



# Katedraliskolan Skara IB Diploma Programme



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## Mathematic Studies SL (first exams 2014)

Updated: 9 October 2018

### General course description

Mathematics is a wide subject for different needs, ranging from everyday life situations of buying food and services to advanced scientific calculations. Mathematical Studies SL (Math Studies) has an emphasis of mathematical knowledge and applications with a focus of statistical and economical aspects and everyday life situations, using different tools (calculator, computer programs i.e).

### Topics /core/options

All topics of the course are compulsory. The students are required to have prior learning of different mathematical areas (arithmetic, algebra, foreign currency, data collection, data representation, geometry, coordinate geometry, SI units i.e).

Topic	Hours	Topic	Hours
Numbers and algebra	20 h	Geometry and trigonometry	18 h
Descriptive statistics	12 h	Mathematical models	20 h
Statistical applications	17 h	Introduction to differential calculus	18 h
Logic, sets and probability	20 h	Project (Internal assessment)	25 h
<b>Total teaching hours</b>			<b>150 h</b>

### Methods

A variety of methods is used to teach Math Studies both to reflect the IB learner profile and to engage the interest of all students. Mathematical concepts are taught in a variety of methods (lectures, practical investigations, result analysis, discussions and exercises) to develop understanding of fundamental mathematical concepts and skills. These concepts and skills are used for problem-solving and calculations in a wide range of contexts to further develop mathematical skills and reasoning.

A Math Studies student has an investigative approach to unfamiliar situations, shows knowledge and understanding in recalling, selecting and using concepts and techniques in known and unknown contexts. The student uses skills, concepts and models in varied contexts of problem-solving where communication and interpretation of the context have to be transformed into mathematical operations, diagrams, graphs and models using mathematical notation. The accurate and efficient use of technology helps to explore and calculate different solutions. The student is familiar to drawing conclusions, testing validity



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and considering limitations in investigations as well as using argument and logical deduction in mathematical reasoning.

Throughout the course links are made to TOK (Theory of Knowledge) in different areas of Mathematics; Why do we need negative numbers? Are there different sizes of infinity? How do we know lines are parallel throughout the Universe? How can we use statistics to “prove our point”? Is it correlation or causation? Is Math an universal language?

## **Assessment**

### **Internal**

The project is an individual piece of work involving the collection of information or generation of measurements, and the analysis and evaluation of the information or measurement. The students can choose any Mathematical topic for this project, but many students do it within statistics, probability or functions.

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course and makes 20% of the final grade.

### **External**

Paper 1 consists of 15 compulsory short-response questions based on the whole syllabus. Paper 2 consists of 6 compulsory extended-response questions based on the whole syllabus. The calculator may be used throughout both sessions. The two papers are sent for external marking and each contribute to 40% of the final grade.

## **Course material/Textbook**

P. Blythe, J. Fernsom, J. Forrest & P. Waldman de Tokman, *Mathematical Studies SL course companion* (2012). Oxford University Press

## **Teacher and email**

Annemarie (Ammi) Matsson, [annemarie.matsson@skara.se](mailto:annemarie.matsson@skara.se)

## **Further information**

There will be a syllabus change for the students beginning the Diploma Programme in August 2019 with the first examination in May 2021. The new course will be called “Mathematics: Applications and interpretation SL”.

Further information about the course Mathematical Studies SL and the new “Mathematics: Applications and interpretation SL” can be found at the IBO website, [ibo.org](http://ibo.org).