

课程详述

COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	课程名称 Course Title	有机波谱解析 Organic Spectroscopy				
2.	授课院系 Originating Department	化学系 Department of Chemistry				
3.	课程编号 Course Code	CH312				
4.	课程学分 Credit Value	2				
5.	课程类别 Course Type	专业选修课 Major Elective Courses				
6.	授课学期 Semester	春季 Spring				
7.	授课语言 Teaching Language	中文 Chinese				
8.	授课教师、所属学系、联系方式 (如属团队授课, 请列明其他授课教师) Instructor(s), Affiliation & Contact (For team teaching, please list all instructors)	徐晨, 助理教授, 化学系, xuc@sustech.edu.cn Chen Xu, Assistant Professor, Department of Chemistry, xuc@sustech.edu.cn				
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	无 NA				
10.	选课人数限额(可不填) Maximum Enrolment (Optional)	30				
11.	授课方式 Delivery Method	讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other (Please specify)	总学时 Total
	学时数 Credit Hours	30	0	2	0	32

<p>12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements</p>	<p>有机化学 II (CH206)</p>
<p>13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite</p>	<p>本课程为化学专业选修课，主要介绍有机化合物的结构鉴定等；想多了解一些有机化合物波谱解析常识或以后从事有机化学/药物化学研究的学生可以选修本课程。 This course for chemistry elective courses, mainly introduces the structure identification of organic compounds; more about some of the organic compounds of spectral analysis engaged in organic chemistry / medicinal chemistry.</p>
<p>14. 其它要求修读本课程的学系 Cross-listing Dept.</p>	<p>无 NA</p>

教学大纲及教学日历 SYLLABUS

15. 教学目标 **Course Objectives**

- 1、 掌握三种谱学（红外光谱、核磁共振波谱和质谱）的基础知识和基本操作技能，应用提供的信息与化合物结构的对应光谱进行相应的结构解析和信号归属,尤其核磁共振谱。
- 2、 熟悉化合物结构解析的一般方法和程序。
- 3、 了解光谱学发展的最新动态和技术。

This course mainly introduces the structure identification of organic compounds. Through the study of this course, students can learn how to obtain, analyse and understand the structure of organic compounds by UV, IR, NMR and MS spectrometry.

16. 预达学习成果 **Learning Outcomes**

过对本课程的学习，学生能掌握有机化合物波谱解析的基本概念、原理和方法，并能应用四大光谱对有机化合物的结构进行解析。掌握红外、核磁和质谱仪器的操作，进而能够对有机合成或天然产物结构进行解析或信号归属。

Through the study of this course, students can master the basic concepts, principles and methods of spectral analysis of organic compounds, and can analyse the structures of organic compounds by using four major spectra, and master the operation of ultraviolet, infrared, nuclear magnetic and mass spectrometer.

17. 课程内容及教学日历（如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）

Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

第一章 绪论，主要讲述三大光谱的作用。（2学时）

第二章 质谱，主要讲解质谱的基本知识、类型和电离过程。基本有机化合物的质谱及质谱解析的一般程序。主要熟悉基本化合物的质谱特征和能判断质谱中的分子离子峰。（3学时）

第三章 红外光谱，重点为红外光谱的基础知识、几个重要的吸收区段和红外光谱在结构解析中的重要作用，了解红外光谱的发展及拉曼光谱。（3学时）

第四章 核磁共振，重点掌握核磁共振（NMR）基础知识，H-NMR 和 C-NMR、图谱的特征结构和解析的程序；简单的信号归属；熟悉 DEPT 的应用，了解 COSY、HMQC、HMBC 和 NOESY 二维谱图。（12学时）

第五章 综合解析，主要讲述谱图解析的一般过程和应注意的问题。并对实际例子进行分析。应熟悉图谱解析的过程。（10学时）

The first chapter gives general introduction of MS, IR and NMR. (2 credit hours)

The second chapter focuses on the basic knowledge, type and ionization process of mass spectrometry. General procedures for mass spectrometric and mass spectrometric analysis of basic organic compounds. (3 credit hours)

The third chapter focuses on infrared spectroscopy, focusing on the basic knowledge of infrared spectroscopy, several important absorption regions and the important role of infrared spectrum in structural analysis, and the development of infrared spectrum and Raman spectrum. (3 credit hours)

The fourth chapter focuses on NMR nuclear magnetic resonance (NMR) to master the basic knowledge, the program features of H-NMR and C-NMR, map nodes and structural analysis; signal assignment simple; familiar with the application of DEPT, COSY, HMQC, HMBC and about NOESY spectra. (12 credit hours)

The fifth chapter is the general analysis of the general process of spectral analysis and the problems that should be paid attention to. (10 credit hours)

18. 教材及其它参考资料 Textbook and Supplementary Readings

指定教材：有机波谱分析（最新版）；孟令芝 龚淑玲 何永炳；出版社：武汉大学出版社

Designated materials: Spectrometric Identification of Organic Compounds (latest edition);

Editor: Zhiling Meng, Shuling Gong, Yongbing He; Wuhan University Press

课程评估 ASSESSMENT

19. 评估形式 Type of Assessment	评估时间 Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance				
课堂表现 Class Performance		30		
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments		30		
期中考试				

Mid-Term Test			
期末考试			
Final Exam			
期末报告	40		
Final Presentation			
其它（可根据需要 改写以上评估方式）			
Others (The above may be modified as necessary)			

20. 记分方式 **GRADING SYSTEM**

- A. 十三级等级制 **Letter Grading**
 B. 二级记分制（通过/不通过） **Pass/Fail Grading**

课程审批 REVIEW AND APPROVAL

21. 本课程设置已经过以下责任人/委员会审议通过
This Course has been approved by the following person or committee of authority

化学系教学指导委员会
 Teaching committee of the chemistry department

