

CHEM 2604 - Quantitative Analysis

Fall 2026 Syllabus, Section 01, CRN 40746,

Credit hours: 5

Instructor

Ganesaratnam Balendiran

Professional Qualifications:

Ph.D. University of Wisconsin-Madison

Professor

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Communication Expectations:

Avoid repeating information in email that is already discussed in the class.

Public Instructor Information

Instructor Title: Professor

Instructor Professional Qualifications: Ph.D. University of Wisconsin-Madison

Instructor Office Location: WBSH 6017

Instructor Office Phone: 1-330-941-7103

Course Description

2604. Quantitative Analysis. Chemical equilibrium, stoichiometry, theory of errors, and volumetric and gravimetric procedures as applied to quantitative determinations. Introduction to electroanalytical, chromatographic and spectrophotometric methods. Emphasis on development of technique. Three hours lecture, six hours lab. Prereq.: "C" or better in CHEM 1516 and "C" or better in CHEM 1516L. 5 s.h.

The purpose of this course is to introduce major concepts of *quantitative chemical analysis*. Course topics include experimental data error, statistical treatment of data, chemical equilibrium, spectroscopy methods, and analytical separation methods. In addition the lecture of the course is designed to provide opportunities to learn and become familiar with quantitative skills needed to be successful in analytical chemistry. It is expected one to have a good background foundation in equilibrium concepts from General Chemistry and that one will advance that knowledge into Chemistry 2604.

Course Readings

Group	Title	Author	ISBN
Required	Quantitative Chemical Analysis	D.C. Harris and C.A. Lucy, 10th Edition, MacMillan publishing.	ISBN-13: 978-1319164300

A general chemistry textbook may also be a helpful resource for this class.

No programmable calculators are permitted but a working electronic calculator capable of performing square root, exponent and logarithmic functions with electric charge is needed.

Course Readings (Both required and recommended reading).

Take notes in the 2604 class.

Studying course material is required.

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Tentative Schedule

Week of	Proposed Topic	Due/To Prepare for Class
8/24	Introduction, 0,1,2	
8/31	2,3	
9/7	3,4	
9/14	4,5	
9/21	5,6	
9/28	5,6	
10/5	6,9 9,10	
10/12	Exam 1 Includes Chapters (0 – 6) No programmable calculators are permitted	
10/19	10,11 11,18	
10/26	18,20	
11/2	20,21	
11/9	Exam 2 Includes Chapters (9, 10, 11, 18) No programmable calculators are permitted	
11/16	21,23	
11/23	23,24	
11/30	24,25	
12/7	Wednesday Dec 9, 2026Comprehensive Final Exam, 10:30-12:30 am Includes Chapters (0-25)	

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.