

CHM 141

GENERAL, ORGANIC &amp; BIOCHEMISTRY I

4 cr. (3-3)

**COURSE DESCRIPTION:**

A first semester course of general, organic and biochemistry sequence designed to meet the needs of students of nursing, dental hygiene, physical therapy, allied health programs, forestry, home economics, and other majors with comparable requirements. This course covers matter, electrons and chemical bonds, formulas and equations, stoichiometry, gases, solutions, energies, acid-base reactions, radioactivity, and introduction to organic chemistry.

**PREREQUISITES:**

Two years of high school algebra or MAT 062

**COURSE OBJECTIVES:**

To enable students to:

1. Understand and use the fundamental concepts of chemistry.
2. Classify matter into pure substances (elements and compounds) and mixtures (homogeneous and heterogeneous).
3. Use chemical formulas and equations of chemical reactions to do stoichiometric calculations.
4. Understand nuclear reactions and write nuclear equations.
5. Relate electron configuration within atoms to chemical bonds and shapes of compounds.
6. Classify organic matter using functional groups, and identify saturated and unsaturated hydrocarbons.
7. Investigate chemical principles in laboratory experiments.
8. Use the Internet to extract relevant information.

**COURSE OUTLINE:**

	<b>Chapter and Page No.</b>
Matter and Life	1, pg. 1
Measurements in Chemistry	2, pg. 16
Atoms and the Periodic Table	3, pg. 46
Nuclear Chemistry	11, pg. 326
Ionic Compounds	4, pg. 74
Molecular Compounds	5, pg. 104
Chemical Reactions: Classification & Mass Relationships	6, pg. 140
Chemical Reactions: Energy, Rates & Equilibrium	7, pg. 182
Gases, Liquids and Solids	8, pg. 211
Solutions	9, pg. 254
Acids and Bases	10, pg. 290
Introduction to Organic Chemistry	12, pg. 354

**COURSE REQUIREMENTS:**

Students are expected to take all quizzes and examinations, and to perform and submit reports for all laboratory experiments. Attendance is mandatory, and students are expected to attend all scheduled class periods for the course.

**A student is considered absent when he/she is not present at any time during the entire class period, from the time the class starts until class is dismissed.**

Logan College policy states that students absent for 3 consecutive days or more (lecture, lab, or combination) may be referred to the department chairperson before being readmitted to the class. Students who are absent for a total of 6 days total or more may also be referred to the department chairperson before being readmitted to the class.

Only those examinations or quizzes which are missed because of a documented illness, emergency, or school related function may be made up, and then **only if the student notifies the instructor prior to the absence (or leaves a phone message on the instructor's Ext. 8398).**

**Student's attendance in the laboratory is mandatory. Students must obtain a "C" grade or higher from the laboratory section in order to pass the entire course. Students are responsible for making sure all lab assignments and coursework are handed in to Dr. Elliott. Assignments which are late will be penalized or given 0 pts. It is the student's responsibility to hand the lab report in on time.**

All make-up examinations and quizzes will be taken at the instructor's discretion.

Student Success Center. Tutors may be obtained through the Student Success Center. Contact the staff in C219 if this service is desired. John A. Logan College will make reasonable accommodations for students with documented disabilities under Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990. Any student with a disability that may have some impact on work in this class, who feels she/he needs an accommodation, should make an appointment with the Coordinator of Services for Students with Disabilities on campus, Jennifer Frost, Room C219B, Ext. 8516. Before services can be provided, this advisor must determine eligibility and arrange appropriate academic adjustments. ***It is the student's responsibility to register in advance of a school term with this office and to turn in a schedule each term to ensure that there is every opportunity for success in this class.***

English Writing Center/Tutoring. For assistance with writing assignments in any college course, students are encouraged to visit "The Write Place" in Room E109. English instructors are available for one-on-one tutoring each semester during hours posted at the center.

Financial Aid. Students who receive financial assistance and completely withdraw from classes prior to 60% of the semester being completed (approximately 2-3 weeks after midterm) could be responsible to return a portion of their Federal Pell Grant award. Prior to withdrawing from courses, students should contact the Financial Aid Office.

Course Withdrawal Information. It is expected that you will attend this class regularly. If you stop attending for any reason, you should contact your advisor and withdraw officially to avoid the posting of a failing grade (an E) to your transcript. It is also advisable to discuss the situation with your instructor before dropping.

**METHOD OF EVALUATION:**

The grades will be as follows:

Laboratory Reports (Best 12 of 13)	25%
Laboratory Notebook	5%
Homework Assignments (Best 10 from 11)	10%
Class Exams (Best 5 of 6)	40%
Mid Term Examination	10%
Final Examination	10%

Final grades will be based on accumulated scores:

90% = A    80% = B    70% = C    60% = D    Under 60% = E

Excessive absences (more than 10% of the class meetings or more than 7 absences total) will enter into consideration for semester grades of borderline students as will disruptive behavior.

**No student will pass the course if they fail either the lab or class examinations.**

<b>Class Times:</b>	<b>Section 1</b>	<b>Section 3</b>	<b>Hybrid H1</b>
Lecture	Monday Wednesday Friday	Tuesday Thursday	N/A
	11:00-11:50 a.m. Room G123	5:00-6:20 p.m. Room G125	
Laboratory	Friday 2:00-5:00 p.m. Room G121	Tuesday/Thursday 6:30-8:00 p.m. Room G121	February 2 <sup>nd</sup> , March 8 <sup>th</sup> March 29 <sup>th</sup> , April 12 <sup>th</sup> May 3 <sup>rd</sup>

**All students** must read, sign and date the student safety contract before starting the laboratory course in CHM 141. All students must comply with the student safety contract in order to take part in the laboratory.

**Office Hours**

Each Day                                    10:00-11:00 a.m.  
Monday and Friday                    1:00-2:00 p.m.  
Tuesday and Thursday                11:00 a.m.-12:00 noon  
Or any other time by appointment

**METHODS OF PRESENTATION:**

Lecture and discussion three hours per week, laboratory sessions three hours per week. Lecture consists of description and discussion of the processes of chemistry, while the laboratory experience provides observation and investigation of these processes.

**TEXT:**

Fundamentals of General, Organic and Biological Chemistry, 5<sup>th</sup> Edition, McMurray, Castellion & Ballantine, Pearson/Prentice Hall.

Logan College, Chemistry Laboratory Manual, CHM 141  
Lab notebook: A bound composition book  
Flashdrive device for computer use (optional)

**Laboratory Notebook:**

As you work in the laboratory, you need to take constant, quick notes on what you are doing and record any observations on your experiment. **Information not taken down at the time can be forgotten or mixed with other times and events.** The lab notebook is meant to be a 'rough' record of what you did (and the laboratory report sheets in the red manual will form the polished, final report).

The notebook is unlikely to be 'super tidy', but it should be legible and easy to follow what you have done! The notebook should include:

1. **Title:** with the name of the experiment on a fresh page.
2. The date in the top corner of each page.
3. **Method:** a brief summary of what the experiment is about (4 or 5 sentences at most). Reading the red manual before lab will help with this.
4. **Results:** A recording of observations (colour changes, heat released, sounds, signs of precipitate), measurements made (mass in g, volumes in ml, reagent concentrations in Molarity) and any calculations required. All results should then be analyzed.

**Your notebook will be checked periodically and submitted at the end of the semester for 5% of your laboratory grade.** The lab notebook **MUST** be filled in as you work (and not mass copied in the last week of April during commercial breaks of *Lost*). Additional considerations include –

5. The notebook should be hardbound with sewn bindings (not ring bound) to prevent pages tearing out.
6. The front page should be an index page that lists experiments and pages notes are on.
7. Each page should be numbered in the bottom right hand corner.
8. Always write in INK, never pencil.
9. Always make sure the instructor 'initials' the end of your lab page for each lab day. **Students who do not get their lab book 'initialed' may lose pts from their lab score for the semester.**

**INSTRUCTOR:** Dr. James M. Elliott  
Office: G113  
Phone: Ext. 8398  
E-mail: [jameselliott@jalc.edu](mailto:jameselliott@jalc.edu)

**DATE:** Spring, 2008

### John A. Logan College Telephone Numbers

Carterville and Williamson County.....	985-3741 (operator)
	985-2828 (direct extension access)
Carbondale and Jackson County .....	549-7335 (operator)
	457-7676 (direct extension access)
Du Quoin .....	542-8612
West Frankfort.....	937-3438
Crab Orchard, Gorham, & Trico areas .....	1-800-851-4720
TTY (hearing-impaired access) .....	985-2752

*John A. Logan College does not discriminate on the basis of race,  
religion, color, national origin, disability, age, sexual orientation, or gender orientation.*

**Tentative Timetable:**

Week	Date	Chapter	Assignments	Lab No.
1	Jan 14 <sup>th</sup> – 18 <sup>th</sup>	1: Matter		1: Measurement
2	*Jan 22 <sup>nd</sup> – 25 <sup>th</sup>	2: Measurements	Homework 1	REVISION
			<b>Exam 1</b>	
3	Jan 28 <sup>th</sup> – Feb 1 <sup>st</sup>	3: Atom	Homework 2	2: Density
4	Feb 4 <sup>th</sup> – 8 <sup>th</sup>	11: Radioactivity	Homework 3	3: Separation
			<b>Exam 2</b>	
5	Feb 11 <sup>th</sup> – 15 <sup>th</sup>	4: Ions	Homework 4	4: Computers
6	*Feb 19 <sup>th</sup> – 22 <sup>nd</sup>	5: Molecular	Homework 5	<b>7: Lewis Struct.</b>
			<b>Exam 3</b>	
7	Feb 25 <sup>th</sup> – 29 <sup>th</sup>	5: Molecular		5: Chemical Form.
8	Mar 3 <sup>rd</sup> – 7 <sup>th</sup>	6: Mass Rel.	Homework 6	6: Chemical Form. 2
			<b>M-Term Exam</b>	
9	Mar 10 <sup>th</sup> – 14 <sup>th</sup>	<b>Spring Break Week</b>		
10	*Mar 17 <sup>th</sup> – 20 <sup>th</sup>		Homework 7	REVISION
11	Mar 24 <sup>th</sup> – 28 <sup>th</sup>	7: Equilibrium		8: Calorimetry
12	Mar 31 <sup>st</sup> – Apr 4 <sup>th</sup>		Homework 8	9: Kinetics
			<b>Exam 4</b>	
13	Apr 7 <sup>th</sup> – 11 <sup>th</sup>	8: Gases	Homework 9	10: Equilibrium
14	Apr 14 <sup>th</sup> – 18 <sup>th</sup>	9: Solutions		11: Gas Laws
			<b>Exam 5</b>	
15	Apr 21 <sup>st</sup> – 25 <sup>th</sup>	10: Acids-Bases	Homework 10	12: Solutions
16	Apr 28 <sup>th</sup> – May 2 <sup>nd</sup>	10-12: Organic	Homework 11	13: Acids - Bases
			<b>Exam 6</b>	
17	May 5 <sup>th</sup>	<b>Final Exams Start on May 8<sup>th</sup></b>		

Students meriting an A grade on May 3<sup>rd</sup> will be **excused** from the final exam.

\* January 21<sup>st</sup>, February 18<sup>th</sup> and March 21<sup>st</sup> are holidays, but only until Great Britain 'takes back the colonies' and abolishes this nonsense.

### Special Timetable Considerations for Hybrid Students

- Lecture notes and their connected chapters of McMurray will follow the format on the previous page.
- Homework will be posted on Blackboard each Monday afternoon at 5 p.m.
- Answers must be submitted via e-mail to [jameselliott@jalc.edu](mailto:jameselliott@jalc.edu) by 12 noon on the following Monday.
- Laboratory days are as follows:

<u>Hybrid Dates</u>	<u>Lab and Description</u>
Saturday 2 <sup>nd</sup> Feb	1: Measurement 2: Density
Week Feb 11 <sup>th</sup> – 15 <sup>th</sup>	4: Computers
Week Feb 18 <sup>th</sup> – 22 <sup>nd</sup>	7: Lewis Structures
Saturday 8 <sup>th</sup> March	3: Separation 5: Chemical Formula #1
Saturday 29 <sup>th</sup> March	6: Chemical Formula #2 8: Calorimetry
Saturday 12 <sup>th</sup> April	9: Kinetics 10: Equilibrium
Saturday 3 <sup>rd</sup> May	11: Gas Laws 12: Solutions

Labs will be in G121. The first lab of the day will be 9-12 noon. There will then be a 2-hour lunch break before the second lab between 2-5 p.m.

- Practice exams will be posted over the semester, but graded exams will be on Laboratory Saturdays after the labs. Exams will normally last about 30 minutes.