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CHMY 302E.01: Chemistry Literature and Science Writing

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Instructor

William R. Laws, Chem304, 243-4107, bill.laws@umontana.edu

Office Hours

Open door MWF or schedule a specific time

Course Goals

This course provides instruction and experience in effective communication and ethical practice in science. Topics to be covered include:

- the three main western ethics theories
- the role of ethics in science
- the presentation of scientific information in different formats to different audiences
- the effective use of library and internet databases

Course Textbooks

1. Michael J. Sandel, "Justice: What's the Right Thing To Do?", Farrar, Straus, and Giroux, New York, 2010.
2. "The ACS Style Guide. Effective Communication of Scientific Information", 3rd ed., Coghill and Garson, eds., American Chemical Society, 2006.

Course Materials

1. Assignment details and in-class materials will be handed out in class and posted on Moodle.
2. Online lectures at www.justiceharvard.org by Michael J. Sandel, Dept. of Government, Harvard University, viewed out of class may help you participate in the discussions on ethics.

Course Content

A. Reading: You will be expected to read assigned portions of the two textbooks and other material **before** the class. This information will complement the lecture topics, discussions, and writing assignments.

B. In class: Class time will be split into three basic categories:

1. The three standard western traditions in ethics will be presented, discussed, and compared. The insights gained will be applied to the role of ethics in science.
2. To help with the out-of-class assignments (see below), time will be spent on:
 - a. composition, word use, formatting, etc.
 - b. peer reviews of the out-of-class writing assignments
 - c. library and database use
 - d. two writing assignments: one on ethics and another on chemistry; topics to be announced in class
3. Invited experts will provide:
 - a. information, ideas, and guidelines for two writing assignments
 - b. overviews of writing research grants and publishing scientific articles

C. Out of class: There are five writing assignments.

- A1** text editing
- A2** write a guide for a first-year general chemistry student on how to use a laboratory instrument
- A3** write resumes and cover letters for two different job descriptions
- A4** study a well-known case of an ethics violation in science; write a summary of the case and existing critiques, and include your concerns with respect to the ethics
- A5** this has two parts: a) write a persuasion article, detailing the science and applying ethics to your arguments, concerning a current public issue involving chemistry; and b) write this article for the general public

An excellent scientific article requires writing a series of drafts. Therefore, the following procedure will be used for each assignment:

- First, you will submit a draft (e.g., A2.d1) for peer review; you will edit the draft of a classmate.
- Second, based on the edited first draft, you will submit a second draft (e.g., A2.d2) for review by Dr. Laws.
- For A4 and A5, you will include a third draft (e.g., A4.d3) in the portfolio using the edited second draft.

D. Portfolio: The portfolio (specifications to be given early in the semester) will consist of:

- all drafts of all out-of-class assignments
- all editing evaluation forms
- both in-class writing assignments
- an evaluation of the course with respect to your enhanced understanding of ethics, improved writing abilities, and acquired knowledge in obtaining scientific information

Writing Criteria

1. Details such as audience and minimum length will be given with each assignment.
2. Unless stated otherwise, submit drafts for all out-of-class assignments printed:
 - a. double-spaced and one inch margins in Times New Roman 12-pt or Arial 11-pt fonts
 - b. pages numbered bottom center
 - c. with the first page having a top, right-side header consisting of your name and the assignment and draft number (e.g., John Doe, A3.d2)
3. Use paperclips - do not staple, punch binder holes, etc.
4. Drafts handed in late will not receive full credit.
5. Remember that all drafts for all assignments will be required for your portfolio. It is advised to keep a complete electronic record of all drafts of each assignment.

The Writing Center

Tutors can assist you, free of charge, with your writing assignments. Make an appointment and access resources at www.umt.edu/writingcenter. Drop-in tutoring is available during library hours.

Attendance

1. Make every effort to attend all classes. As stated below, your final grade will be determined in part by your participation in:
 - a. the discussions of the ethics concepts
 - b. the writing and library workshops
 - c. the peer reviews
 - d. the in-class writing assignments
2. Missing classes will affect your ability to:
 - a. include ethics in two writing assignments
 - b. improve your writing skills
3. Contact Dr. Laws prior to missing a class or immediately after an illness.

Evaluation

1. Your grade will be based on your in-class work (50%) and the final portfolio (50%).
2. Each student will meet with Dr. Laws to discuss their progress in the course. The meeting will be by appointment during the week of October 14.
3. The in-class evaluation will relate to:
 - a. your participation in the discussions on ethics
 - b. your effort and ability as a peer reviewer
 - c. your participation in the writing and library workshops
 - d. your interactions with the invited experts
4. The portfolio will be judged by:
 - a. your ability to improve each draft of each assignment
 - b. your improvement in all scientific writing skills over the entire semester
 - c. the quality of the science and incorporation of ethics in A4.d3 and A5.d3

Disability

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students](#). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or call 406.243.2243. Dr. Laws will work with you and Disability Services to provide an appropriate modification.

Legal Notice

This syllabus is not a contract; it is an initial outline of course policies, requirements, and schedule. Changes may be made during the semester at the discretion of Dr. Laws.

Academic Misconduct

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and a disciplinary sanction by the University. All students must be familiar with the Student Conduct Code at <http://life.umt.edu/vpsa/studentconduct.php>.

Schedule

				Assignments	
Week	Date	Topic	Preparation	Given	Due
1	T Aug. 26	1. introduction to class 2. grammar, punctuation, etc.			
	R Aug. 28	1. G. McCaffrey: using the Writing Center 2. editing workshop	1. ACS: pp. vii-viii, 27-58, 105-128, 135-162 2. bring ACS	A1	
2	T Sept. 2	1. peer review of A1 2. technical writing and wording	1. ACS: pp. 203-227, 233-246, 255-276, 287-327 2. bring ACS		A1.d1
	R Sept. 4	introduction to ethics: utilitarianism, deontology, and virtue ethics	1. see A and B below 2. Sandel, chap. 1	A2	
3	T Sept. 9	utilitarianism	Sandel, chap. 2		A1.d2
	R Sept. 11	utilitarianism	Sandel, chap. 2		
4	T Sept. 16	J. Burham of Career Services: resumes, cover letters		A3	
	R Sept. 18	deontology	Sandel, chap. 5		
5	T Sept. 23	deontology	Sandel, chap. 5		
	R Sept. 25	peer reviews of A2 and A3	bring ACS		A2.d1 A3.d1
6	T Sept. 30	virtue ethics	Sandel, chap. 8	A4	
	R Oct. 2	virtue ethics	Sandel, chap. 8		A2.d2
7	T Oct. 7	comparing the traditional ethics concerns	see C below		A3.d2
	R Oct.9	ethics in science	see D and E below		
8	T Oct. 14	1. ethics summary 2. in-class writing assignment B1: topic on ethics TBA	1. class meets in Chem107 2. review ethics reading and class discussions 3. bring Sandel and notes	B1	B1
	R Oct. 16	N. White: presenting science for the public reader			
9	T Oct. 21	peer review of A4	bring ACS	A5	A4.d1
	R Oct. 23	basics of a peer-reviewed scientific journal article	read journal article		
10	T Oct. 28	B. Brown: searching science databases and processing results	class meets in MLSLC		A4.d2
	R Oct. 30	B. Brown: searching science databases and processing results	class meets in MLSLC		
11	T Nov. 4	Election Day - no class			
	R Nov. 6	SciFinder	class meets in MLSLC		

12	T Nov. 11	Veteran's Day - no class			
	R Nov.13	S. Ross: publishing in a scientific journal	ACS: pp. 3-26, 71-76		
13	T Nov. 18	peer review of A5	bring ACS		A5.d1
	R Nov. 20	J. Kyle: patents	ACS: pp. 77-86		
14	T Nov. 25	B. Bowler: grant writing			A5.d2
	R Nov. 27	Thanksgiving - no class			
15	T Dec. 2	in-class writing assignment B2: chemistry topic TBA	1. class meets in Chem107 2. bring ACS	B2	B2
	R Dec. 4	TBA			
final	F Dec 12	portfolio due by 1:00 pm			

- A. Read "Overcoming Philoso-phobia: A Short Introduction to Ethics for the Science Debates" at:
<http://www.umt.edu/ethics/Debating%20Science%20Program/Short%20courses/Philosophobia/default.php>
- B. Read sections 1 and 2, including the case study and questions, from "Free Research Ethics Online Course" at:
<http://www.umt.edu/ethics/courses/researchethics/default.php>
- C. The three ethics traditions that have been covered will be discussed and contrasted with respect to each other. Therefore, prepare notes on the positive and negative points of each theory.
- D. Read "What is Ethics in Research & Why is it Important?" at:
<http://www.niehs.nih.gov/research/resources/bioethics/whatis/>
- E. Go to the site below and be prepared to discuss the following cases in terms of the three ethics traditions covered and the provided options: Category 1, conflicting criteria; Category 2, prevaricating postdoc; Category 3, dangerous doc; and Category 4, between bribery and gratuity.
<http://www.acs.org/content/acs/en/about/governance/committees/ethics/ethics-case-studies.html>
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Invited Experts

- Dr. Bruce E. Bowler, Dept. of Chemistry and Biochemistry
Grant writing: stylistic, substantive, and ethics in the preparation and review of grant proposals
- Dr. Barry N. Brown, Mansfield Library
Reference management, citation indexes, and comprehensive science literature searches
- Jean Kyle, Esq., School of Law
Protection of intellectual property, rights conveyed by a patent, the criteria of patentability, the process of obtaining a patent, and the ethics of intellectual property protection and use
- Dr. J.B. Alexander (Sandy) Ross, Dept. of Chemistry and Biochemistry, Dean of the Graduate School, and Executive Editor for Analytical Biochemistry
Scientific publishing, authors, journals, readership, submission, reviewers, editors, future of scientific journals, and ethics in publishing
- Dr. Nadia White, School of Journalism
Presentation of scientific ideas, accomplishments, and goals to the public reader, and ethical practice in scientific journalism