Chemistry 1910W: Freshman Seminar: Alchemy, Magic and Chemistry

Lou Pignolet

sec. 007 Fall Semester 2002

Instructor: Lou Pignolet, Chemistry (241a Smith Hall)

Prerequisite: high school chemistry and a fearless enthusiasm about alchemical experiments

2 Credits Writing Intensive** 7:00-9:00 pm Wednesdays in 117/119 Smith Hall

Lou's Office Hours: Almost any time by email appointment


The Seminar: In this seminar we will explore the physical and philosophical aspects of alchemy. We will do many seemingly magical experiments, including some done by the alchemists. For example, we will attempt to transmute base metals into gold! You will get a chance to do some really neat and exciting alchemical and chemical experiments in the lab, and see how alchemy gave way to modern chemistry. Did you know that it is really possible to convert lead into gold. Part of this seminar will be devoted to learning and study skills, and how to get the most out of your university experience. We will read and discuss the book "The Alchemist" by Paulo Coelho and possibly discover how a magical journey and an alchemist can help you do well and prosper. This seminar is writing intensive so you will be required to write on topics related to the class material each week. It is not required that you have had exposure to chemistry beyond the high school level but it is important that you have an interest in science and a willingness to explore many cool chemistry experiments. You should also not be afraid to get your hands dirty in the chem lab. Grading in this course will be based on your writings and on class participation. Specifically, you will receive a grade on each writing assignment. Your final course grade will be an average of these grades providing you participate to a reasonable amount in class and do not miss more than one class. Please ask Lou if you have any questions about grades.
**Writing Intensive Requirement:** Weekly written reports are required. Topics will include, for example, how you would transform lead into gold, critique of the readings in "The Alchemist", your personal goals and what you expect to achieve at the university, describing how the work of the alchemists led to the development of modern science and chemistry, describing a chemistry magic experiment and the science behind it in terms an elementary school student will understand, critically evaluating science articles and bogus "scientific" claims in the news media, discussing environmental issues on scientific and political levels, etc. Each report should take several hours to write, should be several pages long, and should be sent in over the e-mail (preferably as a Word attachment). You will get detailed feedback on your writing each week and be expected to revise at least one report. Eighty per cent of your class grade will be derived from these written reports. Check out the Center for Interdisciplinary Studies of Writing's web site for help with writing <http://cisw.cla.umn.edu>. (now http://writing.umn.edu)

Some Seminar Goals:

- learn about the physical and mystical aspects of alchemy
- transform lead into gold (we share all profits)
- learn what motivated the alchemists and how their work led to modern science
- understand some chemical concepts and magic by active participation
- improve academic skills (study skills, critical reading skills, writing and communication skills)
- learn about U of M campus resources (library, internet, tunnels, services, help, etc)
- explore various fields of study and career goals
- get to know a university professor on a personal level
- have lots of fun and make good friends
Grading: This course is graded A-F. Eighty per cent of the grade is based on your weekly written reports. The remaining twenty per cent is based on participation in class and group activities.

Important information on scholastic dishonesty: The basic statement on this issue appears in the Undergraduate Catalog (p. 262) and in the back of the IT Student Guide, but this also applies to other colleges: The Institute of Technology expects the highest standards of honesty and integrity in the academic performance of its students. Any act of scholastic dishonesty is regarded as a serious offense, which may result in expulsion. The Institute of Technology defines scholastic dishonesty as submission of false records of academic achievement; cheating on assignments or examinations; plagiarizing; altering, forging, or misusing an academic record; taking, acquiring, or using test materials without faculty permission; acting alone or in cooperation with another to obtain dishonestly grades, honors, awards, or professional endorsement. Aiding and abetting an act of scholastic dishonesty is also considered a serious offense.

The questions below are often asked by students who seek interpretation of this policy.

1. What is cheating?

Cheating is the violation of rules under which an examination is given or homework is assigned. This includes submitting an examination, an essay, a report, or a computer program that is not your own.

2. Does this mean that I can never study with another student?

No. We encourage students to study together, and in the workplace you will often work as part of a team. The key issue is whether you are being evaluated as an individual on the basis of the work you hand in. Your instructor should make it clear when team work is expected and when you should work alone. If you are not sure, ask!

3. What is plagiarism?

An excellent definition of plagiarism is from the Modern Language Association: "In short, to plagiarize is to give the impression that you have written or thought something that you have in fact borrowed from another." W. S. Achtert and J. Gibaldi, The MLA Style Manual, New York, Modern Language Association of America, 1985, p. 4. See the next page for more specific information on plagiarism.
4. When should I cite sources?

There are two issues here. The first is to avoid plagiarism. The second is to make sure that the reader can follow your line of thought, verify the information that you have used, or explore the issue further. Some things are known so widely that they do not need citing: for example, the definition of momentum or solving a linear differential equation with constant coefficients. On the other hand, if you are writing for an audience who might not know how to solve a linear differential equation with constant coefficients, you might want to give a citation so that they could find out how. If you find the solution to a homework problem in a text or journal article, you should give a citation. If you are allowed to utilize previously

written computer code, published or unpublished, within your own code, you should clearly identify such code and cite the source.


The MLA Handbook defines plagiarism as the use of another person's ideas or expressions in your writing without giving proper credit to the source. The word comes from the Latin word plagiarius ("kidnapper"), and Alexander Lindey defines it as "the false assumption of authorship: the wrongful act of taking the product of another person's mind, and presenting it as one's own" (Plagiarism and Originality [New York: Harper, 1952] 2).

"In short, to plagiarize is to give the impression that you have written or thought something that you have in fact borrowed from someone else." This can include paraphrasing, copying someone else's

writing word for word, or using ideas that aren't your own without proper citation. Plagiarism is often unintentional, and bad research habits can form early in elementary school. Unfortunately, these bad

habits can continue throughout high school and college and may result in severe consequences, from failure in a course to expulsion. To avoid these consequences, always cite your sources if you are

unsure if you are plagiarizing (Gibaldi 21-25).
The MLA Handbook also gives good suggestions about when to credit someone else's ideas and when not to:

Materials not requiring credit:

- Common knowledge
- If other people like you know the material you are including (e.g., who is President of the U.S., what "capital punishment" means, etc.) you do not need to include a citation. If, on the other hand, you are giving specific data about a President's policies and their impact, or citing the number of people executed in a particular state over a set time period, you should include a citation to document the source where you found this specific information.
- Facts available in a wide variety of sources
- Information that is commonly available in encyclopedias, almanacs, and textbooks does not need a citation. For example, if you wrote that John F. Kennedy was assassinated on November 23, 1963 in Texas, you would not need to cite a source. If you went on to discuss a theory about a conspiracy behind the assassination, you would then need to cite your source.
- Your own findings from field research.
- Facts or results from your own research can be credited to yourself.

Materials requiring credit:

- Direct quotations. Always credit the source when you directly quote another person. If you are paraphrasing but using a quote in the middle of a sentence, be sure to set the quote off with quotation marks.
• Assertions that are arguable or facts that are not widely known. If other people like you would not
know the information, include a citation. In addition, include a citation if you use material that may not
be true (e.g., an author asserts that the CIA conspired to kill John F. Kennedy).

• Judgments, opinions, and claims of others. Credit the ideas and opinions of others. Even if you
summarize someone else's opinion in your own words, the idea does not belong to you and needs to be
cited.

• Statistics, charts, tables, and graphs from any source. Include a citation for all information included in
graphs and other statistical material.

• Information or help provided by friends, instructors, or others. Anyone who assists in the
development of your ideas or research deserves credit. Instructors and friends can be valuable sources in
your research. Don't forget to acknowledge their contribution (Lunsford 566).