What is the DP Mathematical Studies SL group 5 course about?

The course syllabus focuses on important mathematical topics that are interconnected. The syllabus is organized and structured with the following tenets in mind: placing more emphasis on student understanding of fundamental concepts than on symbolic manipulation and complex manipulative skills; giving greater emphasis to developing students' mathematical reasoning rather than performing routine operations; solving mathematical problems embedded in a wide range of contexts; using the calculator effectively. Each mathematical studies SL student completes a project, based on their own research; this is guided and supervised by the teacher. The project provides an opportunity for students to carry out a mathematical study of their choice using their own experience, knowledge and skills acquired during the course. The students most likely to select this course are those whose main interests lie outside the field of mathematics. Students likely to need mathematics for the achievement of further qualifications should be advised to consider an alternative mathematics course. Owing to the nature of mathematical studies SL, teachers may find that traditional methods of teaching are inappropriate and that less formal, lessons that use an inquiry-based approach, starting with practical investigations where possible, followed by analysis of results, leading to the understanding of a mathematical principle and its formulation into mathematical language, are often most successful in engaging the interest of students. Furthermore, this type of approach is likely to assist students in their understanding of mathematics by providing a meaningful context and by leading them to understand more fully how to structure their work for the project.

What is the assessment like in Mathematics?

Assessment Component	Weightage
External Assessment (Calculator allowed in both the papers)	**80%**
Paper 1 - 90 marks/1 ½ hours	**40%**
Paper 2 - 90 marks /1 ½ hours	**40%**
Internal Assessment - This component is internally assessed and externally moderated by IB at the end of the course – Mathematics Project	**20%**

How is the curriculum of Mathematical Studies structured and what are the learning outcomes?

The syllabus content and expected learning outcomes in Mathematics Studies are -

Curriculum topics	Learning/Outcome
1. Number and algebra	Students will learn some basic elements and concepts of mathematics and to link these to financial and other applications.
2. Descriptive Statistics	Students will learn to describe and interpret sets of data, in preparation for further statistical applications.
3. Logic, sets and probability	Students will be introduced to the principles of logic, use set theory to introduce probability and to determine the likelihood of random events.

[Some parts of this subject brief were prepared after consulting the *Mathematics guide: first examinations 2014*, published by the International Baccalaureate Organisation in Cardiff in 2012.]

Curriculum topics	Learning/Outcome
4. Statistical applications	Students will learn techniques in inferential statistics in order to analyze sets of data, draw conclusions and interpret these.
5. Geometry and trigonometry	Students will learn the geometric and trigonometric concepts and apply them to solve problems in two and three dimensions.
6. Mathematical models	Students will develop an understanding of some mathematical functions that can be used to model practical solutions. Extensive use of GDC is encouraged in this topic.
7. Introduction to differential calculus	Students will learn the concepts of the derivative of a function and to apply it to optimization and other problems.
8. Internal Assessment PROJECT	The project is an individual piece of work involving the collection of information or the generation of measurements, and the analysis and evaluation of the information or measurements.

How will this Mathematics course help me later?

This course has an emphasis on applications of mathematics, and the largest section is on statistical techniques. It prepares students to be able to solve problems in a variety of settings, to develop more sophisticated mathematical reasoning, to enhance their critical thinking, to analysis and evaluate the data. Hence, students taking this course are well prepared for a career in social sciences, humanities, languages or arts. These students may need to utilize the statistics and logical reasoning that they have learned as part of the mathematical studies SL course in their future studies.

[Some parts of this subject brief were prepared after consulting the *Mathematics guide: first examinations 2014*, published by the International Baccalaureate Organisation in Cardiff in 2012.]