

Che-107 – Principles of Chemistry (*syllabus subject to change by instructor, see Moodle for updated versions*)

Fall 2012

M W Th F 9:00-9:50a.m.

Nobel Hall 201

Instructor:

Dr. Heather Haemig

Email: hhaemig@gustavus.edu

Office: NHS 228 (on the "bio" side of the building, in the interior corridor); phone: x6333

Office Hours: Mondays 10:30a-12:20p. Additional times for a particular week or Module will be posted on the lecture Moodle page and my office door. If none of those times work for your schedule, let's find a time that will work for both of us. If my office door is ajar, drop-ins are welcome.

Required Materials:

1. Text: McQuarrie et. al. General Chemistry, 4th edition
2. Online access to Sapling at <http://saplinglearning.com>
3. Scientific calculator capable of doing logarithm and exponential calculations (note: you do not need a graphing calculator). You will only be allowed to use a device sold as a calculator for exams.
4. Lab supplies: The department-approved goggles, bound carbon-copy lab notebook, and lab manual, all available from the Book Mark. *You must also wear closed-toe shoes for all lab periods – see your instructor and the lab manual for further clarification.*

Online resources:

http://saplinglearning.com: This is where you will do your homework assignments and view homework grades. Sign-up instructions can be found on our Moodle page (107-002). Please use your Gustavus email address to sign up.

moodle.gac.edu: This is where you can find lecture (107-002) and lab information (107-0XX) and selected handouts. **You** are responsible for checking these sites frequently (at least 2-3 times a week) for new information. You will have a separate log in with your Gustavus username and password (the same as you use for email).

Email: I will use it to communicate with the class. Check your email daily. Here are a few suggestions for using email effectively in this course and others at Gustavus. You may start to receive more emails than you know what to do with – as faculty, we get a lot too!

1. Use a descriptive subject line "Help on HW1" vs "Hey"
2. If you are replying back to a message, include the previous message below your reply. If you are asking about a specific HW question, please summarize the question or provide the question number so I don't have to spend time flipping through the Sapling assignment to figure out which one you are talking about.
3. Sign your first and last name at the bottom of the email.
4. Don't address your professor as "Hey" or use cute texting short-hand (many over a certain age won't have a clue what you are saying when you type IMHO or CU@8).
5. Allow 24 hours for a response.
6. Don't expect your professors to "teach" over email. Use office hours for clarification/help. I don't mind answering a quick question over email but I can't and won't go through 10 exam review questions on email.

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 intended to illustrate principles and develop experimental skills. Laboratory will also introduce you to the various sub-disciplines of chemistry such as environmental chemistry and biochemistry.

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 and exam dates; however, grading, homework assignments and general course policies may differ from section to section. Be sure to check your syllabus for the policies for this section of Che-107 (Haemig, 002).

Course Goals:

1. Learning/reviewing 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. Be able 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. This includes the in-class problem sheets handed out with lecture. If you are late to class, please take the most easily accessible seat to avoid disrupting your classmates.

Laboratory:

All 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. Failure to turn in each lab's written work before December 6th, 2012 is also grounds for failure in Che 107. The late policy is outlined in your lab manual.

To pass this lab, you must attend all laboratory sessions, submit the written work accompanying each laboratory session and maintain a passing grade for the laboratory activities; failing the lab portion of the course will lead to automatic failure of the lecture portion of the course. However, in the case that a lab must be missed for athletics, illness, or another good reason, you will be allowed an opportunity to make it up. ***Make-up labs must be done during the same week that the lab is normally scheduled, and must be done during a normal lab time.*** Contact your regular lab instructor to let them know you will be missing lab; then fill out the form linked to your lab Moodle page as far in advance as possible. You will then be contacted with instructions on how to proceed. Remember that sometimes the best time to make up a lab might be before your regularly scheduled lab. ***If you unexpectedly miss lab, contact Jessica Imholte (jimholte@gustavus.edu) and your lab instructor as soon as possible to discuss your options.***

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 until a discussion with me takes place.

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. See the laboratory manual for further information.

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 in Che-107 Lecture or Laboratory can 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 regardless of the severity of the offense. A second offense in Che-107 Lecture or Laboratory will result in failure of Che-107. 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. The breakdown of your final course grade will be as follows:

Homework (I will drop your lowest score)	10%
Exams (5)	50%
Lab	20%
Cumulative Final Exam	20%

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

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

	B+ 87-89%	C+ 77-79%	D+ 67-69%	F < 60%
A 95-100%	B 83-86%	C 73-76%	D 63-66%	
A- 90-94%	B- 80-82%	C- 70-72%	D- 60-62%	

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 Lecture Moodle page to allow you to track your progress in this course. Laboratory grades will be posted on your laboratory section's Moodle page. Homework grades should be available on the Sapling website after the assignment is submitted. I will occasionally transfer them to the lecture Moodle page. If you want to quickly assess yourself, if you have a 95% average on the exams, then 50% 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 stronger learning skills and to better understand the ethos of scientific inquiry you will be participating in a Peer Mentoring program during the semester. This program is funded by the college. The goal of this program is to help you be more successful in biology and chemistry, as well as other scientific courses.

Each week, you will meet with a small group of peers also enrolled in BIO101 and/or CHE107. The sessions are led by a junior or senior majoring in biology, chemistry, or biochemistry. The sessions involve activities where you will practice application and synthesis of concepts, and gain an enhanced understanding of the subjects. There are three main types of activities:

- Lecture and Laboratory content reinforcement and practice
- Skill building
- How to think and act like a scientist

You are required to **sign up** for a peer-mentoring group in **121 Nobel Hall** on **Wednesday, Sep. 5** or **Thursday, Sep. 6** between **5:00 - 9:00 pm**. If you are enrolled in either BIO 101 or CHE 107, 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 covers activities for both courses. Please bring your class and event schedule with you when you sign up for a Peer Mentoring group to help determine which time will work best for you. Peer Mentors will be available at that time to answer your questions.

You will meet with your group once a week in Nobel 121 or Nobel 106B (sometimes called "the Fishbowl"). Bring a notebook and a pen or pencil to your session, and possibly a textbook. Unless specifically requested, you will not be allowed to use personal electronic devices during your peer mentoring session. Ten sessions are planned for the weeks of: Sep: 9, 16, 23; Oct: 7, 14, 28; Nov 4, 11, 25; and Dec. 2. There will be no sessions during Nobel Conference Week, Reading Week, or Thanksgiving week. A list of the Peer Mentoring activities for the semester is on Moodle. If you do not attend *and actively participate* in eight (8) of the ten (10) peer mentoring sessions,

you will lose 5% of your final course points which amounts to a portion of a letter grade, approximately. For example, a B could be dropped to a B-. If you have any questions, please contact Scott Bur or Aron Anderson, Peer Mentoring Coordinators at sbur@gustavus.edu or aander16@gustavus.edu.

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.

Exams

There will be 5 (50minute) exams and one final exam. Please see schedule handed out separately (or Moodle for most updated version). These may contain multiple choice, short answer, and problem-based questions to test your understanding of material covered in lecture and in laboratory. *Exam problems can/may be different than types encountered in class.* Therefore, it is imperative that you understand the concepts, not just memorize how to tackle a certain type of problem. Exams will primarily cover material in the module but will include some previous material. For example, once we learn how to name compounds, you will be expected to retain that skill the rest of the semester.

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 Monday before Thanksgiving break...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 Tuesday, December 18, 2012 at 3:30-5:30pm. Alternate final exam times will be given only for severe illness, family emergencies, Gustavus-sponsored events, or for students with three finals on the same day. Requests need to be made before 5pm Friday December 14th. The alternate time provided may be before our scheduled time.

Homework:

Homework assignments (with some possible exceptions) will be given nearly every week through the Saplinglearning.com website. Registration should be straightforward if you follow instructions posted on our Moodle site. Typically 5-6 days prior to a due date, I will upload a homework assignment for you to complete by **11:55pm** on the due date. These dates are posted on the course calendar and may be subject to change (with class input). 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 question 10 times; after each incorrect attempt, there will be feedback to help you. The program will automatically save your work and generate a score for you on the due date/time. For example if you finish 8 out of 9 problems, you will get credit for the work you have done. I can also view your assignments, the attempts made, and the feedback you received on your attempts. The system and myself will keep a record of your grades and your cumulative homework grade which will be 10% of your grade in this course. Because I will drop the lowest score, I will not offer extensions on homework due dates, except in the case of a significant extenuating circumstance. You can (and should) still complete the missed assignment online for your benefit. A zero for 10% of your grade makes a difference – don't skip out on the homework!

Regardless of the direct impact on your grade, mastering the material in the homework (and READING) 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 within and at the end of each chapter and on the Sapling site 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. If you have the first printing of the textbook edition (4th edition), there are some revisions to Appendix I. I have placed the amended version on our lecture moodle site (top box).

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, come talk to me – that's the most productive 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 on the exam to come talk to me and we will have a respectful conversation. I will not call your roommate and tell them you did poorly – that does nothing to help! I want all of us to have a positive experience this semester.

Ask Questions!!

The office hours listed for each module on the lecture Moodle and on my board outside my door are when 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 rarely be available on Thursdays as I teach or have meetings from 9am to 5:30pm. If my posted times conflict with your other courses please set up an appointment with me. The important thing is to not wait until the last minute (the day before or the day of an exam) to ask questions! I recommend finding classmates that live in your dorm or are in your peer mentoring group 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.

Lecture Notes

I will be using Powerpoint in class and will often provide student versions of each set of notes. These available notes may 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 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 10pm the night before lecture as I may need to modify material based on what we got through the previous lecture or if there were topics that need more time/practice problems. 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. The first Sapling assignment is comprised of math problems so you can see where you are at. There are additional math resources on our lecture moodle page. 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. Chirping/ringing devices and texting are distracting to everyone. Please turn your mobile device 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.

Please take a few moments to look at the course calendar. If anything in this syllabus conflicts with a religious holiday that you observe, see me as soon as possible to discuss alternative arrangements. I am more than happy to work with you, if you let me know ahead of time!

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

Gustavus Adolphus College is committed to ensuring the full participation of all students in its programs. If you have a documented disability (or you think you may have a disability of any nature) and, as a result, need reasonable academic accommodation to participate in class, take tests or benefit from the College's services, then you should speak with the Disability Services Coordinator, for a confidential discussion of your needs and appropriate plans. Course requirements cannot be waived, but reasonable accommodations may be provided based on disability documentation and course outcomes. Accommodations cannot be made retroactively; therefore, to maximize your academic success at Gustavus, please contact Disability Services as early as possible. Disability Services (<https://gustavus.edu/advising/disability/>) is located in the Advising and Counseling Center. Disability Services Coordinator Laurie Bickett (lbickett@gustavus.edu or x6286) can provide further information. All discussions/ accommodations will remain confidential and discrete as possible.

Help for Students Whose First Language is not English

Support for English Language Learners (ELL) and Multilingual students is available via the College's ELL Support staff person, Andrew Grace (agrace@gustavus.edu or x7395). He can meet individually with students to consult about academic tasks and to help students seek other means of support. The ELL Support person can also consult with faculty members who have ELL and multilingual students enrolled in their classes. The College's ELL staff person can provide students with a letter to a professor that explains and supports academic accommodations (i.e. additional time on tests, additional revisions for papers). Professors make decisions based on those recommendations at their own discretion. In addition, ELL and multilingual students can seek help from peer tutors in the Writing Center.

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 204 Johnson Student Union.

General Chemistry Tutoring

This year you will have several tutoring options available to you:

1. The **chemistry department** tutors are available on **Sunday, Monday, Tuesday, Wednesday, and Thursday evenings from 7 to 10 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. Keep in mind that all sections of Che-107 will be

testing on approximately the same days therefore the night before an exam will be crowded. Ask early, ask often!

2. There will be some tutoring offered in the **first year residence halls**.
3. There may be a Chemistry student tutoring in the **Diversity Center** at least one evening a week during the semester. This is open to anyone who needs help with chemistry.

When I have more information regarding the days and times of 2 and 3, I will notify you in a lecture announcement and post the information on the lecture Moodle page.

Group work

Many tasks are made much easier and more effective if they are done as a team effort rather than an individual. The ability to work together in a small group is useful in many aspects of life here at Gustavus - academic, extracurricular, and social. You should use your time here to develop the skills involved in working in groups or teams with others. I'll be the first to admit I hated group work as a student on both sides of the coin - when I knew the material and when I was struggling - but it was important for me to learn how to communicate and work with my group in both situations.

In this class, we will work in small groups (assigned and unassigned) on a daily basis. Sometimes this will be for a question or two and other times it will be for the whole class period. You will work on this skill in peer mentoring and in lab as well. If you are understanding the material well, I expect you work on finding ways help your group members who are having difficulty. If you are struggling, I expect you to find ways to speak up and not let your group leave you in the dust. The ability to communicate with others is highly desired by employers and you are often asked at interviews to demonstrate or provide examples of your ability to work as a team. As I write letters of recommendation for students, the ability to work well with others is a skill I am always asked to comment on regardless of the nature of the application (academic pursuits or student positions like being a Gustie Greeter or Chemistry Department TA).