HISTORY OF CHEMISTRY AND SOCIETY SPRING, 2012

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You are expected to know and understand this syllabus. If you do not understand anything, please **ASK**.

Prerequisites: Those of any perspectives course (satisfaction of the English Composition competency requirement, that is, English 110; plus at least 24 semester hours of the Liberal Arts Core); CH 102, CH 104, or CH 111; two social science courses—including one history course: HI 101, HI 320, HI 410 preferred.

Textbook: "The Development of Modern Chemistry," Aaron J. Ihde, Dover Publications, Inc., New York, NY, 1984 (Chapters 3 through 21). *Optional:* "The Historical Background of Chemistry," Henry M. Leicester, Dover Publications, Inc., New York, NY, 1956 (Chapters I through XIV). $10 deposit to borrow electronic images of both. **TAKE CARE!** Extensive studies demonstrate that those who "read" on a computer screen, typically follow a "J" pattern: carefully reading the first few lines, quickly scanning the rest of the screen and reading the last line. Avoid this by writing five lines of notes that summarize or ask questions about each screen. During each class, expect an oral question about the reading.

Objectives: On successfully completing the course: (1) explain, and illustrate with at least five specific examples, how the course of history was altered by chemical developments; (2) describe how the science of chemistry developed from prechemistry, including describing how prechemistry was influenced by the societies in which it developed and how each society imparted its own character to the developing discipline; (3) describe how modern chemistry developed, how it was influenced by the political, social, and moral climate of the countries where it developed, and how it altered these societies; and (4) show how the role and character of science, chemistry particularly, has changed from the 17th century to today.

Format: The course is conducted in discussion format. Because you enrolled, you are assumed to be interested in the history and development of chemistry and how they relate to the rest of society. Maintain and manifest that interest. Active participation in class discussions is expected of all members. Your background in history is likely to be different from that of the rest of the class, giving you many opportunities to contribute. The text and the discussion notes will serve as resources for our discussions, as will the short and long papers produced and presented by the members of the class.

Quizzes: There will be at least 10 short quizzes (possibly one per week), 10 minutes in length, given at the beginning of the hour. Please be prompt! The format is either short answer or short essay. Each quiz is worth twenty (20) points, fifteen (15) for content, and five (5) for correct grammar, logical organization, correct spelling, etc.

Reports: Summarize an original paper (try the site http://webserver.lemoyne.edu/faculty/giunta/papers.html, but search the web and the library also) and prepare a brief summary of that paper. The topic of your presentation should approximate what we are studying in class. Limit each report to one page in length, typewritte, and double space. Be certain to reference your source. Five reports are due during the semester. Dates will be assigned on a random basis, with possibly two members of the class having reports due each class meeting. One of those individuals will present (not read) his/her report orally. This means that you should be prepared to present your report from notes on a 3 × 5 card.

Discussion: Come to each class prepared to contribute to a lively discussion. A careful reading of the scheduled chapters (along with your notes on your reading) is the minimum you should prepare. Because few texts consider many societal implications of chemistry, discussion notes for the course have been prepared, incorporating information from many sources. Copies will be available at the beginning of the semester. They also include discussion questions and examinations from previous offerings of the course. The cost for the more than 100 pages of notes is $10.00. Any extra funds received for the notes is used to purchase supplies, journals, and books for the course.

Papers: Complete two written papers five to seven pages in length. Final drafts due on the dates indicated on the calendar. A typed half-page proposal for your paper, including four bibliographic citations, is due three weeks before the paper, and will be returned the next class day. The proposal constitutes 20% of the paper's value, and **MUST** be approved ten days before the paper is accepted. (References may not include encyclopedias, course notes, course texts, or juvenile literature. One-half of citations should originally be non-electronic.) Each paper should discuss how developments in chemistry influenced or were influenced by world events during the period covered by the course (up to about 1930). E-mailed proposals must be text —not attachments—because of variation in word-processor formats.

Honors: To receive honors credit for this course, your contributions to daily discussions must indicate investigation beyond the daily reading assignments. In addition, at least three of your reports must exceed a simple summary: replication of a historical experiment, a summary of two or more related papers with a careful explanation of how they are related, an added short nonchemical biography of the chemist of interest, a "tour" of an interesting location, etc.

Philosophy: According to the "1988 Revised General Education Curriculum", a perspectives course: "(2) must have meaningful writing and oral communications components" and (4) "requires the students to identify, critically analyze, and resolve complex problems (social, cultural, scientific, and/or aesthetic) that require the application of knowledge from two or more academic disciplines and/or cultures." Writing and discussing help us attain these goals.

Absences: YOU ARE RESPONSIBLE for obtaining the notes for any class you miss, whether your absence is excused or not. You must arrange to make up any missed work. Absences may be excused for university-sponsored events, jury duty, military duty, death or critical illness in immediate family, or personal illness. Support each request for excuse with a

written statement of the absence's reason, signed by the responsible person (coach, faculty member, judge, commander, physician), on letterhead including that person's phone number. Except for death or illness, requests for excuse must be presented before the date of the anticipated absence; other requests are INVALID after a week of your return to class. An excuse for personal illness is granted only if a health professional states you were too ill to come to class; MU Health Services rarely issues such statements. Do not expect to miss more than four class days for any reason and still pass the course. You makeup "excused" points based on your percent score on the final.

Academic Honesty: If you submit someone else's work as your own, you have committed plagiarism. Confer with the instructor if you have doubts. University penalties for academic dishonesty are severe: from an examination or paper grade of zero to expulsion from the University. Academic dishonesty penalties become part of your official record.

Cancelled Classes: "The cancellation of classes by the University does not alter the mutual responsibility of faculty and students to fulfill the requirements of the curriculum." [Faculty Senate 29 Oct 2001] In the event that classes are cancelled, we shall agree as a class on means to make sure that the content of the course is not compromised.

Grading							
(–20% each	Ten 10-minute Quizzes (20 points each)	200 points	A	B	C	D	
day late)	Five 1-page Summaries (30 points each)	150 points	90%	80%	70%	60%	
(800 points	Two 5-page Papers (100 points each)	200 points	720	640	560	480 points	
total)	Contributions to class discussion (evaluated daily)	100 points	"–" is _0, _1, _2				
	90-minute Final Examination	150 points	"+" is _7, _8, _9				

Chemistry 372 dec02version Spring Semester 2012 Tentative Course Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday
JAN	23	24 **I** Introduction **II** Early Practical Chemistry	25	26 **III** Ancient Scientific Ideas **IV** Greek Science	27
JAN	30	31 **V** Greek Culture/Alchemy Rise **VI** Chinese Alchemy	1	2 **VII** Arabic Alchemy **VIII** Trans.of Chem.West	3
FEB	6	7 **IX** 14th and 15th Centuries **X** 16th Century, Technical Chem	8	9 **XI** Chem.Prac&Theo in 17th **XII** Spread of Atomistic Theories	10
fEB	13	14 **XIII** 18th Century Theories **XIV** Lab Discov of 18th: Gases	15	16 Lavoisier and the Chemical **3** Revolution	17
fEB	20	21 Chemical Combination & **4** Atomic Theory	22	23 Electrochemistry and the **5** Dualistic Theory	24
fEB	27	28 **6** The Period of Problems	29	1 Organic Chemistry. I The **7** Rise of Organic Chemistry	2
MAR	5	6 Organic Chemistry II. **8** Organization	7	8 **1st PAPER** **9** Classification of the Elements	9
MAR	12	M I D – S E M E S T E R		B R E A K	
MAR	19	20 **9** Classification of the Elements	21	22 The Diffusion of Chemical **10** Knowledge	23
MAR	26	27 Analytical Chemistry I. **11** Systematization	28	29 Organic Chemistry III. **12** Consolidation	30
APR	2	3 Organic Chemistry IV. **13** Natural Products	4	5 Inorganic Chemistry IV. **14** Fundamental Developments	6
APR	9	10 Physical Chemistry I **15** Origins	11	12 Biological Chemistry I. **16** Agr, Physiol., Food Studies	13
APR	16	17 Chemical Industry I. **17** The Nineteenth Century	18	19 Radioactivity II: Radio- **18** activity and Atomic Structure	20
APR	23	24 Radioactivity II. **19** The Nuclear Age	25	26 Physical Chemistry II. **20** Maturity **2nd PAPER**	27
APR	30	1 Analytical Chemistry II. **21** Expansion	2	3 Last Course Day	4
APR	7 **F12:45**	8 FINAL **MONDAY 7 MAY**	9	10 **12:45-4:45pm**	11