Course Syllabus

Everyday Chemistry

Course Information

Course Description

day we are immersed in chemicals and are participants in and observers of many chemical reactions. This course is designed to teach chemistry and physical science through the observation and explanation of many events we observe in daily life. It is specially designed for students who have little or no background in science. We will examine the chemistry of substances from table salt and food additives, to fuels for our cars and homes, to semiconductors, new plastics, and revolutionary materials that will improve our lives in the 21st century. This class will emphasize the interconnections in our world through science. We will address safety and the "positive" and "negative" impact of chemicals on our world.

Students will increase their understanding of scientific methods and concepts so that they may make informed societal judgments on issues relating to science and technology. Learning experiences such as exercises, online learning resources, discussions via an online discussion board, textbook readings, and an array of "hands on" and virtual experiments are all designed to encourage students to participate, to draw on previously learned information, to make judgments, and to inquire, thereby forming a basis for conceptual learning.

Course Learning Goals

After completing this course, you will be able to:

- a basic understanding of fundamental chemical concepts in the context of ordinary things in our everyday lives.
- and discuss how the chemical universe works and how science and in particular chemistry contribute to the development of new products, medicines, and advances in our standard of living.
- Be able to present and discuss ideas and information concerning science and their effect on the environment, on health, and on the quality of life.
- Evaluate scientific and technical issues and make reasoned judgments on societal issues relating to them.
- Describe the interconnections among the basic scientific principles with technology found in our homes and workplaces, with advances in technology, and with utilization of natural resources.

Course Resources

Required textbook

Snyder, Carl H., The Extraordinary Chemistry of Ordinary Things, Fourth Edition; John Wiley & Sons, Inc., 2003. (ISBN 0-471-41575-8) [NOTE that The Extraordinary Chemistry of Ordinary Things textbook is frequently updated; thus the chapter numbers may be different. Look for the chapter titles rather than chapter numbers. Thus far the publisher has not made major changes in the substance of each chapter.]

Required Chemistry Kit

There is a chemistry kit required for this course, so that you can perform the experiments safely.

It is available directly from http://www.athomescience.com/chemistrykits.htm and is listed as ChemKit-334 Only for DePaul Univ. SW-334: Everyday Chemistry.

Additional Reading

These files are found in the “Resources” section of the online course.

- Scientific_Writing.doc
- Guidelines for Demonstration.doc
- Introduce an Element.doc
- Static Electricity.doc

The following websites discuss research paper writing in detail:

General Guides to writing a research paper

http://owl.english.purdue.edu/workshops/hypertext/ResearchW/

http://www.nutsandboltsguide.com

APA Format/Bibliography: http://www.nutsandboltsguide.com/apa.html

Topic Selection: http://members.aol.com/lklivngstn/essay/topic.html

Topic Refinement:
http://www.test.library.ucla.edu/libraries/college/help/topic/index.htm

Online resource for writing up scientific research:
http://www.clet.ait.ac.th/el21open.htm

The following websites contain links to many topics in chemistry as well as some experiments. If you are looking for another approach to a chemistry topic or perhaps want to see something in more depth, check through these websites:

Various Topics in Chemistry

http://chemistry.about.com/

http://www.chemistrycoach.com/tutorials-0.htm

http://hyperphysics.phy-astr.gsu.edu/hbase/chemical/chemcon.html#c1

http://library.thinkquest.org/10429/high/indexh.htm

http://library.thinkquest.org/10429/?tqskip1=1

http://www.thinkquest.org

http://chem.usc.edu/resources/chemlinks.html

http://science.howstuffworks.com

http://www.chemistrycoach.com/tutorials-0.htm

http://www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/animationsindex.htm

The following websites contain links to experiments. Be sure to review your experiment with your instructor before you start. Some sites may not emphasize the necessary safety and environmental issues:

Links to Experiments

http://chemistry.about.com/od/chemistryexperiments/

http://www.iit.edu/%7Esmile/cheminde.html

http://www.science-house.org/learn/CountertopChem/index.html

http://www.easyfunschool.com/article1982.html

http://teachingplastics.org/hands_on_plastics/activities/index.html#

http://www.exploratorium.edu/explore/handson.html

http://chemed.chem.purdue.edu/demos/

Experiments using Alka-Seltzer:

http://www.alka-seltzer.com/as/experiment/student_experiment4.htm

Links to specific topics in chemistry:

Classification of matter

http://www.antoine.frostburg.edu/chem/senses/101/matter/index.shtml

www.roomd116.com/TAKS%20PP/matterclass_pres.ppt

http://www.chem.uncc.edu/faculty/murphy/1251/slides/C11/sld001.htm

Electron dots of all shells and valence shell for main group elements:

http://hyperphysics.phy-astr.gsu.edu/hbase/pertab/perlewis.html#c1

Oxidation-reduction potentials

http://www.chemguide.co.uk/physical/redoxeqiamenu.html#top

Ice core research - global warming – from museum of science:

http://www.secretsoftheice.org/

American Petroleum Institute's position on global warming

http://www.api.org/globalclimate

View of the EPA (Environmental Protection Agency) on global warming

http://www.epa.gov/globalwarming

Information and links about polymers:

http://www.beyonddiscovery.org/content/view.article.asp?a=203

Information about how polymers work and where they can be found in the real world:

http://www.psrc.usm.edu/macrog/index.htm

Basic facts about plastics

http://www.plasticsresource.com/plastics_101/basics/facts.html

Packaging beer in plastic bottles.

http://www.ameriplas.org/benefits/in_your_life/beer_plastic_bottles.html

Making plastics from green plants rather than from petroleum.
Search WilsonSelect database for "How Green are Green Plastics?"

Plastics and your health.

http://www.plasticsinfo.org

Natural polymers.

http://www.psrc.usm.edu/macrog/natupoly.htm

American Petroleum Institute (petroleum and renewable energy resources):

http://www.api.org

National Renewable Energy Laboratory (U.S. government laboratory in Golden, CO)

http://www.nrel.gov

Gasoline, oxygenates, octane, gasoline refining

http://www.chevron.com

Electricity generation

http://www.electricityforum.com

Ionic bonding

http://www.chemguide.co.uk/atoms/bonding/ionic.html#top

Covalent bonding

http://www.chemguide.co.uk/atoms/bonding/covalent.html#top

Excellent discussion of pressure:

http://hyperphysics.phy-astr.gsu.edu/hbase/precon.html

Atmospheric pressure causes can to crush:

http://hyperphysics.phy-astr.gsu.edu/hbase/kinetic/pcokem.html#c1

Tour theater of electricity – find out about static electricity

http://www.mos.org/doc/1016

Fuel cells and some applications of fuel cell technology

http://www.fuelcells.org

http://www.dodfuelcell.com/pro_summary.html#top

http://www.fe.doc.gov/coal_power/fuel_cells/fc_sum.html

http://www.enn.com/enn-news-archive/1999/06/062499/fuelcell_3803.asp

http://www.sciam.com/explorations/122396explorations.html

Operation of a car battery

http://www.howstuffworks.com/battery3.htm

Loss and gain of electrons

http://www.uidaho.edu/~honors/redox.html

Metabolism of food in terms of oxidation and reduction

http://naio.kcc.hawaii.edu/chemistry/everyday_metabolism.html

Corrosion in terms of oxidation and reduction

http://naio.kcc.hawaii.edu/chemistry/everyday_corrosion.html

Trans fatty acids and the health implications of these acids

http://www.heartinfo.org/nutrition/transfat072299.htm

Factors affecting physical characteristics of fats and oils

http://www.iseo.org/iseo/ffo_6-7.htm

Fats and Oils

http://www.uen.org/Lessonplan/preview.cgi?LPid=1180

Alpha hydroxy acids and how do they work to improve your skin and fade wrinkles

http://skincarerx.org/AHA.html

Course Competences

Depending on your preferences at registration, you will develop one or two of the following competences:

Competence	Competence Statement
S-4	Can describe and explain connections among diverse aspects of nature.
S-1-A	Can explore natural phenomena or the world of everyday experiences using scientific methods, and can use theories to interpret observations.
S-1-E	Can analyze inventions or technologies and can understand their underlying scientific principles.
S-3-A	Can understand different perspectives on the relationship between technology and society, and describe the scientific principles underlying technological innovations.

Relationship of Everyday Chemistry to the competence statements

S-4: Chemicals that are fashioned into new materials, health care products, and agricultural products require natural resources as well as energy. We will study the interconnections between the use of natural resources and the quality of life generated through the use of everyday chemicals. We will also address their affects on the environment.

S-1-A: Natural phenomena can be as diverse as foods, polymers, fossil fuels, and natural forms of radiation. We will use a systematic approach to study the formation, acquisition, use, and ultimate disposal of items such as these, which are so vital to our everyday well being. We will learn how to control our environment by manipulating the chemical reactions that all matter undergoes.

S-1-E: New chemicals are used to increase crop yields, improve our health, enhance our looks, sanitize our environment, and make our lives easier. We will examine some broad categories of new materials and plastics, medicines, cosmetics, pesticides, and alternative fuels. We will see how chemical reactions can generate electricity and how electricity can generate chemical reactions.

S-3-A: New, “improved” technology is constantly being applied to existing products and processes that we use every day in our homes and workplaces. We will closely scrutinize technology, analyze the science on which it is based, and try to assess the impact this technology really has on our social, economic, and cultural structures.

Course Structure

This course will investigate matter, the physical substances in our world. It will look at the physical and chemical properties and the reactions or changes that matter undergoes. This is the basis for examining the chemical and scientific principles underlying ordinary everyday things. Chemistry is an experimental science. The student will learn to question, observe, and formulate and test hypotheses while performing simple “hands on experiments” or virtual experiments that are designed to illustrate one or more simple chemical phenomena. These chemical phenomena will be integrated into an understanding of technology, inventions, and interactions in nature through discussion, readings, and Internet resources. Depending on the competences selected, the student will participate in a learning exercise involving the development of an analytical report and/or a demonstration of an experiment exemplifying a chemical principle of the student’s choosing.

This course consists of 10 modules based primarily on a textbook. Assignments, readings, discussion and an experiment or an exercise will be provided for each module. Ideas and observations will be exchanged with other students in structured discussions. Assignments will be based on estimated time for completion of each subject area.

To view the course schedule, click on the Schedule link on the left-hand navigation bar. This page contains the most recently updated listing of the topics and assignments due for each week of the course.

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Assessment

All students will be assessed based on participation in discussion boards, lab reports, small assignments such as introducing an element and presenting one alternative fuel, and a mid-term exam. Students registered for one competence may choose to demonstrate that competence by writing an analytical report or by performing an experiment/demonstration and presenting their findings along with the underlying scientific principles. Students registered for two competencies will demonstrate one with an analytical report and the other with a demonstration of an experiment.

Analytical Paper

Some General Guidelines for Scientific Writing

Each report must be original and new. If you use the work of other authors, it is to be in quote form and the author identified. If you choose to summarize or paraphrase, you must credit the original author.

Be clear and direct. Check to see that your sentences are grammatically correct.

Do not assume your reader knows your topic. Define any new words or jargon. It is usually better to provide too much information for your reader rather than too little.

Avoid bias and generalizations in the body of your discussion. You can add your opinions in your conclusions.

Always use your own words to express your ideas. Whenever you read an article or a reference, take notes on the article in your own words. If you can explain what you have just read, then you really understand it.

Select an idea or topic that interests you personally and that would be relevant to your competence.

Use graphs, charts, tables, pictures, or other visual aids to help your reader understand the points you are trying to make.

Your paper should be in a style used by science journals. Science journals typically use the following format:

- ABSTRACT - brief description of your new contribution to knowledge
- INTRODUCTION - general background to the problem, why is this issue important, why you selected this topic
- PURPOSE OF THE STUDY - what part of the issue you are addressing and why
- METHODS - how you went about addressing the problem
- RESULTS - statement of what you found through your research
- DISCUSSION - your interpretation of your results, how your findings agree and/ conflict with previous work, strengths or weaknesses in the studies you are discussing
- CONCLUSIONS AND RECOMMENDATIONS - wrap up your discussion, what do you want the reader to remember, include your opinions or experiences if appropriate, describe areas for future work.
- REFERENCES - at least four references different from your textbook
- LENGTH - 4 to 7 pages, excluding figures and references, typed with double spacing; abstract may be single spaced and a few lines long if you wish

The emphasis of your paper will depend on the competence you are trying to establish. Be sure it is sufficient to demonstrate your competence in the area.

Guidelines for your Analytical Report

If you are registered for only one competence, you may choose either the analytical paper OR the experiment/demonstration as a way of fulfilling your competency requirement.

However if you are registered for two competencies, one should be fulfilled with the analytical paper and the other with the experiment/demonstration.

Both the analytical paper and the experiment/demonstration may be on the same topic, but will necessarily use different approaches and emphasize different areas relative to the selected competence.

In your analytical paper you will propose a research question in the beginning and then you will investigate your chosen research question. Your assignment is to develop a 4-7 (1000-1750 words) page (excluding tables, diagrams, graphs, and references) analytical paper that fulfills the requirements of your selected competency. The topic is of your choosing. This is an opportunity to delve into a subject of interest and/or relevance to you. Some students choose topics related to their work experiences or hobbies.

You are strongly urged to discuss your topic with your instructor prior to investing too much time and effort in it. The paper should be double-spaced and use a 10-12 point font with one-inch margins. The suggested guidelines for the format of the paper are given in Scientific_Writing.doc, located in the Resources folder of this course. Additional website resources are listed in the course resources.

Timeline for your Analytical Report

Week 2-4	Explore Analytical Paper Topics. Read Scientific_Writing.doc
Week 5	Submit topic along with the competence that will be demonstrated
Week 7	Submit list of references that you have explored thus far for your paper
Week 9	Submit Analytical Paper
Week 10	Work on revisions. This can be done in collaboration with your instructor
Week 11	Submit revised Analytical Paper, if necessary

Assessment Criteria for your Analytical Report

The purpose of the Analytical report is to propose a research question on a scientific topic of interest to you. Your investigation of this topic and the science underlying it will form the body of your paper. Conclusions and recommendations will be made after you critically analyze the information you have gathered. The following rubric will be used to assess your written work. Read the Word document entitled “Scientific Writing” in Additional Resources to see the suggested format. This format does not need to be strictly followed, but the paper must be logically organized and the facts appropriately substantiated. Less emphasis will be placed on grammatical construction than on scientific merit, idea development and analysis of your chosen topic relevant to your competence.

Grade:	**D**	**C**	**B**	**A**
Chemistry Presentation	Topic is chosen with regard to its scientific content and research question is clearly stated.	Scientific principles underlying the chosen research question are explained in the writer's own words and all jargon or scientific terms are explained.	Topic has substantial scientific content, scientific principles are explained in writer's own words, chemical formulas, equations, and properties are appropriately written.	A college-educated reader not trained in the sciences can explain the science underpinning the writer's research question.
Accuracy of facts	Everything in the paper is in the writer's own words.	Everything is in writer's own words and most of the scientific, historical, and numerical data are correct.	Everything is in writer's own words and all scientific, historical, and numerical data are correct and at least 4 appropriate references besides textbook substantiate the text.	Everything is in writer's own words, scientific, historical, and numerical facts are correct, at least 4 appropriate references besides textbook are used, all of the writer's findings can be verified by checking references cited.
Relevance to competence	Writer does not identify the competence being demonstrated.	Writer identifies the competence being demonstrated.	Writer identifies competence and generally relates it to research topic.	Writer identifies competence and clearly discusses issues related to competence.
Clarity	Writer's research goals are not clearly stated and paper is difficult to understand.	Research goals are clear and paper is mostly easy to understand and some scientific jargon is defined.	Research goals are clear and paper is easy to understand, all scientific jargon is defined, and tables, diagrams, and graphs enhance the writer's points when appropriate.	Research goals are clear and paper is easy to understand, all scientific jargon is defined, tables, diagrams, and graphs enhance the writer's points when appropriate, and the writer's investigation, conclusion, and recommendations support the original goals.
Integration of topic with interests or experiences	Writer does not mention why this topic was chosen.	Writer clearly states the research question.	Writer clearly states the research question and puts it in historical, economic, or environmental, etc. context.	Writer clearly states research question, puts it in historical, economic, or environmental, etc. context, and provides reasons why this topic was important enough to research further.

Content and References	Coverage of topic added nothing more than what was discussed in class.	Coverage of topic was superficial, but different from what was presented in class.	Topic covers new dimension, viewpoint, or greater detail than what was covered in class.	Writer successfully teaches science underlying chosen topic and uses new dimension, viewpoint, or greater detail than what was covered in class.

Experiment/Demonstration

General Guidelines for the Class Demonstration

The purpose of using this medium for fulfilling a competence is to emphasize the experimental basis of chemistry by allowing the students to perform an experiment using simple equipment and common substances.

You can present your demonstration to the online class writing a "how-to" description similar to those found in the Experiments folder of this course, and by illustrating it with digital pictures as the demonstration proceeds. You can also create a PowerPoint slide show to present the Experiment.

- Before you begin to work on an experiment, you must first get approval from your instructor.
- Be prepared to explain what materials you plan to use, how they will be used, how they will be disposed of after you have finished, and any safety, health, or environmental issues.
- You may not start working on any experiment until you have cleared it with your instructor. Failure to obtain your instructor's approval, prior to starting the development of your experiment, will result in a failing grade on this assignment.

The following gives the standard pattern for each demonstration and previews an outline of the write up that is expected:

- **Topic:** Pick an aspect of chemistry that is of interest to you and that would be relevant for your particular competence.
- **Purpose:** The purpose states the basic goals for your experiment in view of your particular competence.
- **Materials:** A list of necessary supplies.
- **Procedure:** Step-by-step instructions on how to perform the experiment with an emphasis on safety considerations. These can be illustrated by digital photographs taken while performing the experiment.
- **Results:** An explanation clearly stating what is expected to happen. This is an immediate learning tool. Tables, charts, diagrams, graphs should be included when appropriate.
- **Why?** An explanation of why the results were achieved.

The "Why?" is the major portion of your demonstration of competence.

- Here you will be able to teach the class the underlying principles of your demonstration. This will require background reading from sources other than your textbook to give an in depth scientific explanation of your demonstration. The perspective you take will depend upon the particular competence you are demonstrating. Use and list at least 4 references besides your textbook.
- **Caution:** Although many simple experiments are available from the Internet, the explanations for why they work are not always correct. It is imperative that you check several sources to verify the explanation. Check the principles of your experiment in introductory chemistry textbooks from your library.
- **Visual aids:** Include equations, diagrams, graphs, etc. on you powerpoint slides or in your Word document so that others can easily follow your explanations.

Write up of your experiment: After the presentation of your demonstration, submit the Purpose, Materials, Procedure, Results, Why?, and List of References to your instructor.

Guidelines for your Experiment/Demonstration

If you are registered for only one competence, you may choose ***either*** the experiment/demonstration or the analytical paper as a way of fulfilling your competency requirement.

If you are registered for two competencies, one should be fulfilled with the experiment/demonstration and the other with the analytical paper. Both the analytical paper and the experiment/demonstration may be on the same topic, but will necessarily use different approaches and emphasize different areas relative to the selected competence.

As soon as you decide on a topic, chose a week from Week 6 through Week 9 to present it. Notify your instructor immediately of your topic. No two experiments or similar topics will be allowed in this online course. The student who first declares a particular experiment or topic will be allowed to proceed with it.

Your experiment must be approved by your instructor before you start any work on it.

Please be prepared to discuss all safety, health, or environmental issues in connection with getting approval for your experiment.

Timeline for your Experiment/Demonstration

Week 2-4	Explore Experiment/Demonstration Topics. Read Guidelines for Demonstration.doc for format and requirements for documentation.
Week 5	Submit topic along with the competence that will be demonstrated (Topic may be submitted earlier to establish your priority.) Select a week to present your experiment.
Week 6-9	Present your Experiment/Demonstration during the week of your choosing

Assessment Criteria for your Experiment/Demonstration

The purpose of the experiment/demonstration is to experience the experimental aspect of chemistry. Books, journals, and the Internet provide a rich source of simple experiments using household ingredients and equipment that you can employ to demonstrate your understanding of the scientific method and one or more scientific principles. You can present your experiment/demonstration to the online class by using digital pictures. Your presentation can be supplemented with Power Point slides. Read the Guidelines for Demonstration.doc in the Additional reading list to see the format that you are to use.

Before you begin to work on an experiment you must first get approval from your instructor. Be prepared to explain what materials you plan to use, how they will be used, how they will be disposed of after you have finished, and any safety, health, or environmental issues. You may not start working on any experiment until you have cleared it with your instructor.

The following rubric will be used to assess your experiment/demonstration.

Grade:	D	C	B	A
Chemistry Presentation	Experiment is discussed with instructor prior to start.	Experiment is discussed with instructor, and topic is chosen with regard to its scientific content.	Experiment is discussed with instructor, topic has substantial scientific content, and experiment is carefully orchestrated and documented by digital pictures, if appropriate	Experiment is discussed with instructor, topic has substantial scientific content, experiment is carefully orchestrated and documented by digital pictures, if appropriate and supplementary materials presented in Power Point slides.
Accuracy of facts	Facts and explanations are those that appeared in the original experiment, but are expressed in the writer's own words.	Facts and explanations are those that the student researched.	Facts and explanations are those that the student researched, and all scientific, historical, and numerical data are correct and at least 4 appropriate references besides textbook substantiate the experimental findings.	Facts and explanations are those that the student researched, and all scientific, historical, and numerical data are correct, at least 4 appropriate references besides textbook substantiate the experimental findings, and the underlying science was correctly explained.
Relevance to competence	Writer does not identify the competence being demonstrated.	Writer identifies the competence being demonstrated.	Writer identifies competence and generally relates it to research topic.	Writer identifies competence and clearly discusses issues related to competence.
Clarity	Experiment is difficult to follow, rather disorganized.	Experimental steps are clearly presented and tables, diagrams, and graphs are used when appropriate.	Experimental steps are clearly presented and tables, diagrams, and graphs are used when appropriate, and student explains how experiment should ideally work.	Experimental steps are clearly presented and tables, diagrams, and graphs are used when appropriate, student explains how experiment should ideally work, and a clear correlation is made between experiment and the scientific principles underlying it
Integration of topic with interests or experiences	Student does not indicate why this topic was chosen.	Student provides some personal, historical, economic, environmental, health, etc. background on topic	Student provides some personal, historical, economic, environmental, health, etc. background on topic and student indicates how experimental results fit into scientific world.	Student provides some personal, historical, economic, environmental, health, etc. background on topic, student indicates how experimental results fit into scientific world, and student provides reasons how the ideal experimental results have advanced scientific knowledge or applied technology
Content and References	Coverage of topic added nothing more than what was discussed in class or in the original write up of experiment.	Coverage of topic was superficial, but different from what was presented in class or in the original experiment.	Topic covers new dimension, viewpoint, or greater detail than what was covered in class and clearly identifies underlying science.	Experiment clearly teaches underlying science to a greater detail than was covered in class.

Evaluation Weighting

Category	Percent of Grade
Participation in discussions	21
Lab experiments	15
Problems / Small assignments	16
Mid-Term Exam	15

If registered for one competence, choose one of the following. If registered for two competencies, both will be submitted for grading.

Analytical report	33
Demonstration	33

Course Grading Scale

The DePaul standard for grading is as follows:

A = 95 to 100	A- = 91 to 94	B+ = 88 to 90
B = 85 to 87	B- = 81 to 84	C+ = 77 to 80
C = 73 to 76	C- = 69 to 72	D+ = 65 to 68
D = 61 to 64	F = 60 or below	INC

Pass/Fail Option

Students can elect to take this course for Pass/Fail. If this is your choice, ***you must inform your instructor before the end of the second week of the course***.

To pass this course you must earn at least the equivalent of 80% of the points available for each competence that you have registered for and complete,

- for one competence EITHER a demonstration OR an analytical paper, or
- for two competences BOTH and demonstration AND an analytical paper.

For SNL courses taken for Pass/Fail, a “Pass” represents a grade of “A” for purposes of financial aid and employer reimbursement.

Online Discussion Boards

The first forums to be opened in the course will be:

- Introductions
- Course Q&A
- The Element Café

The “Introductions” forum is self-explanatory. Each student will introduce himself or herself, tell how far along he or she is in the SNL program, and tell what background, if any, he or she has in the physical sciences. Ideally a student may wish to tell what expectations or trepidations he or she has about this course.

The “Course Q&A” forum is where the management and administrative tasks of the course are conducted. The instructor will post the text of informational emails sent to all registered students into this forum.

“The Element Café” is a social meeting forum, which students can use freely for their own conversations unrelated to course content or for formation of ad hoc groups.

Online Participation Guidelines for this course

- A significant part of your online learning experience involves learning with and from your classmates and the instructor in the online discussions and group assignments.
- Active participation means sharing information and resources and posting you ideas and critiquing and expanding on the ideas of others in a collegial fashion. This discussion is informal in the sense that it is meant to encourage interested discussion. You are expected to follow accepted standards of English spelling, grammar and usage, although you will not be assessed for these particular characteristics when you are participating in the discussions.
- These discussions are for you to exchange your reflections with your classmates and instructor about what you are learning. The discussions will be organized into forums around the particular topic you are studying each week.
- You may be asked by the instructor to take leadership in a certain group for a certain time of the course. You will receive further instructions from your instructor if this occurs.
- You should contribute your responses to the particular assignment for that particular discussion heading which will be posted.
- For each Discussion Board, you are required to make at least one original contribution to each topic and respond to one classmate’s contribution.

Assessment Criteria for Online Discussion Participation

- In the online discussion you clearly and consistently demonstrate your understanding of the scientific principles from each week’s module and link what you are learning in the course to your real life experiences. Besides expressing your comments, observations, opinions, and so on, it is imperative that you contribute in a collegial fashion. Please address your peer students, maintain a kind and collegial tone, and close with your signature.
- You regularly demonstrate good “listening” skills and active inquiry skills in the online discussions. This means that you pay attention with openness to the commentary of others, and you offer constructive and interested commentary, whether in the form of questions or statements.
- Participation is essential, so please connect to the course every day or at least every other day.
- Discuss critically, give support to your peers, provide your own ideas and experiences, challenge ideas of others, or just make a comment that you read the posting.
- You should share your observations from your experiments and explain what went well and where you encountered problems. You may want to suggest ways to improve them.

- This is the place to ask questions on the course material and share your experiences with technology relevant to the course.

In the online discussions your responses will move the discussion along if you are:

1. Offering up ideas or resources and inviting a critique of them
2. Asking challenging questions
3. Articulating, explaining and supporting positions on ideas
4. Exploring and supporting issues by adding explanations and examples
5. Reflecting on and re-evaluating personal opinions
6. Offering a critique, challenging, discussing and expanding ideas of others
7. Negotiating interpretations, definitions and meanings
8. Summarizing previous contributions and asking the next question
9. Proposing actions based on ideas that have been developed

The above list was adapted from Gilly Simpson's book *E-Moderating: The key to teaching and learning online*. London: Kogan Page: p.143 (2000).

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Policies

Academic Integrity

DePaul University is a learning community that fosters the pursuit of knowledge and the transmission of ideas within a context that emphasizes a sense of responsibility for oneself, for others and for society at large. Violations of academic integrity, in any of their forms, are, therefore, detrimental to the values of DePaul, to the students' own development as responsible members of society, and to the pursuit of knowledge and the transmission of ideas. Violations include but are not limited to the following categories: cheating; plagiarism; fabrication; falsification or sabotage of research data; destruction or misuse of the university's academic resources; alteration or falsification of academic records; and academic misconduct. Conduct that is punishable under the Academic Integrity Policy could result in additional disciplinary actions by other university officials and possible civil or criminal prosecution. Please refer to your Student Handbook or visit http://studentaffairs.depaul.edu/homehandbook.html for further details.

Plagiarism: Plagiarism is a major form of academic dishonesty involving the presentation of the work of another as one's own. Plagiarism includes but is not limited to the following:

- The direct copying of any source, such as written and verbal material, computer files, audio disks, video programs or musical scores, whether published or unpublished, in whole or part, without proper acknowledgement that it is someone else's.
- Copying of any source in whole or part with only minor changes in wording or syntax, even with acknowledgement.
- Submitting as one's own work a report, examination paper, computer file, lab report or other assignment that has been prepared by someone else. This includes research papers purchased from any other person or agency.
- The paraphrasing of another's work or ideas without proper acknowledgement.

Plagiarism, like other forms of academic dishonesty, is always a serious matter. If a instructor finds that a student has plagiarized, the appropriate penalty is at the instructor's discretion.

Disability Accommodations

Reasonable accommodations will be provided for students with disabilities on an individualized and flexible basis. The Office of Students with Disabilities (OSD) determines appropriate accommodations through consultation with the student. For certain learning disabilities and/or attention deficit disorders, the Productive Learning Strategies Program (PLuS) determines the appropriate accommodations. See the instructor for more information or call OSD at 773-325-7290 (phone) or 773-325-7296 (TTY); or call PLuS at 773-325-1677.

Incomplete Grades

The intent of the Incomplete grade is to allow students extra time to complete their final assignments. This need arises because, in the closing weeks of the course, they have an event of significant magnitude that adversely affects their ability to complete the course, e.g. serious illness, death in the family, overseas deployment, or natural disaster.

You must request an incomplete grade in writing two weeks before the end of the quarter. Incomplete grades will be considered only after you have satisfactorily completed at least 75 percent of the coursework, and you have such an unexpected, uncontrollable event that prevents you from completing your course. Do not assume that you will qualify for an incomplete. Students who are failing the course at the point where they request an incomplete will not receive one, nor will they be granted after the end of the quarter. Incomplete grades are given at the discretion of the instructor.

If you do receive permission from the instructor to take an incomplete in the course, you will be required to complete a contract with the instructor, specifying how you will finish the missing work within the next two quarters (excluding summer). Incompletes not finished by the end of the second quarter (excluding summer) will automatically become an F grade on your transcript.

Instructors may not change incomplete grades after the end of the grace period without the permission of a college-based Exceptions Committee.

NOTE: In the case of a student who has applied for graduation and who has been approved for an Incomplete in his or her final term, the incomplete must be resolved within the four week grace period before final degree certification.

Protection of Human Subjects

For more information see: http://research.depaul.edu/.

Demonstrating the acquisition of competences in this course can involve “interactions”–interviewing and or observing other people–discussing those interviews or observations with other class members and writing them up in one or more final report(s). As such, these activities qualify as “research” with “human subjects” and are subject to University and Federal guidelines. Because it takes place in the context of this course, your research is exempt from approval by the School for New Learning’s Local Review Board only under the following conditions:

1. The information you collect is EXCLUSIVELY for the purpose of classroom discussion and will NOT be used after the term is over. If there is any possibility that you will EVER use it in further research or for publication, you must obtain approval from the Local Review Board before you begin.
2. You assess and ensure that no “harm”–physical, mental, or social–does or could result from either your interviews and/or observations or your discussion and/or reports.
3. The privacy and confidentiality of those that you interview or observe must be protected. Unless you receive specific permission, in writing, from the person (s) you interview or observe, please change their names, and make sure that their identity cannot be readily ascertained from the information you provide.
    a. If you want to use real names and relationships, they must sign an “informed consent” document. For information on creating an “informed consent document” see, for example, http://www.research.umn.edu/consent.

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Course Expectations

For purposes of this online course all times will be for Chicago, which is on Central time.

This is not an independent study course, but a paced online group learning experience. This study guide indicates 6 to 11 hours per week of your time to be spent on this course of ten weeks.

Please accept the challenge to work with others, to construct knowledge in negotiation with others. Working individually on the assignments and just posting them might not lead to significant knowledge and skills.

Some difficulties at the beginning of an online course are quite normal, solving them is part of every distance learning experience.

NOTICE:
There are chemical formulas with subscripts and superscripts in this study guide. Sometimes those do not show well onscreen, however, they are clear in the printed document.

Time Management and Attendance

SNL’s online courses are not self-paced and require a regular time commitment EACH week throughout the quarter.

You are required to log in to your course at least four times a week so that you can participate in the ongoing course discussions.

Online courses are no less time consuming than "face to face" courses. You will have to dedicate some time every day or at least every second day to your studies. A typical four credit hour “face to face” course at SNL involves three hours of classroom meeting per week, plus at least three to six hours of study and homework per week.

This course will require at least the same time commitment, but your learning activities will be spread out through the week. If you have any problems with your technology, or if you need to improve your reading or writing skills, it may take even longer.

The instructor should be notified if your life events do not allow you to participate in the course and the online discussions for more than one week. This is particularly important when there are group discussions or you are working as part of a team.

If you find yourself getting behind, please contact the instructor immediately.

Your Instructor’s Role

Your instructor’s role in this course is that of a discussion facilitator and learning advisor. It is not their responsibility to make sure you log in regularly and submit your assignments. As instructor, s/he will read all postings to the general discussion forums on a daily basis but may not choose to respond to each posting. You will receive feedback to assignments.

The instructor may choose to designate “office hours” when s/he will be online and available and will immediately respond to questions. Depending on the instructor, this response may be by e-mail, instant messenger or telephone. Otherwise, you will generally receive a response to emailed or posted queries within 48 hours.

Your Role as a Student

As an online student, you will be taking a proactive approach to your learning. As the course instructor’s role is that of a learning guide, your role is that of the leader in your own learning.

You will be managing your own time so that you can complete the readings, activities and assignments for the course, and you will also be expected to take a more active role in peer learning.

Credits

This course was designed and produced by Cecelia Radlowski and staff at the Center for Distance Education of the School for New Learning of DePaul University.

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