to 5% of your final course grade.

If you have any questions or concerns about the HHMI peer mentoring program, please contact Pamela Kittelson, HHMI Peer Mentoring Coordinator at pkittels@gustavus.edu.

**Quizzes and Exams:**

You may write in pen or pencil on quizzes/exams. However, I will not regrade any problems written in pencil, erasable pen, or pen which has been whited out. The one exception is if I make an error when adding up points. I will fix it regardless of what was used to complete the exam.
You must bring your own calculator to each quiz/exam. Sharing of calculators is not allowed, and using calculator programs on communication devices like cell phones or iPods/iPads is prohibited. Any potentially useful information programmed by the student into or attached to a calculator constitutes academic dishonesty. Ask me if you are unsure if a program on your calculator is allowed.

**Quizzes**
There will be 5 quizzes (see schedule for dates). Quizzes will take 10-30 minutes and may be held in class or online. In general missed quizzes cannot be made up and will result in a score of zero. For extenuating circumstances, see me. Forgetting an online quiz is not an extenuating circumstance. Your lowest quiz score will be dropped in the final grade calculation.

**Exams**
There will be 5 (50 minute) exams and one final exam. Please see schedule on this syllabus (or Moodle for most updated version). These will contain multiple choice, short answer, and problem based questions to test your understanding of material covered in lecture and in laboratory. Exams will primarily cover material since the last exam but may include earlier material.

You are expected to take the exam on the scheduled day/time. If circumstances make it necessary for you to miss an exam, notify me as soon as possible prior to the exam date so we can schedule a make-up exam. There is no guarantee that the make-up exam will have similar content/format/level of difficulty than the in-class exam. If you miss an exam without notifying me in advance, you risk grading penalties, including earning a zero on that exam. If you must miss an exam, I will ask for confirmation of your reason - everyone will be asked to provide confirmation regardless of the circumstance. For last minute emergencies, please take 1 minute to leave me a voice mail or an email - preferably before the exam so we are not waiting for you.

Due to the frequency of exams, it is best to not miss an exam! Note that we will have an exam the Tuesday before Thanksgiving...travel is not an acceptable reason for missing/rescheduling the exam.

**Final Exam**
Our final will be cumulative and will be held in the regular classroom. All policies for regular exams apply to the final exam. The registrar's office set the date and time for the final as Thurs Dec 16th, 10:30-12:30p. Alternate final exam times will be given only for illness, family emergencies, Gustavus-sponsored events, or for students with three finals on the same day. You will need to provide confirmation of why you need an alternate final exam time.

**Homework:**
Homework assignments (with some possible exceptions) will be given nearly every week through the ARIS website. Access is given to each student with the purchase of the textbook. You will need to register on the website in order to access it. Registration should be straightforward but if you do it incorrectly, you will not be able to access/complete the assignments. The student section code you will need to enter when registering is **F99-39-764**. This code is specific to our section so do not use someone else's code in a different section or give it to someone in a different section as each section of Che-107 has a different code! A quick start-up guide to registering is available on our Moodle course site. On Monday of each week I will upload a homework assignment for you to complete by **NOON** on the due date (usually the following...
Saturday). The system will grade you as you do each problem, giving you tips if necessary to help you obtain the correct answer. You will be allowed to attempt each assignment 5 times; the highest of your five (or less) scores will be recorded. Once you answer a question correctly, it will be dropped from your retake attempts so you won’t have to complete it again. In general, late assignments will not be scored but you can still complete the assignment online for your benefit. The system and myself will keep a record of your grades and your cumulative homework grade on the best 12 of 13 assignments will count for 15% of your grade in this course. Because one assignment is dropped, I will not offer extensions on homework due dates, except in the case of a significant extenuating circumstance.

Regardless of the direct impact on your grade, mastering the material in the homework assignments is the best way to learn the subject matter and do well on the exams. Start these homework assignments early in the week so you can spend time thinking and working on the problems. There are many additional problems at the end of each chapter to give you extra practice if you desire. If you “check” an answer with a classmate before attempting the problem yourself, the problem is no longer useful to you in terms of making sure you understand how to reach the solution. It is very important and helpful for you to use the homework and any other practice problems I give you to learn the material.

One of your homework assignments is distinct from the rest. Gustavus has the honor of hosting the Nobel Conference each year, during which 6 scholars from around the world come to Gustavus to speak about a particular topic. This year’s conference “Making Food Good” will take place on October 5th and 6th. We will not have class these two days; however, you are strongly encouraged to attend as many conference events as possible. One of your assignments is to attend/listen to at least one presentation and type a 2 page response/summary of the talk. We will talk about this assignment in more detail as the date draws near. Note that if you choose not to do this assignment, all of your ARIS assignments will be counted towards your final grade.

Additional Notes:

Course Expectations
It is very important to stay current with the course material. Keeping up with the class and homework will make it much more enjoyable and understandable. You will be able to ask questions and make the class work for you. Keeping up means attending class regularly, being prepared for class, working the in-class problems with the rest of us, reviewing notes soon after class, and seeking clarification as soon as possible rather than waiting until the day before the exam.
- Regular attendance and active participation is helpful to you, fellow students, and myself. The lecture and questions asked by others will strengthen your understanding of the material. The questions asked of you will help me see where there are difficulties in understanding the material. Finally your insights may help another student that having trouble understanding something I am presenting or you may have your “Ah ha” moment after hearing someone else’s question or comment.
- You will find it helpful to read through the text before coming to lecture and then rereading it after lecture in conjunction with reviewing your lecture notes. This will help you pinpoint deficiencies in your skills early enough to prevent snowballing of difficult material.

Respect
I would like our class to be an environment where no one is too shy to ask a question or propose an idea or thought that’s “out there” – that’s what good scientists do! Also, I welcome
feedback from you. If you have issues with the course or my teaching style, come talk to me – that’s the most direct route to have something changed if it can be. As an analogy, if you do poorly on an exam, I will write you a note to come talk to me and we will have a respectful conversation. I will not call your roommate and tell them you did poorly. If you think I am doing something poorly, please come talk to me with specifics. I want all of us to have a positive experience this semester.

Ask Questions!!
The office hours listed on the first page of this syllabus are those in which I guarantee I will be available to you either in my office or in an open classroom for larger group sessions (I’ll post a note on my door if we move to accommodate more students). There may be a few times I have a conflict with my posted hours but I will notify you in advance and offer an alternative time slot the day before or after. One thing to note, I will never be available Monday and Tuesday afternoons due to the Biochemistry lab scheduled meeting time. If my posted times conflict with your other courses please set up an appointment with me. The important thing is not to wait until the last minute (the day before an exam) to ask questions! I recommend finding classmates that live in your dorm to form study groups – explaining/teaching others or hearing something explained again, maybe in a different way, helps reinforce the material. I am here to help you do your best and will do what I can on my part to help you succeed.

Chapter Objectives
I will provide a set of objectives for each chapter/topic that we cover in this course. These will be useful to you only if you read through them before, during, and after we cover that chapter’s material. One student may benefit by reading the objectives before he or she reads the chapter while another may use them to help focus his/her attention during lecture. Another student may use them as a studying tool after we complete the chapter. I hope that in one way or another, these objectives will be useful to you.

Lecture Notes
I will be using Powerpoint in class and will often provide student versions of each set of notes. These available notes have key points missing as I believe seeing and writing key information will help your retention of the material. Powerpoint slides will be posted to Moodle. You are required to take your own notes. If you miss class, you are responsible for getting the information not filled in from a classmate. I will not post/provide the problems or notes on problems we worked through in class. NOTE: These slides may not be available until 11am on the morning of a particular lecture as I will need to modify material based on what we got through the previous lecture or if there were topics that need more time/practice problems and I will be in lab all afternoon on Mondays and Tuesdays. The material placed on Moodle is NOT a substitute for attending and actively participating in class. If it appears that people are using material on Moodle as a substitute for coming to class and actively participating, I will stop posting notes!

Math
Math will be an essential tool for this class. In particular, algebra logarithms/antilogs and working with graphs will be important at various times. Keep in mind that if you are having to learn math and chemistry at the same time, both will seem more difficult. It will therefore benefit you to have a realistic appraisal of your skills in math and chemistry, and if necessary, to practice and/or get help with any math topics you might struggle with (before you need them in this class). I will be happy to help you outside of class if you would like but we cannot cover math topics during lecture. We will spend some time on 9/17 doing a math assessment so you can see where you are at. Keep in mind that math is more than plugging numbers in a calculator. When seeing problems in class, understand how we get to the answer, not just how to plug in numbers into a final equation.
Cell phones/smart phones/iPods etc
All mobile devices are to be turned off during lecture. Vibrating, chirping, ringing, texting devices are distracting to everyone. Please turn yours completely OFF and put it away during class. I will have a “chocolate penalty” for violations of this policy. If any of us violates this policy, the offender must bring in mini candy bars for everyone. If we don’t have any violations all semester, I will bring in chocolate for the final exam!

Dates for HW, Exams, etc.
If anything in this syllabus conflicts with a religious holiday that you observe, see me as soon as possible to discuss alternative arrangements.

Additional Resources:
Please don’t be shy about seeking help from any service on campus that exists to help you deal with problems you encounter here. They are free to use. These resources exist because students DO need and use them!

Disability Services
If you have a specific physical, psychiatric/emotional, medical, learning, or attention disability that may have an effect on your ability to complete assigned course work/exams please contact the Disability Services Coordinator in the Advising Center, who will review your concerns and decide with the student what accommodations are necessary. Disability Services Coordinator Laurie Bickett (lbickett@gustavus.edu or x6286) can provide further information. All discussions will remain confidential.

Help for Students Whose First Language is not English
The Writing Center has on staff a part-time tutor with professional training in ESL/ELL instruction. Students can schedule work with this tutor by contacting the Writing Center. Students may bring their instructor’s documentation concerning their ELL status. Where it is appropriate, faculty may choose to allow such students more time to complete either in- or out-of-class writing assignments. For further information, contact the Academic Advising Office.

Office of Student Advising
This office is open daily to help students with study problems, time management problems, personal problems, and many other problems that interfere with your ability to do your best work. They are located in 203 Johnson Student Union.

General Chemistry Tutoring
The chemistry department tutors are available on Sunday, Monday, Tuesday, and Wednesday evenings from 7 to 10 pm and on Thursday evenings from 7 to 11 pm in Nobel 305 (across from the stockroom) to assist you with homework/explain concepts. The tutors are advanced level students who have successfully completed Principles of Chemistry and are interested in helping you succeed.
This syllabus is subject to change. See Moodle for update version of course calendar/reading assignments. Exam/Quiz date changes will be announced in class, other changes may not be announced.

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<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
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<td>9/7 Introduction/Aris Peer Mentoring</td>
<td>9/8 Ch 1</td>
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<td>9/17 Quiz 1 (Ch1/2) Math Assessment</td>
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<td>10/19 Ch 7</td>
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<td>10/28</td>
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<td>11/12 Ch 12</td>
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<td>11/16 Quiz 4 Ch 13, Ch15</td>
<td>11/17 Ch 15, 18.6</td>
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<td>11/19 Ch 15, 18.6</td>
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<td>12/14-last class REVIEW</td>
<td>12/15-reading day</td>
<td>12/16-FINAL EXAM 10:30a-12:30p N201</td>
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