

CHEM3334 – Instrumental Analysis, Fall 2008. Dr. X. Yao

Welcome to Instrumental Analysis, CHEM3334. This course is designed to provide you with the background necessary to understand and appreciate the principles and applications for modern instrumental analysis. You should have taken the prerequisite course of CHEM3332 or comparable courses with the consent of Dr. Yao. Lecture hours are 11:00-11:50 am Monday and Wednesday.

Textbook and Reference Book

Required textbook: Principles of Instrumental Analysis, by Skoog, Holler and Crouch. Published by Brooks/Cole, Thompson Learning, 6th Edition (2007).

Major reference books: (1) Quantitative Chemical Analysis, by Harris, 6th Ed (2002), W.H. Freeman and Co. (2) Undergraduate Instrumental Analysis, by Robinson, Frame, Frame II 6th Ed (2005), Marcel Dekker.

Class Schedule

Date	Topic	Readings	Quiz	Homework Due
8/25/2008	Introduction to Instrumental Analysis	1		
8/27/2008	Instrumental Quantitation Basics	1	1	
9/1/2008	<i>Labor Day</i>	<i>No class</i>		
9/3/2008	Signals and Noise	5		
9/8/2008	Principles of Chromatography	26	2	
9/10/2008	Principles of Chromatography	26		
9/15/2008	Principles of Chromatography	26	3	
9/17/2008	HPLC	28		HW 1 Due
9/22/2008	HPLC	28	4	
9/24/2008	HPLC	28		
9/29/2008	Exam I , in class	8/25/-9/24		
10/1/2008	GC	27		
10/6/2008	CE	30		
10/8/2008	CE and CEC	30	5	
10/13/2008	MS Basics	11, 20		HW 2 Due
10/15/2008	FT & MS Instrumentation	11, 20	6	
10/20/2008	NMR	19		
10/22/2008	NMR	19	7	
10/27/2008	MS Instrumentation	11, 20		
10/29/2008	MS: applications	11, 20	8	HW 3 Due
11/3/2008	MS: applications	11, 20		
11/5/2008	Exam II , in class	10/1-10/29		
11/10/2008	Optical Components	6,7		
11/12/2008	Optical Components	6,7	9	
11/17/2008	IR, FT-IR & Raman	7,16,17,18		
11/24/2008	Thanksgiving Recess			
11/26/2008	Thanksgiving Recess			
12/1/2008	IR, FT-IR & Raman	7,16,17,18	10	HW 4 Due
12/3/2008	Molecular Luminescence Spectrometry	15		
TBD	Final Exam	cumulative		

Homework, Quizzes and Exams

Homework will be collected four times for grading. However, it is important for you to work on homework problems right after the relevant lectures are given, in order to achieve continuous progress through the course. Printed homework is REQUIRED and no electronic submission will be accepted. Late submission of homework will not be accepted and result in zero points for that assignment without any makeup option. Problems are graded individually; therefore, submission of an incomplete homework is better than submitting nothing. Homework and study questions are important to prepare you for exams.

Ten quizzes (about 5 minutes each) will be given as scheduled at the end of lectures. The best 9 out of 10 will be accounted towards to your final grade for quizzes. Quiz materials may include what will be discussed during the lecture of the same day as the quiz. There will be no makeup quizzes. Occasionally, quizzes could be take-home, in order to encourage group studies on special topics.

There will be three examinations, Exam I (50 min), Exam II (50 min) and Accumulative Final Exam (120 min). You are allowed to bring a sheet of equations about variables, constants and parameters, which DOES NOT HAVE any explanation. This is meant to promote you to understand the essential calculations in instrumental analysis, without memorizing equations.

Grading

The course grade will be based on two portions. Laboratories will be accounted for 40% (Dr. A Vaze). Lectures will be accounted for the remaining 60% that will be broken down further into: (1) 25% for Final Exam, (2) 10% for graded homework assignments, and (3) two out three following grades – 12.5% for Exam I, 12.5% for Exam II and 12.5% for quizzes. At the end of the semester, instructors (Drs. Yao and Vaze) and TAs will discuss student's efforts in learning the course (lectures and labs) and award those who make great efforts with a half letter grade higher. Examples of such efforts include submitting ever homework and every lab report on time and actively participating in class via asking and answering questions.

Office Hours

Instructor: Professor Xudong Yao {A419 Chemistry Building. (Office): 860-486-6644. Email: x.yao@uconn.edu} will be available for answering after-class questions for lectures. Office hours are 16:00 -17:00 Mon and 10:00 – 11:00 Fri. Special office hours can be arranged via email. Help sessions will be provided immediately before examinations upon request by the class.

Homework-related questions will be answered by TAs: TA1 (HW 1 & 2), 9:00-10:00 Fri, A201. TA2 (HW 3 & 4), 9:00-10:00 Fri, A201. You are STRONGLY recommended to make good uses of the office hours. Special office hours or group discussions can be arranged via email.

Useful Phone Numbers

Counseling and Mental Health Services: 486-4705 (after hours: 486-3427), www.cmhs.uconn.edu; Career Services: 486-3013, www.career.uconn.edu; Alcohol and Other Drug Services: 486-9431, www.aod.uconn.edu; Dean of Students Office: 486-3426, www.dos.uconn.edu.

Academic Misconduct

There is ZERO tolerance for any academic misconduct.

Section A and B of Part VI of UCONN Policy on Academic Misconduct are included below.

A. Academic Integrity

A fundamental tenet of all educational institutions is academic honesty; academic work depends upon respect for and acknowledgement of the research and ideas of others. Misrepresenting someone else's work as one's own is a serious offense in any academic setting and it will not be condoned.

Academic misconduct includes, but is not limited to, providing or receiving assistance in a manner not authorized by the instructor in the creation of work to be submitted for academic evaluation (e.g. papers, projects, and examinations); any attempt to influence improperly (e.g. bribery, threats) any member of the faculty, staff, or administration of the University in any matter pertaining to academics or research; presenting, as one's own, the ideas or words of another for academic evaluation; doing unauthorized academic work for which another person will receive credit or be evaluated; and presenting the same or substantially the same papers or projects in two or more courses without the explicit permission of the instructors involved.

A student who knowingly assists another student in committing an act of academic misconduct shall be equally accountable for the violation, and shall be subject to the sanctions and other remedies described in The Student Code.

B. Instructor's Role

1. Instructors shall take all reasonable steps to prevent academic misconduct by students in their courses.

a. During the course of an examination, an instructor or proctor who observes suspicious behavior should warn the individual involved regarding the appearance of their actions and request them to cease the suspicious actions immediately. Continuation of such behavior may be considered evidence of academic misconduct.

b. A remarkable similarity between or among two or more supposedly independent works submitted for individual evaluation also may be considered evidence of academic misconduct.

2. When an instructor believes there is sufficient information to demonstrate a clear case of academic misconduct, the instructor shall notify the accused student in writing (and orally if possible) that unless the student requests a hearing to contest the instructor's belief, the instructor shall impose the appropriate academic consequences warranted by the circumstances. Normally, written notification shall occur within thirty (30) days of the discovery of the alleged misconduct. A copy of this notice is sent to the dean of the college or a designee and to the department head.

a. The appropriate academic consequence for serious offenses is generally considered to be failure in the course. For less serious offenses regarding small portions of the course work, failure for that portion is suggested with the requirement that the student repeat the work for no credit.

b. The faculty member is responsible for saving the information of academic misconduct in its original form and need not return any of the papers or other materials to the student. Copies of the student's work and information about other evidence shall be provided to the student upon request.

3. *In certain cases, the dean of a school or college or designee may become aware of alleged academic misconduct and may bring a complaint forward to the school or college's hearing body.*
4. *Normally, the student shall be given five (5) business days from the instructor's first written notice to respond.*
 - a. *If the student admits responsibility or does not respond, the academic consequences shall be imposed and a report will be submitted to the dean of the instructor's school as well as to the Judicial Coordinator.*
 - b. *If a student chooses to contest the instructor's belief of academic misconduct, the student may submit a written request for a hearing to the instructor and send copies of the request to the dean of the college and the department head.*