

## Chemistry

The following matrix indicates those courses deemed transferable among institutions listed across the top of the matrix. The numbers on the matrix represent the number of semester hours associated with the course at each institution and which institutions have agreed to transfer the commonly numbered course in each row.

A list of the academic discipline liaisons contacts for each institution are listed at the bottom of this document.

| Prefix | Number       | GERTA    | Course Title                                  | BSC | DCB | DSU | LRSC | MASU | MISU | NDSCS | NDSU | UND | VCSU | WSC | SBC | TMCC | UTTC |
|--------|--------------|----------|---|-----|-----|-----|------|------|------|-------|------|-----|------|-----|-----|------|------|
| CHEM   | 110          | ND:LABSC | Survey of Chemistry                           | 3   |     |     |      |      | 4    | 3     |      | 4   |      |     | 4   | 4    |      |
| CHEM   | 110L         | ND:LABSC | Survey of Chemistry Lab                       | 1   |     |     |      |      |      | 1     |      |     |      |     |     |      |      |
| CHEM   | 112/112L     | ND:LABSC | Introduction to Forensic Science/Lab          | 3/1 |     |     |      |      |      |       |      |     |      | 4   |     |      |      |
| CHEM   | 115/115L     | ND:LABSC | Introductory Chemistry/Lab                    | 4/1 | 4   | 3/1 | 4    |      | 4    | 3/1   |      | 3/1 | 4    | 4   | 4   |      | 3/1  |
| CHEM   | 116/116L     | ND:LABSC | Introduction to Organic & Biochemistry/Lab    | 4/1 | 4   |     | 4    |      |      | 3/1   |      | 3/1 | 4    | 4   | 4   |      | 4    |
| CHEM   | 117          | ND:LABSC | Chemical Concepts and Applications            |     |     |     | 4    |      |      |       | 3    |     |      |     |     |      |      |
| CHEM   | 117L         | ND:LABSC | Chemical Concepts and Applications Laboratory |     |     |     |      |      |      |       | 1    |     |      |     |     |      |      |
| CHEM   | 121/121L     | ND:LABSC | General Chemistry I/Lab                       | 4/1 | 4   | 4/1 | 5    | 4    | 5    | 4/1   | 3/1  | 3/1 | 5    | 5   | 4   |      | 3/1  |
| CHEM   | 122/122L     | ND:LABSC | General Chemistry II/Lab                      | 4/1 | 4   | 4/1 | 5    | 4    | 5    | 4/1   | 3/1  | 3/1 | 5    | 5   | 4   |      | 3/1  |
| CHEM   | 140          |          | Organic Chemical Concepts and Applications    |     |     |     |      |      |      |       | 1    |     |      |     |     |      |      |
| CHEM   | 230/330      |          | Quantitative Analysis/lab                     |     |     | 4   |      | 3/1  | 3    |       |      |     | 4    |     |     |      |      |
| CHEM   | 240/340      |          | Survey of Organic Chemistry                   |     |     |     |      |      | 4    |       | 3    | 4   |      |     |     |      | 3    |
| CHEM   | 240/340L     |          | Survey of Organic Chemistry Lab               |     |     |     |      |      | 1    |       |      | 1   |      |     |     |      |      |
| CHEM   | 241/341/342L | ND:LABSC | Organic Chemistry I/Lab                       | 4/1 | 4   | 4/1 | 3/1  | 5    | 4/1  | 4/1   | 3/1  | 3/1 | 5    | 5   |     |      | 3/1  |

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|--------|--------------|----------|--------------------------|-----|-----|-----|------|------|------|-------|------|-----|------|-----|-----|------|------|
| CHEM   | 242/342/342L | ND:LABSC | Organic Chemistry II     | 4/1 | 4   | 4/1 |      | 5    | 4/1  | 4/1   | 3/1  | 3/1 | 5    | 5   |     |      | 3/1  |
| CHEM   | 260/360/L    |          | Elements of Biochemistry | 3   |     |     | 4    | 4    |      | 3     | 4    |     | 4    |     |     |      | 3    |

### **CHEM 110 Survey of Chemistry**

An introductory level course designed to be a general education science course. The course presents chemistry in its broad culture, social, and economic context; providing an understanding of how chemistry is applied to the world today. Includes a laboratory section.

### **CHEM 110L Survey of Chemistry Lab**

Laboratory to accompany Chemistry 110.

### **CHEM 112 Introduction to Forensic Science**

An introductory level course designed to be a general education science course. This course introduces basic principles and techniques in chemistry as applied to the criminal investigative process. Topics covered include fingerprints, hair analysis, firearm identification, fiber comparisons, toxicology, and analysis of glass, drugs, blood, and DNA. Includes a laboratory section.

### **CHEM 112L Introduction to Forensic Science Lab**

Laboratory to accompany CHEM 112.

### **CHEM 115 Introductory Chemistry**

An introductory level course designed to be the first semester of the General, Organic and Biochemistry sequence, introducing fundamental concepts in chemistry. This course introduces topics of measurement, atomic theory, chemical bonding, ionic and covalent compounds, naming, shape, intermolecular forces, states of matter, stoichiometric relationships, solutions, reaction rates, equilibria, and acid-base chemistry. Includes a laboratory section.

### **CHEM 115L Introductory Chemistry Lab**

Laboratory to accompany Chemistry 115.

### **CHEM 116 Introduction to Organic & Biochemistry**

An introductory level course designed to be the second semester of the General, Organic and Biochemistry sequence, introducing organic chemistry and biochemistry. This course includes topics on functional groups, nomenclature, organic reactions, proteins, enzymatic action, carbohydrates, lipids, nucleic acids, and metabolism. Includes a laboratory section. Prerequisite: CHEM 115

### **CHEM 116L Introduction to Organic & Biochemistry Laboratory**

Laboratory to accompany Chemistry 116.

### **CHEM 117 Chemical Concepts and Applications**

An introductory level course designed to be an introduction to general and organic chemistry, with applications drawn from the health, environmental, and materials sciences. This course includes topics of atoms, ions, molecules, stoichiometry, phases, and bonds – and how these relate to real world biological and environmental systems. Includes a laboratory section.

**CHEM 117L Chemical Concepts and Applications Laboratory**

Laboratory to accompany Chemistry 117.

**CHEM 121 General Chemistry I**

A foundational chemistry course designed to be the first semester of the two-semester general chemistry sequence. This course covers topics of atomic structure, stoichiometric relationships, chemical reactions, gas laws, thermochemistry, bonding, and molecular geometry. Includes a laboratory section.

**CHEM 121L General Chemistry I Lab**

Laboratory to accompany Chemistry 121.

**CHEM 122 General Chemistry II**

A beginning chemistry course designed to be the second semester of the two-semester general chemistry sequence. This course covers topics of physical states, solutions, reaction rates and mechanisms, chemical equilibrium, acid-base chemistry, thermodynamics, and electrochemistry. Includes a laboratory section.

Prerequisite: CHEM 121

**CHEM 122L General Chemistry II Lab**

Laboratory to accompany Chemistry 122.

**CHEM 140 Organic Chemical Concepts and Applications**

An introductory level course designed to be an introduction to organic chemistry and biochemistry, specifically designed to meet the prerequisite for BIOC 260. This course introduces concepts of organic and biochemistry and applies them to the human body, our environment, and the materials utilized in our world.

**CHEM 230/330 Quantitative Analysis**

An upper-level one-semester course designed for students to apply concepts and solve analytical chemistry problems. This course includes topics of statistical treatment of data and error analysis; solution chemistry and solubility equilibria; volumetric analyses: acid-base neutralization, complexometric and redox methods. Includes a laboratory section. Prerequisite: CHEM 122

**CHEM 230/330 Quantitative Analysis Lab**

Laboratory to accompany Chemistry 230/330.

**CHEM 240/340 Survey of Organic Chemistry**

A one-semester course designed to provide the fundamentals of organic chemistry. This course introduces topics of organic structural representations, functional groups and reactivity, 3-dimensional structure and stereochemistry, organic chemistry terminology, and the relevance of organic chemistry in society.

Includes a laboratory section. Prerequisite: CHEM 122

**CHEM 240/340L Survey of Organic Chemistry Lab**

Laboratory to accompany Chemistry 240/340.

**CHEM 241/341 Organic Chemistry I**

An upper-level course designed to be the first semester of a two-semester sequence covering organic chemistry. This course covers topics of organic structure and bonding, nomenclature, stereochemistry, functional groups, reactivity, and spectroscopy. Includes a laboratory section. Prerequisite: CHEM 122

**CHEM 241/341L Organic Chemistry I Laboratory**

Laboratory to accompany Chemistry 241/341.

**CHEM 242/342 Organic Chemistry II**

An upper-level course designed to be the second semester of a two-semester sequence covering organic chemistry. This course continues the study of organic structure and bonding, nomenclature, stereochemistry, functional groups, reactivity, and spectroscopy. Includes a laboratory section.

**CHEM 242/342L Organic Chemistry II Laboratory**

Laboratory to accompany Chemistry 242/342.

**CHEM 260/360 Elements of Biochemistry**

An upper-level one-semester course designed to introduce students to biochemistry. This course covers topics of protein structure, function, conformation, and dynamics; biomolecules; enzymes, DNA-RNA; structure and flow of genetic information; biological membranes, and metabolism. Includes a laboratory section.

**CHEM 260/360 Elements of Biochemistry**

Laboratory to accompany Chemistry 260/360.