

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

التغذية الصحية	م ١٣ ج
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

التفكير العلمي	م ١٤ ج
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

لغة عربية	م ١٦ ج
Arabic Language	UR016

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

الحاسب الالى	م ١٠٠ ارك
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

رياضيات عامة (1)	م ١٠٠ ارك
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.

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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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oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
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	0	3

احصاء حيوى	رأ ٢٤١
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		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	3	2/-	2

مبادئ الفيزياء الحديثة	ف ٢٢٥
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		
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	2/-	2

ج ٢٠١ جيولوجيا بيئية وجيومورفولوجي

Environmental Geology & Geomorphology G201

Environmental Geology: An overview of our planetary environment - Internal processes (general principles of plate tectonics – Earthquakes, earthquake-related hazards and their reduction – Volcanoes, volcanoes-related hazards and predictions); Surface processes (Stream and flooding – Coastal Zones and process – Mass movements – Geology and climate: (Glaciers, Deserts, Global climate trends) – Natural resources - Hazard assessment; Hazard management.

Geomorphology: The scope of geomorphology - Some fundamental concepts & principles - The fluvial geomorphologic cycle - Karsting & karst topography - Arid landscapes - Influence of geologic structures upon topography - Applied geomorphology

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

ج ٢١٠ علم الطبقات

Stratigraphy G210

Principles of Stratigraphy – laws and guidelines – Stratification – Lithostratigraphy –Sequence stratigraphy – Unconformities – The geologic column -Geochronology – Chronostratigraphy of Crypto- & Phanerozoic – Boundary stratigraphy - Stratigraphic Correlation (biological, chemical, magnetic and geophysical)

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

ج ٢١٥ حفريات لافقارية

Invertebrate Palaeontology G215

Introduction - Fossil and fossilization - Mode of preservation – Fossil -record – Taxonomy and evolution - Description and geologic importance of major invertebrate fossil groups

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

ج ٢١٦ حفريات فقارية و اصل الانواع

Vertebrate Palaeontology & Origin of Species G216

Vertebrate Palaeontology: Introduction – Main Morphologic Features – Systematics – Phylogeny - Description and Geologic importance of major vertebrate fossils with special references to the fossil record of Egypt

Origin of Species: Introduction – Morphology, biology and environmental tolerance of species - Speciation - Computational palaeontology - Cladistic analysis – Biodiversity

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

ج ٣٠٢ المعادن المكونة للصخور

Rock Forming Minerals G230

Introduction, Basic mineralogy - Atomic structures - Isomorphism and polymorphism - Continuous and discontinuous reaction series - Silicate and non-silicate minerals - The identification and classification of minerals

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

ج ٢٣٣ علم البلورات

Crystallography G233

Introduction - Elements of symmetry Indices and stereographic projections - Crystal forms - Crystal systems and classes

الدرجات						الساعات			بصريات المعادن	ج ٢٣٥
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2	Mineral Optics	G235	

Introduction - Polarization and polarizing microscope - Optics of isotropic crystals - Optics of uniaxial and biaxial crystals

الدرجات						الساعات			نظم المعلومات الجغرافية (GIS)	ج ٢٤٠
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2	Geographic Information Systems (GIS)	G240	

Introduction- Map and map data handling- Components of GIS- Functions of GIS- Advantages of digitized storage – Data manipulation- Planning for GIS

الدرجات						الساعات			اساسيات الجيوفيزياء	ج ٢٥٠
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	2	2/-	1	Principles of Geophysics	G250	

Introduction - Principles of different geophysical methods (Gravity - Magnetic - Seismic - Electric)

الدرجات						الساعات			مساحة مستوية	هـ ٢٠٠
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2	Plane Surveying	E200	

الدرجات						الساعات			حزم البرامج الرياضية والاحصائية	رك ٣٠٠
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			حيود الأشعة وتطبيقاتها	ف ٣٥٢
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Diffraction of Waves and its Applications	P352	

Basic idea of diffraction - Review of crystalline Structure - Reciprocal space - X-rays, production & detection - X-ray cameras - Models For diffracted intensity - Small-angle scattering of X-rays - Electron and neutron diffraction- Analysis of X-ray diffraction patterns. Determination of the unit cell parameters using computer programs.

الدرجات						الساعات			مقرر خاص في الجيولوجيا	ج ٣٠٥
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2	Special Course in Geology	G305	

Geological topics chosen by the Department Council

الدرجات					الساعات			ج ٣٠٦
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	جيولوجيا حقلية
10	10	10	20	50	2	3/-	1	Field Geology
								G306

A- Introduction – Definitions, terminology and field equipments – Devices of geological surveying – Sampling procedures – Field characteristics of rocks – Field relations – Types of contacts – Geological cross-sections and mapping – recognition of geological features – Geological reporting
B- Short field excursion (1-2 days) to non-distant areas and ten days field excursion to a chosen Egyptian region: The trip should concentrate on field techniques, data recording and interpretation. Practical skills will be gained in mapping and logging sedimentary sequences- field recording and interpretation including structural data, current directions, construction of cross-sections, reconstruction of palaeoenvironments and field palaeontology

الدرجات					الساعات			ج ٣١٥
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	حفریات دقيقة و جيولوجيا تاريخية
10	10	10	20	50	4	3/-	3	Microfossils and Historical Geology
								G315

Micropalaeontology (Fauna & Flora): Introduction – Study of main faunal microfossil groups (morphology, palaeoecology, taxonomy and stratigraphy) – Preparation of fossil plants – Plant taxonomy - Morphological characteristics of main fossil plants and their stratigraphic importance – Applications of dinoflagellates in recognizing short term global climate change
Historical Geology: Introduction – Origin of the Earth – Geologic time scale – Major mechanisms for Global biotic, physical and climatic changes across geologic time – Main geologic history and events – Evolution of life on Earth

الدرجات					الساعات			ج ٣١٩
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	طباقية زمنية وكيميائية
10	10	10	20	50	3	2/-	2	Chronostratigraphy and Chemostratigraphy
								G319

Chronostratigraphy: Geochronology - Time scales - Derivation & origin of names of fundamental chronostratigraphic units - Global Stratotype Sections and Points (GSSPs) - Biochrons & geomagnetic polarity reversal history of the Phanerozoic- Global stratigraphic correlation - Astronomical time scale - Problems in Chronostratigraphy and updating of the GSSP and the stratigraphic guide
Chemostratigraphy: Geochemical signatures on sedimentary sequences - Geochemical and Mineralogical Signatures as stratigraphic markers – Oxygen and Carbon and isotopes and palaeoclimatology - Searching for geochemical signatures in stratigraphic records - Major and trace elements determination - Documentation and techniques

الدرجات					الساعات			ج ٣٢٣
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	جيولوجيا البحار وتغيرات ما بعد الترسيب
10	10	10	20	50	3	3/-	2	Marine Geology and Diagenesis
								G323

Marine Geology: General introduction to marine geology - Ocean morphology - The sea floor and the processes beneath it - Marine biogeochemical cycles - Reading global change within oceanic sediments - Marine sedimentation - Sea level and climate - Marine Fauna – Palaeoceanography
Diagenesis: Introduction - main diagenetic processes in sedimentary rocks - Effect of diagenesis on porosity & permeability of the sediments

الدرجات					الساعات			ج ٣٢٧
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	صخور رسوبية وبيئات ترسيب
10	10	10	20	50	3	3/-	2	Sedimentary Rocks and Sedimentary Environment
								G327

Sedimentology: Introduction – Textures- Sedimentary structures - Mineral composition – Provenance, Classification of sedimentary rocks and their diagenesis.
Sedimentary Environment: Introduction - Depositional processes – Classification and types of sedimentary environments – Details of selected sedimentary environments

الدرجات						الساعات			علم أصل الصخور النارية	ج ٣٣٣
oral	ACT	Mid_T	Prac	Wr.		CH	P/T	L		
10	10	10	20	50		3	2/-	2		
									Igneous Petrology	G333

Introduction - Structures, Textures and Classification of Igneous Rocks - The phase rule & phase diagrams - Petrogenesis, movement and modification of magmas - Basalts & ultramafic volcanic rocks - Rhyolites & Pyroclastic rocks - Andesites and related rocks - Ultramafic – Mafic complexes and related rocks - Granites, Granodiorites and related rocks - Alkaline igneous rocks and Carbonatites

الدرجات						الساعات			علم أصل الصخور المتحولة	ج ٣٣٦
oral	ACT	Mid_T	Prac	Wr.		CH	P/T	L		
10	10	10	20	50		3	2/-	2		
									Metamorphic Petrology	G336

Definition, agent and conditions of metamorphism - Structures, textures and classification of metamorphic rocks - The facies concepts and facies series; Metamorphic phase diagrams - Contact metamorphism - Regional metamorphism under low to medium P/T conditions - High P/T metamorphism - Eclogites and ultra high-pressure metamorphism - Dynamic metamorphism -Alpine-ultramafic rocks and the mantle

الدرجات						الساعات			ميكانيكا الصخور والجيولوجيا التركيبية	ج ٣٤٠
oral	ACT	Mid_T	Prac	Wr.		CH	P/T	L		
10	10	10	20	50		4	2/-	3		
									Rock Mechanics and Structural Geology	G340

Rock Mechanics: Introduction - Mechanical properties of rocks – Forces and stress – Strain types –Stress - Strain diagrams - Factors influencing rock deformations
Structural Geology: Levels and types of structural studies
Folds and Folding: Geometric and kinematic classification -theoretical analysis of folding - Diapers and impact structures- Brittle failure- Joints and veins, Origin and tectonic interpretation of joints. Faults and Faulting: Geometry, characteristics of fault zone - Fault systems – Genetic classification of faults –Faulting and society. Cleavage- Foliation and lineation
Structural analysis techniques

الدرجات						الساعات			بيولوجيا جزئية وخلية	ج ٣١٨
oral	ACT	Mid_T	Prac	Wr.		CH	P/T	L		
10	10	10	20	50		3	2/-	2		
									Cell and Molecular Biology	Z 318

The cell theory. Membranous organelles. Non-membranous organelles. The cell inclusions. The nucleus. Cell division. DNA & RNA synthesis and structure. DNA structure- Genome organization in prokaryotic and eukaryotic cell- DNA replication and repair - Translation - Gene expression in eukaryotes Recombinant DNA techniques.

الدرجات						الساعات			كيمياء البترول والبتروكيماويات	ك ٤٥١
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			كيمياء تحليلية لطلاب الجيولوجيا	ك ٤٦٥
oral	ACT	Mid_T	Prac	Wr.		CH	P/T	L		
10	10	10	20	50		3	3/-	2		
									Analytical Chemistry For Geology Students	C 465

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, Chemical Sensors, XRF, XRD, GC/MS, ICP (Practical: Selected practical experiments)

الدرجات					الساعات			مقال و بحث	٤٠٠ ج
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	0	0	0	90	2	0	2	Research Projector Article	G400

Research Project: The student chose one of the subjects offered by the Department Council

الدرجات					الساعات			احصاء جيولوجي	٤٠١ ج
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Geostatistics	G401

Introduction – Data collection - Variance & Covariance - Basic Statistics - Univariate Statistics - Multivariate (ordination) statistics (Detrended correspondence analysis (DCA) - Principal component analysis (PCA) – Redundancy analysis (RDA) – Canonical correspondence analysis (CCA) - Cluster analysis) – Spatial aspects of data

الدرجات					الساعات			تدريب حقل	٤٠٥ ج
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	20	20	50	0	1	3/-	1	Freid Training	G405

Field Training (10 days field work): field training applying different techniques and methods using stratigraphical, petrological, palaeontological and structural principles. Each student should prepare an oral presentation besides a geological report which is evaluated as a practical paper

الدرجات					الساعات			جيولوجيا هندسية وجيولوجيا المناجم	٤٠٧ ج
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Engineering Geology and Mining Geology	G407

Engineering geology: Introduction and new techniques in petrology - Engineering importance of faults and folds - mechanical properties of rocks and rock classifications - Physical properties of rocks and soil
Mining Geology: Historical review – Subsurface mineral deposits – Mineral deposits and weathering zone – Processes & zones of mineralization – Methods of surface & subsurface mining – Support of mineral deposits – Mines and safety tools

الدرجات					الساعات			جيولوجيا تحت سطحية	٤٠٩ ج
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Subsurface Geology	G409

Introduction – Subsurface data sources – Types of subsurface maps and sections – Interpretation of subsurface maps

الدرجات					الساعات			بالينولوجي وحفريات الاثر	٤١١ ج
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	3/-	2	Palynology and Trace Fossils	G411

Palynology: Introduction – Taxonomy of fossil plants – Fossil record – Floral provinces – Quaternary palynology and global climate change – Stratigraphic palynology and palaeoecology – Palynomorphs in relation to thermal maturity and source rock evaluation
Trace fossils: Introduction – definitions – preservation of trace fossils – Taxonomy – geological occurrences – Application and geologic significance

الدرجات					الساعات			بيئة الاحياء القديمة وطباقية حياتية	٤١٤ ج
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Palaeoecology and Biostratigraphy	G414

Palaeoecology: Environmental definitions and terminology – Operational data bases – Nature of fossil record – Taphonomic processes – Taxonomic uniformitarianism – Environmental tolerance of organisms – Community palaeoecology – Applications for palaeoenvironmental reconstructions
Biostratigraphy: Introduction – Biostratigraphy and biozonation – Fossils and biogeography – Geologic time keepers – Dating and correlation of fossil associations – World Phanerozoic index fossils

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	10	20	50	4	3/-	3

ج ٤١٥	جيولوجية مصر
G415	Geology of Egypt

Pre-Cambrian: Basement Rocks in Egypt - Evolution & main features - Ophiolite and Island arc stage - Metavolcanic and associated volcanoclastics - Cordillera stage – Granites - Dokhan volcanics – Katherina volcanics
Phanerozoic: Morphologic classification of Egypt – Structural framework – Details of the Stratigraphic sequences – Regional Distribution, palaeoenvironments and litho- and biostratigraphy of the Palaeozoic, Mesozoic and Cenozoic deposits – Palaeogeography and evolution of palaeobasins - Geology of selected areas

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

ج ٤٢٠	تتابعية طباقية واحواض ترسيب
G420	Sequence Stratigraphy and Sedimentary Basins

Sequence Stratigraphy: Analysis of siliciclastic and carbonate sediments and the effect of global sea-level changes
Basin Analysis: Introduction – Principles of basin Analysis - Development of sedimentary basin analysis – Types and classification of sedimentary basins

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

ج ٤٢١	علم الرسوبيات التطبيقي ومعادن الطين
G421	Applied Sedinemtology and Clay Minerals

Applied Sedinemtology: Introduction - Weathering Economic significance - Particles ,pores and permeability-Transportation and sedimentation
Environmental applications - Fossil fuels (Petroleum, tar sand and oil shales, coal)
Clay Mineralogy: Definitions -Composition of clay minerals -Classification and nomenclature of clay minerals -Structure and x-ray diffraction of clay minerals

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

ج ٤٣٠	جيوتكتونية و جيولوجيا النظائر المشعة
G430	Geotectonics & Isotope Geology

Geotectonics: Introduction – Internal structure of the Earth - Continental drift - Sea floor spreading - The framework of plate tectonics - Ocean ridges; Transform and transcurrent faults - Subduction Zones - Mountain ranges - Continental rifts and continental margins - Implications of plate tectonics
Isotope Geology: Introduction – Atomic structure – Decay of atoms – Radioactive decay – Absolute measuring of geological time – Application of isotope geology in rocks, water, sulphide minerals and oil

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

ج ٤٣١	ميكروسكوبية وبتروولوجية الخامات
G431	Ore microscopy and Ore Petrology

Ore Microscopy: Identification of the minerals using the reflected light microscope - Introduction to ore microscope - Preparation of polished surfaces - Properties of ore minerals in reflected light - Formation of ore minerals - Reasons behind properties - Theory of reflected light - Identification of the minerals using reflected light microscope
Ore Petrology: Identification of ore minerals -Theory of reflected light - Ore mineral equilibria - Common ore

mineral associations - Controls of ore mineral formation - Metallogenic provinces and epochs

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

ج ٤٣٣	جيوكيميا
G433	Geochemistry

Geochemistry of Sedimentary Rocks: Meteorites and geochemistry - Geochemical structure of the Earth - Geochemical classification of the elements -Geochemistry of REE - Chemical weathering and formation of sediments - Geochemical classification of sediments and their derivatives - Geochemical factors controlling the distribution of trace elements in sediments - Geochemistry of biosphere – Geochemistry of Island Arcs, hot spots, Moon, Mars – Isotopic applications in geochemistry
Geochemistry of igneous rocks: Geochemistry of the Core, the Mantle, and the Crust- Physical and chemical methods of sample treatment - Chemical methods of analyses (conventional and new methods) - Distribution of elements in the different rock units - The relation between geochemistry, environment and human health

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

ج ٤٣٤	الجيولوجيا الاقتصادية
G434	Economic Geology

Objectives and reasons for the approach of mineral deposits studies - classification scheme for ore deposits - Major theories of ore genesis - Magma and metallogeny - Mineralization processes in mafic magma - Formation of magmatic aqueous phase - Formation of metamorphic ores and their related ore minerals - Magmatic hydrothermal solutions - Mineralogy, alteration zones, exploration - Examples of the most famous deposits - Modern analysis of hydrothermal ore forming processes - Volcanic massive sulfide exhalative deposits - Strata bound and stratiform deposits - Sedimentary formed deposits - Supergene enrichment processes - Formation of fossil fuels - Metamorphic ore forming deposits - Global tectonics and metallogeny, crustal evolution and distribution of ore-mineral deposits in relation to plate-tectonic theory - Metallogeny through time - Factors affecting exploration programs

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

ج ٤٣٥	استكشاف معدنى ومعادن وصخور صناعية
G435	Mineral Exploration and Industrial Minerals and Rocks

Mineral Prospection: Methods of prospections –Geochemical and geophysical Methods
Industrial Minerals and Rocks: Industrial minerals and rocks used in the following purposes: Catalysts – Abrasives – Fluxes - Ceramics – Fillers – Insulators – Pigments – Fertilizers - Building materials – Cement materials – Pharmaceuticals – Transistor

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

ج ٤٣٦	مقدمة فى الجيولوجيا الطبية و علم البراكين
G436	Introduction to Medical Geology and Volcanology

Introduction to Medical Geology: Basics of medical geology - Mineral and health of human and animals - Volcanic emissions and health - Soils and Health (Iodine and Selenium deficiencies) - Water pollution and Health (Arsenic and Fluoride in the natural environment) - Air pollution and Health (Radon and environmental health)
Volcanology: Introduction – Definition of magma – How and where magmas are generated? – Magma rise – Magma chamber – Compositionally zoned magma reservoirs- Rheology, magmatic gases - Bubbles and Triggering - Mid-ocean ridge volcanoes - Seamount and volcanic islands - Continental intraplate volcanoes - Subduction zone volcanoes - Volcanic edifices and volcanic deposits - Strombolian, Hawaiian and Plinian eruptions - Volcanic hazards and Disaster mitigation - Volcanoes and Climate

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

ج ٤٤٤	سجلات الآبار وتحليل تراكيب
G444	Well logging and Structural Analysis

Well logging: Principles, tools, measurements, corrections and normalization of well log data - Graphical display of data - Temperature and caliper logs - Spontaneous potential and resistivity logging - Natural and spectral gamma ray logs - Density and Neutron logs - Sonic logging - Assessment of Volumetric proportions of rock constituents - measurements used to quantify effective porosity, saturation, and permeability of the reservoir

Structural Analysis: Stereographic projection, foliation, joints, lineation, minor folds, deformation mechanism

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

ج ٤٤٥ جيولوجيا تصويرية واستشعار عن بعد

Photogeology and Remote Sensing G445

Photogeology: Introduction and characteristics of aerial photographs- Stereoscopic vision - Parallax and height difference formula- Analysis of aerial photographs (Geomorphologic, lithologic and structural interpretation) - Geologic mapping using aerial photographs.

Remote Sensing: Fundamental Considerations - Electromagnetic spectrum -Satellite imagery and image characteristics – Common remote sensing techniques- Digital image processing and enhancement applications of remote sensing in geology, environmental science, mineral and petroleum exploration

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

ج ٤٦٠ جيولوجيا المياه (1) وجيولوجيا البترول (1)

Hydrogeology (1) and Petroleum Geology (1) G460

Hydrogeology I: Introduction - Water Cycle in Nature- Climates- Water Falls & Surface Water- Hydrogeology of groundwater reservoirs – Groundwater flow properties - Aquifer properties - Water wells - Well tests - Groundwater flow laws - Groundwater exploration - Groundwater quality - Groundwater pollution - Ground water management

Petroleum Geology I: Origin and characteristics of petroleum oil and gas - Petroleum migration- Source, reservoir and sealing rocks, Oil Traps, Crude Oil Reserves- Regional accumulations - Formation evaluation - Oil & Gas in Egypt - Oil exploration techniques

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

ح ٤١٨ مقدمة علم الأجنة والتطور

Introduction to Embryology and Evolution Z 418

Introduction – Gametogenesis – Fertilization – Cleavage – Gastrulation- Early embryonic development of Amphioxus, Amphibians, Chick and Mammals. Scope and historical development of evolutionary theory - Microevolution and macroevolution -Population dynamics and genetic -Natural selection, drift and other forces of evolution -Systemic and the species problem (species formation).

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

ه ٤٢٠ هيدروولوجيا

Hydrogeology