國立東華大學

教學計劃表　Syllabus

課程名稱(中文) Course Name in Chinese	材料有機化學			學年/學期 Academic Year/Semester		113/2
課程名稱(英文) Course Name in English	Organic Chemistry for Materials Science					
科目代碼 Course Code	MS__10300	系級 Department & Year	學三	開課單位 Course-Offering Department		材料科學與工程學系
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)		3.0/3.0		
授課教師 Instructor	/陳素華					
先修課程 Prerequisite	/#普通化學(一)/#普通化學(二)					

課程描述　Course Description

介紹有機化學之一般原理，使材料系的同學能夠從官能基之命名、化學特性、有機化學之反應機構及有機材料的製備和應用來瞭解與材料有關的有機化學。
單元主題:
A.基本原理
1. 有機化學之一般原理
2. 官能基之命名，類別
3. 反應特性
B.合成反應與光譜
1. 合成步驟
2. 反應機構
3. 立體化學及有機光

課程目標　Course Objectives

介紹有機化學之一般原理，使材料系的同學能夠從官能基之命名、化學
特性、有機化學之反應機構及有機材料的製備和應用來瞭解與材料有關的有機化學
This course introduces the general principles of organic chemistry and enables students to understand materials-related organic chemistry from the naming of functional groups, chemical properties, reaction mechanisms in organic chemistry, and the preparation and application of organic materials.

	系專業能力 Basic Learning Outcomes	課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
A	具備材料科學所需的物理、化學及數學的知識。Acquire required basic physical, chemical, and mathematic knowledge for materials science and engineering.	●
B	具備材料科學的專業知識，並能應用於解決工程上之問題。Acquire required professional knowledge for materials science and engineering, applicable in solving engineering problems.	●
C	具備邏輯思考、實驗執行、報告撰寫與數據解釋之能力。Equipped with capabilities of logic thinking, execution of experiment, and data interpretation.	
D	具備專業道德及責任感，與良好的溝通及團隊合作的能力。Acquire professional morality and responsibility, and capability of quality communication and team cooperation	○
E	具備適當的英文能力，應用於學習與交流。Acquire English capability used for learning and interaction.	○

圖示說明Illustration ：● 高度相關 Highly correlated ○中度相關 Moderately correlated

授課進度表 Teaching Schedule & Content		
週次Week	內容 Subject/Topics	備註Remarks
1	Structure and Bonding; Acids and Bases	
2	The Nature of Organic Compounds: Alkanes	
3	The Nature of Organic Reactions: Alkenes	
4	Reactions of Alkenes and Alkynes	
5	Aromatic Compounds	
6	Stereochemistry	
7	Alkyl Halides	
8	Alcohols, Phenols, and Ethers	
9	期中考試週 Midterm Exam	
10	Aldehydes and Ketones: Nucleophilic Addition Reactions	
11	Carboxylic Acids and Derivatives	
12	Carbonyl Alpha-Substitution Reactions and Condensation Reactions	
13	Carbonyl Alpha-Substitution Reactions and Condensation Reactions	
14	Aldehydes and Ketones: Nucleophilic Addition Reactions	
15	Amines	
16	Structure Determination	
17	Biomolecules: Carbohydrates	
18	期末考試週 Final Exam	

教 學 策 略 Teaching Strategies

☑ 課堂講授 Lecture　　　☐ 分組討論Group Discussion　　☐ 參觀實習 Field Trip

☐ 其他Miscellaneous:

教 學 創 新 自 評 Teaching Self-Evaluation

創新教學(Innovative Teaching)

☑ 問題導向學習(PBL)　　　☑ 團體合作學習(TBL)　　　☐ 解決導向學習(SBL)

☐ 翻轉教室 Flipped Classroom　　　☐ 磨課師 Moocs

社會責任(Social Responsibility)

☑ 在地實踐Community Practice　　　☐ 產學合作 Industy-Academia Cooperation

跨域合作(Transdisciplinary Projects)

☐ 跨界教學Transdisciplinary Teaching　　　☐ 跨院系教學Inter-collegiate Teaching

☐ 業師合授 Courses Co-taught with Industry Practitioners

其它 other:

學期成績計算及多元評量方式 Grading & Assessments

配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
平時成績 General Performance	20%	✓							
期中考成績 Midterm Exam	40%	✓							
期末考成績 Final Exam	40%	✓							
作業成績 Homework and/or Assignments									
其他 Miscellaneous (_____)									

評量方式補充說明
Grading & Assessments Supplemental instructions

教科書與參考書目（書名、作者、書局、代理商、說明）
Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

Fundamentals of Organic Chemistry
7th edition, John McMurry (ISBN 0-534-39580-5)

課程教材網址(含線上教學資訊,教師個人網址請列位於本校內之網址)
Teaching Aids & Teacher's Website(Including online teaching information. Personal website can be listed here.)

10/5線上課程連結：https://meet.google.com/wyi-xcxc-bhp

其他補充說明（Supplemental instructions）