IB Mathematics Standard Level Mr. Jason Howes

2012-2013 Room 205

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**Contact Information:** If you have any concerns or questions during the school year, please do not hesitate to get in touch with me. E-mail is the best way to contact me.

**Course:** The International Baccalaureate (IB): Mathematics Standard Level

**Course Overview:**

This course caters for students who already possess knowledge of basic mathematical concepts, and who are equipped with the skills needed to apply simple mathematical techniques correctly. The majority of these students will expect to need a sound mathematical background as they prepare for future studies in subjects such as chemistry, economics, psychology and business administration.

The course focuses on introducing important mathematical concepts through the development of

mathematical techniques. The intention is to introduce students to these concepts in a comprehensible and coherent way, rather than insisting on mathematical rigour. Students should wherever possible apply the mathematical knowledge they have acquired to solve realistic problems set in an appropriate context.

The internally assessed component, the portfolio, offers students a framework for developing independence in their mathematical learning by engaging in mathematical investigation and

mathematical modelling. Students are provided with opportunities to take a considered approach to these activities and to explore different ways of approaching a problem. The portfolio also allows students to work without the time constraints of a written examination and to develop the skills they need for communicating mathematical ideas. The portfolio will account for 20% of the students overall IB grade.

This course does not have the depth found in the mathematics HL course. Students wishing to study subjects with a high degree of mathematical content should therefore opt for the mathematics HL course rather than a mathematics SL course.

**Course Content:**

Topic 1 – Algebra

Topic 2 – Functions and equations

Topic 3 – Circular functions and trigonometry

Topic 4 – Matrices

Topic 5 – Vectors

Topic 6 – Statistics and probability

Topic 7 – Calculus

Note: Topics 1-5 are covered in grade 11 and topics 6-7 are covered during grade 12.

Textbook: *Mathematics for the International Student; Mathematics SL*, 2nd edition, Haese & Harris

**Supplies:**  Students are required to bring the following to each lesson: school issued IPAD, pen/pencil, textbook, mathematics notebook, graphic calculator. Each student should possess her/his own TI-83 or TI-84 calculator .  ***TI-83 Plus and/or TI-84 Plus are the only calculators that will be used in the teacher’s presentation.*** There are a number of other calculators allowed on the IB Exam. If you already have a calculator and want to know if it is allowed, please see me.

**Expectations:**

* Be on time with required supplies
* Cell phones/listening devices MUST be switched off!
* No food, gum, hats, or listening devices during class
* you are responsible for catching up on any work missed through absence
* late work may result in an academic detention (please see student hand book for details)

**Cheating is unacceptable under all circumstances**. If you are involved with any cheating or copying of one's work and representing it as your own or giving your work to another you will receive a **zero** for that piece of work and the high school principal will be notified.

**Instructional Methods:** Class sessions include whole-class instruction, small group work, individual work, and projects. Since this is a standard level IB course, we will meet every period for approximately 60 minutes and the remaining time will be allocated for extra help and homework as needed.

**Assessment / Grading:**

ISS reports assessment in three categories:

1. Achievement/ Attainment

Every student is capable of success in this course through hard work and dedication. It is very important to be an active participant in class; this includes asking questions and taking part in class discussions.

Interim Summative Assessments (ISA) 40%

* ISAs may include homework, notebook tests,

short/pop quizzes, investigations, and other

small assignments

Significant Summative Assessments (SSA) 60%

* SSAs will generally consist of longer quizzes, tests

or projects over the course of a chapter or unit

1. Effort, Engagement, Organization and Progress (see student hand book)
2. Learner Profile & Conduct (see student hand book)

Semester grades

 Assessments throughout the semester 80 %

 Winter Exam/Summer Exam 20 %

**Homework:** Homework will be set most lessons; and on the occasions when it is not, students are advised to consolidate their learning with 40 minutes of self study. For excused absences please refer to the guidelines in the student handbook for turning in missed work.

**Notebook Check:** You will need to keep an organized mathematics notebook with all notes, homework, and sample problems. This may be graded at the end of each unit.

**Tests and Quizzes:**  Students may not always be forewarned of quizzes and, thus, should always be prepared for this possibility! Tests will follow the completion of each unit within the course. Adequate warning will be given for all tests. HW/tests/quizzes will also be posted on the web calendar.

**Preliminary Outline of Topics by Quarter:**

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| --- | --- | --- | --- | --- |
|  | Quarter One | Quarter Two | Quarter Three | Quarter Four |
| Year One | Functions, sequences, and series, exponents | Exponents and logarithms, transformations, geometry and quadratics | Binomial theorem, Trigonometry and the unit circle, Matrices | Periodic Phenomena, Internal assessment, vectors |
| Year Two | Introduction to Calculus, statistics and probability | Statistical distributions and differentiation 1 | Differentiation 2 and integration  | Finish integration and revision for IB exams |