Advanced Analytical Chemistry

2016/2/24

Credit: 3 credits

Class time: Thursday 9:10-12:00

Lecture room: A507, Institute of Chemistry

Midterm exam: 50%

Final team report: 40%

Attendance: 10%

Handout download

- Website: TIGP Nano (from NTU CEIBA)
- http://www.phys.sinica.edu.tw/TIGP-NANO/Course/2016_Spring/2016_Spring_AdvancedAC.html
- Time: before 5:00 pm, Wednesday

Assistant:

Liang-Hui, Flora, Wu

Administrative Assistant of Nano Science & Technology Program, TIGP

P4A-2, Institute of Physics, Academia Sinica

Tel: 2789-8794

Email: lhwu@phys.sinica.edu.tw

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Major Topics

- Basics of Analytical Chemistry
- Physical Methods for Structural Characterization (NMR, MS, EM)
- Optical Microscopy
- Biosensor

Syllabus

Date	Topic	Professor
2/25	Introduction	Der-Lii Tzou
3/3	General principles in Analytical Chemistry	Yu-Ju Chen
3/10	Fundamentals of Light Microscopy	Chau-Hwang Lee
3/17	Super-resolution Light Microscopy	Chau-Hwang Lee
3/24	Electron Microscopy	WeiHau Chang
3/31	Fundamental of Mass Spectrometry (I)	Yi-Sheng Wang
4/7	Fundamental of Mass Spectrometry (II)	Yi-Sheng Wang
4/14	Application of Mass Spectrometry to Nanotechnology	Yu-Ju chen
4/21	Application of Mass Spectrometry to Biology	Yu-Ju chen
4/28	Fundamental of Mass Spectrometry	Yi-Sheng Wang
5/5	NMR spectroscopy-Fundamental and Application	Der-Lii Tzou
5/12	Modern NMR technology-Hand-on Experience	Der-Lii Tzou
5/19	Midterm Exam	Yu-Ju Chen
5/26	XPS	Jing-Jong Shyue
6/2	SIMS	Jing-Jong Shyue
6/9	No class	Dragon Boat Festival
6/16	SPR Sensing	Pei-Kuen Wei
6/23	Biochip - Microarray and Microfluidic Chip	Ji-Yen Cheng

Final Team Report (40%)

The Impact of New Technologies –

For

(A) Material application

OR

(A) Disease detection

Please choose one topic from (A) or (B)

Example:

(2) Emerging New Technologies for Analysis of Circulation Cancer cell

Please choose one of the technologies you learn in the semester related to analysis of circulation cancer cell

- Biochip
- Mass spectrometry
- **.**......

(1) Team Information

Each team consists of **3-5** members. It is encouraged to have members from different departments. You can have creative personal profiles in this section to impress the reviewer.

- Team infrastructure
- Personal CV--Name, department, ID, photo, expertise...etc)

You can find references in the following Journals

- Nature
- **■**Science

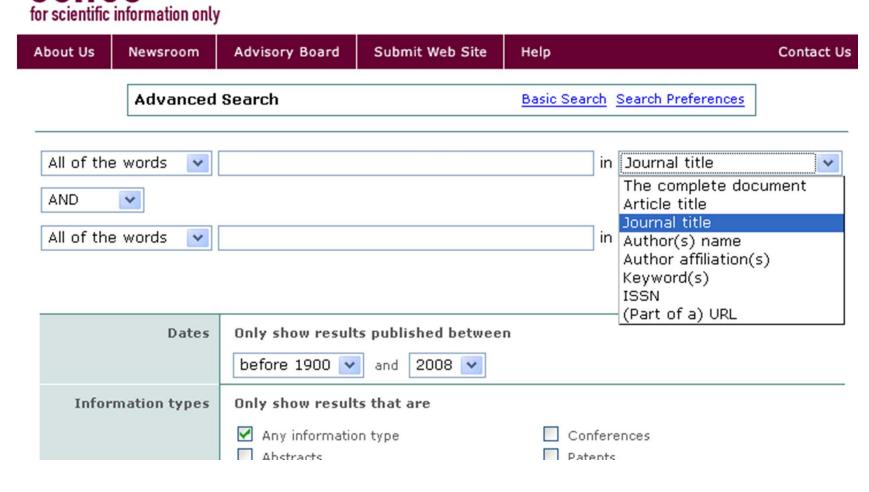
- Nature Methods
- Nature Biotechnology
- Nature Chemical Biology
- New England Journal of medicine
- **■**Cell
- Cancer research
- Lab-on-chip
- Biosensors and Bioelectronics

Scirus: http://www.scirus.com

Scirus is the most comprehensive science-specific search engine on the Internet. Driven by the latest search engine technology, Scirus searches over 450 million science-specific Web pages.

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journals SCIft



Other Search Engines

- PubMed: http://www.ncbi.nlm.nih.gov/sites/entrez
- PubMed is a service of the U.S. National Library of Medicine that includes over 17 million citations from MEDLINE and other life science journals for biomedical articles back to the 1950s



(3) Describe the analytical platform and your team work

Meeting and Discussion: Please report in details about how you pick up the papers among the huge number of papers. The details include WHO and WHAT individual member comments during the conversation.

Yu-Ju Chen: xxxx

Ji-Yen Cheng: xxxxx

John Smith: xxxxx

(4) Written Report

- Abstract
- Literature
- Analytical strategy
- Presentation of protein atlas

Final Team Report

Objective:

How can nanotechnology impact the analytical strategy for circulation tumor cell?