

# Chemistry Sophomore Research Seminar

## Chemistry 2950 (CRN 86769)

Fall 2017

Prerequisites:	Chem 1212K with grades of C or higher (can be corequisite)
Instructor:	<b>Dr. Gigi B. Ray</b> , 212 Courtland North, Tel. (404) 413-5540, <a href="mailto:gbray@gsu.edu">gbray@gsu.edu</a>
Class:	<b>Fridays 10:20 am – 11:50 am, 311 Petit Science Center (2-credit hour course)</b> <b>Meet individually with instructor weekly to discuss writing/presentations, TBA</b>
Office Hours:	<b>Mondays 1:00 – 3:00 pm and Wednesdays 2:30 – 4:00 pm in 212 Courtland North</b>
Textbook:: <i>none</i>	Class handouts will be posted on iCollege: <b>CHEMICAL RESEARCH Section 003 Fall Semester 2017</b>
Course Objectives:	<b>Introduction to research in various areas of chemistry: Organic, Medicinal, Physical, Analytical, Computational, Biophysical, Biochemistry, and Geochemistry. Introduction to drug development, biosensors and patents.</b>  Explore options for undergraduate research, on and off campus internships, summer research opportunities, dual degree BS/MS program and Honors.  Explore potential career paths with a chemistry or biochemistry major, and job searching strategies. Attend professional club meetings and research seminars.  Explore the scientific literature by examining a science topic of interest, and the development of a well-known scientist's career.  Develop research skills by becoming familiar with use of scientific databases: SciFinder Scholar, Web of Science, PubMed and Medline Plus. Become proficient with use of the EndNote reference management system.  Develop the ability to effectively read and write scientific papers, and give short oral presentations to communicate scientific knowledge.  Become proficient in the use of ChemBioDraw Ultra software to represent chemical reactions.
Grading:	<b>Total points: 100</b> <b>25 points each:</b> Two Research Reports (3-4 pages each) <b>5 points each:</b> Three Research Seminar Synopsis, One Careers Synopsis <b>5 points each:</b> Database assignment, ChemBioDraw assignment, two Oral Presentations <b>10 points:</b> Class attendance/participation
Grading Scale:	<b>A+ 97% A 90% A- 87% B+ 84% B 80% B- 76% C+ 71% C 65%</b> <b>C- 59% D 50% F &lt;50%</b>

Activities and Policies:

**1) Research Reports:** Students will write two research reports, 3-4 pages each, double spaced, with references in ACS style. Three or more reference sources need to be used, with at least two from peer-reviewed journal articles, and only one source can be a webpage.

*Report Topics:*

- (i) Discuss science topic of interest to student (approved by instructor).
- (ii) Describe work of a well-known, living research scientist, who is not at GSU or has not given a seminar recently at GSU.

*Contact librarian directly for assistance in obtaining appropriate reference material:*  
**Kelsey Jordan, Science Librarian, [kjordan44@gsu.edu](mailto:kjordan44@gsu.edu), Library South 5<sup>th</sup> Floor, Suite 542**

**2) Seminars:** Students need to attend 3 research seminars during the semester: at least two will be Chemistry seminars, one can be from a related department (Biology, Neuroscience, MBD, CDT) or a professional club meeting. Students will attend one research conference: (i) Sep 8 – Herty Undergraduate Research Conference (HMURS) at Morehouse, (ii) Oct 27 - Undergraduate STEM Research Conference.

Students will sign in at seminars and submit a half page synopsis of the presentation, discussing presentation content and presentation style. Students will submit one career options synopsis.

**3) ChemBioDraw Figure:** Using this software, students will create and submit a drawing of a complex pharmaceutical compound and a reaction mechanism.

**4) Attendance, timely arrival and participation in all class meetings required.**

If absent, it is the student's responsibility to makeup missed work. Students must pay attention to speaker (instructor, guest speaker, or classmate), *and NOT browse the internet or do other work during class.*

**5) Submit hardcopy printouts of all assignments in class on due date.**

Additionally, electronic copies of research reports need to be submitted online via the dropbox in iCollege that checks for content originality. Late submissions only accepted in person during office hours (10% points/day late deducted).

**6) Personal cell phones, iPhones, iPods, Blue tooth devices, and other electronic devices must be OFF during all classes.** Laptops and tablets will be allowed during some class meetings.

**7) Tuesday October 10<sup>th</sup> is last day to withdraw from the class & receive "W"**

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):

- 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.

## CHEM 2950 – Fall 2017 TENTATIVE CLASS SCHEDULE (Subject to change)

Date	Day	Topics	Meeting
Aug 25	F	<ul style="list-style-type: none"> <li>• Introduction to Course</li> <li>• <b>Searching Databases – Web of Science and PubMed</b></li> <li>• <b>Reading Scientific Articles</b></li> <li>• <b>Students select Research Topic for 1<sup>st</sup> Report</b></li> </ul>	1
Sep 1	F	<ul style="list-style-type: none"> <li>• <b>Searching Databases: SciFinder Scholar</b></li> <li>• <b>STEM Course planning, Biochemistry Concentration, ACS certification and Honors</b></li> <li>• <b>Undergraduate Research, Internships, Scholarships, and Summer Programs</b></li> <li>• <b>Students continue Research for 1<sup>st</sup> Report</b> → <i>Submit Database Assignment</i></li> </ul>	2
Sep 8	F	<ul style="list-style-type: none"> <li>• <b>Effective Writing in the Sciences, Avoiding Plagiarism, and Writing Personal Statements</b></li> <li>• <b>Speaker: Dr. Victoria Mariani (Personal Statements)</b></li> <li>• <b>Review Bonding and Organic Structures</b> → <i>Submit Thesis Paragraph, Article &amp; Outline for 1<sup>st</sup> Research Report</i></li> </ul>	3
Sep 8	F	<ul style="list-style-type: none"> <li>• <i>Attend Georgia ACS HMURS Conference at Morehouse</i></li> </ul>	
Sep 15	F	<ul style="list-style-type: none"> <li>• <b>Speaker: Dr. Maged Henary (Organic Chemistry)</b></li> <li>• <b>Drawing Structures using ChemBioDraw Ultra</b> → <i>Submit 1<sup>st</sup> seminar synopsis</i></li> </ul>	4
Sep 22	F	<ul style="list-style-type: none"> <li>• <b>Speaker: Dr. Ming Luo (Structural Biology)</b></li> <li>• <b>Oral Presentation Preparation and Techniques</b> → <i>Submit 1<sup>st</sup> Research Report (Science Topic)</i></li> </ul>	5
Sep 29	F	<ul style="list-style-type: none"> <li>• <b>GSU Career Services: Careers in Chemistry and Biochemistry Job Searching Strategies, Resume, Career Options &amp; Planning</b></li> <li>• <b>5-minute Student Oral Presentations #1 (3 students)</b> → <i>Submit ChemBioDraw Assignment</i> → <i>Submit 2<sup>nd</sup> seminar synopsis</i></li> </ul>	6
Oct 6	F	<ul style="list-style-type: none"> <li>• <b>5-minute Student Oral Presentations #1 (9 students)</b></li> </ul>	7
Oct 10	T	<i>Last day to Withdraw and possibly receive a W</i>	
Oct 11	W	<i>Attend All Majors Career Fair at GSU</i>	
Oct 13	F	<ul style="list-style-type: none"> <li>• <b>Speaker: Dr. Crawford Elliott (Geochemistry)</b></li> <li>• <b>Preparing Science Posters and Discuss Scientist Report 2</b> → <i>Submit Career Options synopsis</i></li> </ul>	8

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Date	Day	Topics	Meeting
Oct 20	F	<ul style="list-style-type: none"> <li>• <b>Speaker: TBA</b></li> <li>• <b>ACS Style Bibliography and Reference Management</b>                → <i>Submit Thesis Paragraph, Article &amp; Outline for 2<sup>nd</sup> Scientist Report</i></li> </ul>	9
Oct 27	F	<ul style="list-style-type: none"> <li>• <b>Speaker: TBA</b></li> <li>• <b>Joining a Research Lab</b>                → <i>Submit Reference References list for 2<sup>nd</sup> Scientist Report</i></li> </ul>	10
Oct 27	F	<ul style="list-style-type: none"> <li>• <i>Present Poster at STEM Undergraduate Research Conference</i></li> </ul>	
Nov 3	F	<ul style="list-style-type: none"> <li>• <b>Speaker: TBA</b></li> <li>• <b>Planning for Graduate School, BS/MS Dual Degree</b>                → <i>Submit 2<sup>nd</sup> Research Report (on Research Scientist)</i></li> </ul>	11
Nov 10	F	<ul style="list-style-type: none"> <li>• <b>Speaker: Dr. Ning Fang (Analytical Chemistry)</b></li> <li>• <b>10-minute Student Oral Presentations #2 (3 students)</b>                → <i>Submit 3<sup>rd</sup> seminar synopsis</i></li> </ul>	12
Nov 17	F	<ul style="list-style-type: none"> <li>• <b>Speaker: Dr. Greg Poon (Biophysical Chemistry)</b></li> <li>• <b>10-minute Student Oral Presentations #2 (3 students)</b></li> </ul>	13
Nov20-24		<b>Thanksgiving Break, no class</b>	
Dec 1	F	<ul style="list-style-type: none"> <li>• <b>10-minute Student Oral Presentations #2 (6 students)</b></li> <li>• <b>Course Wrap-Up</b></li> </ul>	14
Dec 5	T	<ul style="list-style-type: none"> <li>→ <i>Submit Revised 2<sup>nd</sup> Scientist Research Report in lieu of Final Exam by 5pm (hardcopy printout &amp; electronic copy via iCollege dropbox)</i></li> </ul>	

### Fall 2017 Events:

- Friday Sep 8 – Georgia ACS Herty Undergraduate Research Conference (HMURS) at Morehouse College (12 – 5 pm)
- Wednesday Oct 11 – All Majors Career Fair (12 – 3 pm)
- Tuesday Oct 24 – Virtual Career Fair for Cooperative Education and Internships
- Friday Oct 27 – Undergraduate STEM Research Conference (12 – 4pm)

### Websites:

- GSU STEM Resources: <http://cas.gsu.edu/stem/>
- Chemistry Department webpage: <http://chemistry.gsu.edu/undergraduate/>
- Library Resources: <http://research.library.gsu.edu/chemistry>
- Honors Resources: <http://honors.gsu.edu/research/>
- American Chemical Society: <https://www.acs.org/content/acs/en/careers.html>
- GSU Career Services: <http://career.gsu.edu/>
- Chemistry & Engineering News: <http://cen.acs.org/index.html>