



Lahore University of Management Sciences
CHEM 731 – Selected Topics in Organic Chemistry, Fall 2023

Instructor	Irshad Hussain
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Secretary/TA	TBD
TA Office Hours	TBA
Course URL (if any)	

Course Teaching Methodology (Please mention following details in plain text)
<ul style="list-style-type: none">Teaching Methodology: synchronous or asynchronous or a blend of both SynchronousLecture details: Percentage of recorded and live interaction lectures All lectures will be delivered in-person unless there is a genuine reason to deliver virtually

Course Basics				
Credit Hours	03			
Lecture(s)	Nbr of Lec(s) Per Week	02	Duration	75 min each
Recitation (per week)	Nbr of Rec (s) Per Week		Duration	
Lab (if any) per week	Nbr of Session(s) Per Week		Duration	
Tutorial (per week)	Nbr of Tut(s) Per Week		Duration	

Course Distribution	
Core	PhD Chemistry students
Elective	SBASSE students
Open for Student Category	
Closed for Student Category	

COURSE DESCRIPTION
This course is designed to apply the concepts of the frontier orbitals interaction to understand and propose mechanisms of advanced organic reactions for the synthesis of complex organic molecules/ligands and drugs etc. On completion of this course, the students should be able to propose the strategy and mechanism for the synthesis of complex organic ligands/molecules and drugs not even studied during the course.

COURSE PREREQUISITE(S)	
<ul style="list-style-type: none">	N/A



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COURSE OBJECTIVES	
•	<ol style="list-style-type: none">1. To give the students a general overview of the structures and reactivity of complex organic molecules based on frontier orbitals interaction.2. To enable the students to understand and interpret patterns of reactivity of advanced organic reactions on the basis of mechanistic reasoning3. To enable the students to propose strategies for the syntheses of complex organic molecules/ligands and drugs etc.

Learning Outcomes	
•	<p>At the end of this course, the students should be able to propose the strategies and mechanisms of the synthesis of unknown and advanced organic molecules/ligands and drugs etc. based on but not limited to the following concepts:</p> <ol style="list-style-type: none">1. Substitution reactions at saturated and unsaturated carbon2. Nucleophilic addition and substitution at the carbonyl group3. Using organometallic reagents to make C-C bonds4. Elimination reactions (E1, E1cb and E2)5. Nucleophilic/electrophilic aromatic substitution reactions6. Stereochemistry of above-mentioned organic reactions7. Color chemistry, heterocyclic compounds and pericyclic reactions.

Grading Breakup and Policy	
Class participation:	05 %
Assignments:	10 %
Quizzes:	20 %
Mid-term exam:	30 %
Final exam:	35 %
Instructor has the privilege to change the grading scheme which, if availed, will be conveyed to the students well in time. If, for any reason, the course goes online, then grading policy will also change.	

Examination Detail	
Midterm Exam	<p>Yes/No: Yes Combine/Separate: Combine Duration: ~02 h Preferred Date: After 5th and 10th week Exam Specifications: Closed books, course material in any form is not permitted</p>
Final Exam	<p>Yes/No: Yes Combine/Separate: Combine Duration: ~03 h Exam Specifications: Closed books, course material in any form is not permitted</p>



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Textbook(s)/Supplementary Readings

Textbooks:

Organic Chemistry by Clayden, Greeves, Warren and Wothers (Edition 2009).

ISBN 978-0-19-850346-0

March's Advanced Organic Chemistry: Reactions, Mechanisms, and Structure, 7th Edition.

By Michael B. Smith. ISBN: 978-0-470-46259-1

Other recommended readings:

Recent organic synthesis-related articles from reputed international journals

Organic Chemistry as a 2nd Language, Part – II, by David R Klein

Organic chemistry by TWG Solomons and CB Fryhle (9th Edition); ISBN 978-0-471-68496-1

Organic Chemistry by L. G. Wade Jr. (6th Edition); ISBN 0-13-147871-0



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Academic Honesty

The principles of truth and honesty are recognized as fundamental to a community of teachers and students. This means that all academic work will be done by the student to whom it is assigned without unauthorized aid of any kind. Plagiarism, cheating and other forms of academic dishonesty are prohibited. Any instances of academic dishonesty in this course (intentional or unintentional) will be dealt with swiftly and severely. Potential penalties include receiving a failing grade on the assignment in question or in the course overall. For further information, students should make themselves familiar with the relevant section of the LUMS student handbook.

Harassment Policy

SSE, LUMS and particularly this class, is a harassment free zone. There is absolutely zero tolerance for any behaviour that is intended, or has the expected result of making anyone uncomfortable and negatively impacts the class environment, or any individual's ability to work to the best of their potential. In case a differently-abled student requires accommodations for fully participating in the course, students are advised to contact the instructor so that they can be facilitated accordingly.

If you think that you may be a victim of harassment, or if you have observed any harassment occurring in the purview of this class, please reach out and speak to me. If you are a victim, I strongly encourage you to reach out to the Office of Accessibility and Inclusion at oai@lums.edu.pk or the sexual harassment inquiry committee at harassment@lums.edu.pk for any queries, clarifications, or advice. You may choose to file an informal or a formal complaint to put an end of offending behavior. You can find more details regarding the LUMS sexual harassment policy [here](#).

To file a complaint, please write to harassment@lums.edu.pk.

SSE Council on Equity and Belonging

In addition to LUMS resources, SSE's **Council on Belonging and Equity** is committed to devising ways to provide a safe, inclusive and respectful learning environment for students, faculty and staff. To seek counsel related to any issues, please feel free to approach either a member of the council or email at cbe.sse@lums.edu.pk

Rights and Code of Conduct for Online Teaching

Not applicable if the course is conducted in-person, as planned.

If, for any reason, it goes online, then misuse of online modes of communication is unacceptable. TAs and Faculty will seek consent before the recording of live online lectures or tutorials. Please ensure if you do not wish to be recorded during a session to inform the faculty member. Please also ensure that you prioritize formal means of communication (email, LMS) over informal means to communicate with course staff.