


| CHEM 1112 General Chemistry II Laboratory | | |
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|  | Professor | Sections |
| | Sandhya Gavva, Ph.D | 101, 102, 103 |
| | Shailesh Shah, Ph.D | 106 |
| | Amandeep Sra, Ph.D | 104, 107 |
| Term | Erin Walker, Ph.D | 105 |
| | Fall 2016 | |
| Meetings | Workshop: SLC 3.102 | Lab: SLC 3.202 |

Professor's Contact Information

| | Phone | Office | Email Address | Office Hours |
|------------|--------------|--------------|---------------------------|-------------------------------|
| Dr. Gavva | 972-883-2279 | SLC 3.501 | sgavva@utdallas.edu | W 3:30-4:30 pm F 10 -11 am |
| Dr. Shah | 972-883-4817 | BE 3.330B | sns170230@utdallas.edu | W1-2 pm |
| Dr. Sra | 972-883-4818 | SLC 3.513 | amandeep.sra@utdallas.edu | M/W/F 1-2 pm |
| Dr. Walker | 972-883-4817 | BE 3.330B | erink.walker@utdallas.edu | M 3-4 pm R 10-11 am |

General Course Information

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| Pre-requisites, Co-requisites, & other restrictions | Passing Grades in both CHEM 1311 and CHEM 1111 (General Chemistry I Lecture and Lab) or equivalents. No Audits allowed. |
| Course Description | This course is a continuation of CHEM 1111, it incorporates experiments in kinetics, acid base chemistry, chemical equilibrium, electrochemistry and colligative properties. |
| Expected Learning Outcomes | <p><i>Students should be able to:</i></p> <ol style="list-style-type: none"> 1. Use graphing techniques and data analysis to evaluate data, 2. Determine the rate law of a chemical reaction, 3. Use spectrophotometer to determine equilibrium constant of a chemical system, 4. Explain the effect of various parameters on equilibrium of a chemical system, and 5. Generate and interpret pH titration curves. |
| Required Texts & Materials | <p>Laboratory Manual: An Atoms First Approach to the General Chemistry Laboratory 2nd edition ISBN : 9780077646424 (Two-semester)</p> <p>Z-87 rated Safety Glasses or Goggles</p> <p>Only three types of calculators are allowed during labs and workshops. TI – 30Xa, TI-30 XIIS and TI-30 XIIB</p> <p>Access to eLearning is needed to complete your safety and Pre-lab quizzes</p> |
| Supplemental Texts, Readings, & Materials | <ul style="list-style-type: none"> • Students are financially responsible for items checked out such as glassware and instruments • Other course materials may be recommended or required • Tutors: See the Chem. Dept. AA (BE 2.312) for an updated list of tutors (your instructor can guide you) • Interactive DVD-ROMs covering general chemistry are available via the CSA |
| Class Attendance | <i>It is typical for the enrollments of all CHEM 1112 sections to be at a maximum (set by the Fire Marshall's regulations for the SLC laboratories). If you are enrolled in one Section, you cannot attend another Section.</i> |

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| | <p><i>It is typical for the laboratory activities to utilize the entire 180 minutes of class time such that one <u>cannot</u> simultaneously enroll in other classes whose meeting days and times conflict with those of CHEM 1112.</i></p> <p>No cell phones or computers are allowed in the chemistry laboratories. If you need to make an emergency phone call, first notify your TA or lab instructor and then please step outside the lab.</p> |
| Make-Up Labs | <p>There are no make-up lab dates for any experiments! There are no scheduled make-up periods in the Gen Chem Labs. Make-ups are done during other lab sections on a <u>space-available basis</u>. If you miss your regularly scheduled laboratory session, and have a valid university excuse, you must make arrangements through <u>your Instructor</u> to make-up the lab later in the <u>same week</u> (Tuesday to Friday). This will be your <u>only chance</u> to make-up that particular experiment. Make-ups for any lab are not possible outside this given time frame.</p> <p>To make-up a laboratory with <u>another instructor</u>, you must fill the make-up lab form and turn in to the <u>lab coordinator</u> (Dr. Sra in SLC 3.513). The make-up lab form is posted on elearning. You will receive an email from the lab coordinator confirming your assignment to another lab section.</p> <p>Forms should be turned in as soon as possible. For students participating in UTD sports activities (the complete schedule must be attached and signed by responsible coach or team leader) and religious holidays the form should be submitted <u>at least 2 weeks prior to the event</u>. In case of medical absence attach a doctor's note.</p> |

Teaching Assistants and Lab Sections

| Day/Time | Section | Instructor | Teaching Assistant | E-mail |
|------------|---------|------------|--------------------|------------------------|
| T 07:00 AM | 101 | Dr. Gavva | Hashami, Zohreh | zxh088000@utdallas.edu |
| T 10:00 AM | 102 | Dr. Gavva | Hashami, Zohreh | zxh088000@utdallas.edu |
| T 1:00 PM | 103 | Dr. Gavva | Hashami, Zohreh | zxh088000@utdallas.edu |
| R 10:00 AM | 104 | Dr. Sra | Gorby, Amanda | ajg150830@utdallas.edu |
| R 1:00 PM | 105 | Dr. Walker | Panangala Samitha | sdp140230@utdallas.edu |
| F 7:00 AM | 106 | Dr. Shah | Vienes, Jevalyne | jsv160530@utdallas.edu |
| F 10:00 AM | 107 | Dr. Sra | Vienes, Jevalyne | jsv160530@utdallas.edu |

The easiest way to contact an instructor and/or TA is via e-mail.

Instructors and TAs check their e-mail frequently and try to respond as fast as possible.

Please always include both – your TA and your instructor – in your e-mail.

Emails should include your section number, day and time your lab meets.

Assignments & Academic Calendar - CHEM 1112

There will be twelve lab experiments during the semester. There will be no makeup labs and you are not allowed to perform your experiments in another Lab section. The last lab is the final exam. You cannot drop the final exam grade. Your final grade for the lab will be determined after dropping the lowest lab score and adding the final exam score.

This schedule and timeline are subject to change at the discretion of the lab coordinator.

| Week | Exp. # | Experiment | PreLab No. | Report Due (Week of) |
|--------------------|--------|---|-------------------------|---|
| 8/29 – 9/2/2016 | 01 | Syllabus, Check-in, Lab Safety, Lab Safety Quiz Beer-Lambert Law (Handout) | None | Lab safety quiz on elearning 9/05 |
| 9/05 – 9/09/2016 | 15 | On the Nature of Solutions (Part I and III only) | 15 | 9/12 |
| 9/12 – 9/16/2016 | 16 | Molar Mass Determination Through Freezing Point Depression | 16 | 9/19 |
| 9/ 19 – 9/23/2016 | 17 | Kinetics—The Hydrolysis of <i>p</i> -Nitrophenyl Acetate | 17 | 9/26 |
| 9/26 – 9/30/2016 | 18 | Determination of the Equilibrium Constant of Phenolphthalein Dissociation | 18 | 10/03 |
| 10/03 – 10/7/2016 | 19 | Le Châtelier's Principle: On the Effect of Concentration & Temperature on Equilibrium | 19 | 10/10 |
| 10/10 – 10/14/2016 | 02 | Buffer Lab (Handout) | 02 | 10/17 |
| 10/17 – 10/21/2016 | 20 | Titration II: pH Titration Curves | 20 | 10/24 |
| 10/24 – 10/28/2016 | 21 | Determining the Molar Solubility Product of Copper(II) Tartrate | 21 | 10/31 |
| 10/31 – 11/04/2016 | 22 | Thermodynamics of Formation of a Borax Solution | 22 | 11/07 |
| 11/07 – 11/11/2016 | 23 | Galvanic Cells and the Measurement of Cell Potential | 23 | 11/14 |
| 11/14 – 11/18/2016 | 24 | Color Changes in Ionizing Foot Baths? (Testing Marketing Claims: A Case Study) | Procedure in lab manual | 11/14 |
| 11/21 – 11/25/2016 | | Fall Break | | |
| 11/28 – 12/2/2016 | | Lab Final Exam & Checkout | | |

Everyone must checkout following the Lab Final Practical Exam.
Failure to checkout will result in withholding of your final course grade.

Course Policies

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| Safety | <p>IMPORTANT: In accordance with University and Chemistry Department safety rules, any time anyone (student, TA, instructor, or visitor) is in a lab, Z87-rated safety eyewear must be worn. The <u>first violation</u> in the semester will result in a warning and removal from the lab until the safety eyewear is in-place. The <u>second violation</u> in the semester will result in dismissal from that lab period with no extra time being allowed for make-up of the work scheduled for that lab period. Similar penalties will apply if any other safety rules are violated. Please see “penalty points” for details. In summary, all students are responsible for all information inside the undergraduate safety manual; it is located at:</p> <p style="text-align: center;">www.utdallas.edu/nsm/chemistry/resources/safety.html</p> <p>In addition arms, legs and feet should be covered in lab. Short pants and skirts (which expose calves or thighs) are not allowed. Sleeveless shirts (including spaghetti strap shirts), or shirts that expose your midriff are also not allowed—however, a lab coat may be worn over these shirts during lab. Closed-toed shoes that fully cover your foot are also required. Hair longer than shoulder length must be put up in an appropriate manner to keep it out of harms way.</p> |
| Safety Quiz | <p>Login to the elearning lab course. Read the syllabus and the three safety documents in the safety folder. A safety quiz will pop-up ONLY after you have reviewed the safety documents. Begin the safety quiz. You have multiple attempts to obtain a 100% on the safety quiz. The pre lab quizzes will NOT open up until you complete and obtain 100% on the safety quiz.</p> |
| Lab Etiquette | <p>Each student will be evaluated with respect to their adherence to good safety practices, advanced knowledge of the day’s experiment and the equipment involved, laboratory technical skills, and laboratory etiquette/professionalism.</p> <ul style="list-style-type: none"> • Students who miss more than three experiments FOR ANY REASON are advised to withdraw from the course. • All members of the group must be present during the <u>entire</u> experiment. Any member that leaves early or takes long breaks during the experiment will receive a grade of zero for that experiment. • No experiments can be made up • No section switching is allowed |
| Pre-lab | <p>Each week students are expected to prepare for the lab by:</p> <p>A. Reading and understanding the experiment B. Answering <u>about 5-6 questions on eLearning</u> for that particular lab. You will be given 30 minutes to answer the questions. It is absolutely imperative that you have read and UNDERSTOOD the lab prior to beginning the pre-lab quiz.</p> <p>The pre-lab quiz questions will be displayed one at a time, and you will not be permitted to go back, once you have submitted an answer. Students are expected to take the pre-lab quiz on their own, without help from anyone or the internet. However, students are permitted to use their lab manuals or textbook during the pre-lab quiz.</p> <p><i>Pre-labs will be due at midnight the evening before you perform the experiment. Students who do not complete the pre-lab quiz and/or receive a score of zero will not be permitted in the workshop and the lab for that day. No make-up lab will be allowed.</i></p> |
| Workshops | <p>During the workshop, students will work in groups, guided by the lab instructor and TA, to understand the concepts and techniques involved in each experiment. The goal here is to make the lab experience more enjoyable by assisting students to reach a basic, overall understanding of the experiment and the science. Students should read the lab prior to the lab period in order to be prepared for the workshop and the experiment. The workshop handouts will be collected at the end of the workshop period. Workshops count for 10% of the course grade.</p> |

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| Lab Write-Ups | There are no formal lab reports required for this course. However, you will turn in the data sheets with all the required information for each experiment. Where appropriate, it is essential that you include calculations, detailed observations, balanced equations, percentage error, a brief conclusion of the experiment, etc. Write-ups are due at the <u>beginning</u> of the next lab period. For example, if an experiment is performed between 10:00 – 12:45 PM on Tuesday, September 06, 2016, the write-up for that exp. will be due at 10:00 AM next Tuesday, September, 13, 2016. Lab reports submitted later on the same day will receive a 5 point deduction. Any further LATE lab reports will be accepted but will receive a 10 point deduction EACH DAY it is late. Any student found working on the lab report during workshop will automatically receive a 20 point deduction – 10 points for lab report being turned in late and 10 points for lack of participation in the workshop. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Data | Any data you collect during the experiment <u>must be written in pen</u> . In case of wrong entries, make a new table and explain what happened. Do not erase any original data. Use scientific notations to improve accuracy. 0.000789 does not equal to 0.0008, it’s 7.89x10 ⁻⁴ . Calculating this way might improve % error. Keep all the data and calculations neat. If we can’t read them, obviously we cannot grade them. Before you leave the lab, a TA or instructor must review and sign your data sheet. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Clean-Up | Leave sufficient time at the end of laboratory period for cleaning up. Make sure you thoroughly clean all the equipment, glassware and also clean-up your bench. If you do not comply with cleanup and other general rules pertaining to the lab, your grade for that lab will be lowered. Please see “penalty points” for detail. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Grading (credit) Criteria | <p>Summary of Points:</p> <table><tr><td><u>Each experiment:</u></td><td><u>Pts.</u></td></tr><tr><td>Pre-lab quiz</td><td>20</td></tr><tr><td>Workshop</td><td>10</td></tr><tr><td>Lab Write Ups</td><td><u>70</u></td></tr><tr><td>Total</td><td>100</td></tr></table> <p>There are a total of 12 experiments. One lowest lab grade will be dropped at the end of the semester. The average of your 11 highest lab grades will count 80% of your overall course grade. Final Exam will count for 20% of your overall course grade. Your final letter grade for the course will be determined using a scale such as the one below where the class average is set at the “B-/C+” border (e.g., 79.5 points):</p> <table><tr><td>A+</td><td>97 & above</td><td>C</td><td>73-76</td></tr><tr><td>A</td><td>93-96</td><td>C-</td><td>70-72</td></tr><tr><td>A-</td><td>90-92</td><td>D+</td><td>67-69</td></tr><tr><td>B+</td><td>87-89</td><td>D</td><td>63-66</td></tr><tr><td>B</td><td>83-86</td><td>D-</td><td>60-62</td></tr><tr><td>B-</td><td>80-82</td><td>F</td><td>59 & below</td></tr><tr><td>C+</td><td>77-79</td><td></td><td></td></tr></table> <p><i>Note: Each Section is a unique course; sections are not graded together, but we have uniform grading scales.</i></p> <p><i>If you suspect that an assignment has been graded incorrectly, you have <u>one week</u>, after the assignment is returned to you, to contact the TA/instructor to have the grade changed.</i></p> | <u>Each experiment:</u> | <u>Pts.</u> | Pre-lab quiz | 20 | Workshop | 10 | Lab Write Ups | <u>70</u> | Total | 100 | A+ | 97 & above | C | 73-76 | A | 93-96 | C- | 70-72 | A- | 90-92 | D+ | 67-69 | B+ | 87-89 | D | 63-66 | B | 83-86 | D- | 60-62 | B- | 80-82 | F | 59 & below | C+ | 77-79 | | |
| <u>Each experiment:</u> | <u>Pts.</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pre-lab quiz | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Workshop | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lab Write Ups | <u>70</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A+ | 97 & above | C | 73-76 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | 93-96 | C- | 70-72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A- | 90-92 | D+ | 67-69 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B+ | 87-89 | D | 63-66 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B | 83-86 | D- | 60-62 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| B- | 80-82 | F | 59 & below | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C+ | 77-79 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Penalty Points | <p>Points may be deducted from your final grade for each experiment for any of the following reasons:</p> <ul style="list-style-type: none">• Lack of participation in the workshop and/or the laboratory (absent* or inattentive) 5 – 50 points• Late lab report 10 points per day late• Late lab report (same day late submission) 5 points• Safety violations (see posted notes for details) 10 – 100 points• Illegible handwriting or computer generated work (unless otherwise arranged) 5 – 10 points• Calculations that are not complete or cannot be followed 5 – 15 points | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| | <ul style="list-style-type: none"> Misuse of laboratory time (e.g. using cell phone) 5 – 10 points Failure to clean up equipment, glassware, working area, community equipment (e.g. balance) 5 – 10 points After a 10 minute grace period, students will not be allowed to attend the workshop and the lab. At the discretion of the instructor, under extenuating circumstances, the student may be allowed to participate in the lab but all points for the workshop will be deducted. Any student who does not complete the pre-lab quiz <u>will not</u> be permitted to perform that day's experiment. Therefore, students should read and understand the lab BEFORE they attempt the pre-lab quiz. |
| Final Exam | <p>The lab final exam is a practical one and will be performed in the assigned lab room. There will be no workshop and students will report directly to their assigned lab rooms.</p> <ul style="list-style-type: none"> The final lab practical is based on one important experiment / experimental technique that you have studied in General Chemistry. The practical will be 2 hours long. Students will be graded on everything, including punctuality and time management, safety, proper disposal, overall lab technique, handling glassware and equipment. Students in a group will be graded individually regarding their behavior and lab technique. Students are NOT allowed to talk to each other – only to their partner in the group. Students are NOT allowed to talk to their TA and/or instructor. Any act of scholastic dishonesty is subject to discipline. The lab final cannot be dropped. The lab final will count 20% of your overall course grade. |
| Chemistry Stockroom SLC 3.221 | <p>Broken items will need to be replaced by filling out a breakage form with the appropriate information. The TA will assist in filling the breakage form and submitting it to the Chemistry stockroom manager along with a copy of your comet card. Broken charges are summed and entered into your account at the end of the semester.</p> <p>Broken charges are summed and entered into your account at the end of the semester. You are also required to go to the Bursars office and pay for any items in your lab drawer that become broken or lost during the SEMESTER. THIS WILL BE STRICTLY ENFORCED.</p> <p>Failure to reconcile your account with the Bursar office will result in withholding of your CHEM 1112 grade.</p> |
| Lab Drawers | Failure to check-out of your laboratory drawer before Finals Week will result in withholding of your CHEM 1112 Grade. |
| Special Assignments | None |
| Extra Credit | None |
| Comet Creed | <p><i>This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:</i></p> <p>“As a Comet, I pledge honesty, integrity, and service in all that I do.”</p> |
| UT Dallas Syllabus Policies and Procedures | <p><i>The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.</i></p> <p><i>Please go to http://go.utdallas.edu/syllabus-policies for these policies.</i></p> |

These descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.