

# CHEMISTRY

*Initial student placement in developmental courses is based on individual college placement testing policies and procedures. Students should begin developmental course work at the appropriate level indicated by the college's placement test.*

*Effective Term – Summer 1997 [1997\*02]*

|                |                          |   |   |   |
|----------------|--------------------------|---|---|---|
| <b>CHM 081</b> | <b>Basic Chemistry I</b> | 3 | 2 | 4 |
| Prerequisites: | None                     |   |   |   |
| Corequisites:  | None                     |   |   |   |

This course covers basic fundamental principles and laws of chemistry. Topics include matter, energy, atomic structure, periodic classification, nomenclature, bonding, molecular geometry, measurement, chemical reactions, stoichiometry, and gas laws. Upon completion, students should be able to explain and apply the chemical concepts and laboratory skills as needed in CHM 082.

*Effective Term – Summer 1997 [1997\*02]*

|                |                           |   |   |   |
|----------------|---------------------------|---|---|---|
| <b>CHM 082</b> | <b>Basic Chemistry II</b> | 3 | 2 | 4 |
| Prerequisites: | CHM 081                   |   |   |   |
| Corequisites:  | None                      |   |   |   |

This course provides a continuation of the study of basic fundamental principles and laws of chemistry. Topics include intermolecular forces, solutions, acids and bases, redox reactions, chemical equilibrium, with elements of organic and nuclear chemistry. Upon completion, students should be able to explain and apply basic chemical concepts and laboratory skills needed for success in college-level chemistry courses.

*Effective Term – Summer 1997 [1997\*02]*

|                |                           |   |   |   |
|----------------|---------------------------|---|---|---|
| <b>CHM 090</b> | <b>Chemistry Concepts</b> | 4 | 0 | 4 |
| Prerequisites: | None                      |   |   |   |
| Corequisites:  | None                      |   |   |   |

This course provides a non-laboratory based introduction to basic concepts of chemistry. Topics include measurements, matter, energy, atomic theory, bonding, molecular structure, nomenclature, balancing equations, stoichiometry, solutions, acids and bases, gases, and basic organic chemistry. Upon completion, students should be able to understand and apply basic chemical concepts necessary for success in college-level science courses.

*Effective Term – Summer 1997 [1997\*02]*

|                |                                  |   |   |   |
|----------------|----------------------------------|---|---|---|
| <b>CHM 092</b> | <b>Fundamentals of Chemistry</b> | 3 | 2 | 4 |
| Prerequisites: | None                             |   |   |   |
| Corequisites:  | None                             |   |   |   |

This course covers fundamentals of chemistry with laboratory applications. Topics include measurements, matter, energy, atomic theory, bonding, molecular structure, nomenclature, balancing equations, stoichiometry, solutions, acids and bases, gases, and basic organic chemistry. Upon completion, students should be able to understand and apply basic chemical concepts and demonstrate basic laboratory skills necessary for success in college-level science courses.

*Effective Term - Fall 2005 [2005\*03] – CRC 03/09/05*

|                |                                                                                             |   |   |   |
|----------------|---------------------------------------------------------------------------------------------|---|---|---|
| <b>CHM 094</b> | <b>Basic Biological Chemistry</b>                                                           | 3 | 2 | 4 |
| Prerequisites: | MAT 060, MAT 070, MAT 080, MAT 090, MAT 095, MAT 120, MAT 121, MAT 161, MAT 171, or MAT 175 |   |   |   |
| Corequisites:  | MAT 070                                                                                     |   |   |   |

This course introduces the chemistry important to biological processes. Emphasis is placed on the aspects of general, organic, and biological chemistry that apply to biological systems and processes. Upon completion, students should be able to demonstrate an understanding of the basic biological chemistry necessary for success in college-level biology courses.

*Effective Term – Summer 1997 [1997\*02]*

|                |                            |   |   |   |
|----------------|----------------------------|---|---|---|
| CHM 094        | Basic Biological Chemistry | 3 | 2 | 4 |
| Prerequisites: | MAT 060                    |   |   |   |
| Corequisites:  | MAT 070                    |   |   |   |

This course introduces the chemistry important to biological processes. Emphasis is placed on the aspects of general, organic, and biological chemistry that apply to biological systems and processes. Upon completion, students should be able to demonstrate an understanding of the basic biological chemistry necessary for success in college-level biology courses.

*Effective Term – Summer 1997 [1997\*02]*

|                |                               |   |   |   |
|----------------|-------------------------------|---|---|---|
| <b>CHM 097</b> | <b>Intro to Chemistry Lab</b> | 0 | 2 | 1 |
| Prerequisites: | None                          |   |   |   |
| Corequisites:  | None                          |   |   |   |

This course is designed to provide basic chemical laboratory skills. Topics include laboratory approaches to measurement, algebra, balances, chemical symbols, atomic structure, nomenclature, balancing equations, stoichiometry, solutions, acids and bases, gases, and problem solving. Upon completion, students should be able to demonstrate the laboratory skills necessary for success in college-level chemistry courses.

*Effective Term – Summer 1997 [1997\*02]*

|                |                              |   |   |   |
|----------------|------------------------------|---|---|---|
| <b>CHM 115</b> | <b>Concepts in Chemistry</b> | 3 | 0 | 3 |
| Prerequisites: | None                         |   |   |   |
| Corequisites:  | None                         |   |   |   |

This course introduces basic chemical concepts and their applications to daily life for non-science majors. Topics include air pollution, global warming, energy, world of polymers, water and its importance to a technological society, food, drugs, and nuclear chemistry. Upon completion, students should be able to discuss, apply, and appreciate the impact of chemistry on modern society. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

*Effective Term – Summer 1997 [1997\*02]*

|                 |                                         |   |   |   |
|-----------------|-----------------------------------------|---|---|---|
| <b>CHM 115A</b> | <b>Concepts in Chemistry Laboratory</b> | 0 | 2 | 1 |
| Prerequisites:  | None                                    |   |   |   |
| Corequisites:   | CHM 115                                 |   |   |   |

This course is a laboratory for CHM 115. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 115. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical concepts presented in CHM 115. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

*Effective Term – Summer 1997 [1997\*02]*

|                |                                 |   |   |   |
|----------------|---------------------------------|---|---|---|
| <b>CHM 121</b> | <b>Foundations of Chemistry</b> | 3 | 0 | 3 |
| Prerequisites: | None                            |   |   |   |
| Corequisites:  | None                            |   |   |   |

This course is designed for those who have no previous high school chemistry or a grade of C or less in high school chemistry. Topics include matter, structure of the atom, nomenclature, chemical equations, bonding and reactions; mathematical topics include measurements, scientific notation, and stoichiometry. Upon completion, students should be able to demonstrate an understanding of chemical concepts and an ability to solve related problems in subsequent chemistry courses.

*Effective Term – Summer 1997 [1997\*02]*

|                 |                                            |   |   |   |
|-----------------|--------------------------------------------|---|---|---|
| <b>CHM 121A</b> | <b>Foundations of Chemistry Laboratory</b> | 0 | 2 | 1 |
| Prerequisites:  | None                                       |   |   |   |
| Corequisites:   | CHM 121                                    |   |   |   |

This course is a laboratory for CHM 121. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 121. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 121.

*Effective Term – Summer 1997 [1997\*02]*

|                |                                     |   |   |   |
|----------------|-------------------------------------|---|---|---|
| <b>CHM 130</b> | <b>Gen, Org, &amp; Biochemistry</b> | 3 | 0 | 3 |
| Prerequisites: | None                                |   |   |   |
| Corequisites:  | None                                |   |   |   |

This course provides a survey of basic facts and principles of general, organic, and biochemistry. Topics include measurement, molecular structure, nuclear chemistry, solutions, acid-base chemistry, gas laws, and the structure, properties, and reactions of major organic and biological groups. Upon completion, students should be able to demonstrate an understanding of fundamental chemical concepts. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

*Effective Term – Summer 1997 [1997\*02]*

|                 |                                         |   |   |   |
|-----------------|-----------------------------------------|---|---|---|
| <b>CHM 130A</b> | <b>Gen, Org, &amp; Biochemistry Lab</b> | 0 | 2 | 1 |
| Prerequisites:  | None                                    |   |   |   |
| Corequisites:   | CHM 130                                 |   |   |   |

This course is a laboratory for CHM 130. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 130. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 130. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

*Effective Term – Summer 1997 [1997\*02]*

|                |                                  |   |   |   |
|----------------|----------------------------------|---|---|---|
| <b>CHM 131</b> | <b>Introduction to Chemistry</b> | 3 | 0 | 3 |
| Prerequisites: | None                             |   |   |   |
| Corequisites:  | None                             |   |   |   |

This course introduces the fundamental concepts of inorganic chemistry. Topics include measurement, matter and energy, atomic and molecular structure, nuclear chemistry, stoichiometry, chemical formulas and reactions, chemical bonding, gas laws, solutions, and acids and bases. Upon completion, students should be able to demonstrate a basic understanding of chemistry as it applies to other fields. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is also available through the Virtual Learning Community (VLC).*

*Effective Term – Summer 1997 [1997\*02]*

|                 |                                      |   |   |   |
|-----------------|--------------------------------------|---|---|---|
| <b>CHM 131A</b> | <b>Introduction to Chemistry Lab</b> | 0 | 3 | 1 |
| Prerequisites:  | None                                 |   |   |   |
| Corequisites:   | CHM 131                              |   |   |   |

This course is a laboratory to accompany CHM 131. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 131. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 131. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is also available through the Virtual Learning Community (VLC).*

*Effective Term – Spring 2005 [2005\*01] – CRC 03/09/04*

|                |                                 |   |   |   |
|----------------|---------------------------------|---|---|---|
| <b>CHM 132</b> | <b>Organic and Biochemistry</b> | 3 | 3 | 4 |
| Prerequisites: | CHM 131 and CHM 131A or CHM 151 |   |   |   |
| Corequisites:  | None                            |   |   |   |

This course provides a survey of major functional classes of compounds in organic and biochemistry. Topics include structure, properties, and reactions of the major organic and biological molecules and basic principles of metabolism. Upon completion, students should be able to demonstrate an understanding of fundamental chemical concepts needed to pursue studies in related professional fields. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is also available through the Virtual Learning Community (VLC).*

*Effective Term – Fall 2004 [2004\*03] – CRC 09/10/03*

|                |                          |   |   |   |
|----------------|--------------------------|---|---|---|
| CHM 132        | Organic and Biochemistry | 3 | 3 | 4 |
| Prerequisites: | CHM 131 or CHM 151       |   |   |   |
| Corequisites:  | None                     |   |   |   |

This course provides a survey of major functional classes of compounds in organic and biochemistry. Topics include structure, properties, and reactions of the major organic and biological molecules and basic principles of metabolism. Upon completion, students should be able to demonstrate an understanding of fundamental chemical concepts needed to pursue studies in related professional fields. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is also available through the Virtual Learning Community (VLC).*

*Effective Term – Summer 1997 [1997\*02]*

|                |                          |   |   |   |
|----------------|--------------------------|---|---|---|
| CHM 132        | Organic and Biochemistry | 3 | 3 | 4 |
| Prerequisites: | CHM 131                  |   |   |   |
| Corequisites:  | None                     |   |   |   |

This course provides a survey of major functional classes of compounds in organic and biochemistry. Topics include structure, properties, and reactions of the major organic and biological molecules and basic principles of metabolism. Upon completion, students should be able to demonstrate an understanding of fundamental chemical concepts needed to pursue studies in related professional fields. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.*

*Effective Term – Summer 1997 [1997\*02]*

|                |                              |   |   |   |
|----------------|------------------------------|---|---|---|
| <b>CHM 135</b> | <b>Survey of Chemistry I</b> | 3 | 2 | 4 |
| Prerequisites: | None                         |   |   |   |
| Corequisites:  | None                         |   |   |   |

This course provides an introduction to inorganic chemistry. Emphasis is placed on measurement, atomic structure, bonding, molecular geometry, nomenclature, reactions, the mole concept, stoichiometric calculations, states of matter, and the gas laws. Upon completion, students should be able to demonstrate a basic understanding of chemistry as it applies to other fields. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is also available through the Virtual Learning Community (VLC).*

*Effective Term – Summer 1997 [1997\*02]*

|                |                               |   |   |   |
|----------------|-------------------------------|---|---|---|
| <b>CHM 136</b> | <b>Survey of Chemistry II</b> | 3 | 2 | 4 |
| Prerequisites: | CHM 135                       |   |   |   |
| Corequisites:  | None                          |   |   |   |

This course is a continuation of CHM 135 with further study of inorganic reactions and an introduction to organic, biological, and nuclear chemistry. Topics include solutions, acid-base theory, redox reactions, chemical kinetics, organic chemistry, biochemistry, and nuclear chemistry. Upon completion, students should be able to demonstrate a basic understanding of chemistry as it applies to other fields. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.*

*Effective Term – Summer 1997 [1997\*02]*

|                |                            |   |   |   |
|----------------|----------------------------|---|---|---|
| <b>CHM 151</b> | <b>General Chemistry I</b> | 3 | 3 | 4 |
| Prerequisites: | None                       |   |   |   |
| Corequisites:  | None                       |   |   |   |

This course covers fundamental principles and laws of chemistry. Topics include measurement, atomic and molecular structure, periodicity, chemical reactions, chemical bonding, stoichiometry, thermochemistry, gas laws, and solutions. Upon completion, students should be able to demonstrate an understanding of fundamental chemical laws and concepts as needed in CHM 152. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is also available through the Virtual Learning Community (VLC).*

*Effective Term – Summer 1997 [1997\*02]*

|                |                             |   |   |   |
|----------------|-----------------------------|---|---|---|
| <b>CHM 152</b> | <b>General Chemistry II</b> | 3 | 3 | 4 |
| Prerequisites: | CHM 151                     |   |   |   |
| Corequisites:  | None                        |   |   |   |

This course provides a continuation of the study of the fundamental principles and laws of chemistry. Topics include kinetics, equilibrium, ionic and redox equations, acid-base theory, electrochemistry, thermodynamics, introduction to nuclear and organic chemistry, and complex ions. Upon completion, students should be able to demonstrate an understanding of chemical concepts as needed to pursue further study in chemistry and related professional fields. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics. This course is also available through the Virtual Learning Community (VLC).*

*Effective Term – Summer 1997 [1997\*02]*

**CHM 251 Organic Chemistry I**

3 3 4

Prerequisites: CHM 152

Corequisites: None

This course provides a systematic study of the theories, principles, and techniques of organic chemistry. Topics include nomenclature, structure, properties, reactions, and mechanisms of hydrocarbons, alkyl halides, alcohols, and ethers; further topics include isomerization, stereochemistry, and spectroscopy. Upon completion, students should be able to demonstrate an understanding of the fundamental concepts of covered organic topics as needed in CHM 252. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

*Effective Term – Summer 1997 [1997\*02]*

**CHM 252 Organic Chemistry II**

3 3 4

Prerequisites: CHM 251

Corequisites: None

This course provides continuation of the systematic study of the theories, principles, and techniques of organic chemistry. Topics include nomenclature, structure, properties, reactions, and mechanisms of aromatics, aldehydes, ketones, carboxylic acids and derivatives, amines and heterocyclics; multi-step synthesis will be emphasized. Upon completion, students should be able to demonstrate an understanding of organic concepts as needed to pursue further study in chemistry and related professional fields. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

*Effective Term – Summer 1997 [1997\*02]*

**CHM 261 Quantitative Analysis**

2 6 4

Prerequisites: CHM 152

Corequisites: None

This course introduces classical methods of chemical analysis with an emphasis on laboratory techniques. Topics include statistical data treatment; stoichiometric and equilibrium calculations; and titrimetric, gravimetric, acid-base, oxidation-reduction, and compleximetric methods. Upon completion, students should be able to perform classical quantitative analytical procedures. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

*Effective Term – Summer 1997 [1997\*02]*

**CHM 263 Analytical Chemistry**

3 4 5

Prerequisites: CHM 132

Corequisites: None

This course covers the knowledge and laboratory skills needed to perform chemical analysis. Emphasis is placed on developing laboratory techniques used in the separation, identification, and quantification of selected substances. Upon completion, students should be able to perform laboratory techniques employed in substance identification and volumetric analysis and interpret the results. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

*Effective Term – Summer 1997 [1997\*02]*

**CHM 265 Instrumental Analysis**

2 6 4

Prerequisites: CHM 251

Corequisites: None

This course introduces modern instrumental and chromatographic methods. Topics include methods of chromatographic, spectral, and electrochemical analysis which will provide theory of instrumentation, interpretation, and statistical evaluation of analytical data with practical applications. Upon completion, students should be able to perform quantitative analytical procedures using modern instrumentation. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

*Effective Term – Summer 1997 [1997\*02]*

**CHM 271 Biochemical Principles**

3 0 3

Prerequisites: CHM 252

Corequisites: None

The course covers fundamental principles of biochemistry. Topics include structures, properties, reactions, and mechanisms of biomacromolecules including amino acids, peptides, proteins, carbohydrates and nucleic acids, enzymatic metabolic pathways, and biochemical genetics. Upon completion, students should be able to demonstrate an understanding of fundamental biochemical processes. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

*Effective Term – Summer 1997 [1997\*02]*

**CHM 271A Biochemical Principles Laboratory**

0 3 1

Prerequisites: CHM 252

Corequisites: CHM 271

This course is a laboratory for CHM 271. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 271. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 271. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.*

*See the SEL and SEM prefixes for generic Selected Topics and Seminar course descriptions.*