

**1. CHM 11500 – General Chemistry**

**2. Credits and contact hours:**

4 credits

Lecture – 2 days per week at 50 minutes for 15 weeks.

Recitation - 1 day per week at 50 minutes for 15 weeks.

Lab - 1 day per week at 170 minutes for 15 weeks.

**3. Instructor's or course coordinator's name:** Shelley A. Claridge, Hilary M. Florian, Joseph Roger Frey, Padinjaremadhom V. Ramachandran, Ian J. Carrick...

**4. Textbook(s):** *CHM 11500 Lab Manual Bundle*, Purdue Chem Dept., Fountainhead Press, Notes: Department of Chemistry produces this manual in conjunction with Fountainhead Press. Make sure to put a copy "on reserve" with the bookstore. Student Notebook pages included with lab manual. ISBN 9781680368420  
*Chemistry, 8<sup>th</sup> Edition-Connect Access Only*, Silberberg, et al, McGraw-Hill, 8<sup>th</sup> edition, Notes: Students are REQUIRED to have access to Connect. This ISBN is ONLY for the Connect Access Card (which contains an e-book). If students want a Loose Leaf version of the textbook in ADDITION to a Connect Access, choose the other ISBN under the Course Materials link. ISBN 9781260592252  
*Chemistry, 8<sup>th</sup> Edition-Loose Leaf Text w/Connect Access*, Silberberg, et al, McGraw-Hill, 8<sup>th</sup> edition, Notes: Students are REQUIRED to have access to Connect. This ISBN is for a Loose Leaf version of the textbook, AND Connect Access. Students who want ONLY the Connect Access Card (which contains an e-book) should choose the other ISBN under the Course Materials link. ISBN 9781260592139

- a. Other supplemental materials:** Scientific Calculator w/exponential, logarithm and square root functions, Iclicker2 Student Remote, Padlock and Splash Proof Goggles

**5. Specific course information**

- a. Catalog description:** Stoichiometry; atomic structure; periodic properties; ionic and covalent bonding; molecular geometry; gases, liquids, and solids; crystal structure; thermochemistry; descriptive chemistry of metals and non-metals. Required of students majoring in science and students in engineering who are not in CHM 12300. One year of high school chemistry or one semester of college chemistry required. Typically offered Fall Spring Summer. CTL:IPS 1721 General Chemistry I w/lab.
- b. Prerequisites or co-requisites:** (MA 15900 Minimum Grade of D or MA 15800 Minimum Grade of D or MA 15400 Minimum Grade of D or MATH 15400 Minimum Grade of D or MA 16100 Minimum Grade of D [may be taken concurrently] or MA 16500 Minimum Grade of D [may be taken concurrently] or MA 22300 Minimum Grade of D [may be taken concurrently] or MA 23100 Minimum Grade of D [may be taken concurrently] or

MA 16010 Minimum Grade of D [may be taken concurrently]) or ALEKS Math Assessment 075 or SATR Math 620 or SAT Mathematics 600 or ACT Math 26

**c. Course status:**

**6. Specific goals for the course**

- a. Student Learning Outcomes:** The course begins with a brief review of core concepts from high school chemistry and then moves into nuclear chemistry. The focus remains on materials at the atomic level while studying atomic spectroscopy and periodic trends. Models of bonding atoms move the course to focus on ionic, covalent, and metallic compounds. At the molecular level, the shape and structure of compounds is studied next, followed by an examination of solutions, UV/Vis spectroscopy and calibration. A study of organic materials, such as hydrocarbons, biological molecules and polymers, comprises the middle section of the course. Solids, semiconductors, and nanoparticles are covered in the final section of the course, which focuses on inorganic materials. The course has been designed and structured so that in addition to the treatment of the concepts and topics listed above, there is simultaneous emphasis on development of problem-solving skills.
- b. Relationship of course to program outcomes:**

**7. Topics**

- 1 Review of chemical concepts
- 2 Nuclear Chemistry
- 3 The atom and spectroscopy
- 4 Trends in chemical reactivity
- 5 Molecular structure
- 6 Organic chemistry
- 7 Solution properties
- 8 Inorganic chemistry and thermochemistry