

Academic Calendar 2010 - 2011

	FALL SEMESTER 2010-11	SPRING SEMESTER 2010-11
Registration for old students	13-17 September	1-4 February
Registration for new students	20-24 September	1-4 February
Orientation of new students	20-24 September	1-4 February
Last day of regular registration	24 September	4 February
Classes Begin	27 September	7 February
Deadline for adding a course changing majors	11 October	21 February
Deadline for dropping a course	18 October	28 February
Deadline for course withdrawal	1 November	14 March
Vacation Periods	24 December – 6 January	15 April - 1 May
End of classes	7 January	20 May
Exams	12 – 26 January	25 May – 9 June
Public Holidays	1 October 28 October	6 January 7 March (Green Monday) 25 March 1 April 24 April (Easter) 1 May 13 June

SUMMER SESSION 2011

Note: Continuing students in some of the programs may be required to start lessons in the first week of September.

General Department

Coordinator
Christofi Stavros

Assistant Professors
Christofi Stavros
Chrysostomou George

Lecturers
Charalambides Marios
Konstantinou Panayiota
Parpottas Yiannis
Tsolaki Eleni

Visiting Lecturers
Papanearchou Nearchos
Pavlidis Marios
Christodoulides Yiannis
Sofroniou Anastasia
Tsaousi Christina

Special Teaching Staff
Petrova Nenovska Lydiia

Lab Assistants
Vasiladias Andreas
Savva Savvas

Mathematics and Physics Courses Descriptions

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AMAT 100: Foundation Mathematics, ECTS: 5

Sets of numbers; Operations with real numbers; Exponents, roots, logarithms, and their properties; Solution of linear, quadratic, and rational equations; Solution of exponential and logarithmic equations; Changing the subject of a formula; Coordinate Geometry, The Equation of a line, Graphs of some standard curves, The absolute value and its graph; Right Triangle trigonometry, trigonometric ratios, and trigonometric functions; other pre-calculus topics as needed.

AMAT 111: Calculus I, ECTS: 5

Review of foundation mathematics as needed, Inequalities; Real-valued functions of one variable: Functions and Operations, Inverse, Trigonometric, Logarithmic and Exponential Functions and their Properties, Parametric Equations; Limits and Continuity; Differentiation: The derivative as a function, as a rate of change, and as the slope of a graph, Techniques of Differentiation, Chain Rule, Derivatives of Trigonometric, Exponential, and Logarithmic Functions, Higher derivatives, and Implicit Differentiation; Applications of Differentiation: Increase, Decrease, and Concavity, Relative Extrema, First and Second Derivative Tests, Curve sketching, Absolute Minimum and Maximum Values of Functions, Applied Maximum and Minimum Value Problems; Anti-derivatives and an Introduction to Integration.

AMAT 122: Calculus II, ECTS: 5

The definite and indefinite integrals, the two forms of the fundamental Theorem of Calculus; Applications of the Definite Integral: Areas between Two Curves, Polar Coordinates and Areas, Volumes by the methods of Slices and Cylindrical Shells, and Areas of Surfaces of Revolution; Inverse Trigonometric and Hyperbolic Functions: Derivatives and integrals; Techniques of Integration: Integration by substitution and by Parts, Trigonometric Integrals, Reduction Formulae for Sines, Cosines, Tangents and Secants, Integrating Powers of Sines and Cosines, Tangents and Secants, integration of rational functions by partial fractions, Trigonometric Substitutions; Introduction to Double Integrals; Series: Infinite Series, Power Series, Taylor and MaClaurin Series, Tests of convergence; Introduction to Partial Derivatives; Introduction to complex variables.

AMAT181: Linear Algebra with MATLAB, ECTS: 5

Vectors and Vector spaces, Matrices, Determinants, Linear Transformations, Systems of Linear Equations, Eigenvalues and Eigenvectors, Matlab Applications, Applications of Linear Algebra to Engineering and other problems.

AMAT 204: Ordinary Differential Equations, ECTS: 5

Basic Concepts and Classification of Differential Equations; First Order Ordinary Differential Equations (ODEs): Separable, Exact, homogeneous, and the Integrating Factor; Second and nth-Order ODEs: Linear Homogeneous/Inhomogeneous with constant/non-constant Coefficients, The methods of Reduction of Order, Undetermined Coefficients, and Variation of Parameters, Initial Value Problems, The Power Series method; Laplace Transform: Definition and Properties, Partial Fractions and Inverse Laplace Transform, Solution of Linear Differential Equations with Constant Coefficients; Applications.

AMAT 223: Calculus III, ECTS: 5

Vectors, Curves, and Surfaces in space; Vector Valued Functions; Functions of several variables, Partial Differentiation, and optimization; Double and Triple Integrals; Vector Fields and Line Integrals; Surface Integrals; Green's, Divergence, and Stokes' theorems.

AMAT 300: Probability and Statistics, ECTS: 5

Descriptive Statistics, Basic Probability Concepts, Conditional Probability, Random Variables, Density and Distribution Functions, Mathematical Expectation, Mean and Variance. Discrete Distributions: Binomial and Poisson, Continuous Distributions: Uniform, and Normal, Central Limit Theorem, Approximations for Discrete Distributions, Confidence Intervals, Hypothesis testing, Simple linear Regression.

AMAT 304: Partial Differential Equations, ECTS: 5

Introduction to Partial Differential Equations (PDEs): Classification, where they come from, initial and boundary conditions, and Solution of simple PDEs by direct integration; Solution of First order PDEs and Characteristic Curves; Fourier Series and Integrals; Solution of Second Order PDEs with the Method of Separation of Variables; The Heat (including general Sturm-Liouville problems), Wave (including D'Alembert's Solution), and Laplace's Equations. PDEs in one, two, and three dimensions. Also, in rectangular, polar, cylindrical, and spherical coordinates.

AMAT 314: Numerical Methods, ECTS: 5

Methods for finding roots of equations, Methods of numerical solution of linear systems of equations, Curve Fitting: Interpolation Methods and Least-Squares Regression, Numerical integration techniques, Numerical Differentiation, Numerical Solution of Ordinary Differential Equations, Introduction to numerical solution of Partial Differential Equations, Applications to engineering problems using simple routines and Matlab.

APHY 111: Mechanics, Heat and Waves with Laboratory, ECTS: 5

Review: Basic Trigonometry. Scalars and Vectors The SI system of Units. Kinematics: In one dimension, Projectiles. Dynamics: Newton's Laws, Momentum, Conservation of Momentum. Collisions. Work and Energy: Work, Kinetic and Potential Energies, Conservation of Energy, Kinematics of a Rigid Body: Motion and Rotation about a fixed axis. Dynamics of a Rigid Body: Torque, Work, Energy in Rotational Motion, Conservation of Angular Momentum. Oscillations: Simple Harmonic Motion, Kinetic and Potential Energies, Simple Pendulum. Waves: Pulses and Superposition. Sound: Sound Waves in Air, Speed of Sound, Doppler Effect. Ideal Gas: Density, Ideal Gas Law, Temperature Scales.

APHY 112: Electromagnetism and Optics with Laboratory, ECTS: 5

Electric charge. Conductors and insulators. Coulomb's Law. Electric field, Electric field lines. The potential of an electric field. Motion of charged particles in a uniform electric field. Electric flux. The Gauss' Law and applications. Conductors: Capacity and electrostatic energy. Condensers: Capacity, electrostatic energy, Connections of condensers. Dielectrics Electric current, Resistance and Ohm's law. Connections of resistors. Joule's Law. Direct current circuits, Kirchhoff's rules. Magnetic fields. Magnetic field lines. The Biot-Savart Law. Magnetic field near a long conductor and inside a solenoid. Ampere's Law. Magnetic force on current, Two parallel conductors, Faraday's law of Induction. Optics: Introduction to Optics. The nature of light. Reflection, refraction and polarization. Geometrical optics.

Maps

