

School	School of Education		
Major	Teacher Education (Biology - Chemistry)		
Major Requirements			
Code	Title	Credits	Description
CHEM310	Physical Chemistry I	3	This course will lay the foundations for a sequence of physical chemistry taken by all B.S. chemistry majors and others interested in obtaining a background in elementary theoretical chemistry. It will be taken with thermodynamic and waves (PHYS 250).The sequence is essential for students who plan to do graduate work in chemistry, topics include, an in depth analysis of atomic and molecular structure, the states of matter, phase equilibria, chemical equilibrium and kinetics. Prerequisite: CHEM 200
CHEM255	Basic Organic Chemistry	3	This course is designed for non-majors. It provide an introduction to the structure, isomerism and chemistry of alkanes, alkenes and some representative functional groups such as alcohols, ethers, aldehydes, ketones, carboxylic acids, amines and amides. Prerequisite: CHEM 200.
CHEM260	Analytical Chemistry	3	This course provides theory and methods associated with gravimetric and volumetric analysis and simple instrumentation. It includes an introduction to statistical evaluations of analytical data. It emphasizes the quantitative determination of substances using spectroscopic analysis, analytical separations, chromatography, and electrochemical methods: potentiometry, voltammetry, and coulometry. Prerequisite: CHEM 200
BIOL365	Genetics	3	Basic concepts of prokaryotic genomics, Mendelian inheritance, pylogenic inheritance, linkage and mapping, population genetics, evolution, DNA replication, gene expression, mutation, gene regulation, extranuclear inheritance, bacterial and viral genetics, and recombinant DNA technology are covered. Prerequisites: BIOL 275
BIOL275L	Cell and Molecular Biology Lab	1	Experiments to include cellular fractionation, DNA and RNA isolation, electrophoresis, DNA digestion, plasmid isolation, bacterial transformation, and polymerase chain reaction applications. Co-requisites: BIOL 275
BIOL275	Cell and Molecular Biology	3	The course discusses the basic concepts of cell and molecular biology: maromolecular assembly, biomembrane structure and function, storage and expression of genetic information, biogenesis, traffic, reception and transduction, cytoskeleton and extracellular matrix, and the cell cycle. Basic laboratory methods in Cell & Molecular Biology are also introduced. Prerequisites: BIOL 200
EDUC490	Teaching Practicum II	3	This course is designed to provide pre-service student-teachers with the opportunity to acquire skills for effective planning, implementing, and evaluating instruction in a field-based setting. More specifically, students get opportunities of guided practice to teach under the supervision of an expert teacher. This practice teaching experience will develop the student's self-confidence, security and commitment to teaching.
EDUC281	Learning & Developmental Theories	3	This course introduces major developmental theories of learning, with emphasis on basic concepts in cognitive development. Relative influences of heredity and environment, and the impact of development on learning and school success are examined.
CHEM255L	Basic Organic Chemistry Lab	1	The laboratory work involves hands-on-experience in organic chemistry. Experiments include basic organic synthesis, alcohol dehydration, hydrocarbon crystallization and purification as well as characterization of organic functional groups.

EDUC221	Introduction to Educational Psychology	3	This course gives an overview of what teaching is all about. More specifically, helping students become more productive members of society. The course focuses on the variety roles of teachers, including subject matter experts, tutors, consultants, motivators, behavior managers, confidantes, evaluators. Students will get an opportunity to learn how to make appropriate decisions, and choosing among many possible strategies, for helping students learn, develop and achieve.
EDUC423	Teaching Mathematics and General Sciences for Elementary Teachers	3	Teaching Mathematics and General Sciences for Elementary Teachers
CHEM260L	Analytical Chemistry Lab	1	This laboratory course stresses the use of methods and instrumental techniques for quantitative chemical analysis.
BIOL360	Human Physiology & Anatomy	4	Studies the structure and function of the following body systems: blood, lymphatic, cardiovascular, respiratory, digestive, urinary, and reproductive. Prerequisites: BIOL200
EDUC328	Introduction to Math and General Sciences Curriculum	3	Introduction to Math and General Sciences Curriculum
EDUC346	Introduction to Classroom Management	3	This course examines the role of teacher in a classroom situation: teacher □ student interaction, and variation in classroom activities. The aim of the course is to pinpoint the crucial role of the teacher in establishing a proactive classroom environment where students stay on task.
EDUC380	Statistical Research in Education	3	This course introduces basic sources and techniques of educational and linguistic research. It is designed to help students in writing research papers using electronic sources and equipments. Students will gain practical knowledge in identifying and researching topics relevant to their field of study, reviewing literature, collecting and analysing data, reporting results and discussing the findings. It also deals with the research designs and with solving educational problems
BIOC310	Medical Biochemistry	4	Medical Biochemistry is designed to present the basics of biochemistry, thus including a study of structure of amino acids, carbohydrates, lipids, proteins, enzymes, and nucleotides, in addition to their metabolism, bioenergetics, membranes and signaling systems, integration and regulation of the major metabolic pathways, nitrogen metabolism, myoglobin, hemoglobin, and hemostasis, with emphasis on the biochemical basis of human disease. Prerequisite: BIOL 200 & CHEM 250
BIOL425	Immunology	3	This course is designed to teach the basic tenants of Immunology. It also undertakes all the important areas of contemporary immunological knowledge and simultaneously provides a historical view of the discoveries that have built the groundwork of modern immunological thought and mechanism of fighting disease. The two functional divisions of the immune system, the innate and the adaptive immune system, antigens, antibodies and lymphocytes are studied, along with the cells and the soluble factors responsible for the immune response. The course will also describe principles of immunology applicable to concepts in clinical medicine; introduction to diagnosis and management of human immuno-pathologic disorders. Prerequisites: BIOL 345
<b>Core Requirements</b>			
<b>Code</b>	<b>Title</b>	<b>Credits</b>	<b>Description</b>
CHEM200L	General Chemistry Lab	1	The laboratory work involves hands-on experience with chemical systems. Experiments include basic calorimetry, a limited qualitative and quantitative analysis scheme, properties of gases, acid-base and redox titrations. Co-requisites: CHEM 200

CHEM200	General Chemistry	3	Basic principles of chemistry, electronic structure of the atom, chemical periodicity, molecular structure and bonding, acids and bases and the states of matter, rates of chemical reactions, and chemical equilibrium are covered in this course. Prerequisites: ENGL 150; CHEM, or S grade on the Chemistry Placement Test Prerequisites: CHEM160, ENGL101. Co-requisites: CHEM200L.
BIOL250L	General Biology II Lab	1	Students in this course study the anatomical morphology of representative samples of the plant phyla. Experiments on photosynthesis and separation of plant pigments are carried out, plant collection and herbarium specimen. Co-requisites: BIOL 250
BIOL250	General Biology II	3	A brief study of viruses and prokaryotes, protists and fungi, and a detailed study of the plant kingdom, with particular focus on the classification, evolution, ecology, structure and function of the angiosperms and gymnosperms. Prerequisites: BIOL 200
BIOL200L	General Biology I Lab	1	This lab course introduces principles of microscopy with emphasis on viewing different animal tissues and cells. A detailed study of the animal kingdom including evolution, classification, and anatomical morphology. Co-requisites: BIOL 200
BIOL200	General Biology I	3	An introductory level course to energy transfer through living organisms, cell biology, membrane transportations, genetics, human physiology, evolution, and morphology and physiology of organ systems, understanding diversity with emphasis on the animal kingdom and evolution. Protozoans are also studied. Prerequisites: ENGL 150; BIOL 150, or S grade on the Biology Placement Test
EDIT250	Educational Technology for Teachers	3	Educational Technology for Teachers:This course provides an overview of old and new technologies and media devices that can be used for instructional purposes. Students will learn how to use these technologies as facilitators for learning, and the need for reform in educational systems.
BIOL375	Plant Physiology	3	This course is an overview of the basic mechanisms underlying plant function, growth and development. General topic areas will include: plant structure and cell biology, plant-water relations and mineral nutrition, long-distance transport phenomena, photosynthesis, respiration and plant metabolism, plant growth regulators, plant development, plant stress physiology and plant biotechnology. Prerequisites: BIOL 250
BIOL375L	Plant Physiology Lab	1	Photosynthesis, determination of essential nutrients by hydroponics, sexual & asexual reproduction. Nastic movements and tropisms are also observed, stress physiology, osmosis, diffusion and plant competition. Co-requisites: BIOL 375
EDUC405	Methods of Teaching & Testing	3	This is an introductory course for future classroom teachers. The course will emphasize translation from theory into practice. Students will be exposed to various methods of teaching and testing. They will get the opportunity to design a lesson plan and construct tests.
EDUC440	Teaching Practicum I	3	Teaching Practicum I
EDUC411	Introduction to the Philosophy of Education	3	This course introduces philosophical issues and the implications in relations to educational perspectives and ideologies. What is philosophy? What is the primary goal of education? What are the concepts of education? How can we achieve an educational system based on logical means and ethical values? What are the differences between [learning] and [teaching] theories? What is knowledge? Can moral education be fairly implemented? These and other questions will examine and attempt to answer social, political, philosophical, democratic, progressive, traditional and moral theories then and now.

**General Education Requirements**

Code	Title	Credits	Description
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ENGL251	Communication Skills	3	The objectives of this course are to improve students' writing skills for academic purposes by developing effective use of grammatical structures; analytical and critical reading skills; a sensitivity to rhetorical situation, style, and level of diction in academic reading and writing; and competence in using various methods of organization used in formal writing.
ENGL201	Composition and Research Skills	3	This course focuses on the development of writing skills appropriate to specific academic and professional purposes; the analysis and practice of various methods of organization and rhetorical patterns used in formal expository and persuasive writing; the refinement of critical reading strategies and library research techniques; and the completion of an academically acceptable library research paper. Prerequisites: ENGL150, ENGL151.
CULT200	Introduction to Arab - Islamic Civilization	3	The purpose of this course is to acquaint students with the history and achievements of the Islamic civilization. Themes will include patterns of the political and spiritual leadership; cultural, artistic, and intellectual accomplishments Prerequisites: ENGL051, ENGL101, ENGL151.
CSCI200	Introduction to Computers	3	The course aims at making students competent in computer-related skills. It is supposed to develop basic computer knowledge by providing an overview of the computer hardware and basic components as well as hands-on practice on common software applications such as Word, Excel, Power Point, Internet and Email. The student will learn how to use the new features of Microsoft Office 2010 mainly Word documents, Excel spreadsheets and PowerPoint presentations. On the surface, MS Office 2010 looks a lot different than previous versions (no more menus or toolbars!), but by learning to understand the dramatically changed, Ribbon-based interface, you'll quickly get back on the road to productivity.
ARAB200	Arabic Language and Literature	3	This course is a comprehensive review of Arabic Grammar, Syntax, major literature and poetry styles, formal and business letters.