Mathematics / Mathemateg

Subject Leader: Mr Hall **Examination Board:** WJEC

Essential GCSE's: Mathematics – B+ (at Higher Tier)
Desirable GCSE's: Numeracy / Science – B+

Course Outline

Mathematics at A level is a very popular option at Bassaleg with around 60 students enrolling in Year 12 every year. There was a new A level specification introduced in September 2017. This was designed to follow on from the new GCSE courses in Mathematics and Mathematics-Numeracy examined for the first time in 2016/17. 'A Level students will sit two examinations in the summer of Year 12 for AS Mathematics and another two examinations in the summer of Year 13 to complete A2 Mathematics. The AS grade will count as 40% of the overall A2 grade.

The course will follow the WJEC A level examination specification. This is split into two main parts: Pure Mathematics (60% of A2, 62.5% of AS) and Applied Mathematics (40% of A2, 37.5% of AS) which covers both Mechanics and Statistics. All units are compulsory. Most students who opt for A Level Physics find studying A Level Mathematics as well to be particularly beneficial. Students are expected to aim for 100% attendance. If lessons are missed for whatever reason then it is the student's responsibility, under guidance from the teacher, to find out what has been missed and catch up as soon as possible. Students are encouraged to assist each other throughout the course and also seek extra help from their teachers whenever it is required. In recent years Google Classroom has proved to be very useful in ensuring students keep on top of everything.

Entry Requirements

A level Mathematics follows on directly from GCSE Mathematics. It is accessible to students who have achieved grade B or above at GCSE Mathematics Higher Tier. Where appropriate students should also have a grade B or above in GCSE Mathematics-Numeracy (this course was first introduced in Year 11 2016/17). Those who studied the Intermediate or Foundation Tier GCSE are not suitable candidates for A Level Mathematics.

Students should enjoy Mathematics and have an aptitude for the subject. They must be able to think analytically and have good problem solving skills. They will often need to work independently but should be able to contribute to group discussions. They will be willing to seek advice when necessary and will develop the skills to enable them to balance perseverance with effective time management.

What will I study?

Pure Mathematics includes several new topics such as calculus, logarithms & exponentials but will also build on much of the algebra, trigonometry and graph work introduced at GCSE. In addition, students will study both Mechanics (how objects move and how structures are held together) and Statistics (handling data and probability). These will further the study of some familiar concepts and also introduce new topics such as Newton's laws of motion, differential equations and the binomial & normal distributions.

How will I be assessed?

Students can expect a variety of assessments throughout the course including formal tests, open-book tests and extended homework exercises. The emphasis will be on Assessment for Learning and detailed feedback will be provided for each key assessment. The formal assessment for AS & A2 will be via four external examinations (two per year). All students will take AS Mathematics in Year 12. Successful AS students can then opt to take A2 Mathematics in Year 13.

Students will study Pure Mathematics and Applied Mathematics (Mechanics & Statistics) in both years. All examinations will be taken in the summer (two in each year). In Year 12, Unit 1 (Pure Maths A) is 2h 30m long and worth 25% of A2 (62.5% of AS); Unit 2 (Applied Maths A) is 1h 45m long and worth 15% of A2 (37.5% of AS). In Year 13, Unit 3 (Pure Maths B) is 2h 30m long and worth 35% of A2; Unit 4 (Applied Maths B) is 1h 45m long and worth 25% of A2. All units are compulsory and cover the common content agreed by the various examination boards and universities.

Career Opportunities and Progression

Mathematics is a valued subject in many careers but some of the more obvious ones include Engineering, Accountancy, Architecture, Banking and Stock Broking, Insurance Services, Surveying, Teaching and most Science based careers. Mathematics A level is a requirement for many university degree courses including Mathematics itself and most courses leading to the careers mentioned above.