

國立臺灣大學生化科學研究所

115 學年度第 1 學期

「有機化合物光譜分析及數據整合」

Characterization and data reporting of organic compounds

能以光譜數據分析有機化合物的結構是在有機、生物及藥物化學研究中非常重要的一環。在收集並分析完這些光譜後，將此數據整合並依照固有格式撰寫完整的一份報告對於這些研究領域的發展是不可或缺的。在這門課程中，學生將學習（一）如何整合光譜數據（紅外線光譜、質譜、一維及二維核磁共振光譜）以解析有機化合物的結構（二）將此數據依照有機、生物及藥物化學研究領域之固有格式撰寫。這項課程將使用學術及非學術紀載的有機化合物光譜來培養學生解析整合光譜的能力。

An important part of research in organic, bioorganic and medicinal chemistry is the characterization of organic compounds, typically by spectroscopic and spectrometric means, to elucidate their structure. After data collection and analysis, it is then necessary to report the data in a manner acceptable to the research community, thus facilitating the progress of these areas. In this course, students will learn how to: 1) employ widely-used spectroscopic and spectrometric methods (IR, MS, 1D/2D NMR) to characterize and determine the structure of organic compounds; 2) write up the data in a format accepted by the organic, bioorganic and medicinal research communities. The course will involve extensive problem-solving using data from both reported and unreported compounds.

課程識別碼：B46 U1210

授課教師：呂桐睿 (Todd L. Lowary), 朱駿叡 (Anthony Chu)

上課時間：每星期一 15:30–17:20

上課地點：生化館 N101 教室

週次	日期-教授	授課內容
1	09/07–Lowary and Chu	課程大綱及氫-1 核磁共振光譜學 Syllabus and Proton (^1H) nuclear magnetic spectroscopy
2	09/14–Lowary	氫-1 核磁共振光譜學 Proton (^1H) nuclear magnetic spectroscopy
3	09/21–Lowary	氫-1 核磁共振光譜學 Proton (^1H) nuclear magnetic spectroscopy
4	09/28	教師節 Teachers' Day–No Class
5	10/05–Lowary	碳-13，氟-19 及磷-31 核磁共振光譜學 Carbon (^{13}C), Fluorine (^{19}F) and Phosphorus (^{31}P) nuclear magnetic spectroscopy
6	10/12–Chu	紅外線光譜學 Infrared Spectroscopy
7	10/19–Chu	期中考 Midterm
8	10/26	光復節補假 Make-up holiday as Taiwan Retrocession Day–No Class
9	11/02–Chu	質譜學 Mass Spectrometry
10	11/09–Chu	質譜學 Mass Spectrometry

11	11/16–Chu	二維核磁共振光譜學 Two-dimensional (2D) nuclear magnetic spectroscopy
12	11/23–Chu	二維核磁共振光譜學 Two-dimensional (2D) nuclear magnetic spectroscopy
13	11/30–Chu	二維核磁共振光譜學 Two-dimensional (2D) nuclear magnetic spectroscopy
14	12/07–Chu	習題講習 (一)：單醣結構的光譜解析 Workshop 1 Structure elucidation of a monosaccharide
15	12/14–Chu	習題講習 (二)：誠實的撰寫實驗數據及主題複習 Workshop 2 Data integrity and pitfalls to avoid, topic review
16	12/21–Chu	期末考 Final examination

Requirements

Assignment	%
Worksheet	5
Homework 1	10
Homework 2	15
Homework 3	20
Midterm	20
Final Examination	30

Important Dates (in Chronological Order)

Worksheet Distributed	September 7, 2026
Worksheet Due	September 14, 2026
Homework 1 Distributed	September 14, 2026
Homework 1 Due	October 12, 2026
Homework 2 Distributed	October 12, 2026
Midterm	October 19, 2026
Homework 2 Due	November 16, 2026
Homework 3 Distributed	November 16, 2026
Homework 3 Due	December 14, 2026
Final	December 21, 2026

Office Hours

By appointment. Email to tlowary@gate.sinica.edu.tw (Lowary) or 9623010@gmail.com (Chu) to make an appointment.