

CHEMISTRY 315: Science in Film and TV

Term:	Fall, 2007
Prerequisites:	None
Class time:	1.00 p.m. – 3.45 p.m. Thursdays
Instructor:	S. Jayasinghe (Jay), Ph.D.
Office:	Sci II, 229
Office hours:	Mondays and Wednesdays 1:00 p.m. to 2:30 p.m. or by appointment
Phone:	(760) 750-8075
E-mail:	<i>E-mail communication will be via WebCT. E-mails sent to the instructor's campus e-mail address will NOT be returned (unless in the case of an emergency). Use the instructor's campus e-mail (sjayasin@csusm.edu) only in the case of an emergency.</i>

Course Description: Intended for the non-science major, the goal of this course is to introduce students to the fundamental concepts in the physical and life sciences. Popular motion pictures, television programs and commercials, and video documentaries that contain scientific themes will be used to introduce relevant concepts, and will also serve as a common background from which students can expand their scientific understanding.

Student Learning outcomes:

At the end of this course students should be able to demonstrate:

- (1). Their knowledge of the structure of the atom, covalent and ionic bonding, radioactivity and the use of radioactivity in society.
- (2). Their knowledge of organic molecules and their use as drugs and medicines.
- (3). Their knowledge of carbohydrates, proteins, lipids, and their role in nutrition, and the role of nucleic acids in health and disease.
- (4). Their ability to critically analyze the science as depicted in the popular media.

Textbook: “Adventures in Chemistry”, by Julie T. Millard, Houghton Mifflin Publishing, 2008.

Other Requirements:

Students may be required to view some of the movies outside of the classroom. Students may also be required to read newspaper, magazine, and journal articles.

WebCT:

The course website can be accessed via the campus WebCT system. The following will be available or done through the WebCT site:

- (i). Posting of all assignments
- (iii). E-mail communication with the instructor and receiving notices from the instructor.
- (iv). A calendar tool indicating important course/assignment dates.
- (v). The syllabus

If you are not already familiar with the use of WebCT (version 6) please consult the IITS help desk or the instructor as soon as possible.

Topics:

Date	Chapter	Topics and Film
August 23	Chapter 1: Matter, Atoms, and Compounds	Introduction to the course and syllabus. What is Science? How does science work? What is the defining characteristic of science (vs. pseudoscience)? What is chemistry? What do chemists do? What are the different branches of chemistry? What is matter? What are the different types of matter? <i>Film/TV: MythBusters</i>
August 30	Chapter 1: Matter, Atoms, and Compounds	Atomic models and their history. Current model. Subatomic particles and their properties. Definitions of atomic number, Mass number. Introduction to the periodic table. Properties of the periodic table. <i>Film: A is for Atom</i>
September 6	Chapter 6: Nuclear Chemistry	Introduction to isotopes. Nuclear chemistry. Nuclear medicine. Radio dating. Nuclear energy. Nuclear weapons. <i>Film: Madam Curie</i>
September 13	Chapter 2: Chemical bonds	Introduction to bonding: Covalent, ionic, hydrogen.
September 20	FIRST MID SEMESTER EXAMINATION	
September 27	Chapter 7: Introduction to Organic Chemistry	Organic molecules. Functional groups and what you can do with them.
October 4	Chapter 8: Introduction to Biochemistry – The Cell, Lipids, Carbohydrates, Proteins	Introduction to the cell, carbs, lipids and proteins. The structure and function of biological macromolecules.
October 11	Chapter 11: Chemistry and Medicine	How are new drugs developed? The role of organic chemistry in drug development? <i>Film: Medicine Man/Serpent and the Rainbow</i>
October 18	Chapter 11: Chemistry and Medicine	The science of human disease. Bacteria and Viruses. Drugs. Drug resistance. <i>Film: Outbreak/Lorenzo's Oil</i>
October 25	SECOND MID SEMESTER EXAMINATION	
November 1	Chapter 9: Chemistry and Food	Chemistry of food. The food pyramid. How to read nutrition labels. Interpreting diets. <i>Film: Supersize Me</i>
November 8	Chapter 8: Introduction to Biochemistry – Nucleic Acids Chapter 13: Chemistry and the Genetic Revolution	What is DNA and RNA. The human genome project (and other genome projects). Where does this get us? Genetic Medicine. Cloning. Genetics and Ethics. <i>Film: The Race For the Double Helix</i>
November 15	Chapter 15: Chemistry and the Environment	Chemistry and the environment. Acid rain. Ozone and its depletion. Global Warming? <i>Film: An Inconvenient Truth/11th Hour</i>
November 22	No Class – Thanksgiving Holiday	
November 29	Chapter 16: Chemistry and Crime	Forensic Science. What can and cannot be done. Timescales, creative license. Film/TV: CSI
December 6	FINAL EXAMINATION	

Exams: There will be two one-hour midterm examinations and a two hour final examination. The midterm examinations are scheduled as follows:

1st midterm examination – September 20, 2007

2nd midterm examination – October 25, 2007

The final examination will be on the 6th of December 2007 at 1:00 p.m.

Midterm and final examinations will contain multiple choice questions. Please bring a scantron.

Make up examinations will only be given if the student has a valid excuse (severe illness, death in the family, etc.) and notifies the instructor prior to test time (if possible). No make-up examination will be given unless the instructor is notified of the emergency within two (2) days of the test.

In-class activities: Following each class discussion students will complete in-class activities that will be collected at the end of each class period.

Make up activities will only be given if the student has a valid excuse (severe illness, death in the family, etc.) and notifies the instructor prior to test time (if possible). No make-up activities will be given unless the instructor is notified of the emergency within two (2) days of the test.

Assignments bases on screenings:

A set of assignments, including one to three page written reports, based on the video screenings will be made available via WebCT throughout the semester. Due dates for these assignments will be posted on WebCT.

Use of Electronic Devices:

The use of cell phones, PDAs, or any other electronic device during exams is not allowed. Scientific calculators are permitted.

Use of Cellular Phones:

All cellular phones must be set to the silent mode. Please refrain from using your cellular phone during class. If you must answer your phone, due to an emergency, please leave the classroom.

Grading (points):	In-class activities related to class discussion	150
	Assignments based on screenings/class discussion	150
	Midterm examinations (2 @ 50 points per exam)	100
	Final Examination	100
	Total	500

Grading Scale:

A 90-100% **B** 80-89.9% **C** 70-79.9% **D** 60-69.9% **F** <60%

Writing Requirement: The University Writing Requirement will be satisfied upon successful completion of assignments.

Students with Disabilities:

Students with disabilities who require accommodation must be approved by the Office of Disabled Student Services (DSS). Please contact this office as soon as possible and should meet with the

instructor during office hours (or at some other mutually agreeable time). The DSS office is located in Craven hall 5205. Their telephone number is (760) 750-4905 or TTY (760) 750-4909.

Academic Honesty: All students are expected to maintain academic honesty. **All submitted work must be your own and must be written in your own words.**

All students should be familiar with the university policies and procedures concerning academic honesty as detailed in the university catalog. An online version of these policies and procedures can also be found at: http://lynx.csusm.edu/policies/procedure_online.asp?ID=187

Cheating, plagiarism, and other forms of academic dishonesty will not be tolerated. If you are caught cheating on an exam you will receive a grade of zero. All cases of academic dishonesty will be reported to the dean of students for appropriate action.

Use of Plagiarism Detection Software:

Where appropriate the instructor will use software (TURNITIN) for the detection of plagiarism.

Plagiarized work will not be graded.

Classroom Behavior and Student Code of Conduct:

Students are expected to respect and follow standards of student conduct while in class and on the campus. As your instructor, I have the following expectations concerning your behavior in this class:

1. Promote a courteous learning atmosphere by exhibiting mutual respect and consideration of the feelings, ideas, and contributions of others
2. Practice consideration for others by maintaining a clean and orderly classroom.
3. Recognize everyone's opportunity to contribute information in a relevant and meaningful manner by not monopolizing discussions, interrupting, interjecting irrelevant, illogical or inappropriate questions or comments.
4. Do not dominate class discussion—give others a chance to contribute!
5. If you must eat in class do so discreetly.