

**Chemistry 341.3**  
**Principles of Instrumental Analysis**  
**Queens College, Fall 2019**

- Instructors** Dr. Jianbo Liu  
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[http://chem.qc.cuny.edu/~jliu/Liu\\_page/Liu\\_main.htm](http://chem.qc.cuny.edu/~jliu/Liu_page/Liu_main.htm)  
Office Hours: Tuesdays 5:00 pm - 6:00 pm, NSB B312
- Lectures** Tuesdays and Thursdays, 9:30 am – 10:45 am, RE105
- Textbook** D. A. Skoog, F. J. Holler, and S. R. Crouch, *Principles of Instrumental Analysis*, 7th ed., Thomson Brooks/Cole, 2018. (Required)  
PowerPoint slides will be provided at  
[http://chem.qc.cuny.edu/~jliu/Liu\\_page/teaching.htm](http://chem.qc.cuny.edu/~jliu/Liu_page/teaching.htm)
- Grading** Randomly scheduled quizzes and Homework – 30%  
Three in-class exams – 30%  
Final exam – 40%

## Lecture Schedule

Date	Meeting No. and Topics
Aug 27	1) Introduction to Instrumental Analysis (chapter 1)
Aug 29	2) Signals and Noise (chapter 5)
Sep 3	3) Introduction to Spectroscopy (chapter 6)
Sep 5	Monday Schedule
Sep 10	4) Components of Optical Instruments (chapter 7)
Sep 12	5) Molecular Spectroscopy: UV-Visible Spectroscopy (chapter 13)
Sep 17	6) Molecular Spectroscopy: UV-Visible Spectroscopy (chapter 14)
Sep 19	7) Molecular Spectroscopy: Luminescence Spectroscopy (chapter 15)
Sep 24	8) Molecular Spectroscopy: Luminescence Spectroscopy (chapter 15)
Sep 26	9) Molecular Spectroscopy: Infrared Spectroscopy (chapter 16)
Oct 1	No class scheduled
Oct 3	10) Exam I
Oct 8	No class scheduled
Oct 10	11) Molecular Spectroscopy: Infrared Spectroscopy (chapter 17)
Oct 15	12) Molecular Spectroscopy: Raman Spectroscopy (chapter 18)
Oct 17	13) Molecular Spectroscopy: Raman Spectroscopy (chapter 18)
Oct 22	14) Introduction to Separation Science 1 (chapter 26)
Oct 24	15) Introduction to Separation Science 2 (chapter 26)
Oct 29	16) Gas Chromatography (chapter 27)
Oct 31	17) High Performance Liquid Chromatography (chapter 28)
Nov 5	18) High Performance Liquid Chromatography (chapter 28)
Nov 7	19) Mass Spectrometry (chapter 11)
Nov 12	20) Exam II
Nov 14	21) Mass Spectrometry (chapter 20)
Nov 19	22) Applications of mass spectrometry
Nov 21	23) Mass spectrometry lab tour (SB D333)
Nov 26	24) Introduction to Electroanalytical Chemistry (chapter 22)
Nov 28	Thanksgiving
Dec 3	25) Potentiometer (chapter 23)
Dec 5	26) Voltammetry (chapter 25)
Dec 10	27) Exam III
Dec 12	28) Review
	Final Exam

### Exam Information:

All exams are closed book/notes and no additional material can be consulted other than that provided with the examination sheet.

Exam I	Chapters covered:	1, 5 – 7, 13 – 15
Exam II	Chapters covered:	16 – 18, 26 – 28
Exam III	Chapters covered:	11, 20, 22, 23, 25
Final Exam		the entire semester's material