

which covers both the philosophical structure of the product, methodology for its construction (e.g. writing), as well as in-class work sessions. These differ in scope and effort and are assigned different point values:

- Referenced Introduction for Progress Committee Meeting (thesis/dissertation track), 50 pts
or
- Standard Operating Procedure (coursework track), 50 pts
- Presentation on SOP or Introduction, 20 pts
- CV, 10 pts
- Individual Development Plan, 10 pts

Final: The final is comprehensive covering all material and primarily reflects the portion of the class which has been previously covered via quizzes, rather than the portion dedicated towards portfolio building.

Grading scale:

Homework 2 x 5pts	10		A > 93%	A- > 90%
Quiz 4 x 15 pts	60 (drop 1 of 5 quizzes)	B+ > 87%	B > 83%	B- > 80%
Portfolio Components	90	C+ > 77%	C > 73%	C- > 70%
Final	<u>90</u>		D > 60%	
	250			

Resources:

Required “textbooks”:

Muse of Fire: Storytelling & the Art of Science Communication by Tim Miller, 2015

The Elements of Style by William Strunk Jr and E. B. White 2022

Introduction to the Responsible Conduct of Research by Nicholas H. Steneck, 2007.
Available via the US Department of Health and Human Services and Office of Research Integrity (ORI)

(pdf) <https://ori.hhs.gov/sites/default/files/2018-04/rcrintro.pdf>

(paper) <https://bookstore.gpo.gov/products/ori-introduction-responsible-conduct-research>

Prudent Practices in the Laboratory Handling and Management of Chemical Hazards.
Updated ed., National Academies Press, 2011.

(pdf) <https://nap.nationalacademies.org/catalog/12654/prudent-practices-in-the-laboratory-handling-and-management-of-chemical>

Supplemental Resources:

Kanare, Howard M. *Writing the Laboratory Notebook* 1985

<https://files.eric.ed.gov/fulltext/ED344734.pdf>

Institute of Medicine, National Academy of Science, and National Academy of Engineering.
Advisor, Teacher, Role Model, Friend, 1997

<https://nap.nationalacademies.org/read/5789/>

ACS- Safety in Academic Chemistry Laboratories 2017

<https://institute.acs.org/content/dam/pldp/center/lab-safety/publications/safety-in-academic-chemistry-laboratories-students.pdf>

ACS - Creating safety cultures in academic institutions **2012**

<https://www.acs.org/content/dam/acsorg/about/governance/committees/chemicalsafety/academic-safety-culture-report.pdf>

Institute of Medicine, National Academy of Science, and National Academy of Engineering.
On Being a Scientist, **2009**

<https://nap.nationalacademies.org/read/12192>

Calarco, Jessica M., *A Field Guide to Grad School: Uncovering the Hidden Curriculum*
2020

<https://muse.jhu.edu/book/89878> (available via LUC library)

Additional resources will be in the reading list which will be update throughout the class.

Expected Schedule:

<i>The Basics</i>			
8/26	Basics: syllabus; university/department expectations and conduct; professional communication/scheduling	R1	
8/28	Guest: Jae Joseph. Your Role: faculty-student interaction; TA-student interaction; collaborator responsibilities; responsibilities as scientists	R2	HW1
9/2	Labor Day		
<i>The Laboratory</i>			
9/4	Scientific Ethics: case studies; ethical grey zones; role of publication	R3	Quiz 1
9/9	Avoiding Misconduct: codified rules; proper conduct; reporting; safeguards	R4	
9/11	Research Records: notebooks; data management	R5	
9/16	Documentation of Science: accessing literature, patents, databases	R6	
9/18	Safety: culture; controls/protocols; reporting	R7	Quiz 2
9/23	Safety: rules/best practices	R8	
9/25	Safety: Loyola specific protocol as a case study	R9	
9/30	Scientific Hypotheses	R10	Quiz 3
10/2	Design of Experiments	R11	
10/7	Fall Break		
<i>Communication of Science</i>			
10/9	Goals of Scientific Writing: purpose, case studies, limitations	R12	Quiz 4
10/14	Scientific Writing: Deconstructing journal articles & writing effectively	R13	
10/16	Activity: scientific writing project and feedback (outline/text)	R14	
10/21	Scientific Reading: critical assessment of writing and findings	R15	
10/23	Activity: scientific writing project and feedback – (text/revisions)	R16	
10/28	Scientific Presentations: construction of material, effective speech	R17	
10/30	Activity: writing/slides and feedback	R18	
11/4	Other Communication: supervisor/advisor; conferences; non-technical	R19	
11/6	Activity: scientific presentation (three minute thesis style) as half classes	R20	Port present
<i>Post-Graduation Guidance – Preparative Experience</i>			
11/11	CV Preparation, individual development plans	R21	
11/13	Networking, job searches, industry positions, interviews, negotiations	R22	
11/18	Sampling Regulatory Requirements	R23	Port CV/IDP
11/20	Round Table: Business of Chemistry: IP, product development, financials	R24	
11/25	Workplace: Biases, Executive Skills, Professional Conduct, Diversity	R25	Port PCM/SOP
11/27	Thanksgiving Break		
12/2	Conflict Resolution	R26	
12/4	Responsibilities in Leadership/Supervisory Roles	R27	Quiz 5, HW 2
12/9	Final (cumulative) 4:15-6:15 P		

Homework and portfolio assignments are due at the beginning of class on the day listed. Quizzes are at the beginning of class on the day listed.

Readings Expectations:

Readings are expected to be perused before class.

Course Learning Outcomes

The course has the following Learning Outcomes many of which are already detailed above:

- Familiarization with the behavioral and academic expectations held by students in their respective degree track at Loyola Chicago
- An understanding of the historical and cultural origins of scientific ethics, the role/expectations of scientists in modern society, and the codified rules guiding scientific experimentation, documentation, and communication
- Appreciation of historical/legislative/policy sources to safety regulation, retention of Loyola specific protocol, and expertise in mitigation protocol
- Mastery of approaches to hypothesis generation, experimental design, and effective communication of science and demonstrated ability to reduce to practice
- Practical experience with components of scientific employment with advanced degrees including: CV generation/evaluation, intellectual property and business evaluation, conflict resolution, and meeting management

Pass/Fail Conversion Deadlines and Audit Policy

A student may request to convert a course into or out of the “Pass/No-Pass” or “Audit” status only within the first two weeks of the semester. For the Fall 2024 semester, students are able to convert a class to “Pass/No-Pass” or “Audit” through Monday, September 9th. Students must submit a request for Pass/No-Pass or Audit to their Academic Advisor.

Final Exam

The University sets the schedule for all final exams. The final will be held on:

12/9 4:15-6:15

You will have exactly 2 hours to complete the exam. Additional time will not be granted, even if you start late. There will be no make-up final exams given under any circumstance, and the exam will not be given early, either.

Instructors may not reschedule final exams for a class for another day and/or time during the final exam period. There can be no divergence from the posted schedule of dates for final exams. Individual students who have four (4) final examinations scheduled for the same date may request to have one of those exams rescheduled. If a student reports having four final examinations scheduled for the same date, students should be directed to e-mail a petition to Adam Patricoski, Assistant Dean for Student Academic Affairs, CAS Dean’s Office (apatricoski@luc.edu).

Course Repeat Rule

Effective with the Fall 2017 semester, students are allowed only THREE attempts to pass Chemistry courses with a C- or better grade. The three attempts include withdrawals (W). The Department advises that it is preferable to complete a course with a grade of C or C-, and to demonstrate growth in future coursework, than to withdraw from a course.

After the second attempt, the student must secure Department approval for a third attempt. Students must fill out the [Permission to Register Form](#), and arrange a meeting with the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. If approved, a signed copy of this form is then sent to the student's Advising office to secure final permission for the attempt.

Student Support: Requests for Accommodation

Loyola University Chicago provides reasonable accommodations for students with disabilities. Any student requesting accommodations related to a disability or other condition is required to register with the Student Accessibility Center (SAC).

Professors will receive an accommodation notification from SAC, preferably within the first two weeks of class.

Students are encouraged to meet with their professor individually in order to discuss their accommodations. All information will remain confidential.

Please note that in this class, software may be used to audio record class lectures in order to provide equal access to students with disabilities. Students approved for this accommodation use recordings for their personal study only and recordings may not be shared with other people or used in any way against the faculty member, other lecturers, or students whose classroom comments are recorded as part of the class activity. Recordings are deleted at the end of the semester.

For more information about registering with SAC or questions about accommodations, please contact [SAC](#) at 773-508-3700 or SAC@luc.edu.

If you use the Testing Center, please schedule all of the tests for this class at the beginning of the semester. If a scheduled test date changes, you will still be accommodated if you had scheduled your test in advance.

If you have any questions or concerns regarding the implementation of your accommodations in this course, please contact the SAC for assistance.

Academic Integrity

Academic integrity is the pursuit of scholarly activity in an open, honest, and responsible manner. Academic integrity is a guiding principle for all academic activity at Loyola University Chicago, and all members of the University community are expected to

act in accordance with this principle. Please open and read the foldout for the third item, “Academic Integrity” in the Graduate School Academic Policies

Academic dishonesty can take several forms, including, but not limited to cheating, plagiarism, copying another student’s work, submitting false documents, and deliberately disrupting the performance of other class members. Standards apply to both individual and group assignments.

Regarding the use of Artificial Intelligence: our Provost has expressed to “Let us all make sure we are learning and sharing best practices and not allowing AI to do the learning for us.” In this course, any work you submit for credit must represent your own ideas and understanding of the assigned material. If you are uncertain about any case where your use of AI may be in conflict with University or course standards, please see me to discuss your concerns.

Loyola University Absence Policy for Students in Co-Curricular Activities (including ROTC):

Students missing classes while representing Loyola University Chicago in an official capacity (e.g., intercollegiate athletics, debate team, model government organization) shall be allowed by the faculty member of record to make up any assignments and to receive notes or other written information distributed in the missed classes.

Students should discuss with faculty the potential consequences of missing lectures and the ways in which they can be remedied. Students must provide their instructors with proper documentation i.e., “[Athletic Competition & Travel Letter](#)” describing the reason for and date of the absence.

This documentation must be signed by an appropriate faculty or staff member and it must be provided to the professor in the first week of a semester. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to allow the student to take the examination at another time.

(<https://www.luc.edu/athletheadvising/attendance.shtml>)

Students who will miss class for an academic competition or conference must provide proper documentation to their instructor as early in the semester as possible.

Advance notice must be sent to the instructor through Loyola email.

Accommodations for Religious Reasons

If you have observances of religious holidays that will cause you to miss class or otherwise effect your academic work in the course you must alert the instructor ***no later than Friday of Week 2 in the semester*** to request accommodations. Advance notice must be sent to the instructor through Loyola email by this deadline.

Universal Absence Accommodation Policy and Late/Missed Assignment Policy

The purpose of a universal absence accommodation policy is to account for emergency circumstances (e.g., serious illness, caring for a family member, car accident) that require you to be absent from class, while maintaining fairness in grading for students who attend and complete all in-class graded assignments. We believe that class attendance and participation are essential for your success in this class, and that your health is important to us and our shared community. Please use good judgement and stay home if necessary/prudent for your circumstances.

This is the universal accommodation policy for in-class graded assignments:

- Homework assignments are entirely virtual and are expected to be turned in on time. Late penalties will be assessed to for assignments turned in past the required time/date.
- The lowest quiz including absence can be dropped. Up to two quizzes can be accommodated via a proctored format. Missing further assignments past these is not allowable and will be counted as a zero.
- Portfolio components are generated over several weeks and should be turned in on time. Late assignments will be penalized.
- Missed portfolio presentations can be made up the following class period without penalty. Presentations later than that will receive a deduction.

Accommodating a quiz or portfolio presentation requires documentation justifying the absence. These accommodations are automatically available to all students.

Recording via Panopto

In this class software will be used to record live class discussions. As a student in this class, your participation in live class discussions will be recorded. These recordings will be made available only to students enrolled in the class, to assist those who cannot attend the live session or to serve as a resource for those who would like to review content that was presented. All recordings will become unavailable to students in the class when the Sakai course is unpublished (i.e., shortly after the course ends, per the [Sakai administrative schedule](#)).

Privacy Statement

Assuring privacy among faculty and students engaged in online and face-to-face instructional activities helps promote open and robust conversations and mitigates concerns that comments made within the context of the class will be shared beyond the classroom. As such, recordings of instructional activities occurring in online or face-to-face classes may be used solely for internal class purposes by the faculty member and students registered for the course, and only during the period in which the course is offered.

Students will be informed of such recordings by a statement in the syllabus for the course in which they will be recorded.

Instructors who wish to make subsequent use of recordings that include student activity may do so **only** with informed written consent of the students involved or if all student activity is removed from the recording. Recordings including student activity that have been initiated by the instructor may be retained by the instructor only for individual use.

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Copyright/Intellectual Property reminder

Course materials provided by your instructors at Loyola, including my materials, may not be shared outside any course without the instructor’s written permission. Content posted without permission will be in violation of Copyright/Intellectual Property laws. Class meetings may not be recorded without the instructor’s written permission.