

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.

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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

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	10	20	50	3	3/-	2

كيمياء عضوية لغير طلاب الكيمياء	ك ٢١١
Organic Chemistry for non Chemistry Students	C211

Chemistry of Aliphatic Compounds – Chemistry of Selected Aromatic Compounds (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 فيزيائية وغير عضوية	ك ٢٥٠
Physical and Inorganic Chemistry	C250

General Properties of the Main Group Elements (S, P- block elements) (The First Group to Seventh Group) – First and Second Law of Thermodynamics (Entropy and Enthalpy and Their Change With Temperature – Chemical Potential).

(Practical: Selected practical experiments)

الدرجات					الساعات			التحفر والحفريات النباتية	٢١٩ ج
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Fossilization and Plant Fossils	G219

Fossilization: Introduction & terminology- Fossil and Fossilization - Mode of preservation - fossil record - Types of fossil organisms; Flora & Fauna; major environments - Basis of systematic & taxonomy; binomial nomenclature.

Plant Fossils: Introduction - Taxonomy of the Plant Fossils - Extraction techniques – Morphology of representative fossil plants – Paleocological conditions and significance - Stratigraphic significance- Selected examples of plant fossils from Egypt.

الدرجات					الساعات			نبات اقتصادي	٢١١ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	1	-	1	Economic Botany	B211

Plant products of economic values: [sugars, starch, fats, oils & vitamins] – fibers – paper industry – microbiological industries.

الدرجات					الساعات			بيولوجيا جزيئية	٢١٢ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	2	0	2	Molecular Biology	B212

Introduction – structure and function of DNA & RNA – gene organization, cloning, structure, expression & regulation – amino acids and protein structure – expression of foreign proteins - methods for protein detection

الدرجات					الساعات			مورفولوجيا وتشريح النبات	٢٢١ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Plant Morphology and Anatomy	B221

Seeds & seed germination – morphological structures of plant organs – modification – meristematic & permanent tissues – anatomical structures of plant organs – secondary thickening – ecological groups.

الدرجات					الساعات			تصنيف نباتات زهرية	٢٣٢ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Taxonomy of Flowering Plants	B232

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

الدرجات					الساعات			علم البيئة النباتية	٢٤١ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Plant Ecology	B241

Ecosystems and energy flow – ecological factors: climatic, edaphic & biotic factors – ecological plant groups: Hydrophytes, Xerophytes, Halophytes & Mesophytes

الدرجات					الساعات			فسيولوجيا النبات	٢٥١ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Plant Physiology	B251

Solutions – plant water relations – enzymes – photosynthesis – respiration – fat metabolism – nitrogen metabolism – hormones

الدرجات					الساعات			ن ٢٥٢	انزيمات وهرمونات نباتية
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	4	2/-	3		Enzymes and Plant Hormones
									B252

الدرجات					الساعات			ن ٢٦١	علم الفطريات
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2		Mycology
									B261

Characteristics of fungi – nutrition – mode of living – reproduction – phylogentic relationships of fungi – classification – Myxomycota – Mastigomycota (zoosporic fungi) – Zygomycota – Ascomycota – Basidiomycota – Deuteromycetes .

الدرجات					الساعات			ن ٢٧١	علم البكتريا
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2		Bacteriology
									B271

Dyes and bacterial staining – ultra structure of bacterial cell – bacterial nutrition, growth and population – control of bacterial growth – important groups of bacteria – genetic recombination in bacteria – regulatory mechanisms of Gene expression enzymes in bacteria – bacteria and environment .

الدرجات					الساعات			ن ٢٧٣	علم الطحالب
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2		Phycology
									B273

Introduction – taxonomic criteria of algae – representative examples of algae : [habitats, life cycles & evolutionary relationships].

الدرجات					الساعات			ن ٢٨١	علم الفيروسات
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2		Virology
									B281

Historic view – definition – origin – characteristics of viruses – nomenclature & classification – composition & structure - effects of Viruses on their hosts – transmission – pathogens confused with viruses – ways of control.

الدرجات					الساعات			ن ٢٩١	ميكروبيولوجيا عامة
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			ح ٢٤٠	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			عقاقير نباتية	ص ٢١٦
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Botanical Drugs	Ph216

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			فيزياء حيوية	ف ٣٢٣
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			حزازيات وتريديات ومعرفة بذور	ن ٣١٢
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-		Bryophyta, Pteridophyta & Gymnosperms	B312

Bryophyta [Hepatophyta & Anthocerophyta] – Pteridophyta [Psilophyta, Lycopodiophyta, Equisetophyta & Filicophyta] – Gymnosperms [Cycadophyta, Coniferophyta, Ginkgophyta & Gnetophyta].

الدرجات					الساعات			تشریح نبات متقدم	ن ٣٢١
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Advanced Plant Anatomy	B321

Classification & theories of meristems – permanent tissues – structure & evolution of steles – anatomical structures of primary plant organs – secondary thickening – cork – tyloses - sap & heart wood - leaf gaps & traces - healing of wounds.

الدرجات					الساعات			علم الخلية النباتية	ن ٣٢٣
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	2	2/-	1	Plant Cytology	B323

Cell wall – cell membrane – cytoplasm – Golgi apparatus – mitochondria & enzyme system – plastids – ribosomes – nucleus – chromosomes.

الدرجات					الساعات			تصنيف نباتات زهرية متقدم	ن ٣٣٢
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-		Advanced Plant Taxonomy	B332

Plant nomenclature – basis of plant classification – comparative morphology, cellular, chemical & numerical systematic – pollen grains – studies of some families of angiosperms .

الدرجات						الساعات			ن ٣٣٣	نباتات طبية
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2		Medicinal Plants	
									B333	

Historical notes – classification of medicinal plants – examples of medicinal plants – injurious plants – remedial plants – psychoactive plants – poisons plants – attarin plants - cultivation of medicinal plants.

الدرجات						الساعات			ن ٣٣٤	فلورا مصر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-			Flora of Egypt	
									B334	

Historical view – phyto-geographical regions of Egypt – factors affecting the natural plant distribution – plants of Mediterranean & Red Sea coasts, desert vallies, Oasis, Sinai & Nile valley – cultivated plants (trees – crops- vegetables).

الدرجات						الساعات			ن ٣٤١	جغرافيا نباتية
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	2	0	2		Phytogeography	
									B341	

Geographical distribution of plants – dispersal of seeds, fruits, propagules, spores – agents of dispersal – barriers of dispersal – types of plant distribution – endemism – center of origin – relic areas – habitat types.

الدرجات						الساعات			ن ٣٤٢	مجتمعات نباتية
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2		Plant Sociology	
									B342	

Plant grouping & populations – evolution & succession of vegetation – concepts of plant communities – vegetation analysis: analytic, quantitative & synthetic characteristics – dynamics of communities.

الدرجات						الساعات			ن ٣٤٣	علاقات مائية
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	2	0	2		Water Relations	
									B343	

Physical & chemical characteristics of water – plant organization – continuum theory of soil – root water relationships – shoot – atmosphere water relationships - shoot/ root ratio - plant water deficits.

الدرجات						الساعات			ن ٣٥١	التغذية المعدنية
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2		Mineral Nutrition	
									B351	

Detection of plant elements – source of mineral salts – absorption & translocation – function of some elements – plant water relationship – factors affecting plant growth – plant hormones – movement in plants.

الدرجات						الساعات			ن ٣٥٢	كيمياء حيوية نباتية
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-			Plant Biochemistry	
									B352	

Secondary plant metabolites – types of 2ry metabolites – biosynthetic pathways of 2ry metabolites – role of 2ry compounds in growth and developments of plants – biological functions of 2ry compounds.

الدرجات					الساعات			بينة طالب	٣٧٤ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Ecology of Algae	B374

Algal distribution – types of algae – effect of grazing on algae –factors affecting algal growth – nutrition of algae – Phytoplankton – harmful effects of Algae – role of algae in purification of waste water – economic importance of algae.

الدرجات					الساعات			كائنات دقيقة ممرضة	٣٩٧ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Pathogenic Microbiology	B397

Introduction on human and animal microbial diseases – Microorganisms and environment- Normal microbial flora of human body – Role of resident flora – Characteristics features of pathogenic microorganisms- Terminology of microbial diseases- Microbe & Host interaction - Microbial cell structures in relation to microbial infection and virulence - Portal of microbial entry – Fungal diseases (Types, Examples and Causatives) and Mycotoxicosis - Bacterial diseases (Types, Examples and Causatives)- Diseases caused by Viruses, Rickettsiae, Mycoplasma, and Prions.

الدرجات					الساعات			تصميم تجارب	٣١٦ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Design of Experiments	A316

الدرجات					الساعات			كيمياء تحليلية لطلاب البيولوجي	٤٦٠ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	3/-	2	Analytical Chemistry for Biology Students	C 460

Acid –Base Titration, Precipitation Titrations, Complexometric Titrations, Redox Titration, Gravimetric Analysis, Potentiometric Titrations, Ultraviolet/Visible Spectrophotometry, Atomic Spectrometry, Conductometry and Modern Voltammetric techniques, Analytical Separations, HPLC, Electrophoresis (Practical: Selected practical experiments)

الدرجات					الساعات			مقال او بحث	٤٠٠ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	0	0	0	90	2	0	2	Research Projector Article	B400

الدرجات					الساعات			بيولوجيا البذور	٤١١ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Seed Biology	B411

Seed structure, germination, types & dormancy – dispersal of seeds and fruits – seed bank – germination of seeds with specialized life cycles or habitats – geographical perspective on seed germination (tropical, subtropical, temperate and arctic zones).

الدرجات					الساعات			علم حبوب اللقاح	٤٣١ ن
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Palynology	B431

Pollen and spores morphology – production and dispersal of pollens – scope of palynology study – matrix containing pollen and spores – principles of pollen analysis – identification of pollen grains.

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

بيئة النباتات الجفافية والملحية ٤٤٢ ن

Ecology of Drought & Halophilic plant B442

Classifications – conditions prevailing in their habitats – mechanisms, adaptations and resistances - general characteristics.

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

فسيولوجيا الاجهاد ٤٥١ ن

Stress Physiology B451

Physical and biological stresses – water stress – drought avoidance and tolerance – stresses of temperatures, visible light and U. V. – adaptation of plant to stresses – alterations in plants in response to these stresses.

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

ايض نباتي ثانوي ٤٥٢ ن

Secondary Plant Metabolism B452

Isoprenoid compounds - Nitrogen containing secondary plant products - plant phenolics and their relatives

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

تحليلات قياسية ٤٥٣ ن

Biotechnical analysis B453

Bioassays – Immunoassays – Spectrophotometry – Chromatography –PCR

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

زراعة الانسجة ٤٥٤ ن

Tissue Culture B454

Introduction ,history, safety- media composition and culture environment- hormones – types of tissue cultures – mutagenesis- regeneration – transformation: a) agarobacterium – transformation b) Bioblastic – micropropagation – commercial applications – Ethics of transformation and GM