

mistry and Entomol

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

لغة انجليزية(1)	م ١٥ ج
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

لغة انجليزية(2)	م ٢٠ ج
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	-	

قضايا مجتمعية	م ٥٠ ج
Societal Issues	UR050

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

ادارة اعمال	م ١١ ج
Management	UR011

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

تاريخ العلوم	م ١٢ ج
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)

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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

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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.

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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.

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الدرجات					الساعات			ك ٢١٠	كيمياء عضوية (1)
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			ك ٢١٢	كيمياء عضوية (2)
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			ك ٢١٤	كيمياء العضوية البيئية الخضراء
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			ك ٢٢٠	كيمياء غير عضوية (1)
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			ك ٢٣٠	كيمياء فيزيائية (1)
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			ك ٢٣٢	كيمياء فيزيائية (2)
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			ك ٢٤٠	مقدمة في التحليل الكمي
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

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(Practical: Selected practical experiments)

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

بلورات وبصريات المعادن ج ٢٣٤

Mineral Crystals and Optics G234

Crystallography:

Introduction: (types-parts-habits and forms) - Axial cross - crystal axes- Systems with symmetry of C-axis - Intercepts- axial ratios – parameters – Miller indeces - stereographic projection - Complete symmetry formula with its stereographic projection and crystal forms - Main Crystal Systems.

Optical Mineralogy:

- Polarization and polarizing microscope - Origin and nature of the minerals - physical, chemical & optical properties - Optics of isotropic crystals - Classification of the minerals - description of the important minerals - Atomic structures – Isomorphism

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

تصنيف نباتات زهرية ن ٢٣٢

Taxonomy of Flowering Plants B232

Introduction – flower structure – inflorescences – fruits – systems of classification - study of representative families of angiosperms.

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

ميكروبيولوجيا عامة ن ٢٩١

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

علم الخلية ح ٢١٠

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

علم الانسجة ح ٢١٢

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

لافقاريات (1) ح ٢٢٠

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.

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الدرجات						الساعات			٢٢٢ ح	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			٢٤٠ ح	حشرات عامة
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2		General Entomology Z240	

I- External Insect Morphology. II- Internal Anatomy. III- Molting and Metamorphosis. Introduction to insect classification.

الدرجات						الساعات			٢٤٢ ح	مورفولوجيا الحشرات
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2		Insect Morphology Z242	

External Morphology in different insect orders. Arthropodization - The Integument. - The head (Segmentation and evolution, primitive insect head, general pterygote head, appendages) – The thorax (General structure, appendages, mechanisms of flight). – The abdomen and external genitalia.

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

الدرجات						الساعات			٣٠٠ ك	حزم البرامج الرياضية والاحصائية
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			٣٢٣ ف	فيزياء حيوية
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			٣١٣ ك	الكيمياء الضوئية والوسائط النشيطة
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

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الدرجات					الساعات			معمل كيمياء غير عضوية (1)	ك ٣٢٠
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)	ك ٣٢١
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)	ك ٣٢٤
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			معمل الكيمياء الفيزيائية (1)	ك ٣٣١
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	20	20	50	0	1	3/-	0	Physical Chemistry Laboratory (1)	C331

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

الدرجات					الساعات			كيمياء فيزيائية (3)	ك ٣٣٢
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	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			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			تصنيف الحشرات	ح ٣٤٠
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Insect Taxonomy	Z 340

History of insect taxonomy. - Importance of insect taxonomy. - Modern taxonomy (origin and evolution). axonomic categories. - The international rules of insect nomenclature. - Vernacular name. - Description of specimen - Classification and phylogeny of insects. -Types of references. - How to present taxonomic data in a scientific paper.

الدرجات					الساعات			الحشرات الاقتصادية	ح ٣٤٢
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Economic Entomology	Z 342

Introduction of economic entomology. Beneficial and harmful insects. Types of insect pests. Pests of cultivated crops, vegetables and fruits. Pests of household material (carpet, cloth, wood, paper, etc.).

الدرجات					الساعات			فسيولوجيا الحشرات (1)	ح ٣٤٣
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	3/-	2	Insect Physiology (1)	Z 343

Hormonal control of the integument- Physiology of metamorphosis and growth- Digestion- Respiration- Excretion- Circulatory system- Reproduction.

الدرجات					الساعات			حشرات طبية	ح ٣٤٤
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Medical Entomology	Z 344

Diseases and harms caused by insects. Insects as vectors for protozoa and parasitic worms (Their mode of infection and Life cycles) – Protection and control. Mechanical, physical, and chemical injuries. Microbial and non-microbial diseases. -Genetic diseases. Epidemic of insect diseases.

الدرجات					الساعات			الطفيليات الحشرية	ح ٣٥١
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Parasitic Insects	Z 351

Definition and types of parasitism. Insects as parasites of both vertebrate and invertebrate animals. Insects as hosts for other parasites. Order Hymenoptera as the major group of parasites on insect hosts. Egg, larval, and Pupal parasitoids and their hosts Parasitoids of adult insects. Parasites of social insects: trophic parasitism; slave making, etc.

الدرجات					الساعات			الوراثة الجزيئية	ح ٣١٠
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Molecular Genetics	A310

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

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الدرجات					الساعات			كيمياء الجزيئات الحيوية	٤١٣ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	3/-	2	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			معمل كيمياء عضويه متقدمه	٤١٥ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	20	20	50	0	1	3/-	0	Advanced organic chemistry laboratory	C415

Advanced organic synthesis – Estimation of functional group.

الدرجات					الساعات			معمل كيمياء فيزيائية (2)	٤٣١ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	20	20	50	0	1	3/-	0	Physical chemistry Lab(2)	C 431

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

الدرجات					الساعات			موضوعات مختارة فى الكيمياء التحليلية	٤٤٤ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Special topics in Analytical Chemistry	C444

الدرجات					الساعات			طرق التحليل الالى	٤٤٥ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	3/-	2	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			كيمياء البترول والبتروكيماويات	٤٥١ ك
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	3/-	2	Petroleum Chemistry and Petrochemicals	C 451

Crude Oils – Evaluation of Crude Oils - Refining of Petroleum – Petrochemicals Derived from Petroleum Fractions
(Practical: Selected practical experiments)

الدرجات					الساعات			مقال او بحث	٤٠٠ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	0	0	0	90	2	0	2	Research Project or Article	Z 400

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

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الدرجات					الساعات			ح ٤٤١
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	فسيولوجيا الحشرات (2)
10	10	10	20	50	3	2/-	2	Insect Physiology (2) Z 441

Nervous and endocrine system - Insect sense organs - Pheromones - Muscular system.

الدرجات					الساعات			ح ٤٤٢
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	اساسيات مكافحة الحشرات
10	10	10	20	50	3	2/-	2	Fundamentals of Insect Control Z 442

A- History and principles of insect control, Pests and pest harmful. – Types of pest control.
B- Chemical control: Pesticides Discovery, Classification of insecticides, Problems generated due to overuse of pesticides, Resistance against pesticides.
C- Other methods of pest control: Synergistics and pesticide combinations, Insect growth regulators, Insect development inhibitors, Ovicides, Antifeedants, Autocidal control, Behavior-based insect control, Integrated Pest Management (IPM).

الدرجات					الساعات			ح ٤٤٣
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	بيئة الحشرات
10	10	10	20	50	3	2/-	2	Insect Ecology Z 443

A- An overview of insect ecology: introduction to insect ecology, fossil history and insect evolution, habits of insects, the number of insect species richness, variations in species number, abundance, insects and humans. B- Insects and Climate: Temperature, photoperiod, rainfall, wind, climate change. C- Insect Herbivores: Trouble with plant as food, feeding strategies of herbivorous insects, plant defenses, overcompensation. D- Insects in Ecosystems: fundamentals of ecosystem, Insects and the terrestrial carbon cycle, leaf-shredding insects and stream ecosystems.

الدرجات					الساعات			ح ٤٤٤
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	سلوك الحشرات
10	10	30	0	50	2	0	2	Insect Behaviour Z 444

Origins of the science of insect behavior - Releasers and supernormal releasers. - Insect learning. - Orientation and navigation. – Insect communication. - The honeybee language. - Protective behavior in insects. - Mimicry and its varieties. - Insect rhythms. - The social life of insects. Kin selection and the evolution of insect sociality.

الدرجات					الساعات			ح ٤٤٦
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	تدريبات حقلية متخصصة
10	10	10	20	50	3	4/-	1	Specialized Field Training Z 446

Factors affecting insects in their natural habitat. - Requirements of field work. - Observation of insect life and behavior. - Types of insect traps. - Collecting insects from different habitats. Preservation of insect specimens. - Designing field experiments. - monitoring of existing insect population; introducing an insect into the field for experiment; gathering and analysis of field data.

الدرجات					الساعات			ح ٤٤٧
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	مناعة الحشرات
10	10	30	0	50	2	0	2	Insect Immunity Z 447

A- Cellular Immunity: Insect hemocytes involved in cellular defense reactions – Phagocytosis – Cellular encapsulation – Humoral encapsulation – Nodule formation – Phenoloxidases and their possible role in cellular and humoral encapsulation – Resistance to cellular defense reactions. B- Humoral Immunity: Factors normally present in insect hemolymph – Factors inducible upon infection – Resistance to humoral immune

reactions.

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

الإكروسات	٤٥١ ح
Acarology	Z 451

Historical introduction – Collection – Preparation for Study – External Morphology – Biology and life cycle – Classification – Distribution, abundance, and environmental variable – Agricultural importance - Medical and veterinary importance of house-dust mites and ticks – Treatment and control.