CHM 130 Fundamental Chemistry Lecture Syllabus

Glendale Community College Main Campus, Spring 2020, sections 11406 & 11478

Prerequisites: A grade of C or better in [CHM090 or MAT090 or MAT091 or MAT092 or (MAT103AA and MAT103AB) or higher or satisfactory score on math placement exam] and [RDG091 or higher or eligibility for CRE101 as indicated by appropriate reading placement test score].

Instructor Information

- Instructor: **Elizabeth Hart-Wells, Ph.D.**
- Office Location: Main campus, PS 123
- Office Hours: Tuesdays & Thursdays 9:00 – 10:00am or by appointment
- Mobile (**text only**): 301-919-0259
- Email: **elizabeth.hart-wells@gccaz.edu**
- Website (e-textbook): http://web.gccaz.edu/~kimld88531/chm130lec.htm

Course Information

- Course format: Face-to-Face
- Credit hours: 3.0
- Classroom location: **PS 148**
- Course days and times: **Section 11406 10:00 – 11:15am**
  Section 11478 11:30 am – 12:45pm
- Exceptions: Holidays as marked on Schedule Grid
- Instructional Contact Hours & Out-of-Class Student Work: For this 3.0 credit hour course, you should plan to spend at least 3.0 hours on course content or seat time (direct instruction), and at least 6.0 hours on out-of-class student work weekly.
- Final Exam: **Section 11406 – May 7, 10:00am – 11:50am in PS148**
  Section 11476 – May 5, 11:00am – 12:50am in PS148
- Tutoring occurs daily, website: http://www2.gccaz.edu/academics/departments/chemistry/tutoring

Course Description

A survey of the fundamentals of general chemistry. Emphasis on essential concepts and problem solving techniques. Basic principles of measurement, chemical bonding, structure and reactions, nomenclature, and the chemistry of acids and bases. Preparation for students taking more advanced courses in chemistry. Designed to meet needs of students in such diverse areas as agriculture, nursing, home economics, physical education and water technology.

Course Competencies - https://aztransmac2.asu.edu/cgi-bin/WebObjects/acres.woa/wa/freeForm2?id=99575

1. Define "chemistry" and describe its main branches. (I)
2. Describe the relationships between matter and energy. (II)
3. Distinguish between physical and chemical properties and changes. (II)
4. Interpret symbols and formulas in terms of numbers and kinds of atoms. (II)
5. Describe the physical states of matter with the aid of the Kinetic Molecular theory. (II, IX)
6. Classify matter as elements, compounds, or mixtures. (II)
7. Describe the properties of metallic and non-metallic elements. (II)
8. Use the Unit-Factor Method in solving chemistry-related problems. (III)
9. Name and write formulas for simple inorganic compounds. (IV, VII)
10. Describe the relationship between the outer electronic structure of atoms and their chemical properties. (V)

11. Use the Periodic Table to estimate the properties of elements and compounds. (V)
12. Characterize the fundamental particles comprising the atom with respect to charge and mass. (V)
13. State the number of protons, electrons, and neutrons in any given isotope, neutral or charged. (V)
14. Use the Periodic Table in predicting the number of electrons, formula for a compound, and metallic or nonmetallic characteristics. (V)
15. Draw a Lewis structure (electron dot) for a given ion or compound. (VI)
16. State the type of intermolecular force that exists for a given substance. (VI)
17. Describe the properties of ionic and covalent compounds. (VI)
18. Describe the shape and polarity of simple molecules. (VI)
19. Complete and balance simple chemical equations. (VIII)
20. Solve elementary stoichiometry problems. (VIII)
21. Classify a reaction as endothermic or exothermic. (VIII)
22. List the factors affecting the rate of a reaction. (VIII)
23. Describe the chemical and physical properties of water. (IX)
24. Describe the properties of solutions. (X)
25. Identify substances as electrolytes or nonelectrolytes. (X)
26. Classify substances as acids, bases, or salts. (XI)
27. Explain the behavior of buffer systems. (XI)
28. Define the pH scale of measuring the relative acidity of solutions. (XI)
29. Define and identify redox reaction as exemplified by single replacement and combustion reactions. (XII)

Note: Your instructor will make every attempt to follow the following procedures and schedule, but they may be changed in the event of extenuating circumstances. Changes will be announced.

Textbooks, Materials and Technologies

Required Materials:

- Text Book and supporting worksheets and videos are available online for **free** at http://web.gccaz.edu/~kimld88531/rev130.htm.
  - Please print a double-sided hard copy of each of Chapters 1-16, Periodic Table and Shapes Table. Course Web Site is at http://web.gccaz.edu/~kimld88531/chm130lec.htmz
- Calculator, non-graphing and non-programmable is required (ex., TI-30XA). You may not use any technology for computation(s) other than this calculator.

Optional but useful: Paper/Index cards, preferably sized 4" x 6" or 3" x 5"

Attendance Requirements

Attendance in lecture is mandatory and necessary for adequate performance in the class. Instruction begins on the first day of class. You should plan to spend at least 7 hours a week outside of class to study for this course. **If you are absent, you remain solely responsible for all material covered and assignments assigned or due during your absence**. **If you are absent 4 or more times without contacting me, you may be withdrawn from the course with a W grade**. If you withdraw from the CHM 130 lecture in the first 10 weeks (e.g., before March 27, 2020) of class you MUST also withdraw from the CHM 130 lab.

Withdrawals

I **will withdraw any student that misses 4 lectures absent substantive communication with me**. Grades of "I" are given only under extreme circumstances if the student request so in writing, meets with the instructor, and the instructor approves the situation before the final exam. **Students who take the final exam are not eligible to receive a "W."**

It is the responsibility of the student to drop the course before the deadline for student-initiated withdrawal. Students should contact their instructor to be withdrawn. The instructor may drop a student for

excessive absences (as defined by the instructor) with a grade of W or Y, depending on course grade at time of withdrawal. After the deadline specified in the current GCC course schedule, you will need instructor approval to withdraw. If approved for withdrawal, students receive a grade of "W." Students may not withdraw during the last two weeks of the semester; an A-F grade will be assigned. Contact your instructor if you wish to remain in the lecture course with a failing grade and receive a "W" (the instructor will evaluate the appropriateness of each situation on a case-by-case basis). Note: A grade of "Y" may be given if caught cheating as counts as an "F" in your GPA forever. **If you require a letter grade because of financial aid, you must continue to attend class.**

Grading Standards & Practices

Letter Grade and Percent Range	Your grade will be determined as follows:
A 90-100%	Homework (HW) - 25% (lowest dropped)
B 80-89%	Quizzes – 15% (lowest dropped)
C 70-79%	Course Exams – 35 %
D 60-69%	Coursework (CW) – 5% (effort graded)
F 0-59%	Final Exam - 20%

**** No extra credit is given in this course.** Please monitor your grade, your email and Canvas frequently; do not wait until preparing for the final exam to consider your course grade and its impact on your GPA.

**** Cheating is prohibited at all times in this course**. Cheating includes but is not limited to plagiarism; for further information on cheating and consequences please consult the Academic Catalog: http://www.gccaz.edu/gcc-catalog and the Student Handbook: http://www.gccaz.edu/student-life/office-student-life/student-handbook

Homework & Coursework

- Homework (HW) and Coursework (CW) will be assigned in class or electronically and must be **completed individually** by the deadline. No late HW or CW assignments will be accepted. Monitor Canvas daily to keep up with any assigned work and concomitant deadlines.
- CW scores will not be dropped, nor is it, at any time or for any reason, eligible for makeup.
- HW includes all worksheets, tables, chart, problems, projects, and other material tasks assigned by instructor either in class, by email or via Canvas in this course. Answer keys may be posted on Canvas. If applicable, answer keys will be posted on the GCC CHM 130 website (http://web.gccaz.edu/~kimld88531/chm130lec.htm) and/or will be reviewed in class. CW answers will be reviewed in class.
- Do not post your completed work, whether graded or not, on the internet for others to use.
- You must **work independently,** unless expressly permitted otherwise by me. **Do NOT record answers from the internet; it is usually wrong and not your work (meaning, plagiarism). Do your OWN work at all times.**
- You may use your e-textbook to complete HW and CW as well as, if expressly permitted by me, other credible external resources. **Wikipedia is NOT a credible resource and may not be used at any time in this course. Google is a search engine tool, not a resource and not your CHM130 friend.**

Quizzes and Coursework

- All quizzes and CW must be **performed individually and without any external help** (e.g., no textbook, notes or other resources) unless expressly permitted otherwise by me. Quizzes may be announced in advance or unannounced ("pop quiz"). You may use the course-required calculator (see above, *Required Materials*) and the laminated Periodic Table provided by me. If you miss an in-class quiz, it will be the one dropped. If you miss a second announced in-class quiz due to an excused absence, you may make it up with a 10% grade deduction. If not excused, you will receive a zero for that announced quiz. **Neither**

unannounced quizzes nor CW are eligible for makeup or grade replacement regardless of whether an absence is excused or unexcused.

- In the event use of a credible external resources is permitted, you must cite those resources used; credible external resources include your course e-textbook, scientifically peer-reviewed publications (ex., use Google Scholar), objective resources (ex., Merck Index; National Academies reports, government agency reports, international governing bodies reports) and chemical disciplinary societies' content (ex., American Association for the Advancement of Science, AAAS). **Wikipedia is NOT a credible resource and may not be used at any time in this course; Google is not your CHM130 friend. Do NOT record answers from the internet; DO YOUR OWN WORK.** All quizzes and CW are due on the assigned deadline and not eligible for make-up. Students will be given more than 1 day to complete announced Canvas quizzes.

Course Exams and Final Exam

- **All** course exams are **individual effort** and must be completed during assigned class time without the use of supportive material, unless provided expressly by instructor at the time of exam.
- You will be given the entire class period to take a course exam. You may **NOT** use or have access to any books, notes, technological devices or other material during a course exam. You may use the course-required calculator (see above, *Required Materials*) and the laminated Periodic Table provided by me. Your course exam grade is the average of the individual course exam grades earned throughout the semester. Course exam grades will be not be dropped or replaced, unless prior agreed to by instructor and in the instructor's sole discretion. As indicated above, the course exam grade contributes 35% towards your final class grade.
- Final exam is comprehensive, multiple-choice only, and weighted 20% towards your final class grade. The final exam is 1 hour and 50 minutes. You may use the course-required calculator (see above, *Required Materials*) and the laminated Periodic Table provided by the instructor. You will be provided a scantron sheet to record your answers in the final exam. Your completed scantron sheet must be turned in to your assigned instructor at the end of your assigned class to be graded; no late submission of a scantron will be accepted or graded. **You must take the final exam**. You must take the final exam **ON** the scheduled date (See above, *Course Information*); a final exam taken after such date is not permitted and will not be graded.
- All technological devices (e.g., cell phones, tablets, laptop computers, smart phones and/or watches, music players, PDAs, and the like) must be off and put away during all exams and the final exam. No ear buds or headphones of any type are permitted unless a special exemption has been granted by GCC. **If you are caught with any technological device accessible to you while taking a course exam or the final, you will receive a zero** for same without exception and regardless of whether you accessed such device.
- If you miss one course exam, the score of your final exam may, **if pre-approved by instructor**, be used to replace the zero for the missed course exam. If you miss a second or third course exam, then you will receive a zero for the missed course exam(s). No late course exams will be given or accepted, without exception. A course exam may be taken early if valid circumstances warrant and is pre-arranged and pre-approved with the instructor.

Group projects/assignments - You may be given an assignment that requires you to work with one or more of your CHM130 classmates. If so, the CHM130 classmate(s) must be from this section. Group work product must include a list of group members and a concomitant detailed description of each individual's contribution; using this detailed description, the instructor has sole discretion in evaluating contribution parity and corresponding grade, which may or may not be the same for each group member.

Late Work / Make-Up Exams

Late work: You must turn in all assignments **complete** and **on time**. *Complete* means you have done everything specified in the assignment instructions. *On time* means within 10 minutes of class start time on the due date. Incomplete assignments will not be graded. Assignments may be turned in early. Late assignments will be accepted only if *prior approval* was received by me, in my sole discretion.

Make-Up Exams: You must take exams during their scheduled time. A missed exam will receive a grade of zero. If you know ahead of time you will miss an exam you may take it early. You may not take an exam after the class takes the exam. The final exam score may replace one missed exam score with instructor approval. The final exam may replace only **one** missed course exam total. (See also, *Course Exams and Final Exam*)

Remember, one missed assignment or exam may lower your grade but will not cause you to fail. If your work is incomplete or late, or you must miss an exam for whatever reason (stuck at work, sick, emergency at home, etc.), these are the consequences. For best results, plan ahead, keep up with your coursework, attend class regularly and promptly communicate with your instructor about any issues impacting your academic performance.
For best results, plan ahead, keep up with your coursework, attend class regularly, check Canvas daily, and promptly communicate with your instructor about any issues impacting your academic performance.

Instructor Expectations

At all times,

Be Prepared **Be Respectful** **Be Engaged**

Academic Integrity and Student Responsibility
If your work is incomplete, tardy or missing entirely for whatever reason (stuck at work, sick, emergency at home, etc.), the consequence is a compromised course grade. Please prepare ahead of class, keep up with your reading, practice problems and homework, attend class regularly, check Canvas daily, and communicate promptly with your instructor about any issues impacting your academic performance.

- Every student in this class is expected to produce his/her own original work.
- Plagiarism is unacceptable and will not be tolerated.
- Plagiarism will result in being dropped from the course with a failing grade.
- Plagiarism will result in actions as outlined in the GCC Student Handbook Student Conduct Code (AR 2.5.2).

Classroom Behavior
Possession of drugs, alcohol or firearms on college property is illegal. All technology including without limitation, cell phones, smart watches, tablets, music players, ipods, ear buds, headphones and PDAs must be turned off during class time. During exams, these devices may not be out at all. Students creating disturbances that interfere with the conduct of the class or the learning of others will be asked to leave. Students should be aware of the academic catalog: http://www2.gccaz.edu/gcc-catalog

Course Outline -specified work or dates in this schedule may change; revisions will be announced if needed

CHM 130 Tentative Class Schedule

Dates	Topic	Notes	Corresponding CHM130LL Lab
Jan 11-17	Welcome – Course Syllabus Chapter 1- Why Matter Matters **Preparatory Assignment due Jan. 16**		MUST attend lab this week or get dropped
Jan 18-24	Chapter 2 - Math Skills You Already Know! **Index Cards of Elements due Jan. 21**	*Monday Holiday*	MUST attend safety training, Safety
Jan 25-31	Chapter 3 - Metric System Matters **Ch. 1 & 2 worksheet due Jan. 28** **Quiz Ch. 2-3 Jan. 30**		States of Matter
Feb 1-7	Chapter 4 – Atoms (&) Matter **Project CHEM Game (Ch. 1-4) due Feb. 6**		Chemical & Physical changes
Feb 8-14	**Exam I (Ch. 1-4) Feb. 13** Chapter 5 – Parts & Structure of Atoms		Metric System
Feb 15-21	Chapter 6 – The Periodic Table is Your Friend **Ch. 5 Worksheet due TBD**	*Monday Holiday*	Density

Feb 22-28	Chapter 7 - Chemical Bonding Types **Ch. 6 & 7 Worksheet TBD**	*Feb 28 - Last Day to Withdraw (W) yourself*	Heat and Energy
Feb 29-Mar 6	Chapter 8 – Naming Chemicals (Nomenclature) **Ch. 5-7 Quiz due TBD**		Molecular Models
Mar 7 Mar 16-20	Chapter 9 - Acids and Bases **Ch. 8 Project due TBD**	*Spring Break (9-15) No Classes*	pH of common items
Mar 21-27	**Exam II (Ch. 5-8)** Chapter 10 – Categories of Chemical Reactions Chapter 11 – Energy of Chemical Reactions & Equilibrium **Ch. 9 Quiz due TBD**	*Mar 27 - Must drop lab if dropped lecture*	Electrolytes
Mar 28-Apr 3	Chapter 12 - The Chemistry Mole! **Student Prep'd Assn't Ch. 10-11 due TBD**		Chemical Reactions
Apr 4-10	Chapter 13 – Measuring Elements in a Chemical Reaction (Stoichiometry) **Quiz Ch. 12 & 13 TBD**		Reactivity of Metals
Apr 11-17	**Exam III (Ch. 9-13)** Chapter 14 – InterMolecular Forces (IMF) **Ch. 14 In-Class Worksheet due TBD**		Double Replacement
Apr 18-24	Chapter 15 – Mixtures = Solutions **Quiz Ch. 15 due TBD**	*Apr 20 - Last day to **request** Withdraw (W)*	Vinegar Titration
Apr 25-May 1	**Exam IV (Ch. 14-15)** Review for Final Exam		Lab finals
May 2-7	Final Exam (Ch. 1-15) **11406 – May 7, 10:00am – 11:50am in PS148** **11476 – May 5, 11:00am – 12:50am in PS148**		No lab

Course Technology Information

General Statement for Use of Web-Based Third-Party Tools and/or Canvas Learning Tool Integrations

In this class, you will be using web-based third-party tool(s) and/or Maricopa's Canvas Learning Management System Learning Tools Interoperability ("LTIs") to complete or participate in assignments, activities and/or access course materials. You may be required to establish a user name or password, submit work and/or download information from these tools. There is, therefore, some risk that individuals electing to use the products and services made available by these tools may place any student information shared with the tool vendor at a risk of disclosure.

In this class, you will be using **Canvas**:

- Terms of Use: https://www.canvaslms.com/policies/terms-of-use-canvas
- Privacy Policy: https://www.canvaslms.com/policies/privacy
- Accessibility statement: https://www.canvaslms.com/accessibility

Proctored / Monitored Exams. This course requires proctored/monitored exams.

Student Rights & Responsibilities. You are expected to know and comply with all current published policies, rules and regulations as printed in the college Academic Catalog, Syllabus, and/or Student Handbook. You are expected to know the information in this syllabus.

- Academic Catalog: http://www.gccaz.edu/gcc-catalog
- Student Handbook: http://www.gccaz.edu/student-life/office-student-life/student-handbook

The information in this syllabus is subject to change based on the discretion of the instructor. You will be notified by the instructor of any changes in course requirements or policies.

Classroom Accommodations for Students with Disabilities

In accordance with the Americans with Disabilities Act, the Maricopa County Community College District (MCCCD) and its associated colleges are committed to providing equitable access to learning opportunities to students with documented disabilities (e.g. mental health, attentional, learning, chronic health, sensory, or physical). Each class/term/semester that a student is in need of academic adjustments/accommodations, the qualified student is required to work with the Disability Resources & Services Office (DRS) at their individual college(s). Contact with the DRS should be made as soon as possible to ensure academic needs are met in a reasonable time. New and returning students must request accommodations each semester through DRS Connect online services. To learn more about this easy process, please contact your local DRS office.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations, you are welcome to contact DRS by using the information listed on the following webpage: https://district.maricopa.edu/consumer-information/disability-resources/contacts

The DRS offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions qualifying for accommodations/academic adjustments. Reasonable accommodations are established through an interactive process between you, your faculty, and DRS; and only those academic adjustments/reasonable accommodations granted by the DRS are recognized by the college and District. It is the policy and practice of the MCCCD to create inclusive and accessible learning environments consistent with federal and state law. If you are pregnant or parenting (as protected under Title IX) and would like to discuss possible academic adjustments, please contact the Disability Resources & Services Office.

Addressing Incidents of Sexual Harassment/Assault, Dating/Domestic Violence, and Stalking

In accordance with Title IX of the Education Amendments of 1972, MCCCD prohibits unlawful sex discrimination against any participant in its education programs or activities. The District also prohibits sexual harassment—including sexual violence—committed by or against students, District employees, and visitors to campus. As outlined in District policy, sexual harassment, dating violence, domestic violence, sexual assault, and stalking are considered forms of "Sexual Misconduct" prohibited by District policy.

District policy requires all college and District employees in a teaching, managerial, or supervisory role to report all incidents of Sexual Misconduct that come to their attention in any way, including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Incidents of Sexual Misconduct should be reported to the college Title IX Coordinator. MCCCD will provide on its Title IX Coordinators web page, a link to all the Title IX Coordinators in the district. Reports may also be reported at: https://district.maricopa.edu/consumer-information/reporting.