



## CHEM 1120

**Division:** Natural Science and Mathematics

**Department:** Chemistry

**Course:** CHEM 1120

**Title:** Elementary Organic/Biochemistry

**Catalog Description:**

This is the second semester course of a General Organic and Biochemistry sequence. It completes an introduction to organic chemistry and covers elementary biochemistry. It includes the study of alcohols, aldehydes, carboxylic acids and derivatives. Also included are topics of: stereochemistry, carbohydrates, lipids, proteins, enzymes, and metabolism. Majors typically taking the course include home economics, agricultural sciences, physical therapy, nursing, and other related health sciences.

**General Education Requirements:** Physical Science

**Semesters Offered:** Spring

**Credit/Time Requirement:** Credit: 4; Lecture: 4; Lab: 0

**Clock/Hour Requirements:** 0

**Offered for Non-Credit:** No

**Prerequisites:** CHEM 1110 and CHEM 1115 (both successfully completed)

**Corequisites:** CHEM 1125

**Justification:**

This course is offered by chemistry departments at most institutions in the state and will transfer to all of them. It is a service course for allied health sciences, forestry, agriculture, etc. as required by their major departments. This course may also fulfill part of the Physical Science General Education Option.

**Student Learning Outcomes:**

Students will know basic organic functional groups, organic nomenclature and basic reactions involving common functional groups. They will understand the structure and function of carbohydrates, lipids, proteins, and enzymes. They will be able to diagram and explain basic metabolic reactions and pathways. Students will gain an understanding of and appreciation for organic reactions and metabolic pathways. They will be able to see application of organic and biochemistry to real life.

**Content:**

Chemistry 1120 is a continuation of Elementary Organic Chemistry and an introduction to Biochemistry that includes the following major topics: Alcohols, Ethers, Thiols, Stereochemistry, Amines, Aldehydes and Ketones, Carboxylic Acids and Acid Derivatives, Carbohydrates, Lipids, Proteins, Enzymes, Nucleic Acids & Heredity, Bioenergetics & Carbohydrate, Lipid, & Protein Metabolism, and Biosynthetic Pathways.

**General Education Outcomes:**

7) Apply scientific reasoning to a variety of contexts.

Students will be able to approach problems logically and come to a solution based on chemical principles. This will include their ability to apply nomenclature rules to compounds with several functional groups, to predict major and minor products of organic reactions, to solve multi-step organic synthesis problems, and to relate metabolic pathways to each other. Students will be assessed and receive instructor feedback using quizzes, tests, and homework assignments.

**Key Performance Indicators:**

Students will be assessed through in-class quizzes and tests, homework, and special assignments. Grades will be based on the following approximate percentages:

TESTS 60 %

QUIZZES AND HOMEWORK 20 %

SPECIAL ASSIGNMENTS 20%

**Representative Text and/or Supplies:**

Bettelheim & March, *General, Organic, and Biochemistry*, Thomson Publishing, Philadelphia, Pa. (current edition)

**Optimum Class Size:** 30

**Maximum Class Size:** 48

**Signatures:**

I hereby submit this course syllabus:

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Dan Black, EdD, Associate Professor

I hereby find this course consistent with the goals and resources of the Chemistry Department:

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Mark Wathen, PhD, Assistant Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

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Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

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Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

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Michelle Olsen, MLS, Campus Librarian (Richfield Campus)