

Chemistry 4160 (CRN 14381)Spring 2014

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| Prerequisites: | Chem 4000 and Chem 4110 with grades of C or higher, or equivalent |
| Instructor: | Dr. Gigi B. Ray, 212 Courtland North, Tel. (404) 413-5540, gbray@gsu.edu |
| Lecture: | Mondays 9:00 am – 11:30 am, 311 Petit Science Center (3-credit hour course) Also meet individually with instructor weekly to discuss writing/presentations, TBA |
| Office Hours: | Wednesdays and Fridays 1:00 – 3:00 pm at 212 Courtland North. |
| Text: | Class notes will be posted on Desire2Learn: <u>CHEMISTRY LABORATORY IVA-CTW SECTION 005 SPRING SEMESTER 2014 CO</u> |
| Course Objectives: | Chemistry Laboratory IVA. Concurrent enrollment in Chem 4160 and 4170 is not allowed. <i>Independent research on special topic related to chemistry. Capstone project that integrates different aspects of chemistry (biological, organic, physical, analytical).</i> Become proficient in the use of: SciFinder Scholar, Web of Science, Medline (Pub Med), ChemBioDraw Ultra, Accelrys Visualizer, PDB (Protein Data Bank), and EndNote. Do Molecular Modeling project using Accelrys Visualizer for protein structure analysis. Develop oral presentation skills (using PowerPoint). Develop critical thinking and writing skills, including rewriting and improving reports (final Chem 4160 Report submitted to department). Careers component: write resumes & cover letters, and explore jobs & internships. |
| Policies: | 1) Students will select a research topic of interest to them (from list), write two short reports and do two preliminary oral presentations using PowerPoint on <i>different aspects</i> of this topic/theme. Students will give a cumulative 25min Oral Presentation (three subtopics), & final 7-10 page Chem4160 Report in ACS Journal style will be submitted 2) Students are required to schedule 20-min appointments with instructor or TA, every other week outside of class to discuss paper / presentation content & organization, and how to improve written work & oral presentations (minimum 5 times per semester). 3) Students are required to complete Responsible Conduct of Research online Physical Science module, and submit completion report. Go to: http://www.gsu.edu/research/research_integrity.html 4) Students are required to attend 5 seminars/events outside of class, during the semester (sign in): 2 science seminars, 1 science conference, 1 career fair, 1 career seminar. Submit one paragraph synopsis of each seminar (describe content & style). 5) Attendance, timely arrival and participation in all class meetings required. One excused absence is allowed, but it is the student's responsibility to makeup missed work. Students must pay attention to speaker (instructor, guest speaker, or classmate), do not browse the internet or do own work during class. |

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| Policies: | <p>6) <u>Submit hardcopy printouts of all assignments</u> during class meeting. Late submissions only accepted in person during office hours (points deducted)</p> <p>7) Cell phones, iPods, iPhones, blue tooth and other electronic devices must be OFF during all classes.</p> <p>8) Tuesday March 4th is last day to withdraw from the class and receive “W”.</p> <p>You are responsible for withdrawing before the deadline if you need to do so. The University requires that faculty members must, on a date after the mid-point of the course to be set by the Provost (or his designee):</p> <ol style="list-style-type: none"> 1. Give a WF to all those students who are on their rolls but no longer taking the class 2. Report the last day the student attended or turned in an assignment. |
| Grading: | <p style="text-align: center;">Total points: 200 (see grading rubric)</p> <p>15 points: Resume (8pts), Cover Letter (4pts), Job Adds (3pts)</p> <p>12 points: PowerPoint slides #1 to #4 collectively (3pts each)</p> <p>5 points each: Web of Science assignment, SciFinder Scholar assignment, ChemBioUltra Draw assignment, NMR Spectra assignment, EndNote reference list, oral presentation #1, presentation #2, project Outline/Articles</p> <p>10 points each: Report #1, Report #2, Seminar Summaries collectively (2 pts each x 5)</p> <p>15 points each: Class attendance/participation, Responsible Conduct in Research</p> <p>25 points each: Final Semester Report (5pts - draft, 20pts - revised), Final Oral Presentation, Molecular Modeling Project Report</p> |
| Grading Scale: | <p>A+ 97% A 90% A- 87% B+ 84% B 80% B- 76% C+ 71% C 65%</p> <p>C- 59% D 50% F <50%</p> |

TENTATIVE CLASS SCHEDULE (Subject to change)

| Date | Day | Topics | Meeting |
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| Jan 13 | M | Introduction to Course Searching Scientific Literature using SciFinder Scholar & Web of Science Select Chemistry Research Project Topic (related to current issues) | 1 |
| Jan 20 | M | <i>Martin Luther King Holiday, no class</i> → submit detailed topic for semester presentations & reports (by email) | |
| Jan 21-24 | T-F | → meet with Dr. Ray to finalize semester topic (outside class appointment) | |
| Jan 27 | M | Careers in Chemistry: Resumes, Cover Letters, and Internships at Career Services (meet in University Center, room 245) → submit printouts of 1 review article & 1 research article on semester topic → submit Web of Science assignment → submit Responsible Conduct of Research Report by this date | 2 |
| Feb 3 | M | Searching Databases and Structure Information using SciFinder Scholar Discuss Good Writing Skills and How to Avoid Plagiarism → submit detailed Outline of entire semester's Research Project (1 page) → submit 4 – 5 PowerPoint slides #1 (Topic Introduction and Scientists) → submit Cover Letter for one specific internship or job application → submit 3 job adds for related positions, with different educational qualifications (BS, MS, PhD or Professional Degree) | 3 |

TENTATIVE CLASS SCHEDULE (Subject to change)

| Date | Day | Topics | Meeting |
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| Feb 7 | F | → submit Technical Resume by 12 noon on this date | |
| Feb 10 | M | Drawing Structures and Reaction Mechanisms using ChemBioDraw → submit Report #1 (Introduction to entire semester's Topic; 2-3 pages) → submit SciFinder assignment | 4 |
| Feb 17 | M | Searching for NMR/IR Spectra. Reference and Database Management (Introduction to EndNote). Discuss Writing in the Sciences. → submit 8 – 10 PowerPoint slides #2 (including Synthesis / Mechanism, and Revised Introduction slides) → submit ChemBioDraw Ultra Drawing assignment: (Detailed Mechanism or Synthesis relating to your research topic) → submit final Resume and Cover Letter revisions | 5 |
| Feb 24 | M | 1st PowerPoint presentations (10 min each) – all students → submit Report #1 revisions → submit NMR Spectra assignment (with peaks assigned & labeled) → submit 1 st and 2 nd seminar synopsis of seminars attended in Jan/Feb | 6 |
| Mar 3 | M | Accelrys Visualizer Molecular Modeling Activity #1 → submit Report #2 (including Revised Introduction, and Synthesis or Reaction Mechanism, using References formatted in EndNote; 5-7pages) | 7 |
| Mar 4 | T | Last day to Withdraw and possibly receive a W | |
| Mar 10 | M | Accelrys Visualizer Molecular Modeling Activity #2 → submit Molecular Modeling Preliminary Exercises → submit 12 – 15 PowerPoint slides #3 (including Introduction, Revised Synthesis/Mechanism, and NMR Spectra Analysis slides) | 8 |
| Mar 17-21 | | Spring Break, no class | |
| Mar 24 | M | Accelrys Visualizer Molecular Modeling Activity #3 → submit final, properly formatted EndNote Reference List for entire semester → submit 3 rd and 4 th seminar synopsis of seminars attended in Feb/March | 9 |
| Mar 31 | M | Accelrys Visualizer Molecular Modeling Activity #4 Protein structure analysis (Protein Data Bank) → submit Report #2 revisions | 10 |
| Apr 4 | F | → submit completed Molecular Modeling Project Report by this date | |
| Apr 7 | M | 2nd PowerPoint presentations – 25 min each (include Intro, Synthesis & Spectra). Analyze / discuss student presentations Review Endnote usage & Questions → submit 16 – 20 PowerPoint slides #4 (including all revised slides) → submit printout of 3D protein structure reference article related to your semester topic (including PDB protein structure filenames) | 11 |
| Apr 14 | M | 2nd PowerPoint presentations – 25 min each (include Intro, Synthesis & Spectra). Analyze / discuss student presentations → submit Final Report #3 (including Intro, Revised Synthesis/Mechanism, NMR Spectra Analysis & Protein Structure (7–10 pages, plus Figures & Refs)) | 12 |
| Apr 21 | M | Final (3rd) Student Oral Presentations (25 min each) → submit 5 th seminar synopsis (all 5 must be submitted by this date) | 13 |
| Apr 28 | M | Final (3rd) Student Oral Presentations (25 min each) Semester Wrap Up | 14 |
| May 5 | M | → submit Revised Final 4160 Report, in lieu of Final Exam by 1pm | |