

Course Schedule of MST Program ,TIGP

Semester: Fall, 2014(103 學年度上學期)

Course(科目): Modern Experimental Technique-Chemistry 現代實驗技術-化學

Time(時間): F6F7 Friday (14:20~16:20)

Room(教室): A507,Institute of Chemistry , AS or R311, IAMS,AS (NTU campus)  
(R311only for Prof. Ta-Chau Chang's lecture)

NTHU coordinator(清大教師): 倪其焜

Course speakers(授課老師): Yu-Ju Chen 陳玉如老師、Chen-Hsiung Hung 洪政雄老師、  
Der-Lii Tzou 鄒德里老師、Steve Sheng-Fa Yu 俞聖法老師、  
Wei-Hau Chang 章為皓老師、Hsien-Ming Lee 李賢明老  
師、Ta-Chau Chang 張大釗老師

Core course(必選課), credit(學分): 2

Course No.(科號): TIGP722200

Date	lecturer	classroom
9/19 Friday 12:00~14:00	Prof. Yu-Ju Chen	B105, IOC
9/26 Friday 14:20~16:20	Prof. Yu-Ju Chen	B105, IOC
10/3 Friday 14:20~16:20	Prof. Chen-Hsiung Hung	B105, IOC
10/17 Friday 14:20~16:20	Prof. Chen-Hsiung Hung	B105, IOC
10/24 Friday 14:20~16:20	Prof. Der-Lii Tzou	B105, IOC
10/31 Friday 14:20~16:20	Prof. Der-Lii Tzou	B105, IOC
11/7 Friday 14:20~16:20	Prof. Der-Lii Tzou	B105, IOC
11/14 Friday 14:20~16:20	Prof. Steve Sheng-Fa Yu	B105, IOC
11/21 Friday 14:20~16:20	Prof. Steve Sheng-Fa Yu	B105, IOC
11/28 Friday 14:20~16:20	Prof. Wei-Hau Chang	B105, IOC
12/5 Friday 14:20~16:20	Prof. Wei-Hau Chang	B105, IOC
12/12 Friday 14:20~16:20	Prof. Hsien-Ming Lee	B105, IOC
12/19 Friday 14:20~16:20	Prof. Hsien-Ming Lee	B105, IOC
12/26 Friday 14:20~16:20	Prof. Ta-Chau Chang	C. T. Chang Memorial Hall(4F), IAMS
1/2/2015 Holiday	Cancel the classes	
1/9/2015 Friday 14:20~16:20	Prof. Ta-Chau Chang	C. T. Chang Memorial Hall(4F), IAMS

Course Lecturer	Course Contents
陳玉如 Yu-Ju Chen	質譜技術 Mass spectroscopy
洪政雄 Chen-Hsiung Hung	X 光技術 X-ray spectroscopy
鄒德里 Der-Lii Tzou	核磁共振技術 NMR spectroscopy

俞聖法 Steve Sheng-Fa Yu	電子順磁共振技術 EPR/ESR spectroscopy
章為皓 Wei-Hau Chang	顯微鏡技術 Microscopy
李賢明 Hsien-Ming Lee	層析技術 Chromatography
張大釗 Ta-Chau Chang	

Speaker	Prof. Yu-Ju Chen 陳玉如教授
Class Outline	質譜技術 Mass Spectrometry

Speaker	Prof. Der-Lii Mike Tzou 鄒德里教授
Class Outline	核磁共振技術 NMR Technology
Introduction	1. NMR basics and fundamental principles NMR phenomena, relaxation behavior, spin-spin interaction and NOE 2. 1D and 2D NMR experiments 1D ( <sup>1</sup> H, <sup>13</sup> C, <sup>15</sup> N, <sup>31</sup> P ...) & 2D (COSY, NOESY, HSQC, HMBC) 3. A brief about multi-dimensional NMR for Macromolecules. 4. Experimental sections
Grading	75% in quiz and 25% in experimental sections
Textbook	1. Ivano Bertini, Claudio Luchinat and Giacomo Parigi, "Solution nmr of paramagnetic molecules" 2001. 2. Kenssal E. van Holde, W. Curtis Johnson and P. Shing Ho, "Principles of Physical Biochemistry" (2 <sup>nd</sup> edition 2006) pp535-578

Speaker	Prof. Hsien-Ming Lee 李賢明教授
Class Outline	層析技術 Chromatography

Introduction	This course is aiming for material/physics background students to expand their capability to conduct bio-related research. It provides basic knowledge to synthesize, modify, characterize, and utilize bio-molecules for biomaterial / biophysics research. Student without strong organic background or biology background is recommended to take this class. Furthermore, the course provides a hand-on experimental experience to learn bioconjugations and their applications.
Grading	<ol style="list-style-type: none"><li>1. Written test: (50%)</li><li>2. Proposal and experimental design (50%)</li></ol>
Textbook	Handouts will be provided in class.