Honors General Chemistry CHEM1148Q, Spring 2022

Husky CT Collaborate first two weeks,
Tuesday and Thursday from 11:00 to 12:15
BOUS A106

Instructor
Prof. Douglas Adamson
Adamson@UConn.edu
Office: IMS207

Required Text:
Chemical Principles: The Quest For Insight, Atkins, Jones, and Laverman, 7th Edition, Freeman, 2016, ISBN-13: 978-1-4641-8396-9

Laboratory Experiments for Chemistry: The Central Science, 13th edition, Brown, Nelson, Kemp, Stoltzfus, Lufaso 2015, ISBN-13: 978-0-321-94991-2

1. Tuesday, January 18	**Focus 4: Thermodynamics** Topic A – Heat and work Topic B – Internal energy
2. Thursday, January 20	Topic C – Enthalpy Topic D – Thermochemistry
3. Tuesday, January 25	Topic E – Contributions to enthalpy Topic F – Entropy Topic G – The molecular Interpretation of entropy
4. Thursday, January 27	Topic H – Absolute entropies Topic I – Global changes in entropy Topic J – Gibbs free energy
5. Tuesday, February 1	First day in-person (I hope) Catch-up and review
6. Thursday, February 3	**Test #1**
7. Tuesday, February 8	Review Test **Focus 5: Equilibrium** Topic A – Vapor pressure Topic B – Phase equilibria in one-component systems

8. Thursday, February 10	Topic C – Phase equilibria in two component systems Topic D – Solubility Topic E – Molality
9. Tuesday, February 15	Topic F – Colligative properties Topic G – Chemical equilibrium
10. Thursday, February 17	Topic H – Alternative forms of the equilibrium constant Topic I – Equilibrium calculations Topic J – The response of equilibria to changes in conditions
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11. Tuesday, February 22	**Focus 6: Reactions** Topic A – The nature of acids and bases Topic B – The pH scale
12. Thursday, February 24	Topic C – Weak acids and bases Topic D – The pH of aqueous solutions
13. Tuesday, March 1	Topic E – Polyprotic acids and bases Topic F – Autoprotolysis and pH Topic G – Buffers
14. Thursday, March 3	Topic H – Acid-base titration Topic I – Solubility equilibria
15. Tuesday, March 8	Catch up and Review
16. Thursday, March 10	**Test #2**
17. Tuesday, March 15	Spring Break
18. Thursday, March 17	Spring Break
19. Tuesday, March 22	Review Test Topic J – Precipitation Topic K – Representing redox reactions Topic L – Galvanic cells
20. Thursday, March 24	Topic M – Standard potentials Topic N – Applications of standard potentials Topic O – Electrolysis

21. Tuesday, March 29	**Focus 7: Kinetics** Focus A – Reaction rates Focus B – Integrated rate laws Focus C – Reaction mechanisms
22. Thursday, March 31	Focus D – Models of reactions Focus E - Catalysis
23. Tuesday, April 5	Catchup and review **Focus 8: Main Group elements** Focus A through J
24. Thursday, April 7	**Focus 9: d-block elements** Focus C – Coordination compounds Focus D – The electronic structure of d-metal complexes
25. Tuesday, April 12	**Focus 10: Nuclear chemistry** Focus A – Nuclear decay Focus B – Radioactivity
26. Thursday, April 14	Problems Session
27. Tuesday, April 19	Catch-up and review
28. Thursday, April 21	**Test #3**
29. Tuesday, April 26	Review Test
29. Thursday, April 28	Optional lecture
May 2 through May 7	finals week – date and time of test TBD.

Office Hours

There will be scheduled TA office hours during the week. The times of these will be announced. Any student may attend any office hour, regardless of whether or not your TA is holding the office hours. The instructor does not have scheduled office hours, but these may be scheduled as requested on an individual basis. Office hours will consist of the TA monitoring the group chat set up in Husky CT.

Tests

Assuming that we are back to in person instruction before our first test, there will be four tests during the semester, including a comprehensive final (three lecture exams and then the final). The top three tests grades will be used in determining grades, meaning that the lowest grade will be dropped. Tests cannot be made up, and if a test is missed, that test will be the one dropped. Test grades may be curved, but only to student's benefit (90% or greater will always be an A)

The final grade will be determined by:

25% Laboratory
75% Exams

Final Course Grade

There will be four tests during the semester, including a comprehensive final (four lecture exams and then the final). The best three tests grades will be used in determining grades, meaning that the lowest grade will be dropped. Tests cannot be made up, and if a test is missed, that test will be the one dropped. Test grades may be curved, but only to student's benefit (90% or greater will always be an A)

The final grade will be determined by:

25% Laboratory
75% Exams

Laboratory

From 7 laboratories, the top 6 scores will be used. If a student would like to have another lab grade to possibly raise the average, the prelab questions for E34 and E43 can be turned in as described in the laboratory document. Laboratory work is the equivalent of a lecture exam, but the lab grades will not be curved.

Homework

Test questions may (will) closely mirror homework problems, and so it is in the best interest of a student to carefully do the homework. In light of the university closing, homework problems will be solved and posted as video files. Lectures will occur at the same time as scheduled and be recorded.

Lecture

Attendance will not be taken, but the student is responsible for any announcements made during class. Lectures will cover material at a pace as close as possible to that outlined in this syllabus. It is advised to come to class having read the text to be presented. Homework assignments will be made during class, and laboratory experiments may occasionally be discussed. In addition, the content of the tests will correspond to the material covered in lecture. Answer keys will not be posted online. We will go over answers in class and you are encouraged to write down the answers on your homework and graded tests as we go over them.

Cheating

Cheating in any form and at any task, including supplying false excuses or documentation will result in an F for the course.

Absence from Exams

As mentioned previously, exams may not be made up. As one exam will be dropped, a missed exam will be considered the dropped exam. If extenuating circumstances arise, and a second exam must be missed after already missing a previous exam due to a sanctioned university event, a documented death in the family, or a documented illness, inform the instructor *prior* to the exam as far in advance as possible.

Final Exams

The final exam must be taken at the scheduled time. Purchased plane tickets, vacations, weddings, etc., are not valid reasons for not taking the final exam at the scheduled time. Please contact the Dean of Students with any questions.

Bunched finals:

- 2 exams at the same time
- 3 exams in consecutive time blocks on consecutive days
- 3 exams on one day
- 4 exams on two consecutive days can be rescheduled at the information desk in Wilbur Cross.

Important phone numbers

•Counseling and Mental Health Services: 486-4705 (24hours) www.cmhs.uconn.edu
• Alcohol and Other Drugs Services: 486-9431 www.aod.uconn.edu
• Dean of Students Office: 486-3426 www.dos.uconn.edu