

## **CHEM 106: General Chemistry 2 Course Syllabus (Fall 2019, Section 001)**

### **Course Specifics:**

**Instructor:** Dr. Jason C. Hurlbert  
Office: Sims 301B  
Office hours: M 10:30-11:30, R 12:30-1:30 and by appointment  
Phone: 323-4928  
E-mail: hurlbertj@winthrop.edu

### **Meeting Times:**

Lecture: Monday and Wednesday, 5:00 – 6:15PM, Sims 105  
3 credit hours

**Textbooks:** Biochemistry by T.A. Brown

### **Course Outline and Objectives:**

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We will cover the following topics during the semester:

- \* Chemical concepts as they relate to biological systems
- \* Chemical Reactivity
- \* Intermolecular forces
- \* The chemistry of the essential molecules for life: lipids, amino acids and sugars
  - Specifically: How these molecules are made, how they react and how they interact with other molecules found in the cell.
- \* Molecular Biology (The relationship between biology and chemistry)
- \* Enzymology
- \* Metabolic pathways and the chemistry behind them

Along the way, I hope to show you how important the field of chemistry is in everyday life. We will spend the initial part of the course firming up material covered in General Chemistry I, then move into the chemical basis for many biological processes, and finish by studying specific metabolic pathways from a chemical point of view. In addition, the course will serve to help build your critical thinking skills and develop effective study habits, traits you'll need regardless of your chosen career goals.

### **Student Learning Outcomes**

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General Education Requirements: CHEM106 and the co-requisite CHEM108 together fulfill four hours of general education requirement for natural sciences. Listed below are Winthrop's seven fundamental student learning outcomes for natural science courses as well as examples of how they will be fulfilled in CHEM106 and 108.

Students should be:

1. Conversant with a few fundamental concepts from among the three main areas of natural science, including earth, life, and physical sciences. (e.g., the behaviour of

inorganic molecules, the underlying thermodynamic principles dictating the interaction of molecules and the chemical processes by which organisms exist).

2. Able to apply the scientific methodologies of inquiry. (e.g., CHEM 108 laboratory exercises and experiments)
3. Able to discuss the strengths and limitations of science. (e.g., the relationship between protein structure and function, protein folding)
4. Able to demonstrate an understanding of the history of scientific discovery. (historical perspectives on the discovery and characterization of the basic, biologically required molecules)
5. Able to discuss the social and ethical contexts within which science operates. (e.g., biotechnology).
6. Able to communicate about scientific subjects including (lab courses only) the defense of conclusions based on one's own observations. (e.g., CHEM 108 laboratory presentations and project reports)
7. Able to discuss the application of scientific knowledge to the social sciences and to non-scientific disciplines. (the entire course does this)

These learning outcomes mesh well with the University Level Competencies (ULCs) that describe the skills Winthrop faculty have outlined for students to develop during their tenure here. These include:

**Competency 1: Winthrop graduates think critically and solve problems.**

You will be regularly tested on your abilities to read, interpret and apply information that ties together biology, general, organic and physical chemistries as they apply to life's processes.

**Competency 2: Winthrop graduates are personally and socially responsible.**

You will be expected to work with others in the class, while striving to complete assignments individually and with your own personal interpretations.

**Competency 3: Winthrop graduates understand the interconnected nature of the world and the time in which they live.**

Biochemistry is an interdisciplinary science and during this course you will realize the interdependence of biology, physics and chemistry. You will gain an appreciation of how each field can be interpreted in terms from the others.

## **Grading for the Course**

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### **Homework:**

Throughout the semester, I will distribute and collect 3 problem sets from you. These problem sets will be due on the dates given in the course calendar (found on the "Course Schedule" page of this website). Please feel free to work in groups on these problems. However, make sure that you understand how these problems are solved as you may be required to present the solutions to the class during the recitation sections. Each problem set will count as 30 points towards your final grade.

**In-class quizzes:**

The biggest hurdle to doing well in this course is staying up with the information. Students that have done well in prior offerings of this class have read the material presented BEFORE coming to class, have read through their notes after class and have come to my office hours to ask questions about the material. We will have 7 in-class quizzes throughout the semester on the dates given in the course calendar. Each quiz will cover material given in previous lectures and are meant to keep you on pace with the material. Due to the combinatorial nature of the material taught in the course, falling behind in one section will cause problems learning subsequent material, so staying current with the topics is paramount to success in the course. Each quiz will count as 10 points towards your final grade.

**Tests:**

Test 1 (18 September, 2019)

Test 2 (21 October, 2019)

Test 3 (25 November, 2019)

- Each test will have a value of 100 points

**Final Exam 6:30 pm Wednesday, 4 December, 2019**

The final exam is cumulative and you must make at least a 50% on the exam to pass the course. The final exam will cover the entire course and will have a value of 200 points

**Total Possible Points**

Problem Sets 3 at 30 points each = 90 points

Quizzes 7 at 10 points each = 70 points

Tests 3 at 100 points each = 300 points

Final Exam 200 points

Total Possible Points = 660 Points

**Grades**

**A:** 90 - 100% (594-660 pts)

**B+:** 86 - 89% (568-593 pts)

**B:** 77 - 85% (508-567 pts)

**C+:** 74 - 76% (488-507 pts)

**C:** 66 - 73% (435-487 pts)

**D:** 56 - 65% (370-434 pts)

**F:** <55% (<370 pts)

**Student code of conduct statement:** As noted in the Student Conduct Code:

“Responsibility for good conduct rests with students as adult individuals.”

### **CHEM 108 Corequisite**

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Since the CHEM 106/108 combination represents a General Education requirement, CHEM108 must be completed and passed in order to receive a final grade in CHEM106. Students who do not pass CHEM108 will receive an incomplete in CHEM106 until CHEM108 has been passed.

### **Technology in the Classroom**

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Out of respect for everyone in the room, please turn your cellular telephones to 'Silent' and (if applicable) mute your laptop computers. Also, laptop computers may only be used for taking notes during the class period, not updating your Facebook page, checking email, tweeting, etc. Due to the complex nature of many of the subjects discussed during lecture and the frequent use of graphs and figures, it is the instructor's opinion that the best way to take notes is by hand. Students failing to adhere to these rules may be asked to leave should their behavior prove disruptive to the class. No telephones or laptops may be used during exams or quizzes. You will need to bring a scientific calculator to class for quizzes and exams.

### **Course Attendance Policy**

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Attendance will not be taken, however you must attend every lecture in order to be successful in the course. During lecture, I will go over specific examples that are not found in the textbook or the online lecture notes. I will also announce opportunities for extra credit and give pop quizzes during scheduled lecture. Failure to attend without authorized documentation (eg. Physician's note or court document) or prior approval from the instructor will prevent you from taking part in these opportunities.

### **Syllabus Change Policy**

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Should any changes be made to this document, they will be announced in class and everyone will be encouraged to download the latest copy of the document.

### **Students with Disabilities/Need of Accommodations for Access:**

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Winthrop University is committed to providing access to education. If you have a condition which may adversely impact your ability to access academics and/or campus life, and you require specific accommodations to complete this course, contact the Office of Accessibility (OA) at 803-323-3290, or, [accessibility@winthrop.edu](mailto:accessibility@winthrop.edu). Please inform me as early as possible, once you have your official notice of accommodations from the Office of Accessibility.