

# Chemistry 211

FALL 2017

Welcome to Chemistry 211 for the Fall Semester of 2017. This course will cover many basic principles of chemistry. Topics this semester will include: measurements, unit conversions, stoichiometry, chemical reactions, ideal gasses, thermochemistry, quantum chemistry, chemical periodicity, chemical bonding & molecular shapes.

|                            |   |
|----------------------------|---|
| <b>Course Title/Number</b> | Principles of Chemistry I - CHM 211 Sec 104   |
| <b>Semester /Year</b>      | Fall 2017   |
| <b>Days/Time</b>           | MWF, 1200p - 1250p  |
| <b>Location</b>            | S 473   |
| <b>Instructor</b>          | Price, William  |
| <b>Office</b>              | S 490   |
| <b>Phone</b>               | 696-3156  |
| <b>E-Mail</b>              | pricew@marshall.edu   |
| <b>Office Hours</b>        | MW 1300 -1350 & 1530-1600   |
| <b>University Policies</b> | By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to <a href="http://www.marshall.edu/academic-affairs">www.marshall.edu/academic-affairs</a> and clicking on "Marshall University Policies." Or, you can access the policies directly by going to <a href="http://www.marshall.edu/academic-affairs/policies/">www.marshall.edu/academic-affairs/policies/</a> . Academic Dishonesty/Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/Inclement Weather/Dead Week/Students with Disabilities/Academic Forgiveness/Academic Probation and Suspension/Academic Rights and Responsibilities of Students/Affirmative Action/Sexual Harassment |

## Course Description: From Catalog

A study of the properties of materials and their interactions with each other. Development of theories and applications of the principles of energetics, dynamics and structure. Intended primarily for science majors and pre-professional students. 3 credit hours. (PR or CR: CHM 217; PR: Math ACT of 23 or better, or C or better in CHM 111, or pass placement exam)

The table below shows the following relationships: How each student-learning outcome will be practiced and assessed in the course.

| Course student learning outcomes   | How students will practice each outcome in this course | How student achievement of each outcome will be assessed in this course |
|--|--|---|
| Students will become familiar with the vocabulary of modern chemistry  | Lecture, quizzes, practice assignments, ALEKS          | Exams, quizzes and ALEKS  |
| Students will gain insight into the ever-expanding role of chemistry within the context of society, medicine, materials and environment. | Lecture, quizzes, practice assignments, ALEKS          | Exams, quizzes and ALEKS  |

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|---|---|--------------------------|
| Students will learn and reinforce logical strategies for solving quantitative problems.                         | Lecture, quizzes, practice assignments, ALEKS | Exams, quizzes and ALEKS |
| Students will classify matter and chemical reactions.   | Lecture, quizzes, practice assignments, ALEKS | Exams, quizzes and ALEKS |
| Students will apply principles of atomic structure and bonding theories to describe how matter is composed.     | Lecture, quizzes, practice assignments, ALEKS | Exams, quizzes and ALEKS |
| Students will apply mathematical techniques to describe reactions, physical properties, and energies of matter. | Lecture, quizzes, practice assignments, ALEKS | Exams, quizzes and ALEKS |
| Students will identify and explain trends in physical and chemical properties.                                  | Lecture, quizzes, practice assignments, ALEKS | Exams, quizzes and ALEKS |

#### Required Texts, Additional Reading, and Other Materials

1. ***Principles of General Chemistry, Third Edition*** by Martin S. Silberberg, McGraw-Hill, 2013.
2. ALEKS CODE: 366FE-TN6TA
3. non-text calculator for quizzes, tests, and exams (it must not have keys for the alphabet)
4. #2 pencil and black or blue ink pen for tests/quizzes

#### Electronic Device Policy

All cell phones and pagers must be either turned off or onto vibrate mode during class. Laptops must be turned off and placed on the floor during the lecture period. During examinations, all electronic devices except calculators must be inaccessible. Students **MUST BRING A CALCULATOR** to class for all lectures and exams. Calculators that are part of a cell phone or smart phones are **not** acceptable for use during an exam or quiz.

#### Grading Policy

There will be approximately 11 quizzes, ALEKS assignments, five midterm exams and one cumulative final exam. Quizzes will count for 100 points total (one quiz will be dropped), midterm exams will constitute a total of 500 points, while the final exam will be worth 100 points. **BONUS:** completion of *ALEKS* homework can result in an extra 15 points. Exam and quiz material will be drawn from the homework, the lecture, and the text. See schedule of tentative exam dates. Missed exams or quizzes may be made up, with a valid University excuse, on **Wednesday Dec 13<sup>th</sup> from 11 am until 1 pm**. If you are planning on making up work on this make-up day you **must** let me know via email by 4 pm Wednesday, December 6, 2017.

Cutoff percent for grades will be no higher than those listed below, but may be lowered if appropriate.

$$A \geq 90.00; 90.00 < B \geq 80.00; 80.00 < C \geq 70.00; 70.00 < D \geq 60.00; 60.00 < F$$

#### Attendance Policy

I strongly encourage you to come to class so that you can more fully understand the material that you

will read in the book. If you are absent, obtain the notes from another student or online. In situations where the student is aware of the absence for an exam or quiz in advance, arrangement for accommodations must be made prior to the absence. Otherwise, the designation of an absence as excused and any accommodation for that absence will be decided by the Dean of Students. If a student decides to not complete the course, he or she must visit the registrar and complete the appropriate paperwork to remove the course from his or her schedule. The last day to withdraw from a single class is **Friday, October 27, 2017**.

### Tentative Course Schedule\*

To make the most of each class period, reading and assignments should be completed before lecture.

| Week              | Reading                | Notes                      | Week               | Reading                 | Notes                                  |
|-------------------|------------------------|----------------------------|--------------------|-------------------------|--|
| 1:<br>8/21-8/25   | Chapter 1<br>Chapter 2 | Introduction<br>Matter     | 8:<br>10/13        | Chapters<br>5 & 6       | Exam 3                                 |
| 2:<br>8/28-8/30   | Chapter 2<br>Chapter 3 | Matter<br>Stoichiometry    | 9:<br>10/16-10/20  | Chapter 7               | Quantum Theory                         |
| 2:<br>9/1         | Chapters<br>1 & 2      | Exam 1                     | 10:<br>10/23-10/27 | Chapter 7<br>Chapter 8  | Quantum Theory<br>Electronic Structure |
| 3:<br>9/6-9/8     | Chapter 3              | Stoichiometry              | 11:<br>10/30-11/1  | Chapter 8               | Electronic Structure                   |
| 4:<br>9/11-9/15   | Chapter 4              | Chemical Reactions         | 11:<br>11/3        | Chapters<br>7 & 8       | Exam 4                                 |
| 5:<br>9/18 - 9/20 | Chapter 4              | Chemical Reactions         | 12:<br>11/6-11/10  | Chapter 9               | Chemical Bonding                       |
| 5:<br>9/22        | Chapters<br>3 & 4      | Exam 2                     | 13:<br>11/13-11/17 | Chapter 9<br>Chapter 10 | Chemical Bonding<br>Molecular Shapes   |
| 6:<br>9/25 - 9/29 | Chapter 5              | Gasses & Kinetic<br>Theory | 14:<br>11/27-11/29 | Chapter 10              | Molecular Shapes                       |
| 7:                | Chapters               | Kinetic Theory             | 14:                | Chapters                | Exam 5                                 |

|                           |                  |                 |                           |                   |                |
|---------------------------|------------------|-----------------|---------------------------|-------------------|----------------|
| 10/2 – 10/6               | 5 & 6            | Thermochemistry | 12/1                      | 9 & 10            |                |
| <b>8:</b><br>10/9 - 10/11 | <i>Chapter 6</i> | Thermochemistry | <b>15:</b><br>12/4 – 12/8 | <i>Chapter 11</i> | Covalent Bonds |

\*\*\*\*\* FINAL EXAM 9:50 AM, Saturday December 9, 2017 \*\*\*\*\*