**Course Description**

The IP Math Intensive course picks up where 9 Intensive ended; it covers a precalulus curriculum of functions and trigonometry. It is aimed at developing: mathematical skills and techniques, an understanding of how and why the techniques work, the ability to apply those techniques to a wide range of application problems, and the ability to use technology judiciously and effectively. Students will develop reasoning and critical thinking skills, as well as the ability to read and speak about mathematics.

Course content

Functions

 Modeling and equation solving

 Functions and their properties

 Twelve basic functions

 Building functions from functions

 Graphical transformations

 Modeling with functions

Polynomial, Power, and Rational Functions

 Linear and quadratic functions and modeling

 Power functions and modeling

 Polynomial functions of higher degree and modeling

 Real zeros of polynomial functions

 Complex numbers

 Complex zeros and the Fundamental Theorem of Algebra

 Graphs of rational functions

 Solving equations and inequalities in one variable

 Exponential, Logistic and Logarithmic functions

 Exponential and logistic functions

 Exponential and logistic modeling

 Logarithmic functions and their graphs

 Properties of logarithmic functions

 Equation solving and modeling

Trigonometric Functions

 Angles and their measures

 Trigonometric functions of acute angles

 Trigonometry extended: the circular functions

 Graphs of sine and cosine, tangent, cotangent, secant, and cosecant

 graphs of composite trigonometric functions

 Inverse trigonometric functions

 Solving problems with trigonometry

Analytic trigonometry

 Fundamental identities

 Proving trigonometric identities

 Sum and difference identities

 Multiple a-angle Identities

 The Law of Sines

 The Law of Cosines

Vector, Parametric equations, and Polar equations

 Vectors in a plane

 Dot products of vectors

` Parametric equations and motion

 Polar coordinates

 Graphs of polar equations

Discrete Mathematics

 Basic combinatorics

 Binomial theorem

 Probability

 Series and sequences

 Math induction

**Assessment**

         International School of Boston (ISB) grade: Each trimester, students will be assessed on:

o  Completion of homework and corrections

o   Tests and Quizzes

**Materials**

         **Binder** with separators and paper (graph paper is best), or spiral notebook.  Binder/notebook should be used exclusively for math.

         **Pens, pencils, eraser, pencil sharpener, ruler.**

         **Graphing Calculator,**TI-84 plus recommended model

**Preparation, vacation, and off-site work**

This course requires self-discipline and initiative. Students are expected to be on time and prepared for class. They are expected to meet deadlines and to **seek help ahead of time** if needed.

Students are **responsible for all work missed** during an absence, including copying class notes from a peer. If an assignment is due during a planned absence, students should turn it in ahead of time or on time electronically.

**Resources**

         Class textbook

* Websites and on line learning tools as assigned by teacher