

FURTHER MATHEMATICS A LEVEL

Subject Leader: **Mr Appiah**

Syllabus: **Edexcel**

Course Code: **8FM0/9FM0**

Course Requirement

Admission to the course is dependent on achieving a minimum of 5 GCSEs graded 9 – 5 including English and Maths at grade 7.

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

Assessment

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 would be expected to spend an average of 6 hours per week on independent study.

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.

