Further Mathematics A-Level

Subject Leader: Mr Farren

Syllabus: Edexcel

Course Specification: 9FM0

Course Requirement
Admission to the course is dependent on achieving a minimum of 5 GCSEs, including English, graded 9 – 5 and Maths at grade 8.

Course Content
Students are required to develop skills in working scientifically over the course of this qualification. The course has three over - arching themes

Overarching theme 1: Mathematical argument, language, and proof
Knowledge/Skill

- Construct and present mathematical arguments through appropriate use of diagrams; sketching graphs; logical deduction; precise statements involving correct use of symbols and connecting language, including constant, coefficient, expression, equation, function, identity, index, term, variable
- Understand and use mathematical language and syntax
- Understand and use language and symbols associated with set theory
- Understand and use the definition of a function; domain and range of functions
- Comprehend and critique mathematical arguments, proofs and justifications of methods and formulae, including those relating to applications of mathematics

Overarching theme 2: Mathematical problem solving
Knowledge/Skill

- Recognise the underlying mathematical structure in a situation and simplify and abstract appropriately to enable problems to be solved
- Construct extended arguments to solve problems presented in an unstructured form, including problems in context
- Interpret and communicate solutions in the context of the original problem
- Understand the concept of a mathematical problem solving cycle, including specifying the problem, collecting information, processing and representing information and interpreting results, which may identify the need to repeat the cycle
- Understand, interpret, and extract information from diagrams and construct mathematical diagrams to solve problems

Overarching theme 3: Mathematical modelling
Knowledge/Skill

- Translate a situation in context into a mathematical model, making assumptions
- Use a mathematical model with suitable inputs to engage with and explore situations (for a given model or a model constructed or selected by the student)
- Interpret the outputs of a mathematical model in the context of the original situation (for a given model or a model constructed or selected by the student)
- Understand that a mathematical model can be refined by considering its outputs and simplifying assumptions; evaluate whether the model is appropriate
- Understand and use modelling assumptions

Assessments
The Advanced GCE in Further Mathematics consists of four externally examined papers. Students must complete all assessments in May/June in any single year.

Independent Study
Students are expected to complete an hour of independent study for every hour that is taught

Future Pathways
Further Mathematics is highly regarded and is warmly welcomed by universities. Students who take Further Mathematics are really demonstrating a strong commitment to their studies, as well as learning mathematics that is very useful for any mathematically rich degree. Some prestigious university courses require you to have a Further Mathematics qualification, and others may adjust their grade requirements more favourably to students with Further Mathematics.

