

CHEM 230: SEPARATION METHODS IN CHEMISTRY

In Workflow

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Approval Path

1. 2026-04-10T15:09:29Z
Roy Dixon (rdixon): Approved for CHEM Committee Chair
2. 2026-05-04T17:22:19Z
Thomas Savage (tjsavage): Approved for CHEM Chair
3. 2026-05-06T22:23:29Z
Mikkel Jensen (mikkel.jensen): Approved for NSM College Committee Chair
4. 2026-05-06T22:38:58Z
Chris Taylor (ctaylor): Approved for NSM Dean

History

1. Jan 21, 2026 by Roy Dixon (rdixon)

Date Submitted: 2026-04-10T15:08:06Z

Viewing: CHEM 230 : Separation Methods in Chemistry

Last approved: 2026-01-21T18:10:03Z

Last edit: 2026-05-06T22:20:30Z

Changes proposed by: Roy Dixon (101029561)

Contact(s):

Name (First Last)	Email	Phone 999-999-9999
Roy Dixon	rdixon@csus.edu	916-278-4061

Catalog Title:

Separation Methods in Chemistry

Class Schedule Title:

Separation Methods Chem

Academic Group: (College)

NSM - Natural Sciences & Mathematics

Academic Organization: (Department)

Chemistry

Will this course be offered through the College of Continuing Education (CCE)?

No

Catalog Year Effective:

Fall 2027 (2027/2028 Catalog)

Subject Area: (prefix)

CHEM - Chemistry

Catalog Number: (course number)

230

Course ID: (For administrative use only.)

109036

Units:

3

Is the ONLY purpose of this change to update the term typically offered or the enforcement of existing prerequisites at registration?

No

In what term(s) will this course typically be offered?

Fall term only - even years

Does this course require a room for its final exam?

Yes, final exam requires a room

This course complies with the credit hour policy:

Yes

Justification for course proposal:

This course is being changed to pair it with CHEM 130, a newly proposed undergraduate course, to make the content accessible to both undergraduate and graduate students. In addition, other minor changes are being made (e.g. the course description) to make it more current.

Course Description: (Not to exceed 90 words and language should conform to catalog copy.)

Theoretical and practical aspects of separation sciences. Methods of separations that are included are extractions, gas chromatography and liquid chromatography. Lecture three hours.

Are one or more field trips required with this course?

No

Fee Course?

No

Is this course designated as Service Learning?

No

Is this course designated as Curricular Community Engaged Learning?

No

Does this course require safety training?

No

Does this course require personal protective equipment (PPE)?

No

Course Note: (Note must be a single sentence; do not include field trip or fee course notations.)

Students who take CHEM 130 at Sacramento State cannot take CHEM 230 for credit

Does this course have prerequisites?

Yes

Prerequisite:

Enrollment in Chemistry master's degree program or instructor permission

Prerequisites Enforced at Registration?

Yes

Does this course have corequisites?

No

Graded:

Letter

Approval required for enrollment?

No Approval Required

Course Component(s) and Classification(s):

Lecture

Lecture Classification

CS#02 - Lecture/Discussion (K-factor=1WTU per unit)

Lecture Units

3

Is this a paired course?

Yes

Please confirm that it complies with the Paired Courses Policy and enter the course with which it is paired:

CHEM 130

Is this course crosslisted?

No

Can this course be repeated for credit?

No

Can the course be taken for credit more than once during the same term?

No

Description of the Expected Learning Outcomes and Assessment Strategies:

List the Expected Learning Outcomes and their accompanying Assessment Strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers). Click the plus sign to add a new row.

	Expected Learning Outcome	Assessment Strategies
1	Explain chemical partitioning between phases in simple separations	Homework, group assignments and exam questions related to partitioning covered in lecture and in the text
2	Evaluate partitioning of solute in liquid-liquid extractions between two phases	Homework, group assignments and exam questions related to liquid-liquid partitioning using well-defined theory in lecture and in the text
3	Demonstrate various two phase extraction techniques	Exam questions related to understanding of extraction techniques covered in lecture and in the text
4	Describe stationary phases in gas and liquid chromatographs	Exam questions related to stationary phases covered in lecture and in the text
5	Demonstrate factors affecting solute retention in column chromatography	Homework, group assignments and exam questions related to retention using well-defined theory covered in lecture and in the text
6	Discuss components and their functions in gas and liquid chromatographs	Homework, group assignments and exam questions related to components and their purposes in gas and liquid chromatographs
7	Explain factors affecting selectivity in chromatography	Homework, group assignments and exam questions involving calculation or use of selectivity as covered in class
8	Explain factors affecting band broadening and column efficiency in chromatography	Homework, group assignments and exam questions involving calculation of column efficiency as covered in lecture and in the text
9	Assess resolution in chromatography	Homework, group assignments and exam questions involving calculation of resolution in example problems similar to those covered in lecture and in the text
10	Explain how to optimize a chromatographic separation	Homework, group assignments and exam questions related to improving resolution in example problems similar to those covered in lecture and in the text

11	Describe methods used with chromatographs for quantitation of unknowns	Homework, group assignments and exam questions to determine solute present using a variety of techniques such similar to those covered in lecture and in the text
12	Understand recent and novel technical areas of separation	Homework and exam questions to demonstrate understanding concepts of novel separations
13	Describe and evaluate a recent and novel technical area of separations	Prepare and give a class presentation on the novel technical area involving separations

Attach a list of the required/recommended course readings and activities:

CHEM230_Syl040626.pdf

Is this course required in a degree program (major, minor, graduate degree, certificate?)

Yes

Has a corresponding Program Change been submitted to Workflow?

No

Identify the program(s) in which this course is required:**Programs:**

MS in Chemistry

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer)?

No

Will there be any departments affected by this proposed course?

No

I/we as the author(s) of this course proposal agree to provide a new or updated accessibility checklist to the Dean's office prior to the semester when this course is taught utilizing the changes proposed here.

I/we agree

University Learning Goals**Graduate (Masters) Learning Goals:**

Disciplinary knowledge
 Communication
 Critical thinking/analysis
 Information literacy
 Professionalism

Is this course required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?

No

Is this a Graduate Writing Intensive (GWI) course?

No

Key: 686