

INORGANIC CHEMISTRY

- Instructor:** Dr. Andrew C. Price
Room 313B Pfahler Hall
Ext. 2340; e-mail: aprice
<http://webpages.ursinus.edu/aprice>
- Lectures:** T,Th 9:00 – 9:50 am, Pfahler 208
- Office Hours:** T(most),Th 11:15 am – noon; M,W 1:30 – 2:30 pm; and by appointment
- Description:** A systematic survey of the descriptive chemistry of the main group elements with an emphasis on periodicity and nomenclature. The chemistry of the transition metals and nuclear chemistry will be discussed. Corequisite: Chemistry 206 (or previously). Two hours of lecture per week. *Two semester hours.*
- Textbook:** **Required:** Atkins, Peter; Jones, Loretta. *Chemical Principles – The Quest for Insight*, 3rd Edn., W. H. Freeman & Co., New York, 2004. <ISBN 0-7167-5701-X>
Suggested: Selected Solutions Manual <0-7167-0740-3>

Grading and Approximate Grades:

| | | |
|--|--------------------------------------|---------------|
| | | <u>Points</u> |
| | Quizzes (3 x 10 pts. each) | 30 |
| | Exams (3 x 75 pts. each) | 225 |
| | Final Exam | 120 |
| | Presentation and Class Participation | 25 |
| | TOTAL | 400 |
| | <u>Grade</u> | <u>Points</u> |
| | | <u>%</u> |
| | A | 85 – 100 |
| | B | 75 – 84 |
| | C | 65 – 74 |
| | D | 50 – 64 |
| | F | 0 – 49 |
| | | 340 – 400 |
| | | 300 – 339 |
| | | 260 – 299 |
| | | 200 – 259 |
| | | 0 – 199 |

Attendance. The following is taken from the 2006 - 2007 Ursinus College Catalog: *...it is important that each student exercise reasonable judgment regarding class attendance at all times. Every student is accountable for all work missed. Instructors, however, are under no obligation to make special arrangements for students who are absent. Any instructor may set attendance regulations for courses...* Regardless of your academic standing you are allowed to miss six (6) class meetings without an excused absence from the Dean's office. Academic warnings may be issued after a fourth, fifth, and sixth absence. After a seventh absence you may be excluded from the course with a grade of F.

Quizzes and Exams: There will be 3 quizzes, each worth 10 points, which are designed to help you prepare for the exams. Quizzes will be returned the next time the class meets giving you a few days to prepare for the exams (see schedule). There will be 3 exams during the semester, each worth 75 points. These will take place in class on the dates indicated on the schedule. These dates will not change. You have 55 minutes to complete each exam. The final examination (worth 120 points) covers the material of last few weeks of the semester, along with some questions on earlier topics.

Attendance at examinations is required. Make-up examinations will NOT be given. Anyone who is absent from an examination will receive a score of zero for that exam, except in the case of an excused absence. A student who is legitimately ill must present a physician's excuse, stating not only that the student was seen by the physician but also that the student's illness made it impossible for her or him to sit for the examination. If a death in the immediate family occurs, documentation must be provided. In cases of excused absence, the final examination will be graded out of 195 points (instead of 120 points). Illness before an exam is generally not considered to be a legitimate excuse as you are expected to keep up-to-date with the material and not allow the bulk of your studying to be done immediately before the exam.

Regrades will only be considered during the five days after the exam has been distributed to the class.

Grades: Individual exams will not be curved. Instead, you will be assigned an approximate grade based on your cumulative total during the semester. For example, after Exam II, your grade will be based on 170 points (Quizzes I and II and Exams I and II). Before the final exam you will be given an approximate grade based on 255 points. This will give a much better idea of your performance in the course throughout the semester. Please feel free to discuss your grade with Dr. Price at any time during the semester.

Homework: Homework assignments will be given on a weekly basis. You are expected to do the homework but it will not be collected nor graded. It has been my experience that students who do not attempt homework problems, or who leave them until the night before a quiz or exam, will not do well in the course! Remember that there is a solutions manual for you to purchase.

Help: Although I will have regularly scheduled office hours at times yet to be decided, there may be some of you who have a class at this time and therefore unable to come to them. Don't worry! I will make every effort to help you. You may either make an appointment with me ahead of time, or just show up at my door. If my door is open and I'm not too busy, then I would be more than happy to assist you on the spot! Alternatively, you may e-mail me at aprice@ursinus.edu, but please bear in mind that it may be difficult to explain something via e-mail. Although I have 24/7 access to my e-mail, I tend not to use it during the weekends, and I may not have time to access it prior to this 9:00 am class on Tuesdays and Thursdays.

Inclement Weather and the 15 minute wait: Bad weather may result in cancellation of the class. I will leave a message on my office phone (ext. 2340). Please do not contact me via e-mail. I have a morning commute that might (but a very slim chance) result in my being late for class. If I am not in the classroom by 9:15 am, then you can assume that class is cancelled and you may then leave. There will be a make-up class and I apologize in advance for any inconvenience!

Your presentation will be on a topic of inorganic chemistry, and will take the form of a five minute PowerPoint presentation. Suitable topics include: a talk on an rare element that was not discussed in detail in class; the work of an inorganic chemist who made significant contributions to this field; the discovery/preparation and uses of an important inorganic compound (that was not discussed in class). Other topics may be suitable but please discuss them with me first. Each student is required to give their talk to the entire class on Thursday, April 26, starting at 8:00 am (note earlier time).

Academic Honesty: (from pages 10–11 of the Ursinus College Student Handbook) Ursinus College is a small community, which functions on a social contract among students, faculty, administration, and alumni. In order for the spirit of community to endure and thrive, this agreement, based upon shared values and responsibilities and a sense of mutual respect, trust, and cooperation, must be preserved. Students have an obligation to act ethically concerning academic matters and the faculty has a responsibility to require academic honesty from students and to be vigilant in order to discourage dishonesty. Lying, cheating, stealing, plagiarism, and other forms of academic dishonesty violate this spirit of mutual respect and collaboration and corrode the atmosphere of openness and free inquiry upon which the educational process is based. Such activities are demeaning and potentially damaging to those who undertake them. Moreover, academic dishonesty is damaging to the student body as a whole, in that it cheapens the achievements of the honest majority of students and subverts the integrity and reputation of the institution with which they will be identified for the rest of their lives. Students should be aware that there are many legitimate sources of help available on campus. Several departments, s provide help sessions. There is a writing center run by the Department of English, and the Library provides research help. Tutorial services are coordinated through the Unity House for all disciplines and peer mentoring services are arranged by the Dean's office. The student body, faculty, and administration of Ursinus College therefore unanimously condemn academic dishonesty in all its forms and affirm that it is the responsibility of all members of the college community to prevent such activity.

STATEMENT ON PLAGIARISM

Plagiarism is the act of taking the words--written or spoken-- or the ideas of someone else and passing them off as one's own. You are plagiarizing if you copy exactly a statement by another and fail to identify your source. You are plagiarizing if you take notes from a book, an article, or lecture, express those materials in your own words, and present the result as your work without identifying your source. You are plagiarizing if you copy part or all of a paper written by a friend, another student, or a writing service and offer it as your own work. You are plagiarizing if you take material verbatim from a source (even though the source is acknowledged) without identifying it as quoted material by means of quotation marks. Plagiarism is easy to avoid by using common sense and following the advice and directions for acknowledging sources. Such forms and methods are available from professors and style sheets provided by departments as well as by a composition textbook. Never take notes verbatim or in your own words

without using appropriate quotation marks and noting exact sources, including page number of the material. It is the policy of Ursinus College to reject and punish the act of plagiarism. The above has been adapted from, and credit is given to Millward, *Handbook for Writers*, pp. 354-355.

For example, you are cheating if you:

1. Copy answers or use information from a fellow student's paper during a quiz, test, or examination.
2. Divulge answers or information, or otherwise give improper aid to another student during a quiz, test, or examination or accept such aid.
3. Relay or receive any improperly obtained or confidential information concerning a quiz, test, or examination. (Example: if one sees the test before it is to be given and transmits information concerning its contents or whereabouts to other students.)
4. Use or refer to any unauthorized notes, books, calculators, problem solving aids such as "cheat sheets" during a quiz, test, or examination.
5. Collaborate improperly with another student on an open-book or take-home quiz, test or examination; or obtain information from an unsuspecting fellow student during such an exercise.
6. As a proctor or student assistant, divulge confidential information or aid any student in an improper manner during a laboratory exercise, quiz, test, or examination.
7. Commit an act of plagiarism in any form.
8. Borrow under false pretenses, steal or otherwise improperly obtain lecture or research notes, laboratory data, or any information gathered by another student and presents it as your own work (examples: term papers; laboratory reports or experimental yields; computer programs or assignments; English composition themes), or knowingly collaborate with another student by making such material available to him/her.
9. Falsify laboratory data, notes, results, or research data of any type in any course and present it as your own work.
10. Steal or intentionally damage or destroy notes, research data, laboratory projects, library materials, computer software (including the intentional passing of a computer virus), or any other work of another student (or faculty member), out of malice, or for the purpose of sabotaging that person's work and thereby gaining an unfair advantage to yourself.
11. Knowingly and willingly violate any special rules concerning research procedures, group assignments, or inter-student collaboration, which may be established by an instructor in any course.
12. Submit the same work including oral presentations for different courses without the permission of the instructors involved. Since it is expected that different courses offer different learning experiences, students are depriving themselves of an educational opportunity by submitting the same or similar work for more than one course. Examples include but are not limited to submitting a partial or complete paper previously handed into another class, superficially reworking one assignment for submissions to another class. (Example: submitting a sociology paper as an English 100 paper.)
13. Misrepresent yourself to an instructor or an administrator for the purpose of gaining special favors or extensions for academic work missed. Examples include but are not limited to lying about your health or the health of a relative, forging doctor's notes.
14. Forge signatures on forms, documents, or letters pertinent to College business. This may include but is not limited to course of study sheets, drop/add forms, or doctor's notes.

You are an accessory to cheating, and penalties may be applied, if you:

1. Witness or have direct knowledge of any of the aforementioned forms of cheating and fail to inform an authorized person (faculty member, administrator, proctor, or student assistant).
2. You bring unauthorized materials into a testing area and fail to or refuse to remove them when instructed to do so.
3. You fail to or refuse to comply with admonitions from a faculty member or authorized proctor to cease any activity, which might aid other students in cheating.

TENTATIVE SCHEDULE OF LECTURES

| | Dates | Topics | Chapter and Sections |
|------|--------------|---|----------------------------------|
| Jan. | T 16 | Introduction; The Periodic Table | B.5; Box 1.2 |
| | H 18 | Periodic Properties; Naming Chemical Compounds | 1.13 – 1.19; 14.1 -14.2; D1 - D4 |
| | T 23 | Hydrogen | 14.3, 14.4 |
| | H 25 | Hydrogen; Group 1 | 14.5 |
| | T 30 | QUIZ I Group 1 | 14.6, 14.7 |
| Feb. | H 1 | Group 1; Group 2 | 14.8, 14,9 |
| | T 6 | EXAM I | |
| | H 8 | Group 2; Properties of 2 nd row Elements | 14.10 |
| | T 13 | Group 13 | 14.11, 14.12, 14.13 |
| | H 15 | Group 13; Group 14 | 14.14, 14.15 |
| | T 20 | Group 14 | 14.16-14.19; 14.21 |
| | H 22 | Group 15 | 15.1, 15.2, 15.3 |
| | T 27 | QUIZ II Group 15; Group 16 | 15.4, 15.5 |
| Mar. | H 1 | Group 16 | 15.7, 15.8 |
| | T 6 | SPRING BREAK | |
| | H 8 | SPRING BREAK | |

| | Dates | Topics | Chapter and Sections |
|------|--------------|--|-----------------------------|
| | T 13 | Group 17 | 15.9, 15.10 |
| | H 15 | EXAM II | |
| | T 20 | Group 17; Group 18 | 15.11, 15.12 |
| | H 22 | Transition Metals – Electron Configurations and Properties | 16.1, 16.2 |
| | T 27 | Complexes and Ligands | 16.5, 16.6 |
| | H 29 | Isomerism | 16.7 |
| Apr. | T 3 | QUIZ III Isomerism; Naming TM Complexes | 16.7; Toolbox 16.1 |
| | H 5 | Crystal Field Theory | 16.8, 16.9 |
| | T 10 | EXAM III | |
| | H 12 | Colors of TM Complexes; Magnetic Properties | 16.10, 16.11 |
| | T 17 | Radiation and Nuclear Equations | 17.1, 17.2 |
| | H 19 | Nuclear Stability; Decay Rates; Radioactive Dating | 17.3, 17.4, 17.7; Box 17.2 |
| | T 24 | Binding Energy, Nuclear Fission and Fusion | 17.9-17.12 |
| | H 26 | PRESENTATIONS – 8:00 AM START | |
| May | W 9 | FINAL EXAM @ 9:00 AM | |