

## IBDP Mathematics Higher Level (Year 2)

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Should you wish to learn more about our course or to discuss your learner's progress, please reach out to the email above to schedule a time to meet.

### Course Description and Units of Learning:

The IB DP higher level mathematics course focuses on developing important mathematical concepts in a comprehensible, coherent and rigorous way, achieved by a carefully balanced approach. Students are encouraged to apply their mathematical knowledge to solve problems set in a variety of meaningful contexts. Development of each topic should feature justification and proof of results.

Students should expect to develop insight into mathematical form and structure, and should be intellectually equipped to appreciate the links between concepts in different topic areas. They are also encouraged to develop the skills needed to continue their mathematical growth in other learning environments. The internally assessed exploration allows students to develop independence in mathematical learning.

Students are encouraged to take a considered approach to various mathematical activities and to explore different mathematical ideas. The exploration also allows students to work without the time constraints of a written examination and to develop the skills they need for communicating mathematical ideas.

For a more detailed exploration of this course, [the IB Subject Guide is available at this link.](#)

### CALCULUS

The aim of this topic is to introduce students to the basic concepts and techniques of differential and integral calculus and their application.

### VECTORS

The aim of this topic is to introduce the use of vectors in two and three dimensions, and to facilitate solving problems involving points, lines and planes.

### STATISTICS AND PROBABILITY

The aim of this topic is to introduce basic concepts. It may be considered as three parts: manipulation and presentation of statistical data, the laws of probability, and random variables and their probability distributions. It is expected that most of the calculations required will be done on a GDC. The emphasis is on understanding and interpreting the results obtained. Statistical tables will no longer be allowed in examinations.

This year we have begun planning and implementing units of study based on our Critical Learning Outcomes within the IB MYP and DP frameworks. Please see ManageBac for unit overviews as they are taught throughout the year.

## **Assessment in the Diploma Programme**

Assessment is a key component of the learning process as it allows teachers to respond with targeted feedback to learners for continued growth and to revise their instruction to better meet the needs of their learners. In order to provide learners with the opportunity to reach critical learning outcomes and develop a range of approaches to learning skills, our IB Diploma teachers develop rigorous tasks that embrace a variety of strategies in line with desired learning outcomes and with each course's internal and external assessments.

Working backwards from these assessment components, teachers craft learning experiences which support each learner's mastery of key content, concepts, and skills in every subject. Learners can expect to receive regular feedback on all three elements, with important culminating experiences such as IA drafts and mock examinations in the second year. For culminating tasks, teachers and learners are guided by criteria provided at least one week prior to the due date. DP teachers also work to ensure that learners not only understand but engage in applying evaluation criteria to their own work as well as that of their peers. Core components such as Theory of Knowledge, CAS, and the Extended Essay support each learner's progress across the programme, as learners apply critical thinking, the design cycle, and research skills to each subject.

Families and learners at AISM can expect to receive regular reporting of their performance as they work towards mastery of critical learning outcomes.

## **Learning Management Systems**

Across the Secondary School, we utilize ManageBac for sharing key activities and assessments, as a digital workspace, for communication with learners, and for reporting on learner performance to families. Some teachers may supplement the digital learning environment with Google Classroom, and you can expect an emailed invitation to sign up for regular updates from Google Classroom if so.

## **Homework**

Any learning activity which is expected to take place outside of the classroom will appear as assignments and tasks on ManageBac. Homework is most often an extension of activities or projects either begun or included in the classroom, but may include common activities like reading, reinforcement of content or skills within a unit of study, or distributed practice activities, such as flashcards for example, to support learner recall of low-level content.

## **Reporting**

As a rough guide, learners and families can expect an update on performance every few weeks. These updates, available in ManageBac, represent a check-in on learner performance toward mastering critical course objectives and learning outcomes, prior to each unit's culminating assessment.