**Impact of Chemistry - Chem 127 (01:160:127) Fall 2014**
**Monday & Thursday 10:20 – 11:40 AM, SEC 207**

Course Organization and Syllabus

*Revised 08/24/2014*

Dr. Shmuel Zbaida
Wright Rieman Labs, BC
E-mail: zbaida@rci.rutgers.edu Tel (848) 445-8608

**Office hours:** Thursdays, 12:00 noon – 1:00 PM at ARC 332. Special office hours at Wright Rieman Labs (by appointment) will also be available.

**Textbook:** "Chemistry in Context", 8th ed. by Catherine H. Middlecamp et al.

**Course Organization**

More and more decisions today are based on scientific and technical information: Where to live? What food to eat? Whom to vote for? Therefore, you need tools to make these decisions. The "Impact of Chemistry" is designed for non-science majors; it has no prerequisites, and focuses on how the fundamental concepts of chemistry relate to human life, health, and everyday problems.

This course also intends to improve your critical thinking, public speaking, and writing skills. Therefore, each student will be assigned to a group of (five or six) students. Group work consists of a case study as well as completed end-of-chapter problem sets to be handed in.

**Topics:** There are six topics covered in one or more chapters. Topics will be covered in Three or four meetings. Each session will consist of lecture/discussion (20 minute lecture, 30 minute discussion, followed by another 20 minute lecture). Each topic culminates with a discussion of a case study. Each group of students will have to prepare a position paper (1-2 pages) and to defend that position in a discussion. Details will be specified in class.

**Problem Sets:** Each topic will contain a problem set (end-of-chapter problems from the textbook). These exercises are to be completed and handed in (one per group). Be advised that each member of the group will be responsible for the material contained in the entire problem set.

**Exams:** There will be three examinations during this course. On these exams, each student will work alone; no group work will be permitted.
Grading:

The course grade (A, B+, B, C+, C, D, or F) will be based on the total number of points that a student accumulates.

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<tr>
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<th>Points</th>
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<tr>
<td>Exams (3 x 100 points)</td>
<td>300</td>
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<tr>
<td>Case Studies (6 x 15 points)</td>
<td>90</td>
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<td>Problem Sets (6 x 10 points)</td>
<td>60</td>
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<tr>
<td>Attendance</td>
<td>50</td>
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<td><strong>Total</strong></td>
<td><strong>500</strong></td>
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**Academic Integrity:** All university policies on academic integrity will be strictly enforced. Any involvement with cheating or facilitating the academic dishonesty of others will result in serious consequences ranging from reprimand to expulsion. For more details please check the web link below:

http://academicintegrity.rutgers.edu/

**Course Web Site:** All course content (lecture notes, syllabus, announcements, exams, grades etc.), will be posted at: https://sakai.rutgers.edu/portal (Username and Net ID Password are required)

**Students with Disabilities:** If you have a disability, you must contact the course coordinator early in the semester to make the necessary arrangements to support a successful learning experience. Also, you must arrange for the course coordinator to receive a letter from the College Disability Concerns Coordinator verifying that you have a disability. The website for the Office of Disability Services at Rutgers is: http://disabilityservices.rutgers.edu/
Syllabus

**Topic 1: The Air We Breathe** (Sept. 4, 8, 11, 15, 18)
Readings for Topic 1: Ch. 0, Ch. 1, Ch. 2
**Problem Set 1:** Due date Sept. 18:
Ch. 0 problems 13, 15, 16, 18
Ch. 1 problems 4, 5, 8, 9, 10, 11 - 14, 18, 20 - 23, 27, 31
Ch. 2 problems 1 – 3, 8-13, 16, 21, 38

Session 1: Sept. 4. Course overview, assignment to groups, Chapter 1, student surveys
Session 2: Sept. 8. Chapters 2 lecture/discussion
Session 3: Sept. 11. Writing group contracts, Chapter 2 lecture/discussion
Session 4: Sept. 15. Chapter 2 lecture/discussion
Session 5: Sept. 18. Lecture/discussion, hand in Problem Set 1 & position papers.
**Case Study 1:** Biological and chemical warfare (e.g. anthrax, smallpox, sarin, nerve agents, ricin, mustard gas)

**Topic 2: Global Climate Change** (Sept. 22, 25, 29, Oct. 2)
Readings for Topic 2: Ch. 3.
**Problem Set 2:** Due date Oct. 2:
Chapter 3 problems 2, 3 - 5, 7, 9, 11-14, 19, 22, 24, 33, 37, 38, 41

Session 1: Sept. 22, Chapter 3 lecture/discussion
Session 2: Sept. 25, Chapter 3 lecture/discussion;
**Hand in revised group contracts.**
Session 3: Sept. 29 Chapter 3 lecture/discussion.
**Case Study 2:** Changing Global Weather Patterns

**EXAM I:** Monday October 6, 2014 (Topics 1, 2)

**Topic 3: Water for Life** (Oct. 9, 13, 16, 20)
Readings for Topic 3: Ch. 5
**Problem Set 3:** Due date Oct. 20
Ch. 5 problems: 4 – 6, 8 – 11, 15 – 20, 26, 27, 34 – 36, 44

Session 1: Oct. 9, Ch. 5 lecture/discussion
Session 2: Oct. 13, Ch. 5, lecture/discussion
Session 3: Oct. 16, Ch. 5 lecture/discussion
Session 4: Oct. 20, Ch. 5 Lecture/discussion; hand in problem set 3 & position papers.
**Case Study 3:** Climate Impact on Water Resources.
**Topic 4: Acid Rain and Ocean Acidification** (Oct. 23, 27, 30, Nov. 3)
Readings for Topic 4: Chapter 6.
**Problem Set 4**: Due date Nov. 3:
Ch. 6 problems 2, 6, 7 – 12, 14, 15, 21, 27, 29, 36, 38, 42

Session 1: Oct. 23, Chapter 6 lecture/discussion.
Session 2: Oct. 27, Chapter 6 lecture/discussion.
Session 3: Oct. 30, Chapter 6 lecture/discussion;
Session 4: Nov. 3, Chapter 6 lecture/discussion; hand in problem set 4 & position papers.
**Case Study 4: Correlation and Causation**

**EXAM II: Monday November 6, 2014 (Topic 3, 4)**

**Topic 5: Designing Drugs** (Nov. 10, 13, 17, 20)
Readings for Topic 5: Chapter 10.
**Problem Set 5**: Due date Nov. 20:
Chapter 10 problems, 5-9, 11, 13, 14, 15, 19, 22-25, 29, 31, 38, 40

Session 1: Nov. 10, Chapter 10 lecture/discussion
Session 2: Nov. 13, Chapter 10 lecture/discussion
Session 3: Nov. 27, Chapter 10 lecture/discussion
Session 4: Nov. 20, Lecture/discussion; hand in problem set 5 & position papers.
**Case Study 5: Should Prisoners Be Used in Medical Experiments?**

**Topic 6: Genetics and Heredity** (Nov. 25*, Dec. 1, 4, 8)
(* Tues. Nov. 25 - Thursday Classes)

Readings for Topic 6: Ch. 12.
**Problem Set 6**: Due date December 8:
Ch. 12 problems 1, 4, 5, 8, 9, 12 - 15, 17, 21, 28, 30, 34, 50

Session 1: Dec. 1, Chapter 12 lecture/discussion
Session 2: Dec. 2, Chapter 12 lecture/discussion.
Session 3: Dec. 8, Chapter 12 lecture/discussion; hand in problem set 6 & position papers. **Case Study 6: Ethical Issues of the Human Genome Project.**

**EXAM 3: Monday Dec. 22, 8:00-11:00 AM, IN CLASS (Topics 5, 6)**