

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.

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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

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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)

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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.

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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.

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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.

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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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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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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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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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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**

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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**

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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**

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

اخلاقيات وأداب المهنة والسلامة المهنية	F٣٠٠
Scientific Ethics&Safety	F300

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

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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.**

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هيدروبيولوجى	ج ٢٠٥
Hydrobiology	G205

**Marine environment & ecosystems – Marine Biota - Marine habitats and the diversity, abundance and distribution of organisms - Adaptation of organisms to a saltwater existence - Ecologic classification of aquatic organisms - Interactions between freshwater aquatic organisms, productivity in aquatic systems - Selected examples of population and community. Properties of water - Global water cycle - Water resources - Chemical origin of freshwaters and salty waters - Soil development, vegetation and human activities on the chemistry of freshwaters - Water pollution (types – methods – protection).**

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

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

الدرجات					الساعات			لافقاريات مائية	٢٧٠ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Aquatic Invertebrates	Z270

The phylogeny, life-history, habitats and ecology of major aquatic invertebrates. The use of invertebrate taxa as biomonitoring criteria and impacts from exotic/invasive species. A field and laboratory study of aquatic invertebrate phyla including immature insects. Anatomy and functional morphology of invertebrate phyla; natural history of local forms.

الدرجات					الساعات			فقاريات مائية	٢٧٥ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Aquatic Vertebrates	Z275

The biology of aquatic vertebrate animals, including evolution, classification, and behavior of all major classes. Laboratories stress structural features, while field trips emphasize ecology, behavior, and identification of local forms.

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

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

الدرجات					الساعات			علم الخلية وعلم اجنة الاسماك	٢٨٢ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Cell Biology and Fish Embryology	Z282

Modern studies of cell structure and function at the cellular, subcellular, and molecular levels. Topics include molecular components of cell membranes, membrane-bound organelles, microtubular and cytoskeletal components, and principles of bioenergetics. Descriptive and experimental study of the development of fishes with emphasis on Clarias and tilapias development. Gametogenesis, fertilization, cleavage, gastrulation, organogenesis, and mechanisms involved in control of shaping, pattern and gene expression during development.

الدرجات					الساعات			فسيولوجيا الاسماك	٢٨٤ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Fish Physiology	Z284

Introduction to Fish physiology. Mechanisms of gas transfer, circulation, excretion, osmoregulation, locomotion, and neural/hormonal control of these systems in fishes. Comparisons and contrasts with physiology of terrestrial animals. Survey of physiological adaptations of fish to environmental factors; bioenergetics, homeostasis, senses adaptations to diverse and extreme aquatic environments. Practical applications of fish physiology to aquaculture, pollution assessment, and fisheries management.

الدرجات						الساعات			علم بيئة الاسماك	ح ٢٨٥
oral	ACT	Mid_T	Prac	Wr.		CH	P/T	L		
10	10	30	0	50		2	0	2	Fish Ecology	Z285

Basic principles of fish ecology at the individual, population, and community level. Interrelationship between fishes and biotic and abiotic environments; fundamental links in the life cycles of fishes : development, growth, feeding, reproduction and migration; habits and behaviors. The application of fish ecological principles and modeling to the conservation and management of fisheries resources and aquatic habitats and the aquatic environment..

الدرجات						الساعات			المنظومات المائية	ح ٢٩٠
oral	ACT	Mid_T	Prac	Wr.		CH	P/T	L		
10	10	30	0	50		2	0	2	Aquatic Ecosystems	Z290

An introduction to the structure, types and components of aquatic ecosystems, how they are regulated by physical, chemical and biological factors, and the impact of humans on these environments and their biota. The life cycles and adaptations of aquatic organisms. Management of aquatic ecosystems for ecological and socioeconomic objectives. Special attention to the Egyptian aquatic ecosystems drawing a parallel between freshwater and marine ones in respect of fisheries.

الدرجات						الساعات			مقاييس جودة المياه	ح ٢٩١
oral	ACT	Mid_T	Prac	Wr.		CH	P/T	L		
10	10	10	20	50		3	2/-	2	Criteria of Water Quality	Z291

Fundamentals of water chemistry and physical characteristics. Worldwide standards of water characteristic suitable for fish and aquaculture in different environments. Chemistry and quality management of surface water, pond water and aquarium water on the light of different pollutants. The current status of water quality in Egyptian aquatic ecosystems.

الدرجات						الساعات			بيولوجيا تلوث المياه	ح ٢٩٢
oral	ACT	Mid_T	Prac	Wr.		CH	P/T	L		
10	10	10	20	50		3	2/-	2	Biology of Water Pollution	Z292

Aquatic systems; mechanisms of interaction; physical alterations; nutrients and eutrophication, acidification; pesticides; heavy metals; petrochemicals; industrial wastes; thermal pollution, radioactivity,, oils, field analysis; land use and planning concepts; biological organization of lakes, rivers, estuaries, and the deep sea; human impact on aquatic environments; laboratory and field approaches to the study of natural processes. Biological assessment of water quality. Management of water resources on the light of water pollution.

الدرجات						الساعات			علم المياه العذبة	ح ٢٩٣
oral	ACT	Mid_T	Prac	Wr.		CH	P/T	L		
10	10	10	20	50		3	2/-	2	Limnology	Z293

Nutrient cycles, energy transfer, ecological factors, distribution of organisms and human affection to ecosystem, including the conservation of freshwater ecosystem. Physical, chemical and biological aspects of lakes and other inland waters. Eutrophication.

الدرجات						الساعات			بيولوجيا بحرية	ح ٢٩٤
oral	ACT	Mid_T	Prac	Wr.		CH	P/T	L		
10	10	10	20	50		3	2/-	2	Marine Biology	Z294

Introduction to basic processes of primary and secondary production in the sea, the structure and dynamics of marine communities. Comprehensive study of the ecology and general biology of the marine biota. Stresses, life histories and trophic relationships, adaptations for marine life, and limitations imposed by marine environments. Overview of structure, physiology, and ecology of marine life from phytoplankton to



whales. Labs cover the representative marine divisions (plants) and phyla (animals) and may include a field trip to the Red Sea and Mediterranean Sea.

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

علم مناخ المصايد	ح ٢٩٦
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Fisheries Climatology	Z296
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Effects of natural environmental variability on the recruitment, availability (yield), abundance and behavior of living marine resources. Application to real-time fishing operations and climate scale analysis of fishery fluctuations. Instruction in basic meteorology and climatology with application to the ocean and freshwater ecosystems.

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

علم جغرافيا الاسماك	ح ٢٩٧
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Fish Zoogeography	Z297
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Introduction to zoogeography. Patterns and processes of distribution of aquatic biota on the earth, across a wide range of spatial and time scales The diversity of the world's 25,000+ species of fishes. A primarily phylogenetic organization during tracing the evolution of fishes over their history. Patterns of marine and freshwater geographic distribution. Modern methods and concepts associated with studies of biodiversity.

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

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

حزم البرامج الرياضية والاحصائية	ح ٣٠٠
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Mathematical and Statistical Packages	MC300
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Using the mathematical and statistical packages (Matlab, Mathematica, Min Tab, SPSS, ...etc) for matrices – Functions – Graphics – Data Fitting – Applied Statistics

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

نشأة الأنهار والبحيرات	ح ٣٢٠
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Origin of Rivers and Lakes	G320
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An overview of the Rivers & Lakes environments and sedimentation - The hydrologic cycle - The physical characteristics of rivers - Origin of lakes - Rivers & Lakes Drainage Courses (Description - Origin - Significance) – The Wadis, Alluvial Features & Fans - Dissolved Organic Carbon in Rivers (methods of measurement - means, ranges and fluxes – origin – transformations - biogeochemical significance) - an overview of the Biogeochemistry of Rivers (e.g. River Nile) - River floods & Water pollution as natural disasters.

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

ديناميكية عشائر الاسماك	ح ٣٧١
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Fish Population Dynamics	Z 371
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Historical development. The raw material of population dynamics. Fish community and aquatic ecosystems. Theories and models of the exploited fish populations' dynamics. Quantitative analysis of fish populations. Evaluation, causes, and impacts of the rates of change in survival, growth, reproduction, and recruitment for fish populations and their yield. Tagging. Examples.

الدرجات					الساعات			تقييم مخزون وإدارة مصايد	ح ٣٧٢
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Assessment and Management of Fisheries	Z 372

Introduction including primary objectives of fish stock assessment, the stock concept, models. Estimation of growth parameters, the von bertalanffy growth equation, methods for estimation of growth parameters. Estimation of mortality rates, the concept of a cohort and some basic notation, the dynamics of a cohort, the exponential decay model. Natural and fishing mortality estimation. Virtual population methods. Gear selectivity. Prediction models. Multispecies/multifleet problems. Assessment of migratory stocks. The stock/recruitment relationship. Demersal trawl surveys. Theory and practice of fisheries management, with an emphasis on strategies utilized for the management of freshwater and marine fisheries. Application of quantitative methodologies for the assessment and manipulation of aquatic habitats, sport and commercial fish populations, and human resource users and non-users are considered, as is the setting of appropriate goals and objectives for effective, science-based management. Fisheries management as a science with an emphasis on freshwater fishes and ecosystems.

الدرجات					الساعات			المصايد التجارية والترفيهية	ح ٣٧٣
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	2	0	2	Commercial and Intertainment Fisheries	Z 373

Introduction to types of fisheries of commercial and recreational importance. Identification of the work of fishery scientists. Population analysis of unexploited and exploited populations. Fisheries management techniques and principles and their interactions with fishermen and biotic and abiotic environments. Recreational and commercial fisheries managements. Fishery development in Egypt. Fishery law and regulations in general. Law of fisheries rights in Egyptian waters.

الدرجات					الساعات			منتجات المصايد والتسويق	ح ٣٧٤
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Fisheries Products and Marketing	Z 374

Introduction to fisheries product and marketing. Fish processing technology. Micro-organisms affecting to fish processing and fishery products. Product development and quality requirement. Principles and procedure in analysing the composition of fishery products by chemical and physical methods. The chemical and sensory evaluation of fishery products. Principles of quality control. Methods for determining quality of raw material and fishery products. Principles of fish marketing. Fish marketing and fisheries economics and regulation. Planning to extend market. Export markets. The influence of tradition and change, International cooperation.

الدرجات					الساعات			تقنيات ووسائل فى بيولوجيا الاسماك	ح ٣٧٧
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Techniques and Tools in Fish Biology	Z 377

Introduction. Methods in genetics, systematics, and taxonomy. Electrophoresis, chromosome preparation and analysis, histological techniques, anesthesia, surgery and related techniques, blood and hematological methods, respirometry and growth techniques and methods, bioenergetics, reproductive, autecology, community-ecology and nervous system methods.

الدرجات					الساعات			طرق وعدات الصيد	ح ٣٧٨
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Fishing Methods and Equipments	Z 378

Introduction to catching methods in fisheries. Fishing by gathering. Male and female divers. Animals as a help in fisheries. Line fishing: basic implements, gear and methods. Fishing for sport and recreation. Attracting, concentration and frightening fish. Pole-hooks and rippers. Natural and artificial shelters. Mechanical fishing gears: traps, lines and snares. Permanent and temporary barriers. Trapping. Fishing in the air. The art of net making. Fishing with bottom trawls. Seining in fresh and sea water. The drive-in fishery.



Lifnets and fish wheels. Cover pots and cast nets. Gillnetting. Entangling nets. Fishing system and harvesting machines. Classification of catching nets. Others.

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10	10	10	20	50	3	2/-	2

ح ٣٧٩ تصميم المزارع السمكية وانواعها

Fisheries Design and Types Z 379

Introduction to fish farm design and engineering. Principles and criteria for site selection for fish ponds. Surveying, mapping and construction of fish ponds and water system in different environments. Design of ponds on the light of culturing facilities. Design of fish farms in different localities in Egypt.

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10	10	10	20	50	3	2/-	2

ح ٣١٩ علم السموم المائي

Water Toxicology Z 319

Principles and methods of aquatic toxicological study and hazard evaluation; types of toxic chemicals and other pollutants found in aquatic systems and their harmful effects on aquatic organisms and ecosystem. Toxicological effects of aquatic pollution focusing on fate and transport of xenobiotics; accumulation, dynamics and toxicity of xenobiotics in aquatic organisms; analysis and modeling of the effects of aquatic pollution on organisms and aquatic communities; and the determination of related risks to aquatic ecosystems.

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10	10	10	20	50	3	2/-	2

ح ٣٢٧ علم الرخويات

Malacology Z 327

The morphology, taxonomy, biology, ecology, physiology and the technology of artificial reproducing larvae and culture of common economic mollusk. Breeding and culturing the adult in coastal areas or inland waters.

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

ح ٣٧٦ التوعية البيئية للمصايد

Fisheries Environmental Issues Z 376

Awareness of the impact that people, industry, and development have on the environment related to the fisheries' industry. Awareness of proper use and disposal of materials hazardous to the environment and how other industries can affect the fisheries industry and environment.

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

ح ٣٩١ بيولوجيا واستزراع البلطي

Tilapia biology and Rearing Z 391

Introduction to cichlids, their distribution, economics and taxonomy. Cichlids suitable for cultivation. Reproduction of tilapias. Feeding and growth of tilapias. Methods of rearing tilapias. Tilapias rearing system in Africa. Future prospectis of the cultivation of tilapias. Pond and hatchery design for tilapias. Aquaculture of tilapias in Egypt.

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

ح ٣٩٢ بيولوجيا واستزراع القرموط الافريقي

Clarias Biology and Rearing Z 392

Introduction to catfishes, their distribution, economics and taxonomy. African catfishes suitable for cultivation. Reproduction of African catfishes. Feeding and growth of catfishes. Methods of rearing African catfishes. Catfishes rearing system in Africa. Future prospectis of the cultivation of African catfishes. Pond and hatchery design for catfishes. Aquaculture of African catfish in Egypt

الدرجات					الساعات			ح ٣٩٤
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	الاستزراع فى مياه الصرف
10	10	10	20	50	3	2/-	2	Sewage aquaculture
								Z 394

Use wastewater to enhance productivity of aquaculture systems. Functional similarity between wastewater treatment lagoons, fertilized fish ponds, and wastewater aquaculture systems. Polyculture in wastewater aquaculture; case studies

الدرجات					الساعات			ك ٤٦٠
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	كيمياء تحليلية لطلاب البيولوجى
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			ح ٤٠٠
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	مقال او بحث
10	0	0	0	90	2	0	2	Research Project or Article
								Z 400

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

الدرجات					الساعات			ح ٤٢٣
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	قشريات مائية
10	10	10	20	50	3	2/-	2	Aquatic Crustacea
								Z 423

Taxonomy, biology, life history, reproduction of aquatic crustacea of economic importance. Artificial spawning and breeding. Farming and farm construction of crawfishes and shrimps.

الدرجات					الساعات			ح ٤٢٤
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	التنوع البيولوجى المائى
10	10	10	20	50	3	2/-	2	Aquatic biodiversity
								Z 424

Introduction to biodiversity and conservation biology. Interdisciplinary analysis of biodiversity conservation and related science policy issues. How biodiversity is measured and what are the major patterns of diversity. Definition of structural and functional biodiversity and the relationship between the two. Fish biodiversity in relation to fisheries conservation, live fish transportation policies, exotic fish introductions and genetics of natural fish populations. Topics include: background to biodiversity; invasive alien fish species; balance between benefits and negative impact of aliens; population explosions of invasive species; modeling of the impact of biological invasions; introduction at the level of populations and genes; infectious diseases from alien species; invading species in estuaries and freshwater ecosystems.

الدرجات					الساعات			ح ٤٢٧
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	الهائمات والقاعيات
10	10	10	20	50	3	2/-	2	Plankton and Benthos
								Z 427

Classification morphology, and physiology of marine and freshwater planktons. Qualitative and quantitative studies including brief accounts of primary productivity. Ecology of plankton; positive and negative effects of plankton production on other aquatic organisms and fisheries; methods of plankton culture. Taxonomy and ecology of benthic animals, Their significance to fisheries and aquatic environment

الدرجات						الساعات			٤٣٢ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	تشريح مقارن للفقاريات	
10	10	10	20	50	3	2/-	2	Comparative Anatomy of Vertebrates Z 432	

An integrated comparative study of vertebrate structure and development with emphasis on relationships between form, function, and evolution and the similarities of anatomy and phylogenetic relationships of major vertebrate groups. This comparative study includes different vertebrate body systems.

الدرجات						الساعات			٤٧١ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	اقتصاديات المصايد	
10	10	30	0	50	2	0	2	Economics of Fisheries Z 471	

Importance of fishery resources to the economy. Role of fishery as part of the whole economics production in a country. An introduction to economic theories and principles which determine the exploitation, utilization, and management of freshwater and marine fisheries. Analysis of fisheries economics and bioeconomic models. Economics aspects of fishery performance of management regulations.

الدرجات						الساعات			٤٧٢ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	انتاج وتغذية اسماك	
10	10	30	0	50	3	2/-	2	Fish Production and Feeding Z 472	

Theory and practice of fish nutrition for optimal fish production. The concept of feeding fish. The nutrients, digestion and metabolism, nutrient diet components, feed formulation and processing, fish feeding experiments, practical feeding for catfish, tilapias, shrimps and crawfish. Nutritional pathological diseases. Breeds of fishes in the Arab countries. Principles of breeding, selection and genetic improvement. Factors affecting animal production.

الدرجات						الساعات			٤٧٤ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	طفيليات وامراض الاسماك	
10	10	10	20	50	3	2/-	2	Fish Parasites and Diseases Z 474	

Introduction to basic concepts of parasitology and fish diseases. Morphology, taxonomy, life history, ecology and pathological effects of parasites on fishes including their control. Management principles to prevent and control diseases and parasites. Control of wild fish, stocking density, water quality, age segregation and elimination of parasites from fishes; fish quarantine. Nutritional pathological diseases are considered for comparison. Survey of Fish diseases and parasites in Egyptian fishes.

الدرجات						الساعات			٤٨١ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	اسس تكاثر وتفرخ الاسماك	
10	10	10	20	50	3	2/-	2	Fundamentals of Fish Reproduction and Breeding Z 481	

Strategies of reproduction in aquatic organisms especially fishes. Reproductive development, sexual maturation, spawning and incubation in selected fish and invertebrate species; embryology and developmental traits of some species; practical experience in artificial spawning techniques, egg handling and care, incubation techniques and the handling of newly-hatched larvae. Artificial spawning and water characteristics. Reproduction and endocrines. Reproduction and biotechnology and genetic engineering.

الدرجات						الساعات			٤٨٢ ح
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L	ادارة مفرخات الاسماك	
10	10	30	0	50	2	0	2	Management of Fish Breeders Z 482	

Study of selection and care of brood stock, hatching eggs, care and feeding of young, natural and artificial propagation, grading, stocking, and hatchery equipments. Economic importance of hatchery. Hatchery and biodiversity.

الدرجات						الساعات			الاستزراع المائي	ح ٤٩٢
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2	Aquaculture	Z 492	

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

الدرجات						الساعات			مشروعات مصايد حقلية	ح ٤٧٣
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2	Projects for Field Fisheries	Z 473	

Designed to enable a student to work in a field of their choice with employees in industry. Student will gain valuable experience while showing perspective employers their skills and work habits.

الدرجات						الساعات			مشروعات مفرخات حقلية	ح ٤٨٣
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2	Projects for Field Breeders	Z 483	

Students will work at a hatchery with the species of fish of their choice. Gaining valuable experience while showing prospective employers their skills and work habits. Experience will be gained by working at a hatchery with various species of fish. This allows student to show prospective employers the skills and work habits they have and gain valuable experience.

الدرجات						الساعات			وراثة عشائر	ز ٤٠٢
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2	Population Genetics		

الدرجات						الساعات			تطبيقات وراثية فى ادارة المصايد	ز ٤٠٣
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	10	20	50	3	2/-	2	Genetical Applications in Fisheries		