BIOS 1081 Form & Function Laboratory 1 cr.

Prerequisites: Eligibility for enrollment in, or credit for, ENGL 1157 and MATH 1125, or credit for a higher level English or Math. Concurrent enrollment in BIOS 1083 is strongly recommended. This course is intended for College of Sciences majors. Non-science majors and science education majors may enroll with consent of department. This course is designed to demonstrate several of the principles discussed in BIOS 1083. Students learn about plants and animals at the cell, tissue, and organ levels, and perform experiments designed to explore how plants and animals function. The course meets for 3 hours once per week.

BIOS 2114 Cell and Molecular Biology 4 cr.

Prerequisites: C or better in BIOS 1083, 1081, CHEM 1018 and CHEM 1008. An introduction to cell biology (cell structure and function, including metabolism) and molecular biology (the flow of information from DNA to proteins). The laboratory will involve exercises dealing with the techniques used to characterize proteins, nucleic acids, and cells. Three hours of lecture and three hours of laboratory.

CHEM 1000 Freshman Seminar for Chemistry Majors 1 cr.

This course is required for all freshman chemistry majors and transfer students and is restricted to chemistry majors. Others may enroll only with permission of the department. Weekly discussion course to familiarize freshman chemistry majors with career options, current research topics in the chemical sciences, chemical safety issues, scientific ethics, literature resources, and other topics related to the study of chemistry. Pass/Fail grading. One hour of seminar per week.

CHEM 1007 General Chemistry Laboratory I 1 cr.

Prerequisite: Eligibility for MATH 1125 OR C or Better in Math 1115 or Higher(The lab supplements and reinforces CHEM 1017 and concurrent enrollment in CHEM 1017 is recommended). General chemistry laboratory covering basic principles of laboratory investigations and illustrations of the course content of general chemistry. Three hours of laboratory.

CHEM 1017 General Chemistry I 3 cr.

Prerequisite: Eligibility for Math 1125 or C or better in Math 1115 or higher (It is recommended that students who take this course also take CHEM 1007 concurrently). Chemistry 1017 is a course in the fundamentals of chemistry. Students whose curricula require only a year of college chemistry will normally take CHEM 1018 and CHEM 1008 following satisfactory completion of this course and CHEM 1007. Three hours of lecture and one hour of recitation.

CHEM 1018 General Chemistry II 3 cr.

Prerequisite: C or better in CHEM 1017. (It is recommended that Students who take this course also take CHEM 1008 concurrently). A continuation of CHEM 1017. Inorganic chemistry with selected topics in organic chemistry. Three hours of lecture and one hour of recitation.
CHEM 2017  Organic Synthesis Laboratory 1  1 cr.
Prerequisite: C or better in CHEM 1008 and CHEM 1018 (The lab supplements and reinforces CHEM 2217 and concurrent enrollment in CHEM 2217 is recommended). Organic synthesis laboratory covering basic techniques of organic synthesis and organic reactions covered in CHEM 2217. Three hours of laboratory.

CHEM 2025  Quantitative Analysis Laboratory  3 cr.
Prerequisites: C or better in CHEM 1008 and CHEM 1018 (The lab supplements and reinforces CHEM 2117 and concurrent enrollment in CHEM 2117 is recommended). Explorations of quantitative analysis with emphasis on separation procedures, chromatography, and spectroscopy. One hour of lecture and six hours of laboratory.

CHEM 2117  Quantitative Analysis  3 cr.
Offered each semester. Prerequisite: C or better in CHEM 1018 (It is recommended that students who take this course also take CHEM 2025 concurrently). A course in the theory of gravimetric, titrimetric, colorimetric, chromatographic, and spectrometric separations and analysis. Three hours of lecture.

CHEM 2217  Organic Chemistry I  3 cr.
Prerequisite: C or better in CHEM 1018. (It is recommended that students who take this course also take CHEM 2017 concurrently). CHEM 2217 is an introduction to the chemistry of carbon with emphasis on the nomenclature and reactions of alkanes, alkenes, and alkynes. Emphasis is placed on the mechanistic interpretation and the stereochemical outcome of the major organic reaction pathways. Infrared and nuclear magnetic resonance spectroscopy are also introduced. Three hours of lecture and one hour of recitation.

CHEM 2310  Computing in Chemistry and Drug Discovery  3 cr.
Prerequisites: C or better in CHEM 1018 and MATH 1126 or eligibility for MATH 2107 (MATH 2107 is recommended but not required). The course surveys applications of computers to problems of importance in chemistry, including generation and visualization of 3D molecular structures and movies, ‘virtual screening’ for drug discovery, parameter fitting, working with large datasets, estimation of physical properties for molecules, and numerical solutions of differential equations. The course focuses on providing exposure to a range of techniques. Students gain additional exposure by selecting homework assignments from several different tracks depending on their interests. Three hours of lecture.

CSCI 1201  Introduction to Programming in Fortran  3 cr.
Prerequisite: MATH 1115 or higher with a grade of C or better. Introduces and applies computer techniques needed to solve problems in a high-level programming language such as Fortran. Develops programming skills necessary for students to utilize the digital computer in carrying out computational assignments for other courses. Except as provided for in individual college policies, a student may receive credit in only one of CSCI 1060, 1201, 1203, 1205, and 1583. Not intended for Computer Sciences majors.
CSCI 1203  Introduction to Programming in C  3 cr.

Prerequisite: MATH 1115 or higher with a grade of C or better. Introduces and applies computer techniques needed to solve problems in a procedure-oriented language such as C. Develops programming skills necessary for students to utilize the digital computer in carrying out computational assignments for other courses. Except as provided for in individual college policies, a student may receive credit in only one of CSCI 1060, 1201, 1203, 1205, and 1583. Not intended for Computer Science majors.

CSCI 1205  Introduction to Programming in C++  3 cr.

Prerequisite: MATH 1115 or higher with a grade of C or better. Introduces and applies computer techniques needed to solve problems in a high-level programming language such as C++. Develops programming skills necessary for students to utilize the digital computer in carrying out computational assignments for other courses. Except as provided for in individual college policies, a student may receive credit in only one of CSCI 1060, 1201, 1203, 1205, and 1583. Not intended for Computer Science majors.

CSCI 1581  Software Design and Development I Laboratory  1 cr.

Prerequisite: Concurrent registration in CSCI 1583 is required. Two hours of laboratory each week to accompany CSCI 1583. Applications, exercises, and explorations in methodologies, software design, and development.

CSCI 1583  Software Design and Development I  3 cr.

Prerequisite: MATH 1115 or higher with a grade of C or better; Eligibility for Math 1125 or higher, concurrent registration in CSCI 1581 is required. An introduction to software design and development using an object-oriented approach. Topics include designing specifying implementing and testing elementary classes; developing simple algorithms in an object-oriented programming language; programming-by-contract; implementing fundamental structural relations between classes. Intended primarily for Computer Science majors. Except as provided for in individual college policies a student may receive credit in only one of CSCI 1060, 1201, 1203, 1205, and 1583.

MATH 1125  Precalculus Algebra  3 cr.

Prerequisites: MATH 1115 with a grade of C or better. Fundamentals, functions, polynomials and rational functions, exponential and logarithmic functions.

MATH 1126  Precalculus Trigonometry  3 cr.

Prerequisites: MATH 1125 with a grade of C or better. Trigonometric functions of real numbers, trigonometric functions of angles, analytic trigonometry, systems of equations and inequalities, the binomial theorem. Credit for both MATH 1116 and 1126 will not be allowed.

MATH 2134  Calculus III  4 cr.

Prerequisites: Math 2124 or Math 2112 or Math 2109 with a grade of C or better.

Parametric equations; vectors in three-dimensional space; dot and cross products; functions of several variables; partial derivatives; applications of partial derivatives; optimization in several variables;
multiple integrals; Green's Theorem; Gauss's Divergence Theorem; Stokes' Theorem. This course requires an additional recitation hour.

MATH 2314  Elementary Statistical Methods  3 cr.
Prerequisite: MATH 1115 or higher or six hours of mathematics courses numbered at least 1000.
Introduction to statistical methods. Topics include data analysis, frequency distributions, probability, inference, estimation, hypothesis testing, regression and correlation. Technology is required to explore and solve problems. Credit will not be allowed in both MATH 2314 and MATH 2785.

MATH 3511  Introduction to Linear Algebra  3 cr.
Prerequisite: MATH 2134 or PHYS 1061 or MATH 2109 or 2112 or consent of department. Matrices, systems of linear equations, vector spaces, linear transformations, determinants, inner products and norms, eigenvalues and eigenvectors, diagonalization. Offered each semester.

PHYS 1063  Physics Laboratory for Science and Engineering  1 cr.
Offered each semester. Prerequisite: credit or registration in PHYS 1061. Laboratory course to accompany PHYS 1061. Two hours of laboratory.

PHYS 1065  Physics Laboratory for Science and Engineering  1 cr.
Offered each semester. Prerequisite: credit or registration in PHYS 1062. Laboratory course to accompany PHYS 1062. Two hours of laboratory.