化學所

高等分析化學（專論）一

223 M1130/223 D1130

授課教師：張煥宗教授

1. 課程概述：課程以介紹光譜分析原理、光譜分析儀器、及最新光譜分析技術為主。除採用書本教材內容外，亦加入雜誌刊登之最新技術內容。
2. 課程目標：提昇學生光譜分析概念及最新分光譜析技術。
3. 課程要求：興趣於分析技術。
4 教材: Spectrochemical Analysis (James D. Ingle, Jr. and Stanley R. Crouch)。
5. 內容:光學偵測器之簡介（1 h）； 光學組件及基本原理（5 h)；訊號處理（2 h）； 雷射之原理與應用（2 h）； 光譜分析方法之簡介（2 h)；原子吸收光譜（6 h)；分子光譜之簡介（2 h)；吸收光譜（4 h)；螢光光譜（12 h)：拉曼光譜和化學發光（4 h)；奈米科技及光學感測器（6 h)。
6. 授課方式:課堂講解。
7. 計分:兩次考試(各佔 40%)；小考、作業、上課表現（20%)。
8. Office hour:星期三下午四至六點。

Advanced Analytical Chemistry

Teacher：Professor Huan-Tsung Chang

1. Course brief description: This course covers principles, instrumentation, and modern techniques in spectrochemical analysis. Teaching materials are taken from a textbook and papers published in journals.
2. Course aim: Strengthen students' background in spectrochemical analysis and modern analytical techniques.
3. Course requirement: Interest in analytical techniques.
4 Textbook: Spectrochemical Analysis (J.D. Ingle, Jr. and S.R. Crouch)
5. Contents: General Introduction (2 h); Optical Components of Spectrometers (2 h);Optical Sources, Transducers, and Measurement Systems (3 h);Signal-To-Noise ratio Considerations (3 h);Lasers and Applications（2 h）; Methodology in Spectrochemical Analysis (2 h); Atomic Spectroscopy (6 h); Introduction to Molecular Spectroscopy (2 h); Absorption Spectroscopy (4 h); Fluorescence Spectroscopy (12 h); Raman Spectroscopy and Chemiluminescence (4 h); and Nanoscience and Optical Sensors (6 h)
6. Traditional teaching style.
7. Grade: Two Examinations (40% each); Quiz, Discussion, and Homework (20%)
8. Office hour: Wednesday (4-6 P.M.)