



اللائحة الدراسية:

الفصل الدراسي	الفرقة والمستوى	عدد الساعات الأسبوعية			عدد الساعات	اسم المقرر	كود أو رقم المقرر
		عملي	تمرين	نظري			
الأول	الأولى	4	0	3	7	كيمياء عامة (104ك)	104ك
		4	0	2	6	نبات عام (101ن)	101ن
		4	0	2	6	حيوان عام (101ح)	101ح
		2	0	2	4	جيولوجيا طبيعية وتاريخيه (101ج)	101ج
		2	0	2	4	ضوء وكهربية ومغناطيسية (103ف)	103ف
		0	1	2	3	تفاضل وتكامل وجبر (105ر)	105ر
الثاني		4	0	3	7	كيمياء عامة (105ك)	105ك
		4	0	2	6	نبات عام (102ن)	102ن
		4	0	2	6	حيوان عام (102ح)	102ح
		2	0	2	4	بلورات ومعادن (102ج)	102ج
		2	0	2	4	حرارة وخواص مادة (104ف)	104ف
		0	1	2	3	تفاضل وتكامل وهندسة (106ر)	106ر
	0	1	2	3	لغة انجليزية (302ل)	102ل	

- السنة الثانية: تشمل 65 ساعة موزعة على النحو التالي :

الفصل الدراسي	الفرقة والمستوى	عدد الساعات الأسبوعية			عدد الساعات	اسم المقرر	كود أو رقم المقرر
		عملي	تمرين	نظري			
الأول	الثانية	4	0	3	7	حبلبات وحشرات (201ح)	201ح
		4	0	3	7	نبات اقتصادي وطحالب وبيكتريا (201ن)	201ن
		0	1	2	3	الديناميكا الحرارية الكيميائية (205ك)	205ك
		4	0	2	6	كيمياء عضوية (206ك)	206ك
		2	0	2	4	ضوء فيزيائي (207ف)	207ف
		0	1	2	3	رياضيات (207ر)	207ر
الثاني		0	0	2	2	حقوق الانسان والمبادئ القانونيه العامه	بدون
		4	0	3	7	لافقاريات وحشرات (202ح)	202ح
		4	0	3	7	بيئة (غطاء نباتي وتربة وفسولوجيا البذور وتصنيف زهري) (202ن)	202ن
		4	0	2	6	كيمياء غير عضوية (207ك)	207ك
		0	1	2	3	كيمياء عضوية (208ك)	208ك
		2	0	2	4	فيزياء ذرية واطياف (208ف)	208ف
	2	0	1	3	علوم الحاسب (208ر)	208ر	
	0	1	2	3	لغة انجليزية (202ل)	202ل	

- السنة الثالثة: تشمل 68 ساعة موزعة على النحو التالي :

الفصل الدراسي	الفرقة والمستوى	عدد الساعات الأسبوعية			عدد الساعات	اسم المقرر	كود أو رقم المقرر
		عملي	تمرين	نظري			
الأول	الثالثة	4	0	3	7	أحياء مائية وطفيليات (309ح)	309ح



		6	0	3	9	بيئة وفونا - تقنية (310 ح)	310ح
		0	1	2	3	فيزيائية (كيناتيكا التفاعلات والغازات) (311 ك)	311ك
		4	0	2	6	غير عضوية (العناصر الانتقالية والمتراكبات) (312 ك)	312ك
		4	0	2	6	عضوية فيزيائية وحيوية (321 ك)	321ك
		2	0	1	3	مبادئ علم الحاسب (338 ر)	338ر
		2	0	2	4	حشرات (311 ح)	311ح
		4	0	2	6	فسبولوجي (312 ح)	312ح
		2	0	3	5	أجنة ولافقاريات متطورة (313 ح)	313ح
		4	1	4	9	فيزيائية (السطوح والحفز والغرويات -) تحليلية(كمية وزنيه وخامات)(322ك)	322ك
		4	0	2	6	عضوية (حلقية متجانسة) (323 ك)	323ك
الثانى		0	0	1	1	احتمالات وإحصاء (339 ر)	339ر
		0	1	2	3	لغة انجليزية (302 ل)	302ل

-السنة الرابعة: تشمل 66 ساعة موزعة على النحو التالي :

الفصل الدراسي	الفرقة والمستوى	عدد الساعات الأسبوعية			عدد الساعات	اسم المقرر	كود أو رقم المقرر
		عملي	تمرين	نظري			
الأول	الرابعة	4	0	2	6	فسبولوجي (408 ح)	408ح
		2	0	2	4	بيولوجيا الخلية (409 ح)	409ح
		0	0	2	2	سلوك وعلاقات (409 ح)	409ح
		4	1	4	9	كيمياء فيزيائية - كيمياء تحليلية (417 ك)	417ك
		4	1	2	7	كيمياء عضوية (418 ك)	418ك
الثانى		6	0	5	11	حيوان تجريبي - كيمياء أنسجة (410 ح)	410ح
		4	0	2	6	تشريح مقارن (411 ح)	411ح
		4	1	4	9	كيمياء غير عضوية - كيمياء فيزيائية (419 ك)	419ك
		4	1	2	7	كيمياء عضوية (420 ك)	420ك
		0	0	2	2	بحث أو مقال	بدون
	0	1	2	3	لغة انجليزية (402 ل)	402ل	



المحتوي العلمي:

محتوي مقررات الفرقة الأولى

كود أو رقم المقرر: 104ك
اسم المقرر: كيمياء عامة 1
المحتويات:

Part I: Physical Chemistry (2h/ w)

Introduction of physical chemistry, Gaseous state, Thermochemistry, Chemical equilibrium, Solutions, Problems in physical Chemistry.

Part II: Inorganic Chemistry (1h/w)

Introduction of inorganic chemistry, Chemical calculations, Atomic spectra and atomic structures, Electronic configuration of atoms, Properties of periodic table and Chemical bonding.

Part III: (Practical Chemistry) (4h/ w)

كود أو رقم المقرر: 101ن
اسم المقرر: نبات عام
المحتويات:

Part I: Theoretical (2h/w)

General characters of monocot and dicot plants, Types of seeds and germination, Different shapes of plant organs and their modifications, Adaptation of plants to different habitats, Study the organisms' diversity, Classification the organisms in Plant kingdom according to their specific characters, Study the general characters for each group in the classification using an example for each one.

كود أو رقم المقرر: 101ح
اسم المقرر: حيوان عام
المحتويات:

Part I: Theoretical (2h/w)

Introduction to zoology (physiology, cytology and histology), Bases of anatomy and essential physiological processes of human digestive, cardiovascular, respiratory and renal systems, Essential processes of human neurophysiology, General and Functional cytology, General and descriptive animal histology. External features and musculature of the experimental Egyptian toad, Anatomy of nervous system of Egyptian toad, Skeleton of Egyptian toad, General histology (connective, muscular and nervous animal tissues, respiratory, endocrine, reproductive, skin, circulatory and excretory).

كود أو رقم المقرر: 101ج
اسم المقرر: جيولوجيا طبيعية وتاريخيه
المحتويات:



Part I: Theoretical (2h/w)

مقدمة فى علم الجيولوجيا، نشأة الكون ، التركيب الداخلى للأرض، التراكيب الأولية و الثانوية فى الصخور الرسوبية، علم المعادن، علم الصخور، التجوية الفيزيائية و الميكانيكية و الكيميائية، العوامل الهدمية و البنائية للرياح و الكتلان الرملية و اشكالها، البحار و المحيطات ، المياه الجوفية، الزلازل و البراكين و نظرية الألواح التكتونية، مراجعة عامة.

كود أو رقم المقرر: 103ف
اسم المقرر: ضوء وكهربية ومغناطيسية
المحتويات:

Part I: Geometrical optics

Nature of light, Refraction through lenses, Optical instruments, Dispersion, Photometry.

Part II: Electricity

Charge and matter, Coulomb's law, Electric field, Electric field for a group of point, Electric field of continuous charges, Electric dipole, Electric potential and applications, Electric potential and applications, Condensers, Coulomb's law, Electric field, Electric dipole and transient current, Dielectric current and Static magnetism, Electromotive forces and induction.

كود أو رقم المقرر: 105ر
اسم المقرر: تفاضل وتكامل وجبر
المحتويات:

المتباينات - النهايات والاتصال - المشتقات - تطبيقات على المشتقات - الاستنتاج الرياضي - الكسور الجزئية

كود أو رقم المقرر: 105ك
اسم المقرر: كيمياء عامة 2
المحتويات:

Part I: Physical Chemistry (1h/ w)

Physical chemistry ،The Phenomena of electrolysis, Faraday's laws, Electrical conductance, EMF, Electrode Potential, Chemical and electrical energy، Cell reaction and electrochemical series, Solid state and crystallographic systems.

Part II: Inorganic Chemistry (2h/ w)

Periodic table and the general properties of representative elements, Types of chemical bonds, The VSEPR model, Lewis acids structure and formal charge, Theories of bonding – valence shell electron pair repulsion (VSEPR), Valence bond theory (VBT), molecular orbital theory (MOT) and molecular geometry, Oxidation-reduction reactions.

كود أو رقم المقرر: 102ن.
اسم المقرر: نبات عام
المحتويات:

Part I: Theoretical (2h/w)

Colloids, Plant cell, Diffusion, Osmosis an Permeability, Plant water relationships, Enzymes, Photosynthesis, Respiration, Plant Growth, Plant cell components (living and non-living), Cell wall, Simple tissues (Meristematic and permanent), Epidermal



tissues and complex tissues, Plant organs (monocot & dicot), stem, root and leaves, Secondary structures in plant, Periderm, Tylosis, Lenticels.

كود أو رقم المقرر: 102 ح
اسم المقرر: حيوان عام
المحتويات:

Part I: Theoretical (2h/w)

Instruments in taxonomy, Bases of taxonomy, Five kingdoms theory, General characters and taxonomy of Sarcodina and Ciliophora, General characters and taxonomy of Zoomastigophora and Apicomplexa, General characters and taxonomy of Porifera, General characters and taxonomy of Hydrozoa and Scyphozoa, General characters and taxonomy of Anthozoa, General characters and taxonomy of turbellarians, General characters and taxonomy of monogeneans, General characters and taxonomy of Cestoda, General characters and taxonomy of Nematoda.

كود أو رقم المقرر: 102 ج
اسم المقرر: بلورات ومعادن
المحتويات:

Part I: Theoretical (2h/w)

1. Crystallography, External structure of crystals, X-Ray crystallography & Mineralogy, its applications.
2. Crystal, Elements of crystals: Facies, Edges, Solid angles, Interfacial angles, Law of constancy of interfacial angles, Contact goniometer & Reflection goniometer, crystal habit, Crystal form "Order", crystal elements, Axial cross, Crystallographic axes, Crystallographic angles.
3. Crystal symmetry, Elements of symmetry: Axes, Plane-, Centre-of symmetry, Rotation symmetry axes & Rotation inversion symmetry axes, Axial ratio, Parameters, Indices, Miller indices, Crystal system & Crystal classes, Orthogonal projection & Clinographic parallel perspective.
4. Crystal systems (I): Cubic "Isometric", Tetragonal, Hexagonal, Trigonal.
5. Crystal systems (II): Orthorhombic, Monoclinic and Triclinic.
6. Hemihedral & Holohedral forms, Hemimorphism & Pyroelectricity, Enantiomorphism & Optical active, Zone & Zone axis, Crystal aggregates (regular & irregular), Twinned crystals, Introduction to mineralogy, Physical properties of minerals, Classification of minerals, Silicate minerals structure and Revision.

كود أو رقم المقرر: 104 ف
اسم المقرر: حرارة وخواص مادة
المحتويات:

Part I: Heat

Temperature and thermometers, heat estimation, Thermal expansion, Change of phase, Heat transfer, Kinetic theory of gases.

Part II: Properties of matter



- 1- Units and dimensions Fundamental units - Derived units - Dimension theory and its applications Scaler and vectors -Linear motion - Planer motion - Newton`s second law.
- 2- Simple harmonic motion –Simple Monent of inertia for some bodies- Simple pendulum.
- 3- Hook`s law-Elasticity modulii-Relation between elasticity modulii-Stress-Strain curves.
- 4- Pressure-Pascal`s rule-Archimede`s rule- Bernoulli`s equation - Surface tension.
- 5- Bernoulli`s equation - Viscosity Poiseuill`s formula- Stokes law.

كود أو رقم المقرر: 106ر

اسم المقرر: تفاضل وتكامل وهندسة

المحتويات:

مجموع تكامل ريمان - تكامل ريمان - طرق التكامل - تكامل الدوال المثلثية - تطبيقات التكامل - المساحة - طول المنحني - الحجم - الخط المستقيم - الدائرة

كود أو رقم المقرر: 102ل

اسم المقرر: لغة انجليزية

المحتويات:

Writing paragraphs, topic sentence, countable and non-countable nouns, punctuation, the use and non-use of articles, using a relative clause, some selected topics (Types of common rocks, animal cell structure, solar energy, cohesion energy, signals and lighting.

محتوى مقررات السنة الثانية

كود أو رقم المقرر: 201ح

اسم المقرر: حبيبات وحشرات

المحتويات

Part I: Chordates (2h/w)

1-Basis of chordates taxonomy, Cephalochordata, General Characters and taxonomy of Agnatha, Characters and taxonomy of Chondrichthyes, Characters and taxonomy of Osteichthyes, Characters and taxonomy of Amphibia, Characters and taxonomy of Reptilia, Characters and taxonomy of Aves, Characters and taxonomy of Mammalia.

Part II: Entomology (1h/w)

Introduction to insects, Systematic position and general characters of 10- Introduction to insects, General insect morphology ,General insects anatomy (notes about all systems in insect ,Bionomics and Metamorphosis of locust or Cockroach.

كود أو رقم المقرر: 201ن

اسم المقرر: نبات اقتصادى وطحالب وبكتريا

المحتويات

Part I: Theoretical (3h/w)

Introduction to economic plants and their classification on the basis of their use., Fibers and fibrous plants, Drink plants and Latex and Gum, Medicinal plants, drugs and antibiotics and Volatile and non-volatile oils, Spices and Condiments, Gums and Resins and Tannins and Dyes, Introduction to bacteria, The bacterial cell shapes, sizes



and arrangement), Chemical composition of bacterial cell, Bacterial nutrition, Bacterial endospore, Reproduction of bacteria, Bacterial growth, physical and chemical factors affecting the bacterial growth, Phytoplankton, Reproduction and life history in algae., Benthos, Utilization of algae, Algal nutrition, classification of algae, Different groups of algae.

كود أو رقم المقرر: 205ك
اسم المقرر: الديناميكا الحرارية الكيميائية
المحتويات

Introduction of thermodynamics, First law of thermodynamics, Second law of thermodynamics, Third law of thermodynamics, Chemical equilibrium in solids, Entropy relations.

كود أو رقم المقرر: 206ك
اسم المقرر: كيمياء عضوية (1)
المحتويات

Part I: Theoretical Part (2h/w)

Introduction of organic compounds, Nomenclature of organic compounds, Chemistry of hydrocarbons, Chemistry of alkyl halides, Chemistry of Alcohols, Chemistry of Aldehydes and ketones, Chemistry of Acids, Chemistry of acids derivatives, Chemistry of amines, Chemistry of ethers.

كود أو رقم المقرر: 207ف
اسم المقرر: ضوء فيزيائي
المحتويات

Part I: Physical optics

Simple harmonic motion, Interferences, Diffraction of light, Polarization of light.

كود أو رقم المقرر: 207ر
اسم المقرر: رياضيات
المحتويات :

Polar coordinates and its applications - The function of two variables, continuity, the derivation and applications - Study of double integration in different coordinates - Improper integrals - Leibniz's, Taylor and Maclaurin theories

كود أو رقم المقرر: بدون
اسم المقرر: حقوق الانسان والمبادئ القانونية العامه
المحتويات :

Identification of human rights and its international importance, Types of human rights, Human rights in Islam religion and comparative legislation, Mechanisms of human rights protection.

كود أو رقم المقرر: 202ح
اسم المقرر: لافقاريات وحشرات
المحتويات :



Part I: Invertebrates (2h/w)

Introduction to coelomic invertebrates, Phylum Annelida, Phylum Arthropoda part 1, Phylum Arthropoda part 2, Phylum Mollusca, Phylum Echinodermata part 1, Phylum Echinodermata part 2 and Importance of coelomic invertebrates.

Part II: Entomology (1h/w)

Position of head capsule and head appendages, Forms of thoracic segment and types of appendages, The abdomen and its appendages (visceral, caudal and genital appendages), Types of metamorphosis, larvae and pupae.

كود أو رقم المقرر: 202ن
اسم المقرر: بيئة (غطاء نباتي وتربة وفسولوجيا البذور وتصنيف زهري)
المحتويات

Part I: Theoretical (3h/w)

Chemical composition of seed, Toxins in seeds, Dormancy, Physiology of seed germination, Utilization of food reserves for seedling growth, Phytohormon, Definition of Plant Ecology – Population, Community and Ecosystem- Ecological amplitude, Factors of the Environment, Origin and Development of Vegetation– Succession of Vegetation: hydrosere , xerosere , Field Studies of Vegetation, Soil Physical & chemical properties, Soil organic matter and humus , Plant Taxonomy: Principals of plant taxonomy, Types and Structure of flowers, inflorescence and fruits, Pollination / Fertilization , Representative families of Monocots, Representative families of Dicots.

كود أو رقم المقرر: 207ك
اسم المقرر: كيمياء غير عضوية
المحتويات

Part I: Inorganic Chemistry (2h/ w)

Introduction to S, P- block, Hydrogen and hydrides, Chemistry of Group I to VII, Chemistry of Group 0.

كود أو رقم المقرر: 208ك
اسم المقرر: كيمياء عضوية (2)
المحتويات

I: Theoretical Part (2h/w):

a: Aromatic Compounds (1h/ w)

Nomenclature of aromatic compounds, Methods for preparation of benzene and it's derivatives, Reaction of benzene ring, Phenols, Aromatic alcohols, Aromatic aldehydes and ketones, Aromatic carboxylic acids, Aromatic amines.

b: Bi-functional compounds (1h/ w)

1- Introduction and classification, Nomenclature of the bi-functional compounds, Diol, preparation and properties, Diketones, preparation and properties, Hydroxy aldehydic compounds, preparation and properties, Hydroxy acid compounds, preparation and properties, Dicarboxylic acid compounds, preparation and properties, Diamine compounds, preparation and properties, β -keto ester compounds, preparation and properties.

كود أو رقم المقرر: 208ف
اسم المقرر: فيزياء ذرية واطياف
المحتويات



Part I: Atomic physics

Cathode ray, Electromagnetic radiation, Spectra, Atomic models, Atomic hydrogen spectra, Bohr theory & hydrogen atom, Sommerfeld theory, Spectra of hydrogen like ions, Fine structure spectra of alkali atom, Photo electric effect, X-ray

كود أو رقم المقرر: 208ر
اسم المقرر: علوم الحاسب
المحتويات

Theoretical Part (1h/w):

Introduction to high level programming language, Data type part1, Data type part2,, Handling errors, Statements and tolls part 1, Statements and tolls part 2 , Dealing with arrays part 1, Dealing with arrays part 2, Functions and subroutines part 1, Functions and subroutines part 2, Dealing with files part 1, Dealing with files part 2, Other topics (e.g. design, menu, events,...) part 1, Other topics (e.g. design, menu, events,...) part 2,

كود أو رقم المقرر: 202ل
اسم المقرر: لغة انجليزية
المحتويات :

Part One: Reading comprehension, Doing Science, Analogy and Memory, Vocabulary Skills , Part Two: Vocabulary Skills, Words in context, Roots, Words for size, Idioms, confusing Expressions and word parts, Part 3: Writing Skills, Structure and cohesion, Description: Process and procedure, Definitions and Exemplification, Classification.

محتوى مقررات السنة الثالثة:

كود أو رقم المقرر : 309ح
أسم المقرر : احياء مائية وطفليات
المحتويات :

Part 1: Marine biology (2h/w)

Historical background, Oceanic and marine environments, Biological relationships, chemical and physical environment, Plankton and marine bacteria, Dinoflagellates, fouling and boring organisms, Coral reefs and benthic life habitats, Revision, Zooplanktons and crustaceans, Mollusca and Echinodermata, Marine fishes and birds, The sea and human impact on Marine mammals, Egyptian marine habitats and marine biotechnology and Aquaculture.

Part 2: Parasitology (1h/w)

Parasitology and parasitism, Protozoan Parasites, Worm Parasites Arthropod parasites, Host specificity, Adaptation to parasitism, Parasites and behavior, Life cycle strategies, Parasites diagnosis, Parasites control, Parasites population & Immune response.

كود أو رقم المقرر : 310ح
أسم المقرر : : بيئة وفونا - تقنية
المحتويات :

Part I: Ecology (1h/w)

Ecology, abiotic and biotic environments, The complexity of the environments, habitats and communities Populations, dynamics and ecosystem, Wetland and aquatic



ecosystems, Feeding habits, metabolic, autotroph rate, Foraging habits and food chain, Food webs and pyramids, Conservation of species and ecosystem.

Part II: Fauna (1h/w)

Different habitats and environments in Egypt, Fauna of Amphibia and Reptilia, Fauna of birds and Fauna of mammal.

Part III Microtechnique (1h/w)

Introduction to microtechnique, Preparation of tissues, fixation & fixatives, Post-fixation treatments, Microtome, problems of tissue sectioning and overcome, Staining theory and methods of Staining.



كود أو رقم المقرر : 311ك
أسم المقرر : كيمياء فيزيائية (ميكانيكا التفاعلات والغازات)
المحتويات :

Part I: Chemical kinetics (1h/ w)

Rate of reactions-molecularity and order of reaction, The determination of the reaction order (zero, first, second and third order), kinetics of simultaneous reactions, energy of activation, Arrhenius equation, A theoretical approach of chemical kinetics.

Part II: Kinetic theory of gases (1h/ w).

Kinetic theory of gases, ideal and non-ideal gas model, Liquifaction of gases – critical parameters, Boyle's temperature and Joule -Thomson effect, Virial coefficient and law of correspondence., Mean free path ,collision frequencies and barometric formula.

كود أو رقم المقرر : 312ك
أسم المقرر : كيمياء غير عضوية (العناصر الانتقالية والمترابكات)
المحتويات :

a: Transition metal chemistry (1h/ w)

- 1- General properties of transition metal (d-block elements).
- 2- Chemistry of scandium, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper and zinc groups in term of their electronic configuration, different oxidation states.
- 3- Physical and chemical properties of the elements and their compounds structure of some important compounds – isolation of elements – uses and applications.

b: Coordination Chemistry (1h/ w)

- 1- Classification of ligands and complexes, Nomenclature – coordination number and stereochemistry of complexes, Preparation and detection of complexes, nature of metal – ligand bonding in complexes, Werner theory of coordination chemistry, Stereochemistry of complexes- Isomerization of inorganic complexes, Stability of complexes.

كود أو رقم المقرر : 321ك
أسم المقرر : كيمياء عضوية (فيزيائية وحيوية)
المحتويات :

Part I: Physical Organic Chemistry (1h/ w)

Studying of Some physical concepts and their applications, Polar addition reactions and electrophilic addition to double bond, Organic acidity, Organic Basicity, Nucleophilic substitution reactions at saturated carbon atom and Elimination reactions.

Part II: Biochemistry (1h/ w)



Introduction to Biochemistry, Chemistry of protein and aminoacids, Chemistry of Lipids, Chemistry of carbohydrate, Chemistry of Minerals, Chemistry of Vitamines and Hormones and Chemistry of enzymes.

كود أو رقم المقرر : 338
أسم المقرر : حاسب
المحتويات :

Introduction to database concepts, Create tables and Identify keys, relationships between tables, deleting with different queries, deleting with forms, deleting with reports, deleting with macros, Dealing with SQL , Apply Visual Basic modules and Explain and demonstrate Internet features of Access.

كود أو رقم المقرر : 311 ح
أسم المقرر : حشرات
المحتويات :

Part I: Theoretical (2h/w)

Integumentary system, Internal viscera in haemocoel and fat tissue, Digestive system; structure and function, Circulatory system; structure and function, Respiratory system; structure function, Excretory system; structure & function, Nervous system and sense organs, Reproductive system and reproduction, Types of insects metamorphosis, Insect classification, Apterygotes, Insect classification, Exopterygotes, Insect classification Endopterygotes.

كود أو رقم المقرر : 312 ح
أسم المقرر : : فسيولوجي
المحتويات :

Part I: Theoretical (2h/w)

Cell membrane Physiology, Muscle and Nerve, Current Issues, Respiratory physiology, Digestion and Metabolism: Release of Energy from Foods, and the Concept of “Free Energy”, Role of Glucose in Carbohydrate Metabolism, Transport of Glucose through the Cell Membrane, Glycogen storage and metabolis, Oxidative phosphorylation, Introduction to lipid metabolism, Transport of lipids in the body fluids, Use of triglycerides for energy (Formation of ATP), Lipoproteins and their Special Function. Introduction to protein metabolism, Use of proteins for energy and Hormonal Regulation of Protein Metabolism

كود أو رقم المقرر : 313
أسم المقرر : أجنة ولافقاريات متطورة
المحتويات :

Part 1: embryology

Gametogenesis; spermatogenesis, Gametogenesis; oogenesis, Fertilization, cleavage, and gastrulation, Embryonic development of Amphioxus lanceolatus, Embryonic development of Amphibia, Embryonic development of Birds, Embryonic development of Mammals, Placental maturation.

Part 2: advanced invertebrates

Feeding & digestion in polychaetes., Feeding & digestion in mollusks, Feeding & digestion in crustacean, Respiration & respiratory pigments, Respiration in polychaeres mollusca & crustacean, Practical exam & writing and oral exam.



كود أو رقم المقرر : 322 ك

اسم المقرر : كيمياء فيزيائية (السطوح والحفز والغرويات)
المحتويات :

Physical chemistry part (3h/w)

Part I: Surface Chemistry (1h/ w)

1- Solid-gas interface, BET equation-Langmuir, Freundlich equations, surface area determination, pore structure-solid-liquid interface, langmuir model, Traube's rule.

Part II: Catalysis (1h/ w)

1- Homogeneous catalysis, Intermediate theory of catalysis, acid base catalysis. enzyme catalysis

2- Heterogeneous catalysis, kinetics and mechanisms, Theory of contact catalysis, absolute rate of surface reaction – surface heterogeneity- acid catalysis.

Part III: Colloidal Chemistry (1h/ w)

1- Introduction of colloidal chemistry – polydispersity in colloidal system.

2- Osmotic pressure, light scattering (tyndall effect) and sedimentation methods for measuring particle size and particle weight.

3- preparation and stability of colloidal solutions.

Analytical chemistry part (2h/w)

1- Neutralization Titrations, Oxidation-Reduction Titrations, Precipitation Titrations, Complexation Titrations.

كود أو رقم المقرر : 323 ك

اسم المقرر : كيمياء عضوية (حلقة متجانسة)
المحتويات :

Introduction, Nomenclature of cyclic hydrocarbons, Strain energy of alicyclic hydrocarbons, Bonding in cycloalkanes – angle strain and torsional strain, Consequences of angle strain for cyclic compounds, Stereochemistry and cyclic hydrocarbons, Conformations of cyclohexanes, Axial and equatorial hydrogens in cyclohexane, Conformational equilibria for monosubstituted cyclohexanes, Drawing structures of cyclohexane, Disubstituted cyclohexanes, Reactions of cyclic hydrocarbons, Preparations of cyclic hydrocarbons- small-ring cycloalkanes, Preparation of cyclohexanes - the Diels - Alder reaction

كود أو رقم المقرر : 339 ك

اسم المقرر : احتمالات و احصاء
المحتويات :

Introduction on probability, Law of total probability, the theory of Bayesian and its applications, Random variables (discrete and continuous), Probability mass functions, probability density function Mathematical expectation, variances and standard deviation, Cumulative distribution function and its properties and how derived from the probability distributions, Some probability distributions(discrete): binomial distribution, Poisson distribution, Geometric and hyper geometric distributions, Continuous distributions: exponential distribution, regular distributions, Gamma distribution, beta distribution Negative binomials and Normal distribution and standard normal distribution, Probability generating function, Moments generating function, and Characteristic function.



كود أو رقم المقرر : 302ل
أسم المقرر : لغة انجليزية
المحتويات :

Part One: Reading comprehension, Doing Science, Analogy and Memory, Energy,
Part Two: Vocabulary Skills, Words in context, Roots, Words for size , Idioms,
confusing Expressions and word pairs, Part Three: Writing Skills, Structure and
cohesion, Description: Process and procedure, Definitions, Exemplification,
Classification.

التدريب الميداني: تدريب صيفي في معامل القسم و المفرخات ومزارع الأسماك .التدريب لمدة ثمانية أسابيع
بواقع 5 أيام أسبوعيا وذلك في الأجازة الصيفية بعد الانتهاء من اداء الامتحانات للسنة الثالثة.

محتوى مقررات السنة الرابعة:

كود أو رقم المقرر: 408ح
أسم المقرر : فسيولوجي
المحتويات:

Part I: Theoretical (2h/w)

Introduction, Cardiovascular system: Components of cardiovascular system and physiological properties of the heart, Electrical events of the heart (Normal and abnormalities of ECG), Comparative functional morphology of vertebrate hearts, Comparative functional morphology of vertebrate hearts, Cardio dynamics (cardiac cycle, cardiac contractive force, pressure volume loops), Cardio dynamics (cardiac cycle, cardiac contractive force, pressure volume loops), Endocrinology : Introduction to hormone chemical nature and mechanisms of action, the pituitary hormones, Thyroid and adrenal gland hormones, Insulin and parathyroid hormones and Sex hormones.

كود أو رقم المقرر : 409ح
أسم المقرر : بيولوجيا الخلية
المحتويات :

Part I: Theoretical (2h/w)

Introduction to cell biology, Studying cells, Basic structure of animal cells, The cell membranes properties and functions, The structure of the lipid bilayer, Permeability, Structure & functions of the membrane proteins, Membrane properties, selectivity & fluidity, active and facilitated Transport , Maintenance of osmotic balance, Membrane Passive transport, Bioenergetics of the cell membrane, Ion channels, Resting membrane potential, Membranes and Cell Signaling, Neurons action potential, Signal transmission at nerve terminals, Membranes and Cell Communications: Cell Adhesion and Cell Junctions, Cell surface receptors, Intracellular compartments, Structure and function of Endoplasmic reticulum, Ribosomes and proteins, Structure and function of Golgi Complex, Lysosomes and secretory activities of the cell, Energy generation in the cell, Internal structure of mitochondria, Proton gradient and



ATP production, Cytoskeleton and cellular activity, Structure, function and dynamics of microtubules & microfilaments, Information Flow in Cells, The Cell Cycle, Phases, checkpoints, regulation and control of cell cycle, Apoptosis, Difference between injured and apoptotic cells, Reasons and Inducers and mechanisms of Apoptosis.



كود أو رقم المقرر : 409 ح
أسم المقرر : سلوك وعلاقات
المحتويات :

Introduction (Ethology, definitions, impact) , Development of behavior , Behavior genetics. , Instinctive activities in animals , Physiology of instinct. , Motivating factors to a behavior. , Releasing stimuli of a behavior , Expressive behavior in animals , Learning: learning vs instinct, types of learning , Language and mental representation: non-verbal communications , verbal communication in animals: language and teaching animals to converse , An overview on biological relationships , Revision, General discussion.

كود أو رقم المقرر : 417 ك
أسم المقرر : كيمياء فيزيائية- كيمياء تحليلية
المحتويات :

Part I: Physical chemistry (2h/w):

1. Electrochemistry (1h/w)

Reversible and irreversible cells, Cell reaction and emf, Nernst theory of electrode potential, Single electrode potential, Thermodynamics and emf, Classification of electrodes, Electrochemical cells, Some applications of emf measurements

2. Photochemistry (1h/w)

Radiative processes, Nonradiative processes, Applications of triplet state

Part II: Analytical chemistry (2h/w):

A- Instrumental analysis (1h/w)

Electromagnetic radiation, Beer-Lambert's law, Spectrophotometer components, Ideal situation for UV-Vis spectrophotometric analysis, Qualitative and quantitative applications of spectrophotometry, Solvent extraction, Column Chromatography, Efficiency of separation

B- Electroanalytical chemistry (1h/w)

Potentiometry, Reference electrodes, Membrane indicator electrodes, Potentiometric techniques and applications, Principles of electrolysis, Coulometry.

كود أو رقم المقرر : 418 ح
أسم المقرر : كيمياء عضوية (كيمياء حلقية غير متجانسة-منتجات طبيعية)
المحتويات :

a: Heterocyclic Chemistry (1h/ w)

1. Common name of different heterocycles synthesis and reaction.
2. Five membered heterocycles with one heteroatom (furan ,pyrrole and thiophene).
3. Synthesis and reaction of five membered .
4. Synthesis and reaction of six membered rings with one heteroatoms (pyran, pyrone and pyridine) .
5. Heterocycles with two heteroatoms (pyrazole ,imidazole, thiazole, oxazole and isoxazole) .

b: Natural Products (1h/w)

- 1-Introduction to natural products: Monoterpenes, carotenenes.
- 2-Steroids :Sterols e.g.cholesterol,ergosterol,stigmasterol



3- Alkaloids.

كود أو رقم المقرر : 410ح
أسم المقرر : حيوان تجريبي - كيمياء أنسجة
المحتويات :

Part 1: Experimental zoology

Cell and tissue culture techniques , embryonic stem cells and Somatic stem cells (ASCs) , Regeneration and techniques on embryo manipulation , Chimaeras and assessted reproductive technologies , Development toxicity risk assessment and congenital anomalies , environmental agents causing malformations and reproductive risk assessments , in vitro teratology tests and amphibian metamorphosis assays.

Part 2: Immunity

Identification and lymphatic system , Lymph and historical background of immunology. , Immunity and genetics , Types of immunity, their determination and mechanisms & immune response , tissue involved in antibody synthesis. , Lymphoid tissue , structure and function of immunoglobulines & Complement system .

كود أو رقم المقرر : 410ح
أسم المقرر : حيوان تجريبي - كيمياء أنسجة
المحتويات :

Histochemistry

Introduction, Fixation and fixatives, Preparation of tissue section for histochemical studies, Introduction to carbohydrates, Histochemical identification of carbohydrates, Introduction to nucleic acids, Revision, Introduction to lipids, Histochemical identification of lipids, introduction to proteins, Histochemical identification of proteins, Introduction to enzymes and Histochemical identification of enzymes, Histochemical demonstration of minerals and pigments, Practical exam & writing and oral exam.

كود أو رقم المقرر : 411ح
أسم المقرر : تشريح مقارن
المحتويات :

The integumentary system of vertebrates , The skeletal system of vertebrates, The skeletal system of vertebrates , The digestive system of vertebrates , The respiratory system of vertebrates , The circulatory system of vertebrates , The urogenital system of vertebrates.

كود أو رقم المقرر : 419ك
أسم المقرر : كيمياء غير عضوية - كيمياء فيزيائية
المحتويات :

Part I: Inorganic chemistry (2h/w):

A- Bonding Theories (1h/w)



Valency bond theory, Crystal field theory, Applications of crystal field theory, Molecular orbital theory

B- F-Block elements (1h/w)

The main characters of lanthanides and actinides, The separation and extractions of lanthanides, The reasons for their position in periodic table and understanding their electronic configurations, The lanthanide contraction and synthesis the lanthanide elements and their binary compounds, The coordination chemistry of lanthanides, The electronic and magnetic properties of lanthanides, The main characters of actinides, Extraction of thorium element, The meaning of enrichment of uranium its isotopes

Part II: Physical chemistry (2h/w):

A- Advanced electrochemistry (1h/w)

Irreversible process, Polarization, Determination of polarization, Tafel equation, Polarography, Application of polarography.

B- Molecular spectroscopy (1h/w)

Principles of spectroscopy, Properties of light, Beer-Lambert's law, Applications of UV-Visible spectroscopy, IR spectroscopies (Rotation; Vibration and electronic transition, Raman spectra.,

كود أو رقم المقرر : 420 ك
أسم المقرر : كيمياء عضوية
المحتويات :

Part I: Spectra of the organic compounds (1h/w):

- 1- IR spectroscopy (Theory, Stretching and bending vibrations, Wavelength, Wave number, Hooks law for calculation of bond frequency.
- 2- Electronic Spectroscopy (Theory, absorption law, Chromophores & auxochromes, Bathochromic, Hypsochromic, Hyper and hypochromic effects, Woodward rules for conjugated dienes, unsaturated ketones and carbonyl carbonyl compounds.
- 3- ^1H -NMR spectroscopy, (Theory, Chemical shift, Spin-spin coupling, Integration of signals, Effect of inductive and mesomeric effects on chemical shift value, anisotropic effect, coupling constants, and complex spectra
- 4- ^{13}C -NMR Spectroscopy
- 5- Mass spectroscopy (Theory, Molecular and base peaks, The nine fragmentation rules, MS spectra of hetero-atom containing compounds- Hydrogen index for organic compounds.
- 6- Combined problems including IR, UV & Vis, NMR and MS spectroscopy

Part II: Dyes (1h/w)

- 1- Dyes (Relationship between color and Chemical constitution)
- 2- Classification of dye: Azo dyes- Nitrophenyl dyes- Xanthen dyes- Reactive dyes- Disperse dyes – Diphenylmethane dyes – Triphenylmethane dyes and vat dyes

كود أو رقم المقرر : بدون
أسم المقرر : بحث ومقال
المحتويات :

week Weekly meet /2 hours / 26



موضوعات مختارة فى التعلم الذاتى فى مجال البحث او المقال تختلف باختلاف الطالب والأستاذ والمناقشة بينهما. ويعد الطالب فى نهاية العام بحث شامل للموضوع الذى تم اختياره يراعى فيه كل مقومات ومكونات وطريقة كتابة البحوث أو المقالات

Introduction to an essay - Choosing the subject of the essay - Main topics of the essay - Collecting materials - Revisions of the collected materials - Collection of references in the essay and Writing the essay.

كود أو رقم المقرر : 402ل
أسم المقرر : لغة انجليزية
المحتويات :

Reading, Skimming, Scanning, Finding the pattern of organization, Earthquakes, Pollution, The effects of oil on submarines, Force and pressure, Modals, Adjective clauses, Adverb clauses, Noun clauses, Conjunctions and prepositions, Linking ideas & Structure and cohesion.

كود أو رقم المقرر : بدون
أسم المقرر : حاسب
المحتويات :

- WORLD WIDE WEB (WWW) - History, Working, Web Browsers and their versions, Its functions, URLs, web sites, Domain names, Portals. Concept of Search Engines, Search engines types, searching the Web and Web Servers, client and server techniques.
- Internet basics: Internet Protocols , Internet Services –USENET, GOPHER, WAIS, ARCHIE and VERONICA, IRCWORLD WIDE WEB
- HTML Basics: - Introduction to HTML elements, Basic tags, Attributes, creating HTML page, formatting, HTML links, List types and its tags. Creating HTML tables, adding pictures. HTML and page accessibility, colors & background.
- Advance HTML: - Use of Frames and Forms in web pages, formatting web pages by using GIF, JPEG getting web and clip arts. Use of interlinks
- Introduction to Dreamweaver
- More Features of Dreamweaver
- Different applications to build homepages using HTML and Dreamweaver