

# Table of Contents

LaGrange College.....	1
Course Catalog - Chemistry.....	1
Minor in Chemistry - Minor in Chemistry.....	1
CHEM 1101 - General Chemistry I.....	2
CHEM 1102 - General Chemistry II.....	2
CHEM 3201 - Organic Chemistry I.....	2
CHEM 3202 - Organic Chemistry II.....	3
CHEM 3311 - Elements of Physical Chemistry.....	3
CHEM 3371 - Junior Seminar.....	4
CHEM 4201 - Advanced Organic Chemistry.....	4
CHEM 4421 - Biochemistry I.....	4
CHEM 4422 - Biochemistry II.....	5
CHEM 4451 - Instrumental Analysis.....	5
CHEM 4471 - Senior Seminar.....	5
CHEM 4800 - Special Topics.....	6
CHEM 4900 - Independent Study.....	6

## LaGrange College

### Course Catalog - Chemistry

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#### Minor in Chemistry - Minor in Chemistry

**Type:**Minor

A **minor** in Chemistry shall consist of General Chemistry I & II ([CHEM 1101](#) & [1102](#)) , Organic Chemistry I & II ([CHEM 3201](#) & [3202](#)) and two (2) additional Chemistry courses from the following:

Elements of Physical Chemistry ([CHEM 3311](#)), Advanced Organic Chemistry ([CHEM 4201](#)), Biochemistry ([CHEM 4421](#), [4422](#)) or Instrumental Analysis ([CHEM 4451](#))

Pre-professional students should consider Advanced Organic Chemistry, Instrumental Analysis and Biochemistry as their options.

#### **Total: 22-24 semester hours**

Students must demonstrate proficiency in chemistry by appropriate scores on the American Chemical Society (ACS) Exams for one of the following year-long sequences:

(1) General Chemistry, (2) Organic Chemistry and/or (3) Biochemistry. The passing score will be at or above the 40<sup>th</sup> percentile of the national norms for these exams or at an appropriate level, as determined by the Department of Chemistry, based on the accumulated data of the performance of LaGrange College students on these exams. The results that are in the best interest of the students will be used. These exams will

be given at the end of the appropriate courses and will be offered to students up to three (3) additional times prior to the time of the student's scheduled graduation.

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## **CHEM 1101 - General Chemistry I**

A study of the foundations of chemistry, including stoichiometry, atomic structure and periodicity, molecular structure and bonding models, and thermochemistry.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 3.0

**Lab hours:** 3.0

**Prerequisites:**

- [MATH 1101](#) - College Algebra

**Restrictions:**

- Offered in Fall terms
  - MATH 1101 or placement into MATH 1221
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## **CHEM 1102 - General Chemistry II**

A continuation of CHEM 1101; a study of the gas, liquid, and solid phases, chemical thermodynamics, kinetics, general equilibria, acid/base equilibria, ionic equilibrium, oxidation-reduction reactions, and electrochemistry.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 3.0

**Lab hours:** 3.0

**Prerequisites:**

- [CHEM 1101](#) - General Chemistry I

**Restrictions:**

- Offered in Spring terms
- 

## **CHEM 3201 - Organic Chemistry I**

A study of the fundamentals of organic chemistry with respect to the bonding, structure, nomenclature, and reactivity of various classes of organic compounds, including aromatic compounds.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 3.0

**Lab hours:** 3.0

**Prerequisites:**

- [CHEM 1102](#) - General Chemistry II

**Restrictions:**

- Offered in Fall terms
- 

## **CHEM 3202 - Organic Chemistry II**

A continuation of CHEM 3201, including spectroscopy, synthesis, carbonyls, and biomolecules.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 3.0

**Lab hours:** 3.0

**Prerequisites:**

- [CHEM 3201](#) - Organic Chemistry I

**Restrictions:**

- Offered in Spring terms
- 

## **CHEM 3311 - Elements of Physical Chemistry**

An overview of thermodynamics, chemical dynamics, and quantum chemistry taught at the algebra level and including applications to biological systems.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 3.0

**Prerequisites:**

- [CHEM 3202](#) - Organic Chemistry II
- [MATH 1221](#) - Precalculus
- [PHYS 1101](#) - Introductory Physics I

**Restrictions:**

- Offered in Spring terms (Even Years)
- Permission of instructor may replace CHEM 3202 as prerequisite
- MATH 1221 or placement in MATH 2221

- PHYS 2121 may replace PHYS 1101 as pre-requisite
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### **CHEM 3371 - Junior Seminar**

A course that acquaints the student with the chemical literature as well as presentation and discussion of scientific data and information. In addition, students explore career opportunities, prepare a portfolio, and develop career plans.

**Grade Basis:** P

**Credit hours:** 1.0

**Lecture hours:** 1.0

**Restrictions:**

- Offered in Spring terms
  - Must be of junior standing
- 

### **CHEM 4201 - Advanced Organic Chemistry**

CHEM4201 is an extension of the study of organic chemistry as begun in the CHEM3201-3202 series, with the addition of special topics of interest for organic chemists not covered in that series.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 3.0

**Prerequisites:**

- [CHEM 3202](#) - Organic Chemistry II

**Restrictions:**

- Offered in Fall terms
- 

### **CHEM 4421 - Biochemistry I**

An introductory course in the principles of biochemistry, with emphasis on the structure and function of biomolecules, membrane structure and function, and an introduction to metabolism and bioenergetics.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 3.0

**Lab hours:** 3.0

**Prerequisites:**

- [CHEM 3202](#) - Organic Chemistry II

**Restrictions:**

- Offered in Fall terms
- 

**CHEM 4422 - Biochemistry II**

A continuation of CHEM 4421, with emphasis on cellular metabolism, fundamentals of molecular genetics, and current topics in biochemistry.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 3.0

**Lab hours:** 3.0

**Prerequisites:**

- [CHEM 4421](#) - Biochemistry I

**Restrictions:**

- Offered in Spring terms
- 

**CHEM 4451 - Instrumental Analysis**

A study of the basic instrumentation used for the quantitative and qualitative analysis of organic and inorganic compounds. This course examines the major instrument types used for this purpose, highlighting instrument design and operation, sampling and the interpretation of output.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 3.0

**Lab hours:** 3.0

**Prerequisites:**

- [CHEM 3201](#) - Organic Chemistry I

**Restrictions:**

- Offered on Demand
- 

**CHEM 4471 - Senior Seminar**

A capstone course that is thematic. Emphasis is on integration of the student's experience in chemistry and biochemistry and the presentation of chemical literature in oral and written forms.

**Grade Basis:** L  
**Credit hours:** 2.0  
**Lecture hours:** 2.0

**Restrictions:**

- Offered in Spring terms
  - Senior Standing
- 

## **CHEM 4800 - Special Topics**

A “special topic” course that may be designed to provide the student with exposure to topics and concepts not covered in the regular course offerings.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 1.0

**Restrictions:**

- Offered on demand
  - 1-4 Credit Hours
- 

## **CHEM 4900 - Independent Study**

This course may have various topics and may be used for credit for undergraduate research. This course can be taken multiple times.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 1.0

**Restrictions:**

- Offered on demand
  - 1-4 Credit Hours
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