



PINEWOOD – THE AMERICAN INTERNATIONAL SCHOOL OF THESSALONIKI, GREECE

NAME OF COURSE: IB 2 Mathematical Studies SL

GRADE LEVEL: 11-12

SCHOOL YEAR: 2010-2011

COURSE DESCRIPTION

Mathematical Studies, available as a standard level (SL) subject only, caters for students with varied backgrounds and abilities. More specifically it is designed to build confidence and encourage an appreciation of mathematics in students who do not anticipate a need for mathematics in their future studies. Students embarking on this course need to be equipped with fundamental skills and a rudimentary knowledge of basic processes.

The program consists of the study of six core topics: Numbers and Algebra; Sets and Logic; Geometry and Trigonometry; Statistics and Probability; Functions; and Financial Mathematics. The internal assessment component of this course is the project. This consists of an individual piece of work involving the collection and/or generation of data, and the analysis and evaluation of that data. The students are expected to undertake work of an independent nature in the areas of mathematical investigation and modelling or statistical surveys, applications etc. The project is internally assessed by the IB teacher and externally moderated by the IB Office.

This is a standard course offered to students whose main interests lie outside the field of mathematics. Throughout the course an approach from first principles is used, so that the students are able to use their own inherent, logical thinking skills and do not have to rely on standard algorithms and remember formulae.

Prerequisite: Algebra I and Geometry with a grade of C (75%) or a passing grade in Geometry and passing a placement test; teacher recommendation.

LEARNING OBJECTIVES

- 1) To introduce some basic elements and concepts of mathematics.
- 2) To enable candidates to understand the concept of a set, to use appropriate notation, to translate between verbal and symbolic statements and to use the principles of logic to analyze these statements.
- 3) To develop spatial awareness, to develop the ability to draw clear diagrams and to represent information given in two and three dimensions, and to develop the ability to apply trigonometric techniques to problem solving.
- 4) To be able to analyze random events, to introduce concepts of statistics and probability, and to develop techniques to describe and analyze sets of data.
- 5) To develop an understanding of some of the functions which can be applied to practical situations.
- 6) To build a firm understanding of the concepts underlying certain financial transactions.

SCOPE AND SEQUENCE *

QUARTER I

- 1) Trigonometric Functions
- 2) Exponential Functions
- 3) Financial Mathematics /Finance
- 4) Financial Mathematics /Linear Programming

QUARTER II

- 1) Introduction to Differential Calculus / Rates of Change
- 2) Differentiation & Applications
- 3) Integration

QUARTER III

- 1) Review
 - a. Number Systems
 - b. Sequences & Series
 - c. Linear Equations & Inequalities
- 2) Review
 - d. Quadratics
 - e. Sets & Logic
 - f. Solution of Triangles
- 3) Review
 - g. Coordinate Geometry
 - h. Vectors
 - i. Statistics
- 4) Review
 - j. Probability
 - k. Functions & Relations
 - l. Trigonometric Functions
 - m. Exponential Functions

QUARTER IV

- 5) General Review
 - n. Mock Exams
 - o. Preparation for I.B. Exams

****Note that the order in scope and sequence is subject to change during the school year.***

HOMEWORK POLICY

Frequent homework assignments, based on the day's lecture and assigned out of the main textbook or given in the format of a worksheet. All homework is to be collected and graded.

Homework submitted late will lose 10% of the overall score for each day late, and will only be accepted two days after the due date.

ASSESSMENT

- 1) Weekly-unannounced quizzes, testing the students' understanding of the previous lecture and homework assignment.

- 2) Class participation including board work, attentiveness of the student during the lecture, interest and effectiveness of the student in answering and asking questions about the lecture, and general classroom behavior of the student.
- 3) Three to four tests per quarter, testing the student's overall knowledge and comprehension of a specific chapter or a number of sections.
- 4) The department will not be giving any retake tests, therefore thorough preparation is expected.

GRADING POLICY

TESTS, QUIZZES AND PROJECTS: 60% of the Quarter grade

HOMEWORK: 30% of the Quarter grade

CLASS PARTICIPATION: 10% of the Quarter grade

- ▲ 4% PARTICIPATION
- ▲ 3% EFFORT
- ▲ 3% BEHAVIOR / ATTITUDE

Semester I grade: 40% Quarter I grade + 40% Quarter II grade + 20% Exam I

Semester II grade: 40% Quarter III grade + 40% Quarter IV grade + 20% Exam II

FINAL GRADE: 50% SEMESTER I GRADE + 50% SEMESTER II GRADE

RESOURCES

- 1) Main Textbook: "Algebra and Trigonometry, Book 2" Houghton Mifflin ©1997
- 2) Teacher generated material
- 3) Additional support material and various other reference texts including other editions of the main text
- 4) Using GDC along with related activities

ACADEMIC HONESTY

Academic honesty is fundamental to the integrity and operation of our school. Acts of academic dishonesty, including plagiarism (the act of presenting others' words and ideas as one's own without crediting the source), stealing in quizzes and tests, copying work from other students or allowing their own work to be copied, or using notes during a test, are considered serious offences. The consequences of academic dishonesty will be a zero grade on the specific test/assignment, and additional disciplinary action. The said student will be ineligible or removed from the National Honor Society.