Identification	**Subject**	CHEM 226 - Organic chemistry	
	Department	Chemistry and Chemical Engineering	
	Program	Undergraduate	
	Term	Fall 2026	
	Instructor	Alakbar Huseynzada	
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	Phone		
	Classroom/hours	TBC	
	Office hours		
Prerequisites	General Chemistry		
Language	English		
Compulsory/Elective	Compulsory		
Required textbooks and course materials	1. Clayden, J., Greeves, N., & Warren, S. (2012). Organic chemistry (2nd ed.). Oxford University Press. 2. McMurry, J. (2020). Organic chemistry (10th ed.). Cengage Learning.		
Website of course	This course is based on traditional face-to-face classes.		
Teaching methods	**Lecture**		**X**
	Group discussion		**X**
	Practical tasks		**X**
Evaluation	**Methods**	**Date/deadlines**	**Percentage (%)**
	Quiz	2nd week of each month	20
	Midterm Exam	TBC	30
	Presentation/Group Work	3rd week of November	10
	Final Exam	TBC	40
	Total		100
Course outline	The Organic Chemistry course for the B.Sc. program introduces students to the structure, bonding, and nomenclature of organic compounds. It covers the classification, physical properties, and chemical reactions of hydrocarbons and their derivatives. The course explains stereochemistry, isomerism, and the mechanisms of important organic reactions. Students study the chemistry of functional groups, including alcohols, ethers, aldehydes, ketones, carboxylic acids, amines, and aromatic compounds. The principles of organic synthesis and reaction pathways are also introduced to develop problem-solving skills. Basic spectroscopic techniques are presented for the identification of organic compounds. Laboratory sessions provide hands-on experience in purification, separation, synthesis, and characterization of organic substances using standard experimental techniques. Upon completion of the course, students will be able to understand the structure and reactivity of organic molecules and apply organic chemistry concepts in further studies and laboratory practice.		

Course objectives	• This course introduces students to the fundamental principles of organic chemistry, including the nature of chemical bonding, orbital hybridization, and the classification of organic compounds. It explores electronic effects, such as inductive and resonance effects, and their influence on molecular structure, stability, and reactivity. Students will develop an understanding of acid–base theories and their applications to organic molecules, as well as the principles of stereochemistry, including molecular geometry, chirality, and stereoisomerism. These concepts provide a foundation for understanding the properties and reactions of organic compounds.
Learning outcomes	Here are some common learning outcomes associated with organic chemistry course: • Explain the structure, bonding, nomenclature, and classification of organic compounds using IUPAC rules. • Describe the physical and chemical properties of hydrocarbons and major organic functional groups. • Apply the principles of stereochemistry and reaction mechanisms to predict the products of organic reactions. • Analyze the reactivity and transformations of organic compounds based on mechanistic pathways. • Interpret basic spectroscopic data to identify organic compounds. • Perform standard organic laboratory techniques, including synthesis, purification, separation, and characterization of organic compounds, while following safe laboratory practices. • Solve qualitative and quantitative problems related to organic chemistry using scientific reasoning and critical thinking.
Policy	• **Laboratory work** Each topic's matching laboratory assignment comes after the subjects taught in class. By comprehending the crucial chemical calculations and experiments, students will improve their practical knowledge in this way. • **Participation** Participation in a school setting is crucial for several reasons. It is crucial to the educational process, encourages collaboration, and contributes to the overall success of the class and each individual student. • **Presentation/Groupwork** When working in groups or giving presentations, students often have to explain complex chemical concepts to their peers. Teaching others can help students get a better understanding of the material since they have to explain it in simpler words and answer questions from their peers. • **Quiz** Quizzes are a reliable way to assess your comprehension of the material taught in class. They help you and your teacher assess your understanding of key concepts and pinpoint any areas that require further clarification. There will be five questions in each quiz, and each question will receive five points. Two quizzes will be administered. • **Withdrawal (pass/fail)** Throughout this course, the School Science and Engineering grading rules are strictly followed. A minimum score of 60% is usually required for a student to pass. The student fails the course if this isn't the case. • **Cheating/plagiarism** The assignment will be canceled if there is any kind of plagiarism or cheating on an exam, quiz, or project. The learner will obtain a core of zero (zero) in this case without any additional consideration. • **Illness** A sick student can skip a presentation or quiz. This may be due to the student's

	need to visit the hospital, recuperate at home, or go to routine doctor's visits. In this instance, the student is required to provide a document from their physician and notify the instructor of the ailment beforehand. The instructor may reschedule the quiz or project presentation after taking the circumstances into account. The pupil will only be given one chance. Students will not be able to retake the quiz or deliver a presentation if they do not notify the teacher beforehand. • **Professional behavior guidelines** Students are required to behave in a way that promotes a pleasant academic and professional environment during class hours. Unauthorized conversations and unethical behavior are strictly prohibited. • **Ethics** Students are not allowed to be late for class. Mobile phones must be put away and switched off during class.
Use of Artificial Intelligence Tools	The use of Generative Artificial Intelligence (GAI) tools within this course is permitted solely for educational, research, and individual learning purposes and must remain consistent with the University's principles of academic integrity. GAI tools may be used as supplementary resources to support learning and research; however, all submitted work must reflect the student's own understanding, critical thinking, and academic contribution. Any use of GAI must be appropriately disclosed in the relevant assignment, project, presentation, or other academic material. Students are fully responsible for evaluating and verifying the accuracy, reliability, and appropriateness of all AI-generated content included in their work.

Tentative Schedule

Weeks	Topics	Reference books
1	The nature of chemical bond. Hybridization	[1], pp. 80-106 [3], pp. 1-40
2	Electronic effects	[1], pp. 141-181 [3], p. 22
3	Acid-base theory of organic compounds	[1], pp. 163-181 [2], pp. 48-61 [3], pp. 83-119
4	Alkanes	[1], pp. 22–26, 34-40 [2], pp. 78-99 [3], pp. 145-192
5	Cycloalkanes	[1], pp. 34-35; 360-381 [2], pp. 120-144 [3], pp. 155-182
6	Alkenes (olefins)	[1], pp. 341-359 [3], pp. 282-387
7	Alkynes	[2], pp. 287-306 [3], pp. 312-320; 374-375
	Midterm	
8	Alkadienes (Dienes)	[1], pp. 141-162 [2], pp. 455-479
9	Aromatic compounds. Arenes	[1], pp. 156-161; 471-497 [2], pp. 451-477 [3], pp. 617-659

10	Alcohols	[1], pp. 344-359; 418-431 [3], pp. 695-742
11	Carbonyl compounds	[1], pp. 175-205; 209-237 [3], pp. 711-760
12	Carboxylic acids	[1], pp. 275-304 [2], pp. 738-765 [3], pp. 761-810
13	Amines	[2], pp. 791-831 [3], pp. 941-987
14-15	Stereochemistry	[1], pp. 332-340 [2], pp. 140-179 [3], pp. 185-256
Final Exam		