**CHEM 120**

**Quantitative Analysis**

Brown Lab 207

Mon, Weds, Fri: 11:15 – 12:05

Karl S. Booksh

002 Lammot DuPont Lab

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Office hours: Tuesday and Thursday 1:00 – 2:00 PM or by appointment.

**Book:** Harris, Quantitative Chemical Analysis, 8th edition. The edition of Harris is not critical. Both the 7th and 8th editions cover the same material. However, chapters do not exactly coincide. Check the 8th edition in the Chemistry Library to verify material covered.

The homework questions will be provided on-line via Sapling online homework

**Grading**: The class will be graded based on homework (25%), two tests (15% each), and an inclusive final (15%) and lab work (30%). A standard >90% = A, 90% > B > 80%, 80% > C > 70%, 70% > D > 60%, 60% > F

**Homework:** The homework is listed in Sapling. Assignments are performed and submitted on-line. They are automatically graded.

* Homework grades for each week with be multiplied by 1.15 with a cap of 100%. Effectively a score of 87% gets credit as 100%. I’m expecting everyone to get an ‘A’ on the homework.
* Homework assignments from weeks 1 through 7 are due March, 31.
* Homework assignments from weeks 9 through 14 are due May 18.
* Late homeworks will not be accepted. You have all the homeworks provide the first day of class.

**Tests:** The tests will be administered during assigned lab sections. Each student is allowed a calculator and 1 standard 9.5” x 11” page of notes, front and back.

**Laboratory Component**: A separate lab syllabus will follow.

**Academic Honesty Policy**

If you are caught cheating, assigning you a ‘zero’ for the assignment, assigning you an ‘F’ for the class, and making you the target of public ridicule during lectures are just a few options I hold at my discretion. Two things to consider: 1) while I am not an angry or bitter man, I am generally bored and have a sadistic sense of ‘humor’ when pissed-off; 2) even Ted Kennedy was expelled from Harvard for cheating.

**Schedule of Lectures and Labs**

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| --- | --- | --- | --- | --- |
| Week | Days | Material (Harris 8th ed.) | Notes | Lab |
| 1 | 2/9 – 2/13 | Measurements and Errors  M – CH. 1, 26.1 to 26.3  W – CH. 2.3 to 2.6, 2.9  F – CH. 3 |  | None |
| 2 | 2/16 – 2/20 | Precipitation and Common Ion  M,W,F – Ch. 6 and CH. 7, |  | 1: Penny Stats. |
| 3 | 2/23 – 2/27 | Monoprotic Equilibrium and Buffers  M,F – CH. 8 | W,R in DC | 2a: Standard NaOH |
| 4 | 3/2 – 3/6 | Polyprotic Equilibrium and Buffers  M-F – CH. 9 |  | 2b: Analysis of vinegar |
| 5 | 3/9 – 3/13 | Acid-Base Titrations  M,F – CH. 10 | W,R in DC | 3: Potentiomet. Acid in soda |
| 6 | 3/16 – 3/20 | EDTA Titration and other stuff  M – Gran Plot  W,F – CH. 11 |  | 4: Ca and Mg in river water |
| 7 | 3/23 – 3/27 | M – Review  **T, W, or R – Test 1**  F – Start Spring Break early | M-R at ACS | **TEST 1** |
| 8 | 3/30 – 4/3 | Spring Break | **Homework Due**  **3/31, 10:00 PM** | None |
| 9 | 4/6 – 4/10 | Introduction to Electrochemistry  M-F – CH. 13 |  | 5: Iodometric bleach |
| 10 | 4/13 – 4/17 | Electrodes and Potentiometry  M,W – CH. 14  F – CH. 15.1, 15.2 |  | 6: Potentiomet fluoride |
| 11 | 4/20 – 4/24 | Redox and Electroanalytical  M – CH. 15.3 to 15.7  W,F – CH. 16 |  | 7: Spectroscopy Asprin |
| 12 | 4/27 – 5/1 | Introduction to Spectroscopy  M – Ch. 17  W – CH. 4.8, 5.3, 5.4  F – CH. 19 |  | 8: Spectroscopy Cu with EDTA |
| 13 | 5/4 – 5/8 | Introduction to Chromatography  M – CH. 22  W,F – CH. 23.1, 24.1, 25.1 |  | 9: GC Hydrocarbons |
| 14 | 5/11 – 5/15 | M – Review for Test 2  **T, W, or R – Test 2**  F – Review for Final |  | **TEST 2** |
| 15 | 5/18 | M – Review for Final | **Homework Due**  **5/20, 10:00 PM** | None |
| 16 | 5/20 – 5/28 | **Final (3 hour slot) - TBD** |  | FINAL |
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**Sapling info**: The following instructions are from the Sapling people…

   1. Go to <http://saplinglearning.com> and click on "US Higher Ed" at the top right.  
  
    2a. If you already have a Sapling Learning account, log in and skip to step 3.  
  
    2b. If you have Facebook account, you can use it to quickly create a Sapling Learning account. Click the blue button with the Facebook symbol on it (just to the left of the username field). The form will auto-fill with information from your Facebook account (you may need to log into Facebook in the popup window first). Choose a password and timezone, accept the site policy agreement, and click "Create my new account". You can then skip to step 3.  
  
    2c. Otherwise, click the "Create an Account" link. Supply the requested information and click "Create My Account". Check your email (and spam filter) for a message from Sapling Learning and click on the link provided in that email.  
  
    3. Find your course in the list (you may need to expand the subject and term categories) and click the link.  
  
    4. If your course requires a key code, you will be prompted to enter it.  
  
    5. If your course requires payment, select a payment option and following the remaining instructions.  
  
\*\* eTEXTBOOK:  Your course text is available as a low cost online eTextbook. You can search, highlight, take notes, and each homework question is linked back to the appropriate section in the eTextbook for immediate instructional help.  You may purchase the eTextbook in step 5 on the homework payment screen.  
  
Once you have registered and enrolled, you can log in at any time to complete or review your homework assignments. During sign up or throughout the term, if you have any technical problems or grading issues, send an email to [support@saplinglearning.com](mailto:support@saplinglearning.com) explaining the issue. The Sapling Learning support team is almost always faster and better able to resolve issues than your instructor.