

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

٢٠١٥ م ج لغة انجليزية (1)

English Language (1) UR015

**1- Listening & Speaking:**

**A- (Listening):** This part of the course aims at training the students for listening and understanding audio-visual material

**B- (Speaking):** This part helps the students to speak simple and correct short sentences fluently.

**2- Reading:**

This part aims at training students for correct reading, building up vocabulary and promoting grammatical structures.

**3- Writing:**

This part helps the students to spell English words correctly and to use the punctuation marks.

**4- Grammar:**

This part aims at providing the students with knowledge of the grammar of the target language, and its basic structures.

**5- Translation:**

This part aims at developing the students' abilities in translating scientific texts both into and from English.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

٢٠٢٠ م ج لغة انجليزية (2)

English Language (2) UR020

**II- English Language (2): 2 hours per week in the 2nd term**

**Terminology:**

This course aims at introducing the students to the Morphology of the target language. The students study the structure of words. They start with understanding the meaning of a morpheme, then they learn the different types of morphemes, after that they intensively learn the use of affixes. Finally, they end with learning lists of scientific terms in the different fields of science with an increasing ability to guess the meaning of any new term, especially after studying prefixes & suffixes as mentioned above.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	0	-	

٢٠٥٠ م ج قضايا مجتمعية

Societal Issues UR050

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

٢٠١١ م ج ادارة اعمال

Management UR011

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

٢٠١٢ م ج تاريخ العلوم

History of Science UR012

**The importance of studying history of science**

An overview on the science of ancient scientists

Presentation of the history of most prominent theories in mathematics and physics

Presentation of the history of the most important developments of biological sciences (embryogenesis, photosynthesis, genetic engineering, reproduction).

Philosophical reflections of modern biology.

Means of honoring scientists

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

١٣ م ج التغذية الصحية

Healthy Feeding UR013

- 1- A healthy diet and our body
- 2- Components of healthy diet: carbohydrates, lipids, proteins, minerals, vitamins, and fiber.
- 3- Healthy eating pyramid.
- 4- How to read and interoperate nutrition facts.
- 5- Feeding control and the factors that regulate the quantity of food intake especially Leptin and Ghrelin
- 6-Physiology of the Human digestive system (digestion, absorption, metabolism and elimination)
- 7- Anabolic and catabolic hormones.
- 8- Definition and calculation of basal metabolic rate (BMR).
- 9- Body mass index and body volume index.
- 10- Feeding abnormalities (Obesity and malnutrition)
- 11- Definition and types of food additives with E number.
- 12- Example for some popular diseases (bronchial asthma, hypertension, anemia, coronary artery disease, hepatitis, diabetes mellitus, Alzheimers)

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

١٤ م ج التفكير العلمي

Scientific Thinking UR014

- The nature of scientific thinking  
Characteristic of scientific thinking  
The importance of scientific thinking for the renaissance of societies  
Obstacles of scientific thinking practices  
Science and non-science  
Distinguish between facts and myths  
Scientists' personality  
Using scientific thinking to identify and solve problems  
Different scientific approaches to solving the problems

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

١٦ م ج لغة عربية

Arabic Language UR016

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	2	2/-	2

١٠٠ ارك الحاسب الالى

Computer Sciences MC100

- Fundamentals of programming and computer languages - Algorithm and Flowcharts - Elements of Language under case - Basic Instructions in Language under case - Control Instructions - Arrays and dimension statement - Subprograms - Some applications.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	-/2	2

١٠٠ ا ر رياضيات عامة (1)

Mathematics (1) M100

- Calculus: Functions of one variable - Limits and Continuity - Derivatives - Applications of Differentiation - Taylor and McLaurin series, Indefinite and definite integrals.  
Algebra: Mathematical induction - series - Partial fractions - Matrices and systems of linear equations -

Approximate solutions of non-linear equations.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	-2	2

رياضيات عامة (2) ١٠٥

Mathematics (2) M105

Calculus: Techniques of integration - Definite integrals and their properties- improper integral – numerical integration - Applications of definite integrals.  
Geometry: Coordinate systems in the plane - Straight lines and circles in general forms - Conic sections - Geometric transformations in the plane - Coordinate systems in the space - The plane and the straight lines in the space and surfaces of revolution of second order.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

فيزياء عامة (1) ١٠٠

Physics (1) P100

Physical quantities - Units and dimensional analysis - Vectors - The laws of motion in one- and two- dimensions and its applications - Newtown's second Law of motion and its applications. Work and energy - Heat and heat conduction - The kinetic theory of gases - Specific heat of gases - First law of thermodynamics. 12 Experiments related to the above topics.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

فيزياء عامة (2) ١٠٥

Physics (2) P105

The nature and propagation of light - Reflection and refraction at plane surface - Lenses & Mirrors, Eye's structure and camera - Microscopes and Telescopes - Coulomb law and electrostatic fields - Electrostatic potential- Capacitance and dielectrics- Electric current, DC circuits and Krichhoff's Rules-Magnetic field and magnetic force - Electromagnetic induction. 12 Experiments related to the above topics.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

كيمياء عامة (1) ١٠٠

Chemistry (1) C100

(A):Atomic Spectra – Electron Orbital and Quantum Numbers – Quantum Energy Levels in Atoms – Basic Concepts of Bonding Electronegativities – Lewis Structure – The Octat Rule – Dipolemoment – Resonance Hybridization in Molecules – Geometrics of Molecules – Orbital Configuration for Diatomic Molecules.  
(B):State of Matter – Introduction in Surface and Colloids Chemistry – Electrolytic Cell – Electrochemical Cells – Potential of Electrode (Selected practical experimentals )

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10	10	10	20	50	3	3/-	2

كيمياء عامة (2) ١٠٥

Chemistry (2) C105

(A): Chemical Equilibrium – Ionic Equilibrium – Basic of Qualitative Analysis – Solution Chemistry.  
(B):Introduction on Organic Chemistry-Bonding in Organic compounds – Hybridization in Carbon Compounds – Physical Properties of Org. Compounds – Nomenclature, Synthesis and Chemical Reactions of alkanes, alkenes and alkynes  
(Practical: Selected practical experiments)

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

اساسيات الجيولوجيا ١٠٠

Principles of Geology G100

Origin of Planet Earth: Constituents of the Earth's crust (crystals, minerals, rocks) – Classification of rocks  
Internal Processes: Dynamics, structures and plate tectonics – Development of structural traps and ore deposits

External Processes: Weathering – Erosion – Wind action – Geological work of waters (surface, groundwater, seas and oceans) – Formation of hydrocarbons and sedimentary ores – Development of stratigraphic traps

Time scale: Geologic timescale and fossil records

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

حيوان عام	ح ١٠٠
General Zoology	Z100

Protoplasm - Organization and function of animal cell - Study of the animal tissues - Life functions - Introduction to early development of animals - Characters and classification of the major animal phyla

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

نبات عام	ان ١٠٠
General Botany	B100

Cell structure – plant tissues – Anatomy of primary plant organs – Classification of plant kingdom – General aspects of virus, bacteria, algae and fungi – Flower structure, inflorescences and fruits – Selected families of flowering plants

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	2	-	2

اخلاقيات وأداب المهنة والسلامة المهنية	F٣٠٠
Scientific Ethics&Safety	F300

Definition of Ethics and Professional Ethics- Sources of the ethical principles- Benefits- Common mistakes about the professional ethics- Ethics of university teaching , research and authoring and supervising - Citation and Plagiarism-Intellectual property Ethics teacher pre-university- Ethics and the ethics of practicing the profession of medical laboratory- Biological ethics - Ethics of Computer and multimedia- Ethics in works in general- Professional Reports-Role models– Ethics and behavior- Vocational training- Training on the preparation and issuance of the Code of ethics in the work - Code of Ethics for certain related professions. Occupational Safety: Public safety conditions - signs extension - scientific laboratory safety –Securing facilities from fire hazards– First aid - safety in industrial buildings - a list of conditions of safety and prevention-Crisis and emergency management.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	-/2	2

معادلات تفاضلية لغير طلاب الرياضيات	٢١٤ر
Differential Equations for non-Mathematics students	M214

Formation of ordinary differential equations (ODE's) - ODE's of first order and first Degree – ODE's of first order and higher degrees – Applications – Numerical solution of ODE's of the first order and the first Degree – Linear ODE's of higher Orders with constant Coefficients - Linear ODE's of higher orders with Variable Coefficients (Euler and Lagrange methods) .Applications.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

احصاء حيوى	٢٤١رأ
Biostatistics	MS241

Some basic probability concepts – Some important sampling distributions – Estimation Hypothesis testing – Analysis of variance - Regression and correlation – Multiple regression and correlation – Goodness of fit test.

الدرجات					الساعات			مبادئ الفيزياء الحديثة	٢٢٥ ف
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Principles of Modern Physics	P225

Principles modern physics - Black-body radiation - Planck's law of radiation, photo-electric effect - The Hydrogen atom, Rutherford model of the atom - Bohr's theory, Sommerfeld's theory - Compton effect - Dual nature of matter, De Broglie waves, the uncertainty principle. Introduction to the special theory of relativity.

الدرجات					الساعات			كيمياء عضوية (1)	٢١٠ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	4	3/-	3	Organic Chemistry(1)	C210

Organic Reactions Mechanisms – Chemistry of Carbonyl Compounds  
Practical : (Selected practical experiments )

الدرجات					الساعات			كيمياء عضوية (2)	٢١٢ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	4	3/-	3	Organic Chemistry(2)	C212

Aromatic Compounds – Heterocyclic Compounds  
(Practical : Selected practical experiments )

الدرجات					الساعات			كيمياء العضوية البنائية الخضراء	٢١٤ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Environmental and Green Chemistry	C214

Agrochemistry – Environmental Organic Chemistry – Green Chemistry

الدرجات					الساعات			كيمياء غير عضوية (1)	٢٢٠ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	2	0	2	Inorganic chemistry (1)	C220

Chemistry of the main groups (S, P- block elements): General properties of the main group elements of the first group to the seven group element- use of main group elements in industry. (in a glasses, conductors, and semiconductors – fertilizers

الدرجات					الساعات			كيمياء فيزيائية (1)	٢٣٠ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Physical Chemistry (1)	C230

Chemical thermodynamics: Thermodynamics concepts- First law of thermodynamics- second law- Entropy changes of enthalpy and entropy with temperature-Gibb's free energy function and chemical potentials.  
Chemical kinetics: Concept and terminologies of chemical kinetics- Reaction rate laws- Effect of temperature on reaction rates- Theory of reaction rates

الدرجات					الساعات			كيمياء فيزيائية (2)	٢٣٢ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Physical Chemistry (2)	C232

Phase rule: Concept and terminologies of phase rule, phase rule equation, One , Two, Three component systems and their applications. Colloids: Preparation, properties- The stability of hydrophilic and hydrophobic sols. gels- Emulsions and Foams. Electrochemistry(I): Ionic conductivity and applications- Electrochemical cells and electrode potentials- The Nernst equation- Primary and secondary cells- Fuel cells.

الدرجات						الساعات			مقدمة فى التحليل الكيمياءى الكمى	٢٤٠ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	3/-	2	Introductory Quantitative Analysis	C240	

Statistical treatment of Analytical Data, Activity and Systematic Treatment of Equilibrium, Acid-Base equilibrium, Types of titration in volumetric analysis, Gravimetric analysis, Fundamentals of potentiometry & Principles of UV, Vis-Spectrophotometry  
(Practical: Selected practical experiments )

الدرجات						الساعات			حفريات	٢١١ ج
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2	Palaeontology	G211	

Introduction to paleontology - Fossil and fossilization - Mode of preservation - Basis of taxonomy - Scientific namng (Binomial names) - Classification, Description and Geologic importance of some selected Vertebrate and invertebrate fossil groups - Huminoid evolution.

الدرجات						الساعات			ميكروبيولوجيا عامة	٢٩١ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	3/-	2	General Microbiology	B291	

Taxonomy of Prokaryotes – benefit and harmful effect of bacteria – bacterial cell structure – growth of bacteria – general characters of fungi – Fungal classifications – Myxomycota, Mastigomycota and Zygomycota

الدرجات						الساعات			علم الخلية	٢١٠ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2	Cytology	Z210	

The cell theory. Membranous organelles. Non-membranous organelles. The cell inclusions. The nucleus. Cell division. The phases of mitosis. Meiosis. DNA & RNA synthesis.

الدرجات						الساعات			علم الانسجة	٢١٢ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	3/-	2	Histology	Z212	

Detailed study of different types of animal tissues. Histological study of different types of animal systems. Macroscopical and microscopical views of a lesion. Cellular damage. Causes of cellular damage. Responses to cellular damage. Diseases of organ systems.

الدرجات						الساعات			فسيولوجيا الحيوان (1)	٢١٧ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	3/-	2	Animal Physiology (I)	Z217	

Nutrition -Membranes and transport -Muscular system –Circulation -Respiration -Excretion - Osmoregulation and buffering system.

الدرجات						الساعات			علم السموم الحيوانية	٢١٩ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	2	2/-	1	Animal Toxins and Venoms	Z219	

Biology of venomous animals. Sources of animal venoms. Chemistry of venoms. Differences between venoms and toxins. LD50 of some venoms. How do animal venoms work? Antivenom. Biological importance of animal venoms.

الدرجات					الساعات			ح ٢٢٠	لافقاريات (1)
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2		
								Invertebrates (I)	Z220

Explanation of the classification of animal kingdom into the major Phyla. Characters of the major phyla: Protozoa, Porifera, Cnidaria, Platyhelminthes, Nematoda, Annelida and their classes.

الدرجات					الساعات			ح ٢٢٢	لافقاريات (2)
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2		
								Invertebrates (II)	Z222

Classification of the major Phyla into Classes and the characters of each Class. Explanation of the characters of the major phyla: Arthropoda, Mollusca, and Echinodermata.

الدرجات					الساعات			ح ٢٢٥	بيئة حيوان
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	3/-	2		
								Animal Ecology	Z225

An introduction to ecology and its importance. Study of important physical ecological factors and their effects on living animals. Study of organisms and the interrelationships. Studies of biotic factors. Community and Ecosystem. Production in Ecosystems. Ecological Pyramids: Community Succession. Energy Flow Relationships. Food Chains. Food Webs. An introduction to environmental pollution; the effect of man and his activities on the environment.

الدرجات					الساعات			ح ٢٣٢	فقاريات (1)
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2		
								Vertebrates (I)	Z232

Introduction to organization of chordates and the main groups of vertebrates. Emphasis also will be on the following: classification from class through species taxa, morphology, structure and function of organs, systems, developmental pathways, and fundamental concepts characteristic of this diverse group of animals from protochordates till Amphibia.

الدرجات					الساعات			ح ٢٨٠	بيولوجيا الاسماك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	3/-	2		
								Fish Biology	Z280

Definition of fields in Fish Biology. Fish external features, internal anatomy, endoskeleton and musculature. Methods of fish identification, concepts of systematic of fishes and the major groups of fishes (relationship and diversification). Fish habitats and aquatic ecosystems. Fish migrations. Food, feeding, nutrition and growth. Blood, circulation and respiration. Osmoregulation, reproduction, integration and behavior. Ecology and zoogeography. Fishes as resources. Egyptian fishes.

الدرجات					الساعات			ح ٢٩٥	استزراع سمكى
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	2	2/-	2		
								Fish Farming	Z295

Introduction to aquaculture. Preliminary notes on evolution of fish culture and requisite conditions for fish suitable for fish culture. Construction, layout, maintenance and improvement of ponds. Natural food and growth of cultivated fish. Techniques and methods of fish breeding and cultivation. Management of fish farm. Enemies and diseases of fish. Cultivation of tilapias or African catfish as example. Aquaculture in Egypt.

الدرجات					الساعات			أساسيات الوراثة	ز ٢١٥
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Genetic Basis	A215

الدرجات					الساعات			حزم البرامج الرياضية والاحصائية	٣٠٠ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Mathematical and Statistical Packages	MC300

Using the mathematical and statistical packages (Matlab, Mathematica, Min Tab, SPSS, ...etc) for matrices – Functions – Graphics – Data Fitting – Applied Statistics

الدرجات					الساعات			فيزياء حيوية	٣٢٣ ف
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Biophysics	P323

Studying DNA and biopolymers - Cell membranes and membrane potentials - Electrical activity of nerve cells - Fundamentals of measuring circuits and systems - Temperature and pressure measurements - Measuring cell potentials.

الدرجات					الساعات			الكيمياء الضوئية والوسائط النشيطة	٣١٣ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Photochemistry & Regative Intermediates	C313

Photochemistry – Reactive Intermediates

الدرجات					الساعات			معمل كيمياء غير عضوية (1)	٣٢٠ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	20	20	50	0	1	3/-	1	Inorganic Chemistry Laboratory (1)	C320

Preparation of simple and double salts – preparation of metal complexes – characterization by spectrophotometric and conductometric methods.

الدرجات					الساعات			كيمياء غير عضوية (2)	٣٢١ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Inorganic Chemistry (2)	C321

Transition elements: An introduction to transition elements – general properties of the first transition series and their compounds.

Coordination compounds: Coordination compounds and double salts – application of coordination compounds – nomenclature – preparation – isomerism – stability – oxidation states – nature of bonding- Huggin's suggestion – investigation of structures. Coordination polymer.

الدرجات					الساعات			كيمياء غير عضوية (3)	٣٢٤ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Inorganic Chemistry(3)	C324

Inner transition elements: Relation between lanthanides and actinides - f-block elements and d-block elements – chemistry of some important elements – method of separation – properties of the compounds – oxidation state – Spectral and magnetic properties  
Coordination chemistry: Crystal field theory complexes of weak and strong field ligands – ligand field and



molecular orbital theories – stability constant of complexes – Jochen Toiller effects.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	20	20	50	0	1	3/-	0

معمل الكيمياء الفيزيائية (1) ك ٣٣١

Physical Chemistry Laboratory (1) C331

Experiments based on: Chemical kinetics, Phase rule, and electrochemistry.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

كيمياء فيزيائية (3) ك ٣٣٢

Physical Chemistry (3) C 332

Quantum chemistry: Pre-Schrödinger equation- Schrödinger equation and its application to translational, vibrational, and rotational motion of a particle.

Theory of gases: The kinetic molecular gas model- numerical values of molecular velocities and their distribution in three dimensions – Average quantities from the distribution law – equipartition principle - the molecular gas collisions and the mean free path, Transport properties.

Molecular spectroscopy: Types and patterns of free energies of gas molecules- experimental and theoretical treatment for studies on rotational vibrational, Raman and electronic spectra- spectral analysis using NMR and ESR.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	2/-	2

ج ٣١١ جيولوجيا تاريخية (لغير طلبة الجيولوجيا)

Historical Geology for Non-Geologists G311

Origin and history of the Earth - Geologic Time - Geologic Time Scale - Methods of determining age - The Geologic Record - Correlation- Origin and evolution of the life - Organic Evolution (Factors – Evidences) - Geological units & Geological events - Details of the largest segments of geologic time and characteristic types of life throughout the geological time.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

ح ٣١٠ فسيولوجيا الحيوان 2

Animal Physiology Z 310

Endocrinology (hormones biochemistry, hormone receptors, hormone action mechanism, control of hormone secretion, dysfunction of endocrine gland). Nervous system (Central and peripheral nervous system, sympathetic and parasympathetic system, neurotransmitters). Sensory system (sensory receptors and transduction, sense organs).

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	2	3/-	1

ح ٣١١ بيولوجية جزيئية

Molecular Biology Z 311

DNA structure - Genome organization in prokaryotic and eukaryotic cell - DNA replication and repair - Translation - Gene expression in eukaryotes Recombinant DNA techniques - Postranslational protein modification.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	1	0	1

ح ٣١٣ سلوك الحيوان

Animal Behaviour Z 313

Schools of the study animal behavior -Characteristic and components of innate behavior -Animal learning - Animal communication -Protective behavior - Social behavior.

الدرجات					الساعات			هندسة وراثية	ح ٣١٤
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Genetic Engineering	Z 314

Biotechnology and recombinant DNA- Restriction enzymes and basic cloning- DNA sequencing and PCR- Animal genetic engineering -Human genome project- regulations and ethics- Genetic testing for diseases- DNA technology in criminal cases - Gene therapy to treat diseases –Cloning-New drugs based on genetic your profile - Genetically engineered food - Genetic engineering in the future

الدرجات					الساعات			كيمياء الانسجة	ح ٣١٦
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Histochemistry	Z 316

Study of chemical components of carbohydrates, proteins, lipids, nucleic acids, etc. in the cells and tissues including methods for their detection. Detecting methods of some enzymes in animal tissues.

الدرجات					الساعات			تقنية مجهرية	ح ٣١٧
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Microscopical Techniques	Z 317

Methods and tools used in the study of the cell and tissues of animals. Different types of microscopes. Principles of electron microscopes. Resolution of electron microscopes. Specimen preparation for transmission electron microscope. Specimen preparation for scanning electron microscope. Application of electron microscopes.

الدرجات					الساعات			طفيليات	ح ٣٢١
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	3/-	2	Parasitology	Z 321

Principles of parasitology. Introduction to parasitism history and evolution of parasitism, types of parasitism; host-parasite relationships. Parasitic Protozoa, trematodes, cestodes, nematodes and ectoparasites.

الدرجات					الساعات			بيئة مائية	ح ٣٢٣
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	3/-	2	Aquatic Environment	Z 323

Basic knowledge of the structure and the functioning of freshwater ecosystems. The abiotic (physical and chemical) characteristics of lakes and rivers, as well as the qualitative and quantitative composition of the different biological communities as reviewed components. Describing and illustrating the fundamental concepts and general processes governing marine ecosystems. Types of shores and the main components of animals with case study to the Red-Sea.

الدرجات					الساعات			اساسيات علم الاجنة	ح ٣٣٤
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	3/-	2	Fundamentals of Embryology	Z 334

Introduction – Gametogenesis – Fertilization – Cleavage – Blastulation – Gastrulation - Axis formation- Early embryonic development of Amphioxus, Amphibians, Chick and Mammals.

الدرجات					الساعات			مقال او بحث	ح ٤٠٠
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	0	0	0	90	2	0	2	Research projector article	C400

An essay or research article in one of the different fields of chemistry

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

كيمياء الجزيئات الحيوية ك ٤١٣

Chemistry of biomolecular C413

Biochemistry (II): Lipids – Nucleic acids – Enzymes.

Medicinal Chemistry

(Practical: Microanalysis, Detection and estimation of Carbohydrates, Amino acids, Proteins, Lipids, Nucleic acids ..... Ect. )

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	20	20	50	0	1	3/-	0

معمل كيمياء عضوية متقدمه ك ٤١٥

Advanced organic chemistry C415  
laboratory

Advanced organic synthesis – Estimation of functional group.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	20	20	50	0	1	3/-	0

معمل كيمياء فيزيائية (2) ك ٣١

Physical chemistry Lab(2) C 431

Experiments based on: surface chemistry, catalysis and electrochemistry (II)

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

موضوعات مختارة في الكيمياء التحليلية ك ٤٤٤

Special topics in Analytical C444  
Chemistry

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

طرق التحليل الآلي ك ٤٤٥

Instrumental Method of Analysis C445

Introduction To Atomic Spectrometry (Absorption, Florescence and Emission Spectrometry.

Ultraviolet/Visible Spectrophotometry and Infrared Spectrometry, Polarography & Amperometry, Conductometry & Coulometer and Modern Voltammetric Techniques, Analytical Separation.)

(Practical: Selected practical experiments )

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

كيمياء البترول والبتروكيماويات ك ٤٥١

Petroleum Chemistry and C 451  
Petrochemicals

Crude Oils – Evaluation of Crude Oils - Refining of Petroleum – Petrochemicals Derived from Petroleum Fractions

(Practical: Selected practical experiments )

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	0	0	0	90	2	0	2

مقال او بحث ك ٤٠٠

Research Project or Article Z 400

A short research or an essay project must be prepared as a year-extended course.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

ح ٤٠١ موضوعات مختارة في علم الحيوان (1)

Selected Topics in Zoology (1) Z 401

To be determined by the department

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

ح ٤٠٢ موضوعات مختارة في علم الحيوان (2)

Selected Topics in Zoology (2) Z402

To be determined by the department

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

ح ٤١٢ علم المناعة

Immunology Z 412

-Functional organization of the immune system -Organs and cells of the immune system -Molecules in immune reaction -The immune response -Regulation of the immune processes -The Immunological methods.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	2/-	2

ح ٤١٣ علم الدم

Haematology Z 413

-Body fluids analysis-Composition and formation of blood.-Blood grouping-Hemostasis and tests related to the detection of bleeding and thrombotic problems.  
-Anemias and leukemia -Routine procedure used in the hematology laboratory.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

ح ٤١٤ فسيولوجيا التأقلم

Adaptation Physiology Z 414

Basic understanding of physiological response to natural and man made environmental conditions. Physiological effect of abnormal and atmospheric pressure. Physiological response to heat stress and low temperature exposure. Physiology of tissue adaptation to injury. Disorder of the stress response

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	3/-	2

ح ٤٣٧ بيولوجيا النمو

Biology of Growth Z 437

Cellular and molecular mechanisms that regulate animal development. Induction and cell communication. Development of different body systems. Limb development. Axis formation. Morphogens and stem cells. Development and oncogenes.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	2/-	2

ح ٤٠٢ وراثة عشائر

Population Genetics



محتويات مقررات برنامج

Courses' Content

الكيمياء وعلم الحيوان

Chemistry and Zoology



كلية العلوم