

Course Syllabus

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 Edit

MARIAN UNIVERSITY

Indianapolis

CHE 100 Elements of General and Biological Chemistry 4 Credits

Semester and Year: First Seven-Weeks, Summer 2025

Email: Contact via Canvas email

Required Textbook(s):

Chemistry: An Introduction to General, Organic, and Biological Chemistry, 13th edition; Karen Timberlake, Pearson Education, Inc. 2017

ISBN: 9780134421353

Students are required to purchase the items listed above prior to the start of the course. Look into all of your options - new, used, rental, or e-books. If you choose a rental option, be sure to understand the policies and the due dates for the returns. While you have the option to obtain your course materials from any source, ordering from the MU Book Store can be a convenient option. Please note that you can also charge bookstore purchases to your student account or use your MU financial aid if applicable.

Visit www.bkstr.com/marianustore/home ➦ <http://www.bkstr.com/marianustore/home>.

Additional Resources:

The Mother Teresa Hacklemeier Memorial Library at Marian University provides various databases

<http://www.marian.edu/library/Pages/default.aspx> ➦ <http://www.marian.edu/library/Pages/default.aspx>

- **Marian University requires all work be completed on a laptop or PC; this includes all exams and quizzes.**

Course Description

This course is an introduction to the principles of general chemistry, organic chemistry, and biochemistry, and is designed for students in the health science areas.

This course will explore general chemistry, organic, and biochemistry. We cover 17 chapters. Therefore, we will be covering 2 to 3 chapters a week. Homework assignments and discussions will be given. Plan to spend a minimum of ten to twenty hours a week working on class material. You are encouraged to interact with your instructor with questions or other content issues as is needed.

Student Learning Objectives:

Upon successful completion of this course, students will be able to:

- Perform basic calculations in chemistry using stoichiometric
- Understand the basic properties of matter and energy
- Understand the structure of atoms and their organization in the periodic table
- Understand the principles of chemical bonding
- Balance and utilize chemical equations
- Understand the basic properties of gases
- Understand the basic properties of water and solutions
- Understand acids, bases, pH, and buffers
- Understand the general principles of radioactivity
- Name, draw, and recognize 'simple' organic molecules
- Recognize and name common organic functional groups
- Recognize and understand common chemical reactions including organic and biochemical

- Understand the composition, structure, and function of carbohydrates
- Understand the composition, structure, and function of lipids
- Understand the composition, structure, and function of proteins
- Understand the composition, structure, and function of nucleic acids

Course Learning Objectives	Methods of Assessment
Apply unit conversions to perform calculations	Exam 1, Quiz 1, Homework 1, and Discussion Post 1
Describe the general properties of matter and energy	Exam 1, Quiz 1, Homework 1, and Discussion Post 1
Compare the structure of atoms and their organization in the periodic table	Exam 1, Quiz 2, Homework 2, and Discussion Post 2
Describe the principles of chemical bonding	Exam 1, Quiz 2, Homework 2, and Discussion Post 2
Balance and use chemical equations	Exam 2, Quiz 3, Homework 3, and Discussion Post 3
Differentiate and calculate properties of gases	Exam 2, Quiz 3, Homework 3, and Discussion Post 3
Evaluate the properties of water and solutions	Exam 2, Quiz 4, Homework 4, and Discussion Post 4
Define acids, bases, pH, and how a buffer works.	Exam 2, Quiz 4, Homework 4, and Discussion Post 4
Describe the general principles of radioactivity	Exam 3, Quiz 5, Homework 5, and Discussion Post 5
Name, draw, and recognize 'simple' organic molecules	Exam 3, Quiz 5, Homework 5, and Discussion Post 5
Recognize and name common organic functional groups	Exam 3, Quiz 6, Homework 6, and Discussion Post 6
Recognize and discuss common chemical reactions including organic and biochemical	Exam 3, Quiz 6, Homework 6, and Discussion Post 6
Describe the composition, structure, and function of carbohydrates	Exam 4, Quiz 7, Homework 7, and Discussion Post 7
Describe the composition, structure, and function of lipids	Exam 4, Quiz 7, Homework 7, and Discussion Post 7

Describe the composition, structure, and function of proteins and

Exam 4, Quiz 8, Homework 8, and Discussion Post 8

Describe the composition, structure, and function of nucleic acids

Exam 4, Quiz 8, Homework 8, and Discussion Post 8

Transformational Journey Program Learning Objectives

Objective	Method of Assessment
1. Problem Solving - Criterion A: Articulate a clear and thoughtful problem statement.	<i>Final Deliverable</i>
2. Problem Solving - Criterion B: Identify multiple approaches to solving a problem.	<i>Final Deliverable</i>
3. Problem Solving - Criterion C: Develop an informed and logical plan to solve a problem.	<i>Final Deliverable</i>

Teaching Strategies

Add a narrative of the teaching strategies you will use in the classroom.

Assignments & Assessment Methods:

Methods of Evaluation

There are 4 Exams, exams are worth 76% of your total grade. Homework assignments are 7% of your total grade, discussions are 7% of your total grade, and quizzes are 10% of your total grade.

Exam 1 Modules 1 & 2 Chapters 2-4, 6

Exam 2 Modules 3 & 4 Chapters 7-10

Exam 3 Modules 5 & 6 Chapters 5, 11-12, 14

Exam 4 Modules 7 & 8 Chapters 13, 15-17

Grading Scale

The grading scale for this course is (this is course dependent and must be individualized)

Letter Grade	Percentage
A	92%
A-	88%
B+	84%
B	80%
B-	77%
C+	74%
C	70%
C-	67%
D+	64%
D	60%
F	<59%

Course Policies:

Late Policy & Due Date Extensions:

Assignments will close for submission 72 hours after the due date. Any assignment submitted late in that 72 hour time period will receive a 10% late penalty. For any final exam, paper, etc. that is due the last day of the term/session, the 72-hour late policy does not apply past the date the term or session ends. Late initial posts in discussion boards will receive a 2-point deduction in the rubric.

Further extensions and accommodations, including exams, may be given consideration for unforeseen, documented hardships, such as medical emergencies, documentable technical issues, death of a loved one, travel and weather emergencies, etc. However, simply forgetting, time zone differences, going on vacation, or not performing as well as intended are not acceptable excuses. If you believe an extension or accommodation is warranted, please contact your instructor.

Exam Retakes: Exams retakes are different than requesting and being granted an extension on an exam. There are no exam retakes allowed in this course. Once you open an exam, you're stating that you have prepared adequately for the exam and you're accepting the results of the exam.

Plagiarism Statement: Plagiarism is using the words or ideas of another as your own without giving credit to the source author. This also includes taking a paper found online and submitting it as one's own paper and/or cutting and pasting from a website and submitting it as your work product.

Plagiarism is defined in detail in the [Code of Student Rights and Responsibilities](https://www.marian.edu/docs/default-source/campus-life/codeofstudentrightsandresponsibilities.docx?sfvrsn=14) [↗](https://www.marian.edu/docs/default-source/campus-life/codeofstudentrightsandresponsibilities.docx?sfvrsn=14) (https://www.marian.edu/docs/default-source/campus-life/codeofstudentrightsandresponsibilities.docx?sfvrsn=14) under Section 8: Academic Conduct Procedures, as well as an extended description of academic dishonesty.

The following are some helpful websites for understanding plagiarism, documentation and citation:

- Marian University's library: <https://www.marian.edu/current-students/library> [↗](https://www.marian.edu/current-students/library) (https://www.marian.edu/current-students/library)
- Plagiarism.org: <https://plagiarism.org/> [↗](https://plagiarism.org/)
(https://urldefense.com/v3/_https://plagiarism.org/_:!!DUogwUQIT_yXRW2Aa1Gbx09gkwJ_Q3X0PNE2KsZ82HuuyzBI4FJGgO_hCio_vdzWWvWc0ADF_)
- Purdue OWL: <https://owl.purdue.edu/> [↗](https://owl.purdue.edu/)
(https://urldefense.com/v3/_https://owl.purdue.edu/_:!!DUogwUQIT_yXRW2Aa1Gbx09gkwJ_Q3X0PNE2KsZ82HuuyzBI4FJGgO_hCio_vdzWWvWc0WY_)

Adherence to Academic Integrity & Use of AI and Chat GPT:

At Marian University, all students are called to uphold academic integrity in all their academic endeavors, including the responsible use of AI tools, reflecting both the institution's commitment to intellectual and moral integrity and its foundational Franciscan values. Students are expected to exemplify honesty, honor, and respect for the truth, demonstrating their intellectual and moral integrity as outlined in the [Code of Student Rights and Responsibilities](https://www.marian.edu/academics/assets/documents/student-code-of-rights-and-responsibilities.pdf) [↗](https://www.marian.edu/academics/assets/documents/student-code-of-rights-and-responsibilities.pdf) (https://urldefense.com/v3/_https://www.marian.edu/academics/assets/documents/student-code-of-rights-and-responsibilities.pdf_:!!CSKv4JNZfdoHTMmavA!mnoa-UuWHQVxQI3HYxIUkwLmlsOK2XEQN2K3SBAYm3puRjSHjMyHf9d9-cjFUO8NGAHGz6CvM_yc1gB84CSIKNqzFw\$). By embodying these responsibilities, students contribute to a just and flourishing academic community. Students are allowed to use advanced automated tools (artificial intelligence or machine learning tools such as ChatGPT or Dall-E 2) on assignments in this course if that use is properly documented and credited. For example, text generated using ChatGPT-3 should include a citation such as: "Chat-GPT-3. (YYYY, Month DD of query). "Text of your query." Generated using OpenAI. <https://chat.openai.com/> [↗](https://chat.openai.com/) (https://chat.openai.com/)."

Material generated using other tools should follow a similar citation convention. Decisions are at the discretion of the instructor, so students are encouraged to communicate with their instructors.

Accommodation/Accessibility Statement: Marian University, through policy and practice, is committed to providing equitable access to learning opportunities for all students. If you experience, or anticipate experiencing, barriers to your education due to a disability please contact the Personalized Learning Center by emailing plc@marian.edu (mailto:plc@marian.edu) or calling 317.955.6540 to start a conversation.

Although a student may request an accommodation at any time, it is best to initiate the accommodation process as early as possible as it may take time to complete the interactive process and accommodations will not be implemented retroactively. If a reasonable accommodation is determined, a Course Accommodation Letter will be created at the Personalized Learning Center for the student to provide to their faculty members with information related to their accommodations. Faculty will not set up disability-related accommodations without a current semester Course Accommodation Letter.


















Faculty, Staff or Student questions or concerns regarding the accommodation process can be sent to plc@marian.edu (mailto:plc@marian.edu) or Mandie Greiwe, agreiwe@marian.edu (mailto:agreiwe@marian.edu), Director of the Personalized Learning Center.



















Diversity & Inclusion Statement: Marian's Adult and Online Programs (MAP) at Marian University is a collaborative academic community committed to fostering a diverse and inclusive community across the intersections of race, ethnicity, religion, sexual orientation, gender identity, age, disability status, socio-economic background, political perspective, culture, immigration status, and national origin. Online programs is committed to creating a safe and just environment of respect for students, faculty, and staff following our shared Franciscan values.




****Any changes to this syllabi will be communicated to the student.**

Please click here to download a PDF of the syllabus.

Course Summary:

Date	Details	Due
Sat May 10, 2025	 Submit: Chemistry and Matter (https://marian.instructure.com/courses/7545407/assignments/50194728)	due by 11:59pm
	 Discuss: Homework Problems: Chemistry and Matter (https://marian.instructure.com/courses/7545407/assignments/50194725)	due by 11:59pm
	 Take: Quiz 1 (https://marian.instructure.com/courses/7545407/assignments/50194700)	due by 11:59pm
Fri May 16, 2025	 Submit: Elements, Compounds, and their Bonds (https://marian.instructure.com/courses/7545407/assignments/50194729)	due by 11:59pm
	 Discuss: Homework Problems: Elements, Compounds, and their Bonds (https://marian.instructure.com/courses/7545407/assignments/50194724)	due by 11:59pm
	 Take: Quiz 2 (https://marian.instructure.com/courses/7545407/assignments/50194711)	due by 11:59pm
Sat May 17, 2025	 Take: Exam 1 (https://marian.instructure.com/courses/7545407/assignments/50194717)	due by 11:59pm
Sat May 24, 2025	 Submit: Chemical Reactions and Gases (https://marian.instructure.com/courses/7545407/assignments/50194727)	due by 11:59pm
	 Discuss: Homework Problems: Chemical Reactions and Gases (https://marian.instructure.com/courses/7545407/assignments/50194723)	due by 11:59pm
	 Take: Quiz 3 (https://marian.instructure.com/courses/7545407/assignments/50194698)	due by 11:59pm
Fri May 30, 2025	 Submit: Solutions, Acids and Bases (https://marian.instructure.com/courses/7545407/assignments/50194735)	due by 11:59pm
	 Discuss: Homework Problems: Solutions and Acids and Bases (https://marian.instructure.com/courses/7545407/assignments/50194722)	due by 11:59pm
	 Take: Quiz 4 (https://marian.instructure.com/courses/7545407/assignments/50194705)	due by 11:59pm
Sat May 31, 2025	 Take: Exam 2 (https://marian.instructure.com/courses/7545407/assignments/50194708)	due by 11:59pm
Fri Jun 6, 2025	 Submit: Radioactivity and Hydrocarbons (https://marian.instructure.com/courses/7545407/assignments/50194734)	due by 11:59pm
	 Discuss: Homework Problems: Radioactivity and Hydrocarbons (https://marian.instructure.com/courses/7545407/assignments/50194718)	due by 11:59pm
	 Take: Quiz 5 (https://marian.instructure.com/courses/7545407/assignments/50194716)	due by 11:59pm

Date	Details	Due
Wed Jun 11, 2025	 Submit: Organic Functional Groups (https://marian.instructure.com/courses/7545407/assignments/50194732)	due by 11:59pm
	 Discuss: Homework Problems: Organic Functional Groups (https://marian.instructure.com/courses/7545407/assignments/50194719)	due by 11:59pm
	 Take: Quiz 6 (https://marian.instructure.com/courses/7545407/assignments/50194707)	due by 11:59pm
Thu Jun 12, 2025	 Take: Exam 3 (https://marian.instructure.com/courses/7545407/assignments/50194713)	due by 11:59pm
Mon Jun 16, 2025	 Submit: Carbohydrates and Lipids (https://marian.instructure.com/courses/7545407/assignments/50194726)	due by 11:59pm
	 Discuss: Homework Problems: Carbohydrates and Lipids (https://marian.instructure.com/courses/7545407/assignments/50194720)	due by 11:59pm
	 Take: Quiz 7 (https://marian.instructure.com/courses/7545407/assignments/50194699)	due by 11:59pm
Fri Jun 20, 2025	 Submit: Proteins and Nucleic Acids (https://marian.instructure.com/courses/7545407/assignments/50194733)	due by 11:59pm
	 Discuss: Homework Problems: Proteins and Nucleic Acids (https://marian.instructure.com/courses/7545407/assignments/50194721)	due by 11:59pm
	 Take: Quiz 8 (https://marian.instructure.com/courses/7545407/assignments/50194704)	due by 11:59pm
Sat Jun 21, 2025	 Submit: Forming an Atom with M&M's - Optional (https://marian.instructure.com/courses/7545407/assignments/50194730)	due by 11:59pm
	 Submit: Integration of Information and Media Literacy- Optional (https://marian.instructure.com/courses/7545407/assignments/50194731)	due by 11:59pm
	 Take: Exam 4 (https://marian.instructure.com/courses/7545407/assignments/50194715)	due by 11:59pm
	 Take: Exam 1B (https://marian.instructure.com/courses/7545407/assignments/50194701)	
	 Take: Exam 1C (https://marian.instructure.com/courses/7545407/assignments/50194710)	
	 Take: Exam 2A (https://marian.instructure.com/courses/7545407/assignments/50194702)	
	 Take: Exam 2B (https://marian.instructure.com/courses/7545407/assignments/50194703)	
	 Take: Exam 3A (https://marian.instructure.com/courses/7545407/assignments/50194709)	

Date	Details	Due
	 Take: Exam 3C (https://marian.instructure.com/courses/7545407/assignments/50194712)	
	 Take: Exam 4B (https://marian.instructure.com/courses/7545407/assignments/50194714)	
	 Take: Exam 4C (https://marian.instructure.com/courses/7545407/assignments/50194706)	