

CHEM 112 PO: Analysis of Scientific Literature – Demystifying the Approach and the Science

Instructor

Prof. Jane M. Liu (SN-216)

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Office Hours

Mondays 3-5 pm; or by appointment.

Class

TR 9:15-10:30 am

Prerequisite: CHEM110A PO

All times are PST/PDT unless otherwise stated.

A Message from Prof. Liu:

Welcome! [The Chemistry Department is committed to diversity and inclusion.](#) I want our classroom to be inclusive, equitable, and full of participation. As your instructor, I am committed to creating a classroom environment that welcomes and supports all students, regardless of race, gender, religious beliefs, etc. Regardless of where you're starting out, I am committed to helping you succeed in this class. I expect that your unique background will enrich our learning environment and I am excited to have you in this class. We all have implicit biases, and I will try to continually examine my judgments, words, and actions to keep my biases in check and treat everyone fairly. I hope that you will do the same and that you will let me know if there is anything I can do to make sure everyone is successful in this class. If there are any aspects of the instruction or design of the course that result in barriers to your learning, please let me know as soon as possible. If you do not feel comfortable approaching me directly, please feel free to reach out to one of the [Chemistry Department Liaisons](#).

It is common that college students experience a great deal of stress. In a class of this size, there will likely be a number of individuals who are going through hard times and who are experiencing psychological difficulties. If you are feeling miserable, or you think you are experiencing psychological problems, please do seek help! If you think you may benefit from psychological help, please reach out to Monsour Counseling and Psychological Services (MCAPS), 909-621-8202. For students living outside California, Monsour staff will provide a one-time consultation or crisis appointment. They will then work with out-of-state students to find a local clinician to provide regular care. Also note that Campus Health via the TimelyMD app will continue to be available for to all students. This service provides free and unlimited medical and mental health services. To register and access this service, please go to the [CAMPUS.HEALTH website](#) and use customized password/code POMONA2020.

Technological Needs and Considerations for An Online Course:

We will use Zoom extensively in this class. All materials for this course will be posted in [Sakai](#) in the form of Word documents, PDFs, PowerPoint files and websites. Live polling will require a web browser or a smart phone.

The primary means that Prof. Liu will communicate with the class is via email. You should expect several emails from her each week. Emailing Prof. Liu is a great way to communicate with her!

If you have any concerns about your ability to engage in this course, please do speak with Prof. Liu. She has ideas and alternatives in mind!! Pomona's ITS is available to help you! If you are having ANY issues getting a response from ITS, please let Prof. Liu know. She will advocate for your needs to be met.

To request a computer or WiFi hotspot: <https://www.pomona.edu/administration/its/sta>

Tips to resolve slow internet speed: <https://bit.ly/3jshiE4>

Support from ITS with various remote learning issues: <https://bit.ly/2OJEYpb>

ASPC's comprehensive guide to campus: <http://tinyurl.com/springresources>

Access software, files and journal articles on Pomona's network: <https://tinyurl.com/yxb4hslv>

Online student's manual for success: <https://bit.ly/3hgcYps>

Course Goals

The C.R.E.A.T.E. (consider, read, elucidate hypotheses, analyze, and interpret the data, and think of the next experiment) approach to reading scientific literature will be used to teach science content, to expose students to the progression of science research, to demystify the process of reading a scientific article, and to humanize scientists. This course, aimed at second-year students, will help students bridge the transition between introductory and upper-level courses, and also provide a gateway to independent research experiences.

Intended Learning Outcomes

Successful completion of this course will result in students who are able to:

- Explain the creative, ongoing process of scientific research – from securing funding, to carrying out experiments, to publication
- Determine what information they need to know to appropriately analyze a scientific paper
- Read a primary scientific paper
 - elucidate hypotheses/questions posed
 - analyze and interpret the data within
 - diagram the various experimental methods used in generating the data
- Propose and evaluate follow-up experiments that continue a line of scientific investigation
- Strategically search and access scientific literature
- Clearly communicate specialized knowledge to a wider, non-expert audience
- Be aware of the human element of scientific research
- Be active learners who are intentional about their education choices

Course Materials

- Course materials will be posted to the course Sakai site regularly.
- Prof. Liu emails the class frequently. You are expected to check your Pomona email account for these emails and to read them.

COURSE OVERVIEW

Assessments

Final Grade Calculation

Homework:	20%
Participation:	20%
Course Project:	35%
Check-in exams:	25%

Grading Scale

A	93-100	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	≤59

There is no curve for this course – you need only worry about your own performance. Please note that an “A” grade represents excellent mastery and intelligent discussion of concepts covered in this course.

Your Tasks

Before class: You will frequently be given initial assignments to work on as an individual before class. You should complete these assignments in your course notebook. Your assignments will be graded based on effort and completeness – sometimes your notebook will be evaluated at the start of class and other times, Prof. Liu will collect your entire notebook.

In class: During our class meeting time, you will frequently function as a member of a Learning Team, discussing and examining primary literature as a unit. Your team effort and participation in class discussions is part of your weekly participation grade.

Actively participating in this learning cycle of preparing and then engaging in discussions in class will allow you to achieve the intended learning outcomes of the course.

Reflection Sheets (5 pts/ea): Due on specified Fridays at noon (Sakai OR email)

Performance Evaluations (3 pts/ea): Due on specified Fridays at noon (Sakai OR email)

Check-in exams: Students will be asked to read a paper outside of class and then answer questions during an in-class, open-notebook “exam”.

Course Project: Students will prepare a poster-presentation and written summary of a primary paper **related** to those we read in class (e.g., cites one of the papers, is written by one of the authors, etc.). Additional information and rubrics will be provided.

Pick paper (10 pts)

Prepare written summary and analysis (15 pts)

Prepare poster draft for peer review (15 pts)

Peer review posters (10 pts)

Present poster at symposium (40 pts)

Final paper (60 pts)

Grading Policy: For most assignments, you will be provided rubrics beforehand that clearly lay out the expectations for the assignment and how you will be graded. Any query regarding scores on graded assignments or exams should be presented within three days of return of the assignment/exam. It is the student's responsibility to reach out to the professor to make any adjustments. Please note that Prof. Liu reserves the right to regrade the entire submission, and as a result, she may raise or lower your entire score. After three days, all scores become final and unalterable.

Attendance: Attendance in class is important in an active learning environment. In addition to mastering the material yourself, you are responsible for assisting the other members of the class in their understanding of the material. Unless you have developed an alternative agreement with Prof. Liu, you should try to not miss class. Please be courteous to Prof. Liu and your fellow classmates and show up to class on time. You can expect your grade to drop substantially with 3 or more absences. Valid reasons for missing class include illness, religious observations, or family emergencies. **You are responsible for handing in all assignments on time and obtaining all activities, regardless of missed classes.**

Due date extension policy: In general, Prof. Liu expects work to be turned in by the communicated due date, which were all decided with careful consideration of all of the assignments throughout the semester, along with assignments and exams in other courses that students are commonly cross-enrolled in. Learning to manage due dates and multiple responsibilities will also be helpful for future jobs and internships. However, Prof. Liu recognizes that the lives of students are busy and in life the only thing that one can really expect is the unexpected. The current state of the world and the realities of our far-from-normal learning environment are also likely to place you under increased pressures and disruptions. Thus, in this class, you each will have **three "Flex Tokens"**. Application of the Flex Token allows you to receive a no-questions-asked deadline extension. By the original due date, you should communicate your use of the Flex Token to Prof. Liu and together you can determine an alternate due date.

When Flex Tokens are not used, **late work will be accepted** for all assignments (except exams). However, for every 24 hours that the assignment is tardy, a 10% deduction will be applied to your grade on that assignment.

Special circumstances: If there are special circumstances, such as illness or other form of emergency, which should be considered with regard to any of the stated class policies, please inform Prof. Liu as soon as possible so that alternative arrangements can be made.

Disability Accommodations: Your experience in this class is important to Prof. Liu. Pomona College is committed to making all courses accessible for everyone and **Prof. Liu is committed to making this course accessible to you.** If you need academic accommodations, please contact the Accessibility Resources and Services (ARS) in the Dean of Students office and visit the Accommodation Services page for more information about how the accommodation process.

Prof. Liu encourages you to come talk to her about your accommodations. As a Pomona faculty member, she is dedicated to supporting all students in her courses. Together you will develop strategies to meet both your needs and the requirements of the course.

If you have any questions about accommodations, please reach out to Accessibility Resources and Services (ARS) at disability@pomona.edu or 909-621-8017.

Academic ethics and integrity policy: You are expected to abide by the Pomona College Standards of Academic Honesty. For the official policy go to: http://catalog.pomona.edu/content.php?catoid=28&navoid=5638&hl=%22academic+integrity%22&returnto=search#academic_honesty. Plagiarism, whether deliberate or unintentional, and cheating on examinations is not acceptable.

Calendar (subject to change)

SUNDAY	MONDAY	TUESDAY	WEDNES.	THURS.	FRIDAY	SAT.
JAN 24	25	26 INTRODUCTION	27	28 INTRODUCTION	29	30
31	FEB 1	2 INTRODUCTION	3	4 START PAPER 1	5 PERFORMANCE EVALUATION	6
7	8	9 PAPER 1	10	11 PAPER 1	12	13
14	15	16 PAPER 1	17	18 START PAPER 2	19 REFLECTION	20
21	22	23 PAPER 2	24	25 PAPER 2	26	27
28	MAR 1	2 CHECK-IN 1	3	4 TBA	5 REFLECTION	6
7	8 SPRING BREAK	9 SPRING BREAK	10 SPRING BREAK	11 SPRING BREAK	12 SPRING BREAK	13
14	15	16 DEI IN STEM	17	18 CHECK-IN WRAP UP	19	20
21	22	23 START PAPER 3	24	25 PAPER 3	26 NO CLASSES	27
28	29	30 PAPER 3	31	APR 1 PAPER 3	2	3
4	5	6 START PAPER 4	7	8 PAPER 4	9	10
11	12	13 PAPER 4	14 PAPER CHOICE DUE	15 PAPER 4	16	17
18	19	20 CHECK-IN 2	21	22 CHECK-IN WRAP UP	23 DRAFT OF SUMMARY DUE	24
25	26	27 PAPER 5	28	29 PEER REVIEW	30	MAY 1
2	3	4 SYMPOSIUM	5	6 LAST DAY!	7 FINAL SUMMARY DUE	8
9	10 FINALS	11 FINALS	12 FINALS	13 FINALS	14 FINALS	15