

Course descriptions

Department Of Service courses unit

Course Number	Course	Credit hours	Prerequisite
0300101	Calculus (1)	3	--

Functions: Domain and range, Operations on functions (Geometric and Algebraic), Graphs of functions, Trigonometric functions. Limits: Limits and computational techniques, Limits at infinity, Infinite limits, Vertical and horizontal asymptotes. Continuity. Limits and continuity of trigonometric functions. Derivatives: The derivative and techniques of differentiation, Derivatives of trigonometric functions, The chain rule, Implicit differentiation. Analysis of functions: Increase and decrease, Concavity, Extrema values, Graphs of functions. Applications of the derivative: Roll's theorem, The mean value theorem, L'Hopital's rule. Integration: The indefinite integral, Integration by substitution, The definite integral, The fundamental theorem of calculus. Applications of the definite integral: Area between curves, Volumes, Length of a plane curve, Area of a surface of revolution.

Course Number	Course	Credit hours	Prerequisite
0300102	Calculus (2)	3	0300101

Inverse function, Logarithmic and exponential functions, Inverse trigonometric functions, Hyperbolic functions, Inverse of hyperbolic functions. Integration by parts, Trigonometric integrals and reduction formulas, Trigonometric substitutions, Integrating rational functions by partial fractions. L'Hopital's rule, Indeterminate forms. Improper integrals. Sequences, Monotone sequences, Infinite Series, Geometric series, Convergence Tests, Alternating series, Taylor and Maclaurin series, Power series. Polar coordinates.

Course Number	Course	Credit hours	Prerequisite
0300103	Statistics and Probability	3	--

Descriptive Statistics, data presentation. Measures of central deviation (The Mean, Median, Mode, Percentiles and Quartiles). Measures of Variation (The range, Variance and Standard Deviation). Techniques of Counting, Permutations and Combinations. Axioms and Laws of Probability, Conditional Probability and independence, Bayes Theorem. Random variables, Distribution function, Expectation and Variance. Binomial, Poisson, Geometric, Hypergeometric and Normal distributions. Inference about mean, and the Difference between two means: Estimation of the Mean, Confidence intervals, Estimation of Differences Between two Means. Hypothesis testing.

Course Number	Course	Credit hours	rerequisite
0300121	General Physics (1)	3	--

Kinematics; Particle Dynamics; Work, Energy and Power; Momentum and Collisions; Rotational Motion; Oscillatory & Wave Motion; Fluid Mechanics Heat & Thermodynamics.

Course Number	Course	Credit hours	Prerequisite
0300122	General Physics (2)	3	0300121

Coulombs Force, Electric field, Gauss law; Electric potential; Capacitance and dielectrics; Current and resistance; DC and resistance; electromotive force and equation of simple circuit, Kirchhoff's rules; RC Circuits; Magnetic field; Motion of a Charged Particle in a Uniform Magnetic Field; Magnetic Force Acting on a Current-Carrying Conductor; The Biot–Savart Law; Faradays' Law

Course Number	Course	Credit hours	Prerequisite
0300123	Principles Of Astronomy	3	--

Overview of astronomy motions, back ground, frame of reference, tides, law of gravity, Kippers law, astronomical units, electromagnetic spectrum, Doppler effect, telescopes, solar system, stars, galaxies.

Course Number	Course	Credit hours	Prerequisite
0300124	Scientific Culture	3	--

The course talks about human civilization and focuses on the cultural aspect to reach the concept of scientific culture through which many wrong ways in which we deal with things such as the way of dealing with cleaning materials as well as the different forms of plastic in addition to cosmetics, in addition to the many things that We use it in our lives without knowing the various health damages as a result of its wrong uses. As well as identifying safe ways to get rid of them and benefit from various wastes through recycling operations such as recycling papers and cardboard, which has become a global industry par excellence, which achieves a double material and environmental benefit. Rationalizing the consumption of various materials and preserving and managing natural resources, then we present the concept of environmental management from an Islamic perspective

Course Number	Course	Credit hours	Prerequisite
0300131	General Chemistry (1)	3	--

This course teaches the basics of modern chemistry. It covers the following topics: atomic masses and molecular masses, the mole concept, chemical reactions and stoichiometry, acid-base reactions, oxidation-reduction reactions, metathesis reactions, ideal gas law, properties and reactions of gases, electronic configuration of elements. the periodic properties of the elements, types of chemical bonding and the theories of bonding.

Course Number	Course	Credit hours	Prerequisite
0300132	General Chemistry (2)	3	0300131

This course is a continuation of general chemistry 1. It covers the following topics: states of matter and intermolecular forces, colligative properties of solutions, thermochemistry, chemical kinetics, chemical equilibrium, acid-base equilibrium in aqueous solutions, solubility and complex ion equilibria, electrochemistry.

Course Number	Course	Credit hours	Prerequisite
0300133	General Chemistry Laboratory (1)	1	0300131

This course provides experiments to supplement topics taught in General Chemistry I. It covers safety rules in the laboratory, chemical observation, stoichiometry, volumetric analysis, thermochemistry, metathesis reactions, application of the ideal gas law and qualitative analysis of some cations and anions.

Course Number	Course	Credit hours	Prerequisite
0300134	General Chemistry Laboratory (2)	2	0300132

This course provides experiments to supplement topics taught in General Chemistry I and II. It covers safety rules in the laboratory, chemical observation, stoichiometry, volumetric analysis, oxidation reduction, colligative properties of solutions, thermochemistry, chemical kinetics, chemical equilibrium, application of the ideal gas law, electrochemistry and qualitative analysis of some cations and anions.

Course Number	Course	Credit hours	Prerequisite
0300135	Analytical Chemistry	3	0300132 & 0300134

This course emphasizes the quantitative aspects of analytical chemistry. It covers classical measurement methods for analysis (gravimetric and volumetric analyses, acid-base neutralization reactions, precipitation reactions, complex-ion reactions, oxidation-reduction reactions). It also introduces modern instrumental techniques such as spectroscopy, chromatography and electrochemical methods of separation. It also introduces to the statistical analysis of data.

Course Number	Course	Credit hours	Prerequisite
0300136	Organic Chemistry	3	0300132 & 0300134

This course consists of theoretical and practical modules. The theoretical module teaches the structure, nomenclature, properties and chemical reactions of the major classes of organic compounds: alkanes, alkenes, alkynes, aromatic compounds, alkyl halides, alcohols, ethers, aldehydes and ketones, carboxylic acids & derivatives, amines. Emphasis is placed on their medicinal uses. The practical module of this course emphasizes major aspects covered in the theoretical module such as measurement of physical properties, separation and purification of organic compounds, synthesis of simple organic compounds.

Course Number	Course	Credit hours	Prerequisite
0300141	General biological sciences (1)	3	--

This course concentrates on the study of: water and environment. The structure and the function of macromolecules. A tour of the cell, membrane structure and function, cellular respiration, the cell cycle, meiosis and sexual life cycle, the molecular basis of inheritance, from gene to protein, microbial models: the genetics of viruses and bacteria, organization and control of eukaryotic genomes, DNA technology.

Course Number	Course	Credit hours	Prerequisite
0300142	General biological sciences (2)	3	0300141

This course concentrates on the study of: prokaryotes, structure and function and reproduction, kingdom protista, characteristics and major groups, characteristics of animals, major phyla of animals, an introduction to animal structure and function, animal nutrition, circulation in animals, gas exchange, structure and function of mammalian respiratory system, chemical signals in animals, vertebrate endocrine system, excretory system, how specific immunity arises, immune response. Animal reproduction. Mechanisms of sexual reproduction. Mammalian, animal development. Molecular basis of morphogenesis and differential in animals, nervous system, organization of nervous system, and the structure and function of vertebrate brain. Sensory and motor mechanisms: introduction to sensory reception, photoreceptors, hearing and equilibrium.

Course Number	Course	Credit hours	Prerequisite
0300143	General biological sciences Laboratory (1)	1	0300141

This practical course concentrates on: lab instructions and introduction, the microscope, preparation of wet mount, cell structure and function, chemical composition of cells I,II physical properties of cells, photosynthesis and respiration, cell division (mitosis & meiosis), genetics.

Course Number	Course	Credit hours	Prerequisite
0300144	General biological sciences Laboratory (2)	1	0300143 & 0300142

Lab instructions and introduction. Monera kingdom I: culturing and identifying bacteria. Monera Kingdom II: staining bacteria and examining cyanobacteria. Protista kingdom: algae, protozoa, and slime molds, fungi kingdom: zygomycota, ascomycota, basidiomycota, deuteromycota, and mycorrhiza. Animal kingdom I: porifera, cnidaria, ctenophora, platyhelminthes, and nematoda. Animal kingdom II: annelida, mollusca, echinodermata, arthropoda and chordata. Molecular genetics: DNA replication, animal tissues I: epithelial tissue, and connective tissue, animal tissues II: muscular tissue, and nervous tissue, animal anatomy: rabbit anatomy.

Course Number	Course	Credit hours	Prerequisite
0300145	Fundamental of ecology	3	--

Introduction to the concept of ecology and its fields. The human environment, the most serious environmental problems, their causes and the importance of environmental awareness. earth structure. Natural environmental hazards. natural ecosystems. Biogeochemical cycles. Humans and the environment and natural resources in the solid Earth system. Air pollution. Water management and pollution. solid waste. food, health. and environmental impact assessment.

Course Number	Course	Credit hours	Prerequisite
0300146	Fundamentals of public health	3	--

Introduction about the human body systems. Definition of health and disease. Spread of the disease: causes and impact of the environment in causing the disease and methods of prevention of diseases. Nutritional health: food sources and types, food contamination, diseases of malnutrition and food poisoning. Health care for mothers and children. Health care for the under-aged. Health care for the geriatrics. Occupational health and the health of the people with special needs. The health edification. Some human diseases: cancer, infectious diseases, hereditary diseases, sexually transmitted diseases. Injuries and burns. The first aid.

Course Number	Course	Credit hours	Prerequisite
0300151	Computer Skills Foundation	3	--

This is a foundation course that introduces computers and IT to new students, and includes the following topics: What is a computer: Simple CPU structure, primary and secondary storage, Input/output devices. Software Systems: what are: software system, application programs? This course includes practical part that includes: Ms-Windows and Ms-Office.

Course Number	Course	Credit hours	Prerequisite
0300152	Computer Skills	3	0300151

This is a preliminary course that introduces computers and IT to students of all faculties except IT students, and includes the following topics: What is a computer: Simple CPU structure, primary and secondary storage, Input/output devices. How a computer stores data: Bits, Bytes, and character codes. Software Systems: what are: software system, application programs, and introduction to operating systems? Telecommunications: the telecommunications revolution, types of communication networks and the Internet, e- solutions, ethical and social impact of information systems. This course includes –also practical part that includes: Ms-Windows and Ms-Office.

Course Number	Course	Credit hours	Prerequisite
0300161	First aid	3	--

This course aims to provide students with basic skills and knowledge that will assist them in identifying the injuries and accidents and intervene with theme at the scene. It also provides students with the skills crisis to evaluate incidents and implement emergency first aid that will prevent further complications by using available sources until they are evacuated to a specialized health care center.

Course Number	Course	Credit hours	Prerequisite
0300171	Introduction to Renewable Energy	3	0302343

A brief history of energy technology, global energy trends, global warming and the green house effect. Importance of renewable energies, markets of renewable energies, renewable energy projects in Jordan. Types of renewable energies: solar (photovoltaic) energy, wind energy, geothermal energy, tidal, wave, and hydropower, energy, biomass energy production.