

## Statistics

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.

## Statistics

### Means of honoring scientists

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

١٣ م ج التغذية الصحية

Healthy Feeding UR013

- 1- A healthy diet and our body
- 2- Components of healthy diet: carbohydrates, lipids, proteins, minerals, vitamins, and fiber.
- 3- Healthy eating pyramid.
- 4- How to read and interoperate nutrition facts.
- 5- Feeding control and the factors that regulate the quantity of food intake especially Leptin and Ghrelin
- 6-Physiology of the Human digestive system (digestion, absorption, metabolism and elimination)
- 7- Anabolic and catabolic hormones.
- 8- Definition and calculation of basal metabolic rate (BMR).
- 9- Body mass index and body volume index.
- 10- Feeding abnormalities (Obesity and malnutrition)
- 11- Definition and types of food additives with E number.
- 12- Example for some popular diseases (bronchial asthma, hypertension, anemia, coronary artery disease, hepatitis, diabetes mellitus, Alzheimers)

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

١٤ م ج التفكير العلمي

Scientific Thinking UR014

- The nature of scientific thinking  
Characteristic of scientific thinking  
The importance of scientific thinking for the renaissance of societies  
Obstacles of scientific thinking practices  
Science and non-science  
Distinguish between facts and myths  
Scientists' personality  
Using scientific thinking to identify and solve problems  
Different scientific approaches to solving the problems

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

١٦ م ج لغة عربية

Arabic Language UR016

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

١٠٠ ارك الحاسب الالى

Computer Sciences MC100

- Fundamentals of programming and computer languages - Algorithm and Flowcharts - Elements of Language under case - Basic Instructions in Language under case - Control Instructions - Arrays and dimension statement – Subprograms - Some applications.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	-/2	2

١٠٠ ا ر رياضيات عامة (1)

Mathematics (1) M100

- Calculus: Functions of one variable - Limits and Continuity - Derivatives - Applications of Differentiation - Taylor and McLaurin series, Indefinite and definite integrals.  
Algebra: Mathematical induction - series - Partial fractions - Matrices and systems of linear equations -

Approximate solutions of non-linear equations.

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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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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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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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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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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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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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تفاضل وتكامل متقدم	ر ٢١١
Advanced Calculus	M211

**Functions of several variables - Partial Derivatives and their applications - Multiple integrals (double – triple) and their applications - Line and Surface integrals - Using Mathematica, and Matlab programs for graphing some Surfaces and calculate some integrals.**

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معادلات تفاضلية (1)	ر ٢١٢
Differential Equations (1)	M212

**Formation of ordinary Differential Equations (ODE's) - ODE's of first Order and first Degree – ODE's of first Order and higher Degrees - Applications – Linear ODE's of higher Orders with constant Coefficients and its applications - Linear ODE's of higher Orders with Variable Coefficients - Simultaneous Linear ODE's.**

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جبر خطي وهندسة فراغية	ر ٢٢١
Linear Algebra and Geometry	M221

Vector spaces – Linear transformations – Properties of linear transformations (range and kernel) - Algebra of linear transformations- Eigenvalues and Eigenvectors -Inner product spaces- Self adjoint transformations Bilinear and quadratic forms. Reduction of quadratic forms in  $R^n$  – Applications in Geometry.

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رياضيات متقطعة	ر ٢٢٣
Discrete Mathematics	M223

Sets – Relations – Equivalence relations – Mappings – Binary operations - Counting – Rules of inference – Graph theory – Graphs and multigraphs – Planar graphs – Colorations, Trees – Boolean Algebra – Duality – Basic theorems – logic Gates and Circuits.

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الميكانيكا النيوتونية	ر ٢٣١
Newtonian Mechanics	M231

Statics in plane - Applications on equilibrium of two-dimensional force systems - Statics in space – Friction - Center of gravity and centroid - Virtual work - Kinematics of a particle in a straight line - Kinematics of a particle in a plane - Relative motion in a plane - Kinetics of a particle - Simple harmonic motion - Central orbits – Dynamics of a rigid body in a plane.

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الميكانيكا التحليلية	ر ٢٣٢
Analytical Mechanics	M232

Dynamics of a particles in three dimensions - Rotating axes – Components of velocity and acceleration in different coordinate systems – Faucolt's pendulum – Dynamics of rigid body in three dimensions - Eulerian angles – Moment of inertia – Equations of motion – Euler's equations - Impulsive motion - Motion of a system of particles - Constraints - Generalized Coordinates - Lagrang's equations – Hamilton's canonical equations - Ignorable or cyclic coordinates - Routh's equations - Phase space-Liouville's theorem – Hamilton's principle of least action - Canonical or contact transformation - Invariants – Hamilton-Jacobi equation.

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احتمالات (1)	ر ٢٤٢
Probability (1)	MS242

Sample Space - Random Variables - Some Discrete Distributions - Some Continuous Distributions - Bivariate and Multivariate Random Variables - Some special bivariate Distributions.

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10	10	10	20	50	3	2/-	2

البرمجة الشيئية	ر ٢٥١
Object-oriented Programming	MC251

Objects and classes - Understanding class definitions - Object interaction - Grouping objects - More sophisticated behaviour - libraries - Well-behaved objects - testing, maintaining, debugging - Designing classes.

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10	10	10	20	50	3	2/-	2

هياكل بيانات	ر ٢٥٢
Data Structure	MC252

Data representation – arrays and matrices – lists stacks and queues – hashing – binary trees, balanced and B-trees – splay trees and tree traversals using stacks – expression trees – expressions and conversions – graphs – graph algorithms – minimum-cost spanning trees – inheritance – exceptions, interface and design by contract – basic design patterns and reuse.

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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

كهرباء و تيار متردد	ف ٢٢٦
Electricity and AC Current	P226

RL and RC circuits, stored energy - RLC circuit under its different conditions. Alternating current: RL and RC circuit analyses - Analyses of AC circuits in terms of complex numbers - AC transient current for RL, RC and RLC circuits.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

تحليل حقيقي (1)	ر ٣١٢
Real Analysis (1)	M312

Real number systems - Real sequences - Continuous functions - Differentiation - Riemann integral- Sequence of functions- Measure on the real numbers.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

معادلات تفاضلية (2)	ر ٣١٣
Differential Equations (2)	M313

Existence and uniqueness Theorems – Series solution – Ordinary Differential Equations in three variables – Partial Differential Equations (first Order – Linear of higher orders with constant and variable coefficients).

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

نظم ديناميكية	ر ٣١٤
Dynamical Systems	M314

Introduction on dynamical systems – Stability analysis – The method of averaging – Chaos theory - Lorenz equations- Fractals sets - Lyapunov exponents – Hamiltonian systems

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

نظرية الأعداد	ر ٣١٧
Numbers Theory	M317

Integers-Divisibility- Prim numbers- Prim factorization- Euclidean algorithm- fundamental theorem of arithmetic – Fermat's number – linear and quadratic, Diophantine equations - congruence – Chimes remainder theorem – Euler theorem – special congruences – applications in computer sciences.

الدرجات					الساعات		
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L
10	10	30	0	50	3	0	3

تحليل عددي (1)	ر ٣٢٣
Numerical Analysis (1)	M323

Errors in Numerical computation - Solutions of Non-linear Equations - Direct and Iterative Methods for Solving Linear Systems - Interpolation and Polynomial approximations - Numerical differentiation - Numerical Integration.



## Statistics

الدرجات						الساعات			بحوث العمليات (1)	٣٢٦
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Operation Research (1)	M326	

Standard form of the Linear Programming Problems (LPPs) – Methods for solving LPPs - Sensitivity analysis - Network flow problems – Integer programming – Shortest path problems.

الدرجات						الساعات			طرق رياضية	٣٣٤
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	2	0	2	Mathematical Methods	M334	

Laplace transforms - Gama, Beta, Bessel, Lagender and Hermite functions - Laplace transforms of special functions - Solutions of some differential equations using Laplace transforms - Solutions of integral equations -Fourier series - Equivalent forms of Fourier's integral theorem - The convolution theorem for Fourier transforms - Applications of Fourier integrals and transforms.

الدرجات						الساعات			موضوعات مختارة فى الرياضيات التطبيقية (1)	٣٣٥
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Special Topics in Applied Mathematics	M335	

Elected by Math. Dept. to meet new directions in Applied Mathematics

الدرجات						الساعات			تحليل احصائى (1)	٣٤١
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Statistical Inference (1)	MS341	

Populations and samples-sample moments and distributions – Point estimation - Sufficient, Unbiased and consistent estimator - minimum variance unbiased estimator - methods of estimation - Interval estimation

الدرجات						الساعات			تحليل احصائى (2)	٣٤٢
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Statistical Inference (2)	MS342	

Statistical hypotheses – Neyman – Pearson lemma – power function of a test – likelihood ratio test – Tests concerning means and differences between means – Tests concerning variances – Tests concerning proportions and differences between proportions – contingency tables – goodness of fit.

الدرجات						الساعات			نظرية المعاينة	٣٤٣
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	2	0	2	Sampling Theory	MS343	

Simple random sampling – Stratified random sampling – Ratio estimates – one-stage cluster sampling – subsamplings: with units of equal and unequal size – Double sampling.

الدرجات						الساعات			تحليل نماذج الانحدار و الارتباط	٣٤٤
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Analysis of Regression and Correlation Models	MS344	

Simple linear regression and correlation - Multiple Linear Regression - Polynomial Regression Models.

الدرجات					الساعات			عمليات عشوائية وتطبيقاتها	رأ ٣٤٦
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Stochastic Processes and its applications	MS346

Role of the theory of stochastic processes – Normal processes and covariance stationary processes – counting processes and Poisson processes – Renewal counting processes – Morkov chain : discrete parameter – Markov chains: continuous parameter.

الدرجات					الساعات			احتمالات (2)	رأ ٣٤٧
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Probabilities (2)	MS347

Conditional probability and distribution functions – Independence of random variables – Expectation of functions of two variables – Conditional expectation – Correlation and moment generating function in more than one variable – Bivariate normal – Distributions of functions of random variables.

الدرجات					الساعات			الرقابة الاحصائية على الجودة	رأ ٣٤٨
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Statistical Quality Control	MS348

Sampling Distribution of proportions, variance, range and standard deviations. Single sampling plans Double and sequential planes. Item-by- item sequential planes. Multiple sampling plan. Causes of violation in quality control limits.

الدرجات					الساعات			تحليل السلاسل الزمنية	رأ ٣٤٩
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Time Series Analysis	MS349

Time series – Graphs of time series – Characteristic movements of time series – Classification of time series movements – The analysis of time series – Moving averages – Smoothing of time series – Estimation of trend – Estimation of seasonal variations – Seasonal index – Deseasonalization of data.

الدرجات					الساعات			حزم البرامج الرياضية والاحصائية	رك ٣٥٠
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			مقدمة فى الحسابات	رك ٣٥٦
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Introduction to Scientific Computations	MC356

Practical introduction to computational problem solving. Floating point arithmetic, conditioning and stability of algorithms – Mathematical software packages, MATLAB, Maple (etc) – Spreadsheets programs – Traditional programming languages; C and FORTRAN – Nontraditional programming environments – applications.

الدرجات					الساعات			تطبيقات الحاسب فى الاحصاء	رك ٣٦٨
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	10	20	50	3	2/-	2	Computer applications in Statistics	MC368

Some Statistical applications using applications software.



الدرجات						الساعات			تحليل حقيقي (2)	٤١٣ ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Real Analysis (2)	M413	

Functions on sets – Measurable Sets – Measurable Functions – Measurable Space – Abstract Integration – Convergence Theorems – Lebesgue Integration – Borel's measure - LP-Space – Riesz Representation – Differentiation and absolute Continuous – Inner Measures – Outer Measure – Product Measure.

الدرجات						الساعات			معادلات تفاضلية جزئية	٤١٤ ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Partial Differential Equation	M414	

الدرجات						الساعات			توبولوجي وهندسة تفاضلية (1)	٤٢١ ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	-2	2	Topology and Differential Geometry (1)	M421	

Topology of the real line - topological spaces – relative topology- base and sub bases - Vector Fields - Frenet formulae for an arbitrary curve - Congruent Curves.

الدرجات						الساعات			توبولوجي وهندسة تفاضلية (2)	٤٢٢ ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	-2	2	Topology and Differential Geometry (2)	M422	

Homeomorphism and topological property – Separation Axioms – Compactness - Surfaces and differentiable manifolds – Normal curvature and Geodesic Gauss curvature - Integration on Riemannian Manifolds.

الدرجات						الساعات			تحليل عددي (2)	٤٢٤ ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Numerical Analysis (2)	M424	

Iterative methods for linear system - Approximation theory – Eigenvalues - Numerical solutions of the initial value problems - Numerical solutions of the boundary value problems - Numerical solutions of partial differential equations.

الدرجات						الساعات			بحوث عمليات (2)	٤٢٦ ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Operations Research (2)	M426	

Classical optimization techniques – Numerical methods for unconstrained and constrained optimization problems – Calculus of variation – Optimal control problems (Pontryagin's maximum principle – Bellman's dynamic programming).

الدرجات						الساعات			موضوعات مختارة في الرياضيات (2)	٤٢٧ ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Special Topics in Mathematics	M427	

Elected by Math. Dept. to meet new directions in Mathematics

## Statistics

الدرجات					الساعات			نمذجة رياضية	٤٣٤ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Mathematical Modeling	M434

Principles of Mathematical models – Steps in building Math. – Model.- Approximation of Models (representation of data, algebraic equations, differential equations, ....) - the relation of models to data- sources for errors- Adjusting data – Evaluation of Math – Model – Maths. For models- Optimization – Applications (Economic – Traffic – inflation – Population – Physics and engineering).

الدرجات					الساعات			المقال والبحث	٤٠٠ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
0	0	0	0	100	2	0	2	Research Projector Article	MS400

الدرجات					الساعات			حسابات احصائية	٤٤٠ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Statistical Computations	MS440

Random number generation and Monte Carlo methods - Regression computations and application Simulation techniques - Basic likelihood tools - Fundamental principles of modeling - Bayesian computation techniques.

الدرجات					الساعات			توزيعات احصائية	٤٤١ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	2	0	2	Statistical Distributions	MS441

Central and noncentral  $\chi^2$ , t and F distributions - Extreme value, Logistic and Pareto distributions – systems of distributions: Pearson and Burr - Compound, mixtures and finite distributions and their applications.- Identifiably – applications to exponential and Weibull distributions - Inferences using censored data.

الدرجات					الساعات			نظرية الصلاحية	٤٤٣ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	2	0	2	Reliability Theory	MS443

Reliability (survivor) function, failure (hazard) rate function and the relation between them and the distribution function – Some important distributions in reliability theory – Series and parallel systems – Partially redundant systems – Standby systems and switching – Mean time to failure – Effect of spare parts – Accelerated testing and models.

الدرجات					الساعات			احصاءات مرتبة	٤٤٤ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Order Statistics	MS444

Order Statistics – Distribution of an order statistic – Joint distribution of two order statistics – Properties of order statistics – Discrete order statistics – Order statistics from some specific distributions – Manumits relations - Bounds and approximations – Order statistics in statistical inference.

الدرجات					الساعات			احصاء لا بارامترى	٤٤٦ر
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L		
10	10	30	0	50	3	0	3	Nonparametric Statistics	MS446

One-Sample problems - Two-Sample Problems - K-Sample Problems - Randomized Bloeks, goodness of Fit Tests.

الدرجات						الساعات			نماذج تصميم وتحليل التجارب	٤٧ ٤٨
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Experimental Design Models	MS447	

Fundamental assumptions in analysis of variance – Completely Randomized design – Randomized block design – Latin square and related designs – Factorial designs – Hierarchical designs – Analysis of covariance.

الدرجات						الساعات			تحليل المتغيرات المتعددة	٤٨ ٤٩
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Multivariate Analysis	MS448	

The Multivariate normal distribution – Estimation of the mean vector and the covariance matrix – The maximum likelihood estimates of the mean vector and covariance matrix – the distributions and uses of sample correlation coefficients – Classification and observations.

الدرجات						الساعات			نظرية الطوابير	٤٩ ٥٠
oral	ACT	Mid_T	Prac	Wr.	CH	P/T	L			
10	10	30	0	50	3	0	3	Queuing Theory	MS449	

Queuing models and Kendall's notation – Occupation rate – Performance measures – Little's law – Pasta property – M/M/1 queue – M/M/C queue – M/Er/1 queue – M/G/1 queue – G/M/1 queue – Priority Queues – Simulation.