

# INTO THE SIXTH AT FETTES COLLEGE



**Fettes College**

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## A LEVELS and INTERNATIONAL BACCALAUREATE

Sixth Form subjects should be chosen because they will both be satisfying and challenging. Fettes offers both A Levels and the IB in order to give each individual the chance to select the curriculum and subjects that are best suited to him or her. Whichever option an individual chooses should provide the opportunity for future success in Higher Education.

At this time, when decisions of great importance are being made, advice from Housemasters and Housemistresses tailored to the individual concerned is of central importance. Others are on hand to provide advice also: tutors, subject teachers, Mrs Davies, who is in charge of University Entrance and I are always willing to discuss what is in the best interests of each individual. Choices ideal for one student may be quite wrong for someone else.

### A LEVELS

The main features of A Level are these:

- A Levels have changed and are now linear, not modular. Linear means that the whole A Level course is assessed at the end of the U6th Form rather than be examined in modules in the Summer Term of the L6th and U6th Forms. A Levels allow students to study a small range of subjects in great depth.
- Linear A Levels still have an AS Level but it has been decoupled from A Level. This means that it still exists as a stand-alone qualification but it no longer counts towards the final A Level grade. Fettes does not offer AS Levels but prefers to use the Summer Term of the L6th Form for teaching.
- Students on the A Level pathway choose three main subjects. Some students may take a fourth. Students wishing to take Further Mathematics should do it as a fourth subject. Those who wish to take all three sciences must take Mathematics as a fourth subject to support Physics. Any other student who wishes to take a fourth subject may nominate one and, if there is a good reason for choosing it and there is space in the set, that student may also take four subjects.
- Students also take the Extended Project Qualification, which counts as an AS Level. Initially they follow a course of Critical Thinking and Research Skills before choosing a topic for their EPQ during the Spring Term. Please note that the EPQ requires determination and the ability to work independently. Experience shows that not all students see the EPQ through to a successful conclusion. However, a good EPQ project that complements a choice of universities can be helpful in support of a UCAS application.
- Exam results are published in August.

### INTERNATIONAL BACCALAUREATE

The IB is an internationally renowned qualification that has existed for over 40 years. It is a broad qualification and very different in character from A Levels. The main features are these:

- Six subjects are studied: English, a modern or classical language, a social subject, a science, Mathematics and a creative subject. Students may choose to do a second language, social subject or science instead of a creative subject if they wish to specialise.
- Three subjects are studied at Higher Level and three at Standard Level. Higher Level subjects have a greater amount of content than Standard Level subjects. There is a coursework component in all subjects.
- In addition, students have to take a course in the Theory of Knowledge, do an Extended Essay on a topic of their choice and undertake a programme of Creativity, Action and Service, spending approximately 50 hours on each element of the CAS course over the two years.
- All subjects are studied for two years and there are terminal examinations in all subjects in the May of the U6th Form. Each subject is marked out of 7 and there are three points available for Theory of Knowledge and the Extended Essay. The maximum mark is therefore 45. In order to qualify for the Diploma, students have to score at least 24 and must complete the Theory of Knowledge, Extended Essay and Creativity, Action and Service component of the course.
- Exam results are published in July.

#### QUALIFICATIONS FOR ENTRY

Students joining our Sixth Form from other schools are normally required to have achieved a minimum of six passes (Grade 6 or better) at GCSE or the Scottish equivalent. They should generally have at least a 7 or higher at GCSE or equivalent in any subject which they are intending to take at A Level or at Higher Level in the IB.

#### OPTIONS AVAILABLE

Students follow either the A Level or IB pathway. Subjects are arranged into columns. Not more than ONE may be chosen from any single column. The columns have been arranged to give maximum flexibility and have been chosen in the light of University and Career opportunities explained below.

#### A LEVEL COLUMNS

| A          | B         | C           | D             | E              |
|------------|-----------|-------------|---------------|----------------|
| Chemistry  | Drama     | Geography   | Biology       | Art            |
| Economics  | French    | History     | Classical Civ | English        |
| Latin      | Geography | Mandarin    | Computer Sci  | Further Maths* |
| Psychology | Physics   | Mathematics | English       | German         |
|            |           |             | Greek         | Music          |
|            |           |             | Mathematics   | PE             |
|            |           |             | Politics      | Spanish        |

\* Students studying Further Maths must also take Mathematics in column C

#### IB COLUMNS

|   | A                  | B   | C   | D  | E  | F  |
|---|--------------------|---|---|--|--|--|
| Group 1<br>Language A                   | ENGLISH<br>English |   |   |  |  |  |
| Group 2<br>Language B<br>or ab initio   |                    | FRENCH<br>GERMAN<br>LATIN<br>SPANISH<br><br>French<br>German<br>German ab<br>initio<br>Italian ab<br>initio<br>Latin<br>Mandarin<br>Spanish |   |  |  | FRENCH<br>GREEK<br><br>French<br>Greek   |
| Group 3<br>Individuals<br>and Societies |                    |   | GEOGRAPHY<br>GLOBAL<br>POLITICS<br>HISTORY<br><br>Geography<br>Global Politics<br>History |  |  | ECONOMICS<br>HISTORY<br>PSYCHOLOGY<br><br>Classical Greek &<br>Roman Studies<br>Economics<br>History<br>Psychology |
| Group 4<br>Experimental<br>Sciences     |                    |   | COMPUTER<br>SCIENCE<br><br>Computer<br>Science  | BIOLOGY<br>PHYSICS<br><br>Biology<br>Physics |  | CHEMISTRY<br>SPORT<br><br>Chemistry<br>Sport   |
| Group 5<br>Mathematics                  |                    |   |   |  | MATHS<br><br>Maths<br>Analysis<br><br>Maths<br>Applic-<br>ations |  |
| Group 6<br>Arts                         |                    |   | VISUAL ARTS<br><br>Visual Arts  |  |  | MUSIC<br>THEATRE<br>Music<br>Theatre   |

Please note that, if there is a very small take-up for a subject at A Level or IB, that class may not run.

Andrew Shackleton  
Director of Studies  
December 2018

## CAREERS

Choosing a Sixth Form course should be broadly relevant to future career intentions, and the Futurewise Tests, already taken in the Fifth Form, should have indicated to most students the general direction to take. Choice may also be influenced by performance at GCSE, and students also have the opportunity to consider subjects which they have not previously studied. At this stage achieving a balance of subjects can be important; students should choose subjects in which they are likely to do well and, more importantly, which they enjoy. In a working world where the "job for life" is rapidly disappearing, flexibility, adaptability and individual career planning are increasingly the norm. The ability to assess and build on personal strengths is essential. The Sixth Form is a crucial stage in preparing the portfolio of achievement, interests and skills which will enable the individual to adapt to the challenges of a changing world.

## UNIVERSITY ENTRANCE

The rapid expansion of degree courses in recent years has ensured that every student who has the ambition to go to university may find a course which suits personal inclination, aptitude and level of academic achievement. However, it is very important that, on entry to the Sixth Form, students have a clear understanding of any requirements laid down by universities for entry to the course of their choice. Detailed information can be found at [www.ucas.com](http://www.ucas.com), and in the main Library. Because the scope for choice is so wide, students should be prepared to do plenty of personal research as early as possible to avoid disappointment at a later stage. The following list may be helpful although it is by no means exhaustive and should be regarded as a general guide.

| University Course               | Recommended Subjects                     | Useful Subjects  |
|---------------------------------|--|------------------|
| Accountancy and Finance         | Maths                                    |                  |
| Agriculture                     | Chemistry<br>Maths or Biology            | Physics          |
| Architecture                    | Art<br>Maths                             |                  |
| Art                             | Art<br>History of Art                    | English          |
| Biology                         | Biology<br>Physics<br>Chemistry          | Maths            |
| Business Studies                | Economics                                | Maths            |
| Chemistry                       | Chemistry<br>Physics<br>Biology          | Maths            |
| Classics                        | Latin<br>Greek                           | English          |
| Classical Civ / Ancient History | Classical Civilisation                   |                  |
| Computer Science                | Maths<br>Computer Science<br>Physics     |                  |
| Dentistry                       | Chemistry<br>Physics<br>Maths or Biology |                  |
| Drama / Theatre Technology      | Drama and Theatre                        | English          |
| Economics                       | Economics                                | Maths<br>History |

| University Course            | Recommended Subjects                         | Useful Subjects     |
|------------------------------|--|---------------------|
| Engineering<br>(Chemical)    | Chemistry<br>Physics<br>Maths                |                     |
| Engineering<br>(Other Types) | Maths<br>Physics                             | Computer Science    |
| English                      | English                                      | Another Language    |
| French                       | French                                       | Another Language    |
| Geography                    | Geography<br>A science/<br>Maths             | Economics           |
| Geology                      | Physics<br>Chemistry                         | Geography           |
| German                       | German                                       | Another Language    |
| History                      | History                                      | English             |
| History of Art               | History of Art                               | English             |
| Law                          | English                                      | Other arts subjects |
| Mathematics                  | Mathematics                                  | Physics             |
| Medicine                     | Chemistry + 2 of Physics<br>Maths or Biology | English<br>Latin    |
| Modern Languages             | Two Modern Languages                         |                     |
| Music                        | Music  | A Language          |
| Pharmacy                     | Chemistry<br>Physics<br>Maths or Biology     |                     |
| Philosophy                   |  | Classics            |
| Physics                      | Physics<br>Maths<br>Chemistry                |                     |
| Politics                     | Any arts subjects                            | Economics           |
| Psychology                   | 2 sciences for BSc                           |                     |
| Sociology                    |  | Any arts subjects   |
| Spanish                      | Spanish                                      | Another Language    |
| Television, Film & Media     | Drama and Theatre                            | English             |
| Veterinary Science           | Chemistry<br>Physics<br>Maths or Biology     |                     |

#### DIRECT ENTRY TO PROFESSIONS, SERVICES, INDUSTRY COMMERCE etc.

For any boy or girl intending to embark on a career which does not entail entry to University or Further Education College it is especially important to choose a Sixth Form course which is relevant and to be certain of what qualifications are needed.

On any of these general issues, please do not hesitate to contact me if you have any queries.

Mrs CL Davies  
Head of Higher Education & Careers

## ART and DESIGN (A Level and IB)

What is art? Well, it is almost impossible to define. It is everywhere; from Ingres to the iPad - it is inescapable. However, in considering studying art in the Sixth Form we can be more precise. The course will develop your understanding of the visual world, through the exploration of materials and processes, developing your practical skills as well as gaining a deeper understanding of the wider subject through studying the work of other artists.

The Art Department offers A Level Art and Design, and Visual Arts as an elective of the IB programme. In order to study at these levels we would expect candidates to have achieved a grade 7 or equivalent at GCSE or a similar examination.

### A Level

Under the broad umbrella of Art and Design students will have the opportunity to explore a range of disciplines: Sculpture, Painting and Printmaking, Photography, New Media and Textiles.

The first year of the A Level is a foundation course in a wide range of Art and Design activities; processes, techniques and research methods. Students will work in a variety of media during the course and gain experience that will allow them to embark on the second year of the course with confidence and with appropriate skills with which to explore their ideas. In the second year of the course, students design their own programme of work for their coursework submission. The Personal Study includes a written element, an essay of 1500 words that explores the themes and concepts behind their practical work.

### Assessment for A Level

#### Component 1

**Personal Investigation:** an individually selected project working from an idea, issue or concept. Students pursue a chosen theme, researching it fully, both practically and through in-depth references to the work of artists and/or designers. This Unit includes a 1500 word essay on the themes and concepts explored in the practical work.

60% of final mark

#### Component 2

##### Externally Set Assignment

**Controlled test:** consisting of several weeks of preparation time and a 15 hour exam developing a personal response to a theme set by the examination board.

40% of final mark

### IB Visual Arts

Art is in the group 6 Arts and Electives section and would provide excellent balance and breadth to any IB programme. In a way similar to the A Level syllabus, students have the opportunity to explore a range of disciplines. However, the premise of the IB Visual Arts programme is that engagement in the Arts promotes a sense of identity, which makes a unique contribution to the development and views of each student. Students are expected to make their own journey of exploration, through sustained studio practice and record their observations, thoughts and influences in their work. Central to the course is an awareness of how Art and Design manifests itself across cultures and time.

The Visual Arts course is assessed across three components;

The Comparative Study and the Process Portfolio are assessed externally and make up 60% of the final grade.

The Exhibition is internally assessed and makes up the remaining 40% of the final grade.

**Comparative study:** Students will analyse and compare artworks by different artists. This independent, critical and contextual investigation explores artworks, objects and artefacts from differing cultural contexts. They will compare at least three different artworks, by at least two different artists. Students will also submit a reflection on the extent to which their work and practices have been influenced by any of the art/artists examined.

**Process portfolio:** Students will submit carefully selected materials, which evidence their experimentation, exploration, manipulation and refinement of a variety of visual arts activities during the two-year course. The submitted work will be in at least three different art-making forms.

**Exhibition:** Students will submit for assessment a selection of resolved artworks from their exhibition. The selected pieces should show evidence of their technical accomplishment during the visual arts course and an understanding of the use of materials, ideas and practices appropriate to visual communication. Students will submit 8–11 pieces with exhibition text for each, along with a curatorial rationale of 700 words.

The Art Department offers the IB Higher Level and Standard Level

Miss BJ Conway

## BIOLOGY (A Level and IB)

The impact of Biology on our everyday lives is enormous. We are being made constantly aware of health and environmental problems, such as Ebola, the greenhouse effect and the destruction of habitats and species. As well as these we are presented with a bewildering array of new techniques in medical research and biotechnology. The study of Biology helps provide a more profound understanding of current problems and is relevant to a wide variety of different careers, scientific and non-scientific, where both the academic and the practical skills that are taught are used.

### A Level

Because of the high level of biochemistry and molecular biology at AS and A2 it is *highly recommended* that a student has taken GCSE Chemistry. Although it is best taken with other sciences, Biology is a subject that combines very well with Arts subjects and often has been found to offer a good contrast as it blends both the analytical skills of a good scientist with the lucid use of language that is required of a good English student.



## Course Structure:

Two years A Level Sciences became linear (as opposed to modular which are sat in both Upper and Lower Sixth years) and we have chosen to follow the Edexcel A Level Biology B specification. The course is divided into 10 topics each covering different key concepts in Biology, as well as important applications of Biology. You will need to demonstrate knowledge and understanding, handle data, apply your knowledge and skills, analyse, evaluate and develop ideas.

The 10 topics are assessed across three examinations papers taken in the June of the Upper Sixth. At least 10% of the marks in all papers will be for mathematical skills which will be tested alongside the practical skills that will be taught throughout the course.

The Topics are as follows:

- Topic 1 – Biological Molecules
- Topic 2 – Cells, Viruses and Reproduction
- Topic 3 – Classification and Biodiversity
- Topic 4 – Exchange and Transport
- Topic 5 – Energy for Biological processes
- Topic 6 – Microbiology and Pathogens
- Topic 7 – Modern genetics
- Topic 8 – Origins of Genetic Variation
- Topic 9 – Control Systems
- Topic 10 – Ecosystems

There is no longer any practical coursework in A level Biology but there are 16 core practicals which must be completed to pass the science practical endorsement. These include:

- Dissection
- Microscopy
- Microbiology
- Rates of enzyme reactions
- Ecological fieldwork
- Rates of respiration
- Chromatography

We also cover many more to ensure our Biologists experience a full experimental science course.

## Assessment

This is over three theoretical papers

Paper 1- 30% - This covers topics 1-7.

Paper 2- 30% - This covers topics 1-4 and 8-10

Paper 3- 40% - This covers topics 1-10 and practical knowledge

## IB

As with all of the subjects available at IB level, Biology can be studied at Standard Level (SL) or Higher Level (HL).

### Course structure

#### Standard Level (SL)

This gives a good grounding in basic biology and would suit candidates interested mainly in how the human body works and man's place in the natural environment. It consists of the core subjects (listed below) plus one option unit, which is dictated by staff specialities. This year we are offering Neurobiology and Behaviour *or* Human Physiology.

#### Higher Level (HL)

This level would suit candidates who have a general interest in science and who have probably studied at least two sciences (preferably Biology and Chemistry) to GCSE level. This course contains a good deal of molecular biology and biochemistry and would interest students who may be thinking of taking science at university level. The core consists of the same topics studied at SL plus several more (see below). These are followed by one option topic once again dictated by staff interests and specialities. This year we are offering the option Neurobiology and Behaviour

### Topics covered in IB at each level

|  |  |
|--|--|
| SL and HL (core) 95 Hours in total<br><br>Cells<br>Genetics<br>Biochemistry<br>Ecology and evolution<br>Human Health and Physiology<br>Plus 1 options A-D for SL | HL (core plus these topics)<br><br>Nucleic Acids<br>Respiration and photosynthesis<br>Genetics<br>Human Reproduction<br>Immunity<br>Nerves and muscles<br>Excretion<br>Plant Science<br>Plus 1 options A-D |
| Options SL<br>A Neurobiology and Behaviour<br>B. Biotechnology and Bioinformatics<br>C. Ecology and Conservation<br>D. Human Physiology                          | Practical Schemes of Work<br>Practical activity<br>Individual Investigation (Internal Assessment – IA)<br>Group Four Project   |

## Assessment

The Biology component of IB is assessed in the following way:

- a. Three written papers – externally assessed

Paper 1 – Multi-choice –knowledge of core

Paper 2 – Knowledge of core – short answers

Data analysis Q

Extended response

Paper 3- Knowledge of options

Short answers

Extended response

- b. Practical Work – Internally assessed.

Students are expected to carry out internally assessed practical work as an integrated part of their course. HL students are required to spend 60 hours on practical work, SL students 40 hours. This equates to 25% of the teaching time. Coursework contributes 20% of the total mark.

- c. Group 4 Project

All IB students are required to carry out a group four project, which can take between 10 –15 hours of work for each science taken. It is a collaborative scientific investigation where students from each of the sciences share concepts, theories and experiments to produce an overall project.

- d. Extended Essay

Nearly 30% of students choose to submit essays from group 4 subjects. This would be in the form of an extended investigation whereby students would choose a topic or problem and then design an experiment around it. They would be given lab time and their own equipment to work on the experiment and be supervised by a member of staff who hopefully will have an interest in and some knowledge of that subject. They are then expected to analyse results, draw conclusions and write up in the form of a scientific paper.

Dr SA Lewis

## CHEMISTRY (A Level and IB)

Chemistry is a subject with a reputation as both a rigorous, academic subject in its own right and as a useful subject in terms of the doors it opens to further education and careers. It is essential for almost every area of science and the related disciplines as well as being very highly regarded in countless non-scientific fields. Chemistry is the central scientific discipline, embracing Physics on one side and Biology on the other. It is a necessity for medicine and veterinary science. It is very useful for all scientific courses and a necessity for many of them.

It is widely regarded as a challenging academic subject that fosters in people a wide range of skills essential in all areas. Any admissions tutor will recognise that someone with a good Chemistry grade at sixth-form level has not only a sharp, logical and enquiring mind but the determination to work hard and succeed. Additionally, Chemistry is an excellent subject to take to broaden the mind, particularly if you are studying arts subjects predominantly. Chemistry will answer all manner of questions about the nature of the universe in which we live.

Chemists are much in demand throughout the world, and universities are hard-pressed to fill their courses. It is often possible to go to an excellent university to read Chemistry with only modest exam results. However you will need to be top-notch if you are to survive the course.

What could I do with a Chemistry degree?

The world is desperately short of scientists, so good jobs in science are relatively easy to obtain. This will only become the case as the population increases with a corresponding growth in demand upon dwindling resources. Chemical Engineering is particularly short of people, and a career well worth investigating. Jobs in science can be lucrative as well as rewarding. However, do not think for a moment that your career opportunities end with science. A degree in Chemistry opens the doors to all sorts of fields including Business, Management and Finance.

Which subjects go well with Chemistry?

From the point of view of Chemistry, Mathematics and Physics will be the most useful companion subjects. There are also links with Biology, and those studying Biology benefit from studying Chemistry as well.

Will I need to study Mathematics?

You do not have to study Mathematics to do well in Chemistry. In the Lower Sixth Form, you will be fine if you can use basic mathematical formulae and rearrange equations. If you could cope with moles in the Fifth Form – that is about as hard as it will get. Most of the material you will cover requires a qualitative analysis to be made – that means you have to explain concepts rather than work out mathematical calculations. However in the Upper Sixth Form more of the topics have a greater emphasis on mathematics and you need to have a good grasp of the necessary mathematical techniques. Do not worry about this, as you will be taught all you need to know.

## A Level

A Level Chemistry is made up of six mandatory units, all of which are externally assessed in three exams. The A Level specification has been written to provide progression from IGCSE Chemistry; furthering developing the topics covered at IGCSE while introducing some new topics such as Spectroscopy, Thermodynamics and Electrochemistry. All practical skills will be assessed internally on a pass/fail basis at the end of the course according to criteria supplied by the exam board. The students will complete at least 12 practical assessments throughout the course. These will be carefully integrated into the theoretical teaching of each part of the course to aid learning and develop understanding of the concepts covered.

It is desirable that students wishing to study Chemistry at A level have a good grade in GCSE Chemistry.

| Module Title  | Content   |
|---|---|
| Module 1 – Development of practical skills            | Skills of planning, implementing, analysis and evaluation   |
| Module 2 – Foundations in Chemistry                   | Atoms, compounds molecules and equations<br>Amount of substance<br>Acid-base and redox reactions<br>Electrons, bonding and structure                                    |
| Module 3 – Periodic Table and Energy                  | The periodic table and periodicity<br>Group 2 and the Halogens<br>Qualitative analysis<br>Enthalpy Changes<br>Reaction rates and equilibrium (qualitative)              |
| Module 4 – Core Organic Chemistry                     | Basic Concepts<br>Hydrocarbons<br>Alcohols and Haloalkanes<br>Organic Synthesis<br>Analytical techniques (IR, MS)   |
| Module 5 – Physical Chemistry and Transition Elements | Reaction rates and equilibrium (quantitative)<br>pH and buffers<br>Enthalpy, entropy and free energy<br>Redox and electrode potentials<br>Transitions elements          |
| Module 6 – Organic Chemistry and Analysis             | Aromatic Compounds<br>Carbonyl compounds<br>Carboxylic acids and esters<br>Nitrogen compounds<br>Polymers<br>Organic Synthesis<br>Chromatography and spectroscopy (NMR) |

The assessment at A Level will follow the format shown below.

| Paper   | Marks  | Duration                         | Weighting |
|---|--|----------------------------------|-----------|
| Paper 1 – Periodic table, elements and physical chemistry | Total 100<br>Multiple Choice – 15<br>Structured questions – 85                     | 2 hr 15 mins                     | 37%       |
| Paper 2 – Synthesis and analytical techniques             | Total 100<br>Multiple Choice – 15<br>Structure Questions - 85                      | 2 hr 15 mins                     | 37%       |
| Paper 3 – Unified Chemistry                               | Total 70<br>Structured questions and extended response questions                   | 1 hr 30 mins                     | 26%       |
| Practical Endorsement                                     | There is no coursework but you must complete set experiments as part of the course | Internally assessed<br>Pass/fail | -         |

## IB

The Diploma Programme Chemistry course includes all the essential principles of the subject but also, through selection of options, allows some flexibility to tailor the course to meet the needs of the students. The course is available at both higher and standard level, and therefore accommodates students who wish to study science in higher education and those who do not.

### Standard Level (SL)

This gives a good grounding in basic chemistry. It consists of the core subjects (listed below) plus one option topic, which is dictated by staff specialities. This year we are offering Biochemistry.

### Higher Level (HL)

This level would suit candidates who have a general interest in science and who have probably studied at least two sciences to GCSE level. This course contains a good deal of organic chemistry and would interest students who may be thinking of taking Chemistry at university level. The core consists of the same topics studied at SL plus one option topic.

| Standard and Higher Level Core   | Additional Higher Level Material  |
|--|---|
| Stoichiometry<br>Atomic Theory<br>Periodicity<br>Bonding<br>States of Matter<br>Energetics<br>Kinetics<br>Equilibrium<br>Acids and Bases<br>Oxidation and Reduction<br>Organic Chemistry | Atomic Theory<br>Periodicity<br>Bonding<br>States of Matter<br>Energetics<br>Kinetics<br>Equilibrium<br>Acids and Bases<br>Oxidation and Reduction<br>Organic Chemistry |
| Options (Standard Level): one of<br>Materials<br>Biochemistry<br>Energy<br>Medicinal Chemistry   | Options (Higher Level): one of<br>Materials<br>Biochemistry<br>Energy<br>Medicinal Chemistry  |

### External Assessment

| Component | Standard Level   | Higher Level                                       |
|-----------|--|--|
| Paper 1   | This is made up of 40 (or 30) multiple choice questions which test the knowledge of the core material for the SL students and the core and additional higher level (AHL) material for the HL students. The questions are designed to be short, one or two stage problems. No, marks are deducted for incorrect responses. Calculators are not permitted, but students are expected to carry out simple calculations. No data booklet is provided during the examination. Although students will have a Periodic Table. | 60 minutes for HL (20%)<br>45 minutes for SL (20%) |

|         |   |   |
|---------|---|---|
| Paper 2 | One data-based question and several short answer questions on the core, plus one extended response question on the core. This tests the knowledge of the core and additional higher material for higher level students. Calculators and a data booklet are permitted.                         | 135 minutes for HL (36%)<br>75 minutes for SL (40%) |
| Paper 3 | This paper will have questions on core, AHL and option material. Section A: one data based question and several short answer questions on the experimental work. Section B: short answer and extended response questions from one option topic. Calculators and a data booklet are permitted. | 75 minutes for HL (24%)<br>60 minutes for SL (20%)  |

#### Internal Assessment of Practical Work (20% for both HL and SL)

The internal assessment consists of one scientific investigation taking about 10 hours and the write-up should be about 6 to 12 pages long. Investigations exceeding this length will be penalized in the communication criterion as lacking in conciseness. The individual investigation should cover a topic that is commensurate with the level of the course of study.

The work is internally assessed by the teacher and externally moderated by the IB.

#### Portfolio of Practical Work

Students are expected to carry out practical work as an integrated part of their course. Higher Level students are required to spend 60 hours, and Standard Level students 40 hours, on practical activities (excluding time spent writing up the work).

Extended Essay – Nearly 30% of students choose to submit essays from Group 4 subjects. This would be in the form of an extended investigation whereby students would choose a topic or problem and then design an experiment around it. They would be given lab time and their own equipment to work on the experiment and be supervised by a member of staff who hopefully will have an interest and some knowledge of that subject. They are then expected to analyse results, draw conclusions and write up in the form of a scientific paper.

Dr CR Mathison

## CLASSICS (A Level and IB)

### A Level Latin and Greek

Studying Latin or Greek at A Level allows students to study some of the most famous ancient authors' works in their original form. Throughout the course, we continue to build up our knowledge of vocabulary and grammar to allow us to explore fully and appreciate a wide range of texts. Although the set texts will be different from those at GCSE, a great deal of the vocabulary and grammar is the same, and the real challenge comes from spotting these aspects in new and more difficult circumstances. Latin and Greek are A Levels which are highly respected by universities and should be considered by students who enjoy learning about the ancient world but also like a challenge. Equally, it is not only for die-hard Classicists, but makes a nice addition for someone who is not thinking of taking Classics at university, as it helps to provide variety when applying for universities and jobs.

In terms of the set text themselves, for Lower Sixth Form Latin we usually study the cutting speeches of Cicero alongside either some love poetry or poems about mythological creatures, whilst in the Upper Sixth we explore the lives of the Roman emperors and the foundation legend of Rome, focusing on the hero Aeneas and his epic journey to found a new fatherland. For Lower Sixth Form Greek, we often look at the epic Trojan War story by Homer alongside some of the famous battle scenes from Thucydides' historical writing on the Peloponnesian War. In the Upper Sixth, we tend to focus on part of a Greek tragedy, exploring the lives of the characters, as well as a section of Xenophon's prose writing..

Both courses follow a similar pattern. There are two language papers, one which involves an unseen translation and the other which is the comprehension or prose composition element. There are also two literature papers, one for the verse set texts and one for the prose. Both papers follow a similar format in that you have some comprehension questions and a translation question on each set text, with an extended answer based on the whole of a set text.

If you enjoy learning about the ancient world through translating and reading the texts in their original language, then this is the course for you.

### A Level Classical Civilisation

You do not need to have studied Classical Civilisation before or either Latin or Greek, in order to study the subject at A Level. This course enables students not only to look at history but also at some of the greatest literature that the world has ever produced (in translation of course). This course has a little something for everyone, whether you like history, literature or drama. Classical Civilisation is a good subject to take even if you are not thinking of continuing with Classics at university, because it provides variety which makes you stand out as a candidate when applying for jobs and university. It is a well-respected course which makes people sit up and take notice.

Throughout the two years, students will study the world of the hero, looking at the story of the great Greek warrior Achilles in the Trojan War and just how Aeneas managed to battle through monsters and obstacles in order to found the Roman race. Our second module focuses on the Greek theatre, and students will study a range of Greek tragedy and comedy, exploring the stories and the key themes, as well as looking at archaeological evidence, such as theatres and vases. The final module delves into the fall of the Roman Republic through three key individuals: Cato the staunch Republican, Caesar the dictator and Cicero the lawyer.



In terms of the exams, students will sit one exam for each module. There is no course work and no controlled assessments. The exams for the world of the hero paper consist of analysing a given passage and then writing essays on the key themes and comparing the two texts. The Greek theatre module and Fall of the Roman Republic module consist of answering factual questions, analysing material given to you in the exam and writing essays on key themes, making comparisons where appropriate.

If you are interested in the ancient world and like variety, then you should consider taking Classical Civilisation at A Level.

## IB Latin and Greek

There are a few differences between the IB and A Level courses for the languages. For the language element in Latin IB, we focus on translation of poetry. The author is usually Ovid and we spend most of the time translating a variety of different myths (including stories about Aeneas, Minos, the Creation myth and the hero Perseus). We also build up our vocabulary knowledge (although a dictionary is permitted in the actual exam) and learn how to recognise and translate different grammar points in more challenging contexts. Most of the hard work has already been done at GCSE; it is just about reading completely unadapted Latin. In Greek, we focus on translating prose instead, looking at the writer Xenophon, which allows us to explore some Greek history along the way, as well as revising our grammar and vocabulary. In the language exams, students will have to translate roughly ten lines of Ovid/five lines of Xenophon for Standard Level in an hour and a quarter, or roughly eighteen lines of Ovid/nine lines of Xenophon for Higher Level in an hour and a half.

Paper two focuses on the literature element. Students will get the chance to study a range of authors and topics. Topics for Latin could include episodes from the epic poem the Aeneid which follows Aeneas' quest to found a new fatherland, love poetry by Catullus or Roman history where we look at Tacitus' take on what the Roman emperors were like. Just like at GCSE level, we translate the texts and explore why the authors constructed them in the way that they did. The exam paper consists of translation questions, comprehension questions, literary criticism questions at Standard Level, and also includes an extended answer question at Higher Level. This is very similar in Greek, where the choice of set texts includes aspects such as looking at the Trojan War in Homer, or the study of different wars and cultures in Herodotus, such as the wars between Greece and Persia or the culture of the Ancient Egyptians, as well as examining plays about myths like Antigone or comedies like Aristophanes' Clouds.

There is also a coursework element for both courses which is worth 20% of the final mark. Most students usually choose to select a range of primary sources and to annotate them in relation to a topic or theme of their choice.

Latin and Greek are both highly respected courses, and so if you are up for a challenge and enjoy learning about the ancient world through different texts, you should strongly consider taking one or both of these languages for IB.

## Classical Greek and Roman Studies (Standard Level only)

This is an exciting subject that involves not only looking at literature but also history, drama and archaeology. This option allows students to show their versatility, breadth and insight into the material, as well as develop their analytical and evaluation skills. No knowledge of Latin or Greek is required nor do they need to have studied Classical Civilisation at GCSE. The course itself looks at a range of topics. We will study the stories of the Trojan War and how Aeneas managed to battle through monsters

and angry goddesses in order to found the Roman race. We also look at another literature module about Greek tragedy (Euripides' Bacchae and Hippolytus), exploring the nature of the characters and how the plays would have been performed, as well as the key themes which the playwright was trying to demonstrate. Both literature modules involve a great deal of discussion about what we think of the characters, and whether mortals really get a say in things when gods are involved. Alongside this, Alexander the Great is examined, which is an intriguing topic, good for anyone who enjoys a good political debate and their military history, stretching from Alexander's birth all the way through to his death as a tyrannical megalomaniac; as well as this we delve into how Augustus managed to establish the Roman empire at the tender age of 18, despite starting off as the underdog in the fight after Julius Caesar's assassination.

In terms of how the course is examined, in paper 1, students will write one essay on Greek Tragedy and one essay on Virgil's Aeneid, exploring the key themes and making comparisons where appropriate. In paper 2, students will be asked for short responses. For the War to Peace in Augustan Rome and Empire paper, students will need to give details of the authors of the sources, provide information on the basic facts of Augustus' policy, and explain why he made these changes. For the Alexander the Great paper, students will have to provide key details about events, comment on a source, and analyse and evaluate information regarding a key theme for the topic. Students will also need to tackle a coursework element which accounts for 20% of the total mark. Most students usually choose to select a range of primary sources and to annotate them in relation to a topic or theme of their choice.

This course is for anyone who enjoys a variety of topics and is fascinated by ancient civilisations, but not so in the original Latin and Greek languages.

Miss C McDonnell

## COMPUTER SCIENCE (A Level and IB)

*"Computer science is no more about computers than astronomy is about telescopes."* – Edsger Dijkstra

At its heart, Computer Science isn't really the study of computers. Yes, we need to know how they work but computers are just the tools we use. As a discipline it has roots in mathematics, engineering and science. Ultimately, it is more the study of problem solving. Computer Science should not be confused with ICT which looks at how to use software packages. Computer Scientists are more likely to be concerned with writing the programs that others use.

The A Level and IB courses both cover a lot of similar material albeit with the emphasis in different areas. Both include programming and have a coursework element (worth 20% at A Level and IB HL, and 30% at IB SL).

### A Level (OCR)

Computer Science A Level gives a solid grounding in the fundamentals of the subject. Students are encouraged to keep abreast of technological developments and look at how they relate to the concepts they study.

Theoretical aspects of the course include:

- Structure of the CPU
- Computer Components
- How operating systems work
- Software development practices

- Types of programming language (including assembly and OOP)
- Compression, encryption and hashing
- How computers store data (binary representations and hexadecimal)
- Web technologies (including HTML, CSS and JavaScript)
- Networks
- Boolean algebra and logic gates
- How complex databases are structured
- Legal and ethical issues related to computer science
- Programming techniques
- Using decomposition and abstraction in problem solving
- Important algorithms (searching, sorting and path finding)

Programming forms an important part of the course. The main language taught is Java. Students start from first principles, learning the key programming constructs. Over time they learn to tackle increasingly challenging problems. In the second year they get the opportunity to code a substantial piece of software on the theme of their choice. In the past we have had students make games, educational tools and programs to help businesses.

#### External Assessment

| Component                                 | Weighting |
|---|-----------|
| Written paper: Computer Systems           | 40%       |
| Written paper: Algorithms and programming | 40%       |

#### Internal Assessment

| Component           | Weighting |
|---------------------|-----------|
| Programming Project | 20%       |

#### Do I need to have studied Computer Science at GCSE?

Whilst the GCSE is excellent preparation for Computer Science A Level, those students who haven't studied Computer Science at GCSE are very welcome to take the course. They will find it a little more challenging initially but with hard work can expect to be on an equal footing by the end of the first term.

#### Who should study Computer Science A Level?

A Level Computer Science is not just for those who are pursuing a computing-related career. In a digital world, there are few careers where having a thorough grounding of how technology works is not going to be significant advantage. The problem-solving nature of the subject means students develop a highly transferable skillset.

Those students intending to take an engineering-based discipline at university are likely to find aspects of the course directly useful to their undergraduate courses. Because not all schools are able to offer Computer

Science at A Level universities don't make it a mandatory part of any offers they make. Many universities recognise the excellent preparation A Level Computer Science is for studying the subject at degree level and as such make lower offers to students applying to take a Computer Science degree who have studied the subject at A Level. (N.B. Students aspiring to take Computer Science at university should also be looking at studying A Level Maths as without it they will be restricting the number of universities to which they can apply.)

Those who aspire to work in the tech industry will not find themselves short of opportunities. The demand for technically skilled workers is constantly increasing and far outpacing the supply.

## IB

In the IB Diploma, Computer Science is offered as one of the options in group 4. The course gives a solid grounding in the understanding of how computers work and how they are used to solve problems.

As with the A-Level, students needn't have studied Computer Science at GCSE. The learning curve for those who haven't will initially be much steeper, but it is expected that they will be up to speed by the end of the first term.

Topics covered include:

- Software development practices
- Computer system design
- Computer hardware
- Binary and Boolean logic
- Networks
- Programming techniques
- Data Structures
- Object Oriented Programming

A significant amount of time is spent looking at programming. It features in two of the papers and, in the second year students have a project centred around writing a piece of software of their choice. By the end of the course students should be experienced coders.

Distinction between Standard Level (SL) and Higher Level (HL)

The topics covered at SL are a subset of those taught at HL.

In addition to the topics taught at SL, HL students study:

- Four extra topics for Paper One (system fundamentals; computer organisation; networks; and computational thinking, problem-solving and programming)
- Some extra content adding depth to the option chosen for Paper Two
- Pre-release material that forms the basis of Paper Three.

## External Assessment

| Component                      | Standard Level   | Higher Level   |
|--------------------------------|--|--|
| Paper 1<br>(45% SL,<br>40% HL) | Examination paper consisting of two compulsory sections. | Examination paper consisting of two compulsory sections. |
| Paper 2<br>(25% SL,            | Examination paper linked to the option studied.          | Examination paper linked to the option studied.          |

|                          |  |   |
|--------------------------|--|---|
| 20% HL)                  | The paper consists of between two and five compulsory questions. | The paper consists of between three and seven compulsory questions.                           |
| Paper 3<br>(20% HL Only) |  | Examination paper consisting of four compulsory questions based on a pre-released case study. |

### Internal Assessment

(30% SL, 20% HL)

Students have the opportunity to design and build a software system during the project component of the course. They are expected to build a piece of software, create video evidence of it working and write a 2000 word report.

Mr JJ Pitt

### DRAMA (A Level and IB)

#### Drama and Theatre (A Level)

A unique course at Fettes

Drama and Theatre A Level is a challenging and dynamic course which is unashamedly practical. It takes students on the journey from actor to director and leaves them with the right to refer to themselves as creators of theatre. Students find the practical nature of the course adds balance and variety to their experience of study in the Sixth Form. Drama can be great fun but in order to gain the highest grades, candidates have to be practically able as well as critically reflective. This combination of the practical and theoretical makes for a rigorous and engaging course, which gives students real-life skills, useful far beyond the confines of school and many Old Fettesians comment on how Drama helped prepare them for their careers after university.

#### Drama for everyone

This course builds on many of the foundations laid down during the IGCSE. There is a strong emphasis on studio work, providing students with opportunities to improve, present and acquire new skills both as performers, directors and/or technicians in areas such as set design and costume. This work will make a substantial contribution to coursework.

Although the course is a demanding one, those who have not studied Drama to IGCSE should not discount the possibility of taking up the subject. However, they should first of all seek the advice of the Head of Department. The most important attribute needed by any potential student of this course is a genuine interest in Drama and Theatre.

#### What will I have to do?

One way to describe Drama A Level would be to say that it is *the theory of drama in practice*. It consists of three components:

#### Component 1: Devising (80 marks, 40% of the A Level)

In this internally assessed unit, students have to create their own piece of theatre. 20 marks are awarded for the devised performance and 60 marks are available for a portfolio documenting and reflecting on their exploratory process and the skills and techniques that they have developed in response to the text, and the influence of their chosen theatre practitioner.

### Component 2: Text in Performance (60 marks, 20% of the A Level)

This is a performance unit assessed by a visiting examiner. Students need to apply the skills they developed in Unit 1 to prepare a monologue or duologue for performance (24 marks) as well as performing as a group in a published play by a known writer (36 marks).

### Component 3: Theatre Makers in Practice (80 marks, 40% of the A Level)

This externally examined written unit takes the form of a 2hr 30min exam paper. There are three sections: Section A (20 marks): students must evaluate a live theatre performance.

Section B (36 marks): students are given an extract from their performance text and have to explain how they would realise that part of the text from the perspective of a performer and a designer.

Section C: (24 marks): students will demonstrate how their re-imagined production concept will communicate ideas to a contemporary audience.

All three components involve the students in practical work of a varied nature; creating and writing their own piece, the close study of texts in preparation for performance, and the application of theatrical techniques devised by theatre practitioners such as Antonin Artaud, Bertolt Brecht or Constantin Stanislavski.

### Theatre beyond Fettes

Students are expected to see live productions as often as they can. This has a cost implication, with tickets for shows usually £10 or less. We are very fortunate that Edinburgh is well served by a number of theatres which provide a wide range of drama, mixing well-known, tried and tested favourites with new, more eclectic writing. The syllabus recognises the importance of this exposure to as wide a range of theatrical styles and conventions as possible, and consequently examines candidates on what they have seen during the course.

### Theatre (IB)

#### What is Theatre?

In many respects, the dynamic skills and opportunities offered in the IB Theatre course are very similar to those of the A Level; so similar in fact that the Drama Department combines the IB and A Level cohorts in the Lower Sixth Form and holds the lessons simultaneously, with team teaching. It is certainly worth reading the first two sections for A Level Drama and Theatre above to get a further flavour of life for a Sixth Form Drama Student.

Not surprisingly, one of the fundamental elements of IB Theatre is the international aspect of Drama and as such students will undertake the study of World Theatre – a practical exploration of theatre from different cultures.

#### What will I have to do?

IB Theatre is a five term course which is completed before the end of the Spring Term of the Upper Sixth Form. Candidates are examined through a combination of internal assessment and external assessment (detailed below). It should be noted that there is no terminal written examination and that the work presented for external assessment is prepared over a period of weeks before being submitted to the IB in March of the U6th year, leaving candidates more time to focus on their other five subjects.

## External Assessment Tasks

### Task 1: Solo Theatre Piece (HL only)

Students at HL research a theatre theorist they have not previously studied, identify an aspect(s) of their theory and create and present a solo theatre piece (4–8 minutes) based on this aspect(s) of theory.

35% of HL

### Task 2: Director's Notebook (SL and HL)

Students at SL and HL choose a published play text they have not previously studied and develop ideas regarding how it could be staged for an audience.

35% of SL

20% of HL

### Task 3: Research Presentation (SL and HL)

Students at SL and HL plan and deliver an individual presentation (15 minutes maximum) to their peers in which they outline and physically demonstrate their research into a convention of a theatre tradition they have not previously studied.

30% of SL

20% of HL

## Internal Assessment Task

### Task 4: Collaborative Project (SL and HL)

Students at SL and HL collaboratively create and present an original piece of theatre (lasting 13–15 minutes) for and to a specified target audience, created from a starting point of their choice.

35% of SL

25% of HL

Mr EMJ Boulter-Comer

## ECONOMICS (A Level and IB)

### What is Economics?

Economics is a dynamic social science that is essentially about the concept of scarcity and the problem of resource allocation. It enables pupils to gain a thorough and rigorous understanding of the theory that underpins the workings of a modern economy; to understand the concepts of causality and interdependence, both on a micro and a macro scale. The subject is far from being purely theoretical and all theory taught is in a real-world context. At a time when Economic and political engagement among young people is at an all-time high, studying the subject will allow you to have far a better understanding of the issues shaping the world in which we live.

Economics fits well with History, Geography, Psychology, Sociology, Politics and many other related fields of study.

Economics is a broad subject and offers an explanation for many aspects of life that we take for granted, such as why is the price of our food at the supermarket rising, why does it cost a different amount to go on holiday abroad each year, why do businesses behave as they do and what does Brexit really mean?

Previous experience of Business Studies or Economics is not essential. It is anticipated that those entering the course will have achieved at least grade A for Maths and B for English at GCSE.

The course material covered on both the A Level and IB is very similar, although the assessment is very different.

The overall aim of both the A Level and IB courses is to develop a wide range of skills which include:

- an understanding of economic concepts and theories through a critical consideration of current economic issues, problems and institutions that affect our lives;
- the application of economic concepts and theories in a range of contexts and the appreciation of their value and limitations in explaining the way the real world functions;
- the skills to analyse, explain and evaluate the strengths and weaknesses of the market economy and the role of government in it;
- a coherent understanding of a combination of micro- and macro-economic content and methods of enquiry;
- the ability to explore a range of current economic issues and to draw upon data from a wide range of sources;

A Level:

The Course follows four themes over two years. Themes one and two are taught side by side by two separate teachers in the Lower Sixth Form. With the linear format, no external examinations are sat this year, though internal examinations will take place in the Summer Term.

|   |  |
|---|--|
| Theme 1:<br>Introduction to Markets and Market Failure  | Theme 2:<br>The UK Economy – Performance and Policies  |
| This theme focuses on microeconomic concepts.<br><br>Students will develop an understanding of:   | This theme focuses on macroeconomic concepts.<br><br>Students will develop an understanding of:  |
| <ul style="list-style-type: none"> <li>● nature of economics</li> <li>● how markets work</li> <li>● market failure</li> <li>● government intervention.</li> </ul> | <ul style="list-style-type: none"> <li>● measures of economic performance</li> <li>● aggregate demand</li> <li>● aggregate supply</li> <li>● national income</li> <li>● economic growth</li> <li>● macroeconomic objectives and policy.</li> </ul> |

The themes covered in the Lower Sixth year lay the foundations of the subject ahead of the Upper Sixth when the microeconomics is developed to the study of business economics. The macroeconomics is developed to the study of Global Economics which includes Development Economics as well as a study of the root causes of financial crises.

|   |   |
|---|---|
| Theme 3:<br>Business Behaviour and the Labour Market  | Theme 4:<br>A Global Perspective  |
| This theme focuses on business economics.<br><br>Students will develop an understanding of: | This theme focuses on the interaction of different countries in global context. |



|   |  |
|---|--|
| <ul style="list-style-type: none"> <li>● business growth</li> <li>● business objectives</li> <li>● revenues, costs and profits</li> <li>● market structures</li> <li>● labour market</li> <li>● government intervention.</li> </ul> | <p>Students will develop an understanding of:</p> <ul style="list-style-type: none"> <li>● international economics</li> <li>● poverty and inequality</li> <li>● emerging and developing economies</li> <li>● the financial sector</li> <li>● role of the state in the macroeconomy.</li> </ul> |
|---|--|

Assessment:

The assessment is done at the end of the second year of study and comprises three papers. The first is on the microeconomics themes, while the second covers work done on macroeconomics. The final paper assesses the content of all four themes of study. Marks on Papers One and Two each carry 35% of the total qualification, while marks in Paper Three carry the final 30%.

There is no coursework for A Level Economics.

IB

The Course follows four sections over two years. Section one is taught first followed by section two and the two are taught side by side by two separate teachers in the Lower Sixth Form. As with all IB subjects no external examinations are sat this year, though internal examinations will take place in the Summer Term. As mentioned the content covered is very similar on both the A Level and the IB.

|  |   |
|--|---|
| Section 1:<br>Microeconomics   | Section 2:<br>Macroeconomics  |
| 1.1 Competitive markets: demand and supply (some topics HL only)<br>1.2 Elasticity<br>1.3 Government intervention (some topics HL extension, plus one topic HL only)<br>1.4 Market failure (some topics HL only)<br>1.5 Theory of the firm and market structures (HL only) | 2.1 The level of overall economic activity (one topic HL extension)<br>2.2 Aggregate demand and aggregate supply (one topic HL only)<br>2.3 Macroeconomic objectives (some topics HL extension, plus one topic HL only)<br>2.4 Fiscal policy<br>2.5 Monetary policy<br>2.6 Supply-side policies |

Sections 1 and 2 are more content heavy than 3 and 4; thus it is normal for the content of section 2 to run from the Lower into the Upper Sixth year.

Sections 3 and 4 build on the content learned in section 2; section 1 is very much standalone in this regard. Both sections 3 and 4 focus on global issues whereas the prior sections are more domestically focused.

|   |   |
|---|---|
| Section 3:<br>International Economics   | Section 4:<br>Development Economics   |
| 3.1 International trade (one topic HL extension, plus one topic HL only)<br>3.2 Exchange rates (some topics HL extension)<br>3.3 The balance of payments (one topic HL extension, plus some topics HL only) | 4.1 Economic development<br>4.2 Measuring development<br>4.3 The role of domestic factors<br>4.4 The role of international trade (one topic HL extension) |

|   |  |
|---|--|
| 3.4 Economic integration (one topic HL extension) | 4.5 The role of foreign direct investment (FDI)                      |
| 3.5 Terms of trade (HL only)                      | 4.6 The roles of foreign aid and multilateral development assistance |
|   | 4.7 The role of international debt                                   |
|   | 4.8 The balance between markets and intervention                     |

## Assessment

### Standard Level

Two examinations of 1hr 30 mins are taken in the Summer Term of the Upper Sixth year. Paper one covers sections 1 and 2 and paper 2 covers sections 3 and 4. In addition an internal assessment coursework is written. This consists of three commentaries of news articles. Each article must be related to one of the sections of the course and students are required to use the knowledge and skills they have gained in the study of each section to write a commentary linking the theory they have learned to the article. At SL papers one and two account for 40% of the grade each and the internal assessment for 20%.

### Higher Level

The Higher Level assessment follows exactly model as that of the standard level described above, with two notable exceptions. Firstly, papers one and two will be written from a broader and more challenging range of subject material (see table above for which topic areas are extended or exclusive to HL). The second and most striking difference is paper three. This paper consists of numerical and graphical questions which are often extensions of SL topics. For example, linear functions which are a feature of the GCSE Mathematics course are used to draw demand and supply diagrams. At HL papers one and two account for 30% of the grade each, paper three for 20% and the internal assessment for 20%.

### What can I do with Economics beyond Fettes?

Economics can be used to bridge the gap between Arts and Sciences, and it can be combined with a wide range of subjects. Students who are considering reading an Economics degree at University are strongly recommended to include Maths as one of their subjects. The course does require students to articulate their ideas in a clear and concise form and for this reason students should feel confident of their writing skills if they chose this subject. Students should be aware that effective study of Economics demands academic rigour and high quality study skills.

Students who are considering Economics should have a strong desire to understand contemporary economic and political issues and to extend their learning beyond the classroom.

Mr SWA Shelley

## ENGLISH (A Level and IB)

English is a really popular option at Fettes with 140 students studying the subject in the Sixth Form at A Level or for the IB Diploma. There are two distinct courses available, both of which share the aims of bringing a scholarly approach to the subject whilst seeking to impart an appreciation and enjoyment of literature for its own sake. Students need to be prepared to engage in discussion of texts in class, to think for themselves, and to invest time in their studies beyond the classroom. Both courses offer rewarding, wide-ranging and varied programmes of study.

## OCR A Level English Literature

The A Level course for English Literature is a linear qualification, which means that the two exams are taken at the end of the course in the Summer Term of the U6th Form. There are two papers for A Level English Literature (both worth 40% of the course), and a coursework folder of 3000 words (20% of the course). The linear A Level is a rigorous and rewarding course to study.

| Component   | Details   | Assessment  |
|---|---|---|
| Paper 1 – 40%<br><br><i>Shakespeare &amp; Drama and Poetry pre-1900</i> | Shakespeare<br><i>Coriolanus</i><br><i>Hamlet</i><br><i>Measure for Measure</i><br><i>Richard III</i><br><i>The Tempest</i><br><i>Twelfth Night</i><br><br>Poetry and Drama<br><i>Edward II</i><br><i>The Duchess of Malfi</i><br><i>She Stoops to Conquer</i><br><i>An Ideal Husband</i><br><i>A Doll's House</i><br><br>Chaucer's <i>Merchant's Tale</i><br>Milton - <i>Paradise Lost</i> (Bks 9 and 10)<br>Coleridge – selected poems<br>Tennyson - <i>Maud</i><br>Rossetti – selected poems | Two and a half hour written exam.<br><br>Taken at the end of the U6th<br><br>Section A involves close analysis of a key passage from the play, followed by a short essay.<br><br>Section B requires candidates to write a more extended response, comparing a play and a poetry text from the set list. |
| Paper 2 – 40%<br><br><i>Comparative &amp; contextual study</i>          | Literary genres<br><br>American Literature (1880-1940)<br><i>The Great Gatsby, The Grapes of Wrath</i><br><br>The Gothic<br><i>Dracula, The Bloody Chamber</i><br><br>Dystopian fiction<br><i>1984, The Handmaid's Tale</i><br><br>Women in Literature<br><i>Sense and Sensibility, Mrs Dalloway</i><br><br>The Immigrant Experience<br><i>The Reluctant Fundamentalist, Call it Sleep</i>  | Two and a half hour written exam.<br><br>Taken at the end of the U6th<br><br>Pupils tackle ONE topic area and study at least two whole texts listed by OCR under that chosen topic area. At least one of these will be a 'core' text listed here.   |

|   |  |   |
|---|--|---|
| Component 3 – 20%<br>Coursework<br><br>(Literature post 1900) | Coursework - Three texts<br>(one poetry, one prose and one play)<br><br>All texts must have been first published in 1900 or later.<br><br>At least one of these texts must have been first published in 2000 or later. | Task 1 – close reading or re-creative writing (plus critical commentary).<br><br>Task 2 – Comparative essay based on two other literary texts.<br><br>Completed by the end of the L6th. |
|---|--|---|

## IB ‘Language A’ Literature

English A: Literature is a compulsory element of the IB Diploma, and we will be embarking on a revised specification in September 2019 (for first exams in May 2021). As with other subjects, pupils choose whether to study English at Higher Level or Standard Level. Under the new syllabus, HL pupils will study thirteen texts across two years: a minimum of five will have written by authors on the IB prescribed list, a minimum of four will be works in translation and four will be chosen freely. At SL, candidates will study nine texts: at least four will have been written by authors on the reading list, a minimum of three will be texts in translation and two will be chosen freely. Both courses will cover texts of different literary genres and will be taken from different periods and places. There is a focus on *readers, writers and texts* (how meaning is created) on *time and space* (how meaning might evolve over time) and on *intertextuality* (connecting texts).

The proposed assessment structure is as follows:

Pupils will also keep a journal called a ‘learner portfolio’ to record their emerging responses during the course.

|                          | Component                                 | Details  | Assessment  |
|--------------------------|---|--|---|
| 35%                      | <i>Paper 1</i><br><br><i>Unseen exam</i>  | Higher Level (Two hours 15 mins)<br>Two guided commentaries – each in response to a different extract.<br><br>Standard Level (One hour 15 mins)<br>SL candidates will write a commentary in response to one of the passages set. | <i>Externally assessed exam.</i><br><br><i>Two essays (HL)</i><br><br><i>One essay (SL)</i>                         |
| 25% (HL)<br><br>35% (SL) | <i>Paper 2</i><br><br><i>Written exam</i> | Literary essay paper (One hour 45 mins)<br>Candidates will be asked to compare and contrast two of the texts* they have studied. Works could be from any literary genre and might include texts in translation.                  | <i>Externally assessed exam.</i><br><br><i>(*Texts chosen can't be those used for the Individual Oral or HL CW)</i> |

|             |   |   |  |
|-------------|---|---|--|
| 20%<br>(HL) | <i>Internal Assessment</i>                    | 15-minute oral presentation.  | The presentations will be recorded by the school, marked internally and then moderated by an examiner. |
| 30%<br>(SL) | <i>Individual Oral</i>                        | Candidates will explore two of their texts* in relation to a chosen 'global issue'.<br><br>The individual oral will consist of close analysis of extracts chosen by the candidate and questions from the teacher. | (*Texts chosen can't be those used for Paper Two or HL coursework)                                     |
| 20%<br>(HL) | <i>Coursework essay</i><br><br><i>HL only</i> | 1200-1500 word formal essay.<br><br>Pupils will choose one of the texts* that they have studied and will devise their own title for their coursework essay.   | Externally marked.<br><br>(*Texts can't be those used for the Individual Oral or Paper 2 exam)         |

#### English Department Activities

We work closely with the school librarian to bring interesting and varied writers to Fettes: recent visitors have included Alexander McCall Smith, Kathleen Jamie, Christine De Luca, Janice Galloway and Christopher Brookmyre. We take advantage of the range of professional Theatre on offer in Edinburgh and there is an active Literary Society, which meets to discuss contemporary literature. The Sixth Form magazine '*The Hive*' is also run by Miss Chandler in the English Department. Creative writing remains popular in the Sixth Form and pupils are encouraged to enter work into competitions within school and beyond.

The Department runs a course of extra classes for those interested in studying English at Oxbridge. The classes consist of a course of practical criticism as well as classes led by teachers in the English Department.

Mr A.J Speedy

## EXTENDED PROJECT (A Level)

We offer the Edexcel Extended Project to students as an additional qualification for students taking three A Levels. Students have to select an area of interest to them and undertake extensive independent research in their topic. The project culminates in a choice of final outcome: a dissertation, a field investigation, a performance or an artefact. Students also have to deliver a presentation on their project. The project is assessed by the student's supervisor and the marks are externally moderated. The actual content of the project is assessed but the majority of the marks are awarded for the process of producing the project. The project is assessed in four areas:

Management of the project – 17%

Use of resources – 22%

Development and research – 44%

Review – 17%

The project can receive grades A\*-E and is regarded by universities as the equivalent of an AS Level. Students begin the project in the Spring Term of the L6th Form with a view to doing a draft over the summer holidays and completing the essay by the end of the Autumn Term in the U6th Form.

Miss VP Chandler

## GEOGRAPHY (A Level and IB)

### A LEVEL

Geography is one of the most exciting subjects to study. We live in an interdependent world caught up in chains of events, which span the globe. We depend upon an increasingly fragile physical environment, whose complex interactions require sophisticated analysis and sensitive management. These issues present intellectual and practical challenges for societies of the first importance and they are amongst the central problems of modern Geography.

Geography is unique in bridging the social sciences and natural sciences. Human Geography concerns the understanding of the dynamics of cultures, societies and economies, and Physical Geography concerns the understanding of the dynamics of landscapes and the environment.

Geography puts this understanding of social and physical processes within the context of place - recognising the great differences in cultures, political systems, economies, landscapes and environments across the world, and exploring the links between them. Understanding the causes of differences and inequalities between places and social groups underlie much of the newer developments in Human Geography.

Geography provides an ideal framework for relating other fields of knowledge and complements both the science and humanities subjects offered in Sixth Form. It is a stimulating but demanding subject.

A Level in Geography studies will enable you to:

- develop your knowledge of locations, places, processes and environments, at all geographical scales
- develop an in-depth understanding of the selected core and non-core processes in Physical and Human Geography at a range of temporal and spatial scales, and of the concepts which illuminate their significance in a range of locational contexts

- recognise and be able to analyse the complexity of people-environment interactions at all geographical scales, and appreciate how these underpin understanding of some of the key issues facing the world today
- develop an understanding of, and ability to apply, the concepts of place, space, scale and environment, that underpin both the national curriculum, including developing a more nuanced understanding of these concepts
- gain an understanding of specialised concepts relevant to the core and non-core content. These include the concepts of causality, systems, equilibrium, feedback, inequality, representation, identity, globalisation, interdependence, mitigation and adaptation, sustainability, risk, resilience and thresholds
- improve your understanding of the ways in which values, attitudes and circumstances have an impact on the relationships between people, place and environment, and develop the knowledge and ability to engage with the questions and issues arising

### Key Skills & Competencies:

Through the study of Geography, you will combine theory and practical fieldwork to develop a set of highly transferable skills, including reasoning, analysis and critical thought.

Studying Geography will enable you to:

- become confident and competent in selecting, using and evaluating a range of quantitative and qualitative skills and approaches, (including observing, collecting and analysing geo-located data) and applying them as an integral part of your studies
- understand the fundamental role of fieldwork as a tool to understand and generate new knowledge about the real world, and become skilled at planning, undertaking and evaluating fieldwork in appropriate situations
- apply geographical knowledge, understanding, skills and approaches in a rigorous way to a range of geographical questions and issues, including those identified in fieldwork, recognising both the contributions and limitations of Geography
- develop as a critical and reflective learner
- articulate opinions, suggest relevant new ideas and provide evidenced argument in a range of situations

What does the A Level Geography course involve?

The OCR A Level in Geography has been designed to give students the knowledge, understanding and skills necessary to become engaged global citizens. Through the study of dynamic and contemporary content, you will learn to understand and interact with issues which affect people and places at a range of scales from local to global.

Components, and assessment, within the OCR A Level in Geography consist of:

| Module           | Content  | Assessment Type  |
|------------------|--|--|
| Physical systems | Through the study of Physical systems, you will develop an understanding and appreciation of Landscape Systems, contextualised through coastal landscapes and Earth's Life Support Systems, which encompasses the water and carbon cycles vital to our planet. | Physical systems (OI) 66 marks<br><br>1 hour 30 minute written paper |

|                         |   |  |
|-------------------------|---|--|
|                         | <p>By studying the inter-relationships between the land, oceans and atmosphere, you will understand the processes, characteristics and impacts on these landscapes and cycles, which shape them over time and create a number of issues when attempting to manage them.</p> <p>We will investigate examples and case studies at a range of scales to understand the dynamic nature of landscapes and the water and carbon cycles.</p> <p>Quantitative and qualitative fieldwork opportunities present themselves within this component, within helping you to generate new knowledge and understanding about the real world.</p>  | 22% of total A level   |
| Human interactions      | <p>The class will explore Human interactions through the study of Global Connections, focusing on migration and the governance of human rights, and Changing Spaces; Making Places, which gives learners an insight into the nature of places and the fluidity of their meanings and representations.</p> <p>Through investigating the actions, interactions and spatial patterns of people in places you will build a picture of how the world around you is shaped by humans, starting from the local and moving out to regional, national and international scales.</p> <p>Through examples and case studies you will explore a variety of contrasting places, unpicking the flows and connections that have made them what they are and the way in which global systems and governance have local consequences.</p> <p>The concepts of inequality, interdependence, representation, identity and globalisation are particularly relevant to this component and qualitative research and fieldwork opportunities complement it well.</p> | <p>Human interactions (02)<br/>66 marks</p> <p>1 hour 30 minute written paper</p> <p>22% of total A level</p>      |
| Geographical debates    | <p>Geographical debates enables you to explore challenging, dynamic and fascinating issues of the 21st century, which you are encouraged to engage with, reflect on and think critically about.</p> <p>You will gain a deep understanding of two topics, Climate Change and Disease Dilemmas, through exploring the interactions between people and the environment. Each topic is delivered through an enquiry-based approach, which enables you to articulate opinions and provide evidenced arguments across a range of situations.</p> <p>The concepts of inequality, mitigation and adaptation, sustainability, risk, resilience and threshold underpin the Geographical debates component.</p>  | <p>Geographical debates (03)*<br/>108 marks</p> <p>2 hours 30 minute written paper</p> <p>36% of total A level</p> |
| Investigative Geography | The Investigative Geography component affords you the opportunity to undertake an independent investigation linked to any aspect of the   | The independent investigation will   |



|  |  |  |
|--|--|--|
|  | <p>specification to satisfy your intellectual curiosity.</p> <p>This component is designed to encourage you to deepen their knowledge and understanding of your chosen topic whilst developing a wide range of skills and abilities which are applicable not only to study in Higher Education but also within the world of work and life, which, amongst others, include:</p> <ul style="list-style-type: none"> <li>• the structure and enquiry process</li> <li>• extended writing</li> <li>• innovation in investigating and presenting data</li> <li>• self-directed study</li> <li>• research techniques</li> <li>• making synoptic links between the real world, geographical theory, the learners own research and the specification.</li> </ul> | <p>consist of a written report which will assess the process of enquiry and investigation. A length of between 3000 and 4000 words is recommended.</p> <p>Investigative Geography is internally assessed and externally moderated.</p> <p>20% of total A level</p> |
|--|--|--|

## IB

Geography is a Group 3 Individuals and Societies subject and provides balance to any IB programme. It is available to students as both a Higher and Standard Level course.

The Diploma Programme Geography course integrates both Physical and Human Geography, and ensures that students acquire elements of both scientific and socio-economic methodologies.

Geography takes advantage of its position to examine relevant concepts and ideas from a wide variety of disciplines. This helps students develop an appreciation of, and a respect for, alternative approaches, viewpoints and ideas.

The Geography course embodies global and international awareness in several distinct ways. It examines key global issues, such as poverty, sustainability and climate change. It considers examples and detailed case studies at a variety of scales, from local to regional, national and international.

The aims of the Geography syllabus at SL and HL are to enable students to:

- develop an understanding of the interrelationships between people, places, spaces and the environment
- develop a concern for human welfare and the quality of the environment, and an understanding of the need for planning and sustainable management
- appreciate the relevance of Geography in analysing contemporary issues and challenges, and develop a global perspective of diversity and change.

Throughout the course, there is considerable flexibility in the choice of examples and case studies to ensure that Diploma Programme Geography is a highly appropriate way to meet the needs of all students.

### Distinction between SL and HL

Students at standard level (SL) and higher level (HL) in Geography are presented with a syllabus that has a common core and optional themes. HL students also study the higher level core extension.

Although the skills and activity of studying Geography are common to both SL and HL students, the HL student is required to acquire a further body of knowledge, to demonstrate critical evaluation, and to synthesize the concepts in the higher level extension.

|                          |   | SL Assessment   | HL Assessment  |
|--------------------------|---|---|--|
| Part 1                   | <p>Geographic Themes – seven options</p> <p>Two options are studied at SL, three at HL</p> <p>The options are:</p> <p>A. <a href="#">Freshwater - Issues and Conflicts</a></p> <p>B. <a href="#">Oceans and their Coastal Margins</a></p> <p>C. <a href="#">Extreme Environments</a></p> <p>D. <a href="#">Hazards and Disasters - Risk Assessment and Response</a></p> <p>E. <a href="#">Leisure, Sport and Tourism</a></p> <p>F. <a href="#">The Geography of Food and Health</a></p> <p>G. <a href="#">Urban Environment</a></p> | <p>Paper 1</p> <p>SL weight 35%</p> <p>45 minutes per option question<br/>Total 1 hour 30 minutes</p> <p>40 marks</p> | <p>Paper 1</p> <p>HL weight 35%</p> <p>45 minutes per option question<br/>Total 2 hours 15 minutes</p> <p>60 marks</p> |
| Part 2                   | <p>SL and HL Core</p> <p>The core theme provides an overview of the geographic foundation for the key global issues of our times.</p> <p>There are three compulsory topics in this core theme:</p> <ol style="list-style-type: none"> <li><a href="#">Population Distribution – changing population</a></li> <li>Global climate – vulnerability and resilience</li> <li>Global resource consumption and scarcity</li> </ol>   | <p>Paper 2</p> <p>SL weight 40%</p> <p>1 hour 15 minutes</p> <p>50 marks</p>  | <p>Paper 2</p> <p>HL weight 25%</p> <p>1 hour 15 minutes</p> <p>50 marks</p>   |
| Part 2 HL Core Extension | <p>HL only</p> <p>Geographic Perspectives – global interactions</p> <ul style="list-style-type: none"> <li>Power, places and networks</li> <li>Human development and diversity</li> <li>Global risks and resilience</li> </ul>  |   | <p>Paper 3</p> <p>HL weight 20%</p> <p>1 hour</p> <p>28 marks</p>  |
| Internal Assessment      | <p>SL and HL</p> <p>Fieldwork</p> <p>Fieldwork, leading to one written report based on a fieldwork question, information collection and analysis with evaluation</p>  | <p>Internal Assessment</p> <p>SL weight 25%</p> <p>25 marks</p>   | <p>Internal Assessment</p> <p>HL weight 20%</p> <p>25 marks</p>  |

### Geography and prior learning

The Geography course requires no specific prior learning. No particular background in terms of specific subjects studied for national or international qualifications is expected or required.

Candidates have performed consistently well in IB Geography with 100% of candidates gaining 5 points or above in each of the last five years.

Ms HE Cockburn

## HISTORY (A Level and IB)

A qualification in History is highly respected, both by universities and employers. The skills learned through the study of History are applicable to many professions, including law, politics, diplomacy, management, journalism and finance. History complements many other subjects studied in the Sixth Form, and the skills learned in the History classroom are helpful in many other areas.

The study of History allows the development of important communication skills, both written and oral. It encourages the collection of evidence and use of own knowledge to form effective arguments, to select and deploy relevant information, and to put forward personal ideas in a coherent and incisive way. The study of historical sources enables students to distinguish truth from propaganda and to appreciate the validity of different views.

### A Level

History students will take four specific units, three of which are examined and one is an Individual Investigation of 4000 words undertaken in the student's own time, and can be on any topic in History which s/he chooses. Such an option allows you to read and work independently on a topic that really interests you.

The OCR syllabus allows the study of a range of Early Modern and Modern courses covering British, European and World History. This new syllabus requires students to cover a period of at least 200 years; one of the topics covered has to be British with the remaining two possibly being either European or World History. The three examined units assess students' ability to analyse and evaluate documents and historical interpretations, their ability to learn a topic in depth, understand themes across a historical period and their ability to construct and write an essay. The non-examined coursework develops students' ability to work independently, conducting their own research and ultimately producing an in-depth study on a topic of his/her own choosing. Topics studied could include: The Early Tudors, Britain, 1930-1997, Civil Rights in the USA, France, 1498-1610, the Cold War in Asia and Europe, and the American Revolution.

### IB

IB History is taught at both Standard and Higher Levels. The History course at IB is attractive in terms of both its range and depth. The skills learned at GCSE level will prepare students as well for IB as they do for A Level.

At Standard Level students will be prepared for two papers. One is document-based and will centre on a thematic study: The Move to Global War; whilst the other is a broad essay based paper on World History. The themes in Paper 2 include Authoritarian States and The Cold War. There is also a coursework element here which constitutes 25% of the overall mark and allows students a choice on which topic and aspect of history they wish to investigate. The emphasis on individual research and learning is strong here as it is throughout the IB syllabus.

At Higher Level students will be prepared for an additional paper in which they are required to answer three 50 minute timed essays from the regional options. The regional option that we cover is Europe and candidates will be expected to demonstrate an in-depth historical understanding of this region in the period 1750-1995 through the acquisition, selection, effective use and synthesis of knowledge. The Department is well resourced to deal with the IB syllabus and is made up of a core of teachers who are experienced in delivering the syllabus in an exciting and accessible manner.

The unique place of History as a subject is also reflected in its place within the Theory of Knowledge core, and important links and connections are drawn in normal lessons as well as in specific ToK sessions. History is also the most popular choice for Extended Essays, and this has enabled students to study an incredibly diverse range of topics and subject areas over the last two millennia. It is an excellent opportunity for Historians to develop their understanding of topics they may have encountered in lessons or pursue a completely new line of enquiry and personal interest.

Outside the classroom students are encouraged to pursue their interest in History through the Historical Society which meets two or three times a term. Recent events have included a talk from Arthur Der Weduwen on the Dutch Golden Age and Nik Gowing sharing his experience as a journalist reporting from behind the Iron Curtain. There is an annual Sixth Form trip with recent destinations being Gdansk, Munich and Krakow.

Ms TJ McDonald

## MATHEMATICS (A Level and IB)

Mathematics offers scope for imagination and ingenuity. It offers the satisfaction of solving difficult problems and producing rigorous proofs. It requires care and accuracy and develops habits of logical thought and structured argument.

Those wishing to study Mathematics in the Sixth Form will need a lively and enquiring interest in the subject and a willingness to work hard at mastering the essential techniques. They will also need considerable ability.

The Mathematics department offers Further Mathematics and Mathematics at A Level and four different IB Mathematics options, namely Mathematics: Applications and Interpretation at Higher Level and Standard Level and Mathematics: Analysis and Approaches at Higher Level and Standard Level (Mathematics is compulsory for students taking the IB).

What Mathematics course should you take for your chosen university degree?

The table below will give you an idea of which course to choose, depending on which university course you would like to choose. The list is not exhaustive so please always check the entrance requirements. Mathematics: Applications and Interpretations at Standard Level is intended for students who will be pursuing a degree with little or no mathematical content and has replaced the Mathematical Studies Standard Level course.

| A Level   |                   | IB: Analysis and Approaches | IB: Applications and Interpretation |
|-----------|-------------------|-----------------------------|-------------------------------------|
| Maths     | Further Maths     | HL                          | HL                                  |
| Economics | Maths             | Maths*                      | Maths                               |
|           | Engineering       | Engineering*                | Engineering                         |
|           | Physical Sciences | Physical Sciences*          | Physical Sciences                   |
|           | Economics         | Economics*                  | Economics                           |
|           | Computer Science  | Computer Science            | Computer Science                    |

\* These courses will accept either option at HL but have stated that Analysis and Approaches is preferred.

## A Level

Mathematics is a vital part of all areas of modern life and the A Level course provides a sound background to any pupil wishing to pursue Mathematics or a Mathematics based degree. No one with less than a grade 7 at IGCSE should consider taking Mathematics at A Level. A grade 8/9 at IGCSE is desirable.

## Mathematics A Level

The A Level consists of three externally-examined papers. Students must complete all assessments in May/June in any single year. The mark in each paper will contribute to one third of your overall grade.

|   |
|---|
| Paper 1: Pure Mathematics 1<br>Paper 2: Pure Mathematics 2  |
| Each paper is:<br>2 hours written examination<br>One third of the qualification<br>100 marks  |
| Content Overview <ul style="list-style-type: none"><li>▪ Topic 1 – Proof</li><li>▪ Topic 2 – Algebra and Functions</li><li>▪ Topic 3 – Coordinate Geometry</li><li>▪ Topic 4 – Sequences and Series</li><li>▪ Topic 5 – Trigonometry</li><li>▪ Topic 6 – Exponentials and Logarithms</li><li>▪ Topic 7 – Differentiation</li><li>▪ Topic 8 – Integration</li><li>▪ Topic 9 – Numerical Methods</li><li>▪ Topic 10 – Vectors</li></ul> |
| Assessment Overview <ul style="list-style-type: none"><li>▪ Paper 1 and Paper 2 may contain questions on any topics from the Pure Mathematics content.</li><li>▪ Students must answer all questions</li><li>▪ Calculators can be used in the assessment.</li></ul>  |

|   |
|---|
| Paper 3: Statistics and Mechanics   |
| 2 hours written examination<br>One third of the qualification<br>100 marks  |
| Content Overview<br>Section A: Statistics <ul style="list-style-type: none"><li>▪ Topic 1 – Statistical sampling</li><li>▪ Topic 2 – Data presentation and interpretation</li><li>▪ Topic 3 – Probability</li><li>▪ Topic 4 – Statistical distributions</li><li>▪ Topic 5 – Statistical hypothesis testing</li></ul> Section B: Mechanics <ul style="list-style-type: none"><li>▪ Topic 6 – Quantities and units in mechanics</li><li>▪ Topic 7 – Kinematics</li><li>▪ Topic 8 – Forces and Newton's laws</li><li>▪ Topic 9 – Moments</li></ul> |

#### Assessment Overview

- Paper 3 will contain questions on topics from the Statistics content in section A and Mechanics content in Section B.
- Students must answer all questions
- Calculators can be used in the assessment.

#### Further Mathematics A Level

This course aims to help pupils understand coherence and progression in Mathematics and how different areas of Mathematics are connected. Pupils who take this course will sit the three A Level exams and the four Further Mathematics exams at the end of the Upper Sixth.

#### Paper 1: Core Pure Mathematics 1

1 hour and 30 minutes written examination

25% of the qualification

75 marks

#### Content Overview

- Topic 1 – Proof
- Topic 2 – Complex Numbers
- Topic 3 – Matrices
- Topic 4 – Further Algebra and Functions
- Topic 5 – Further calculus
- Topic 6 – Further vectors

#### Assessment Overview

- Students must answer all questions
- Calculators can be used in the assessment.

#### Paper 2: Core Pure Mathematics 2

1 hour and 30 minutes written examination

25% of the qualification

75 marks

#### Content Overview

- Topic 1 – Complex numbers
- Topic 2 – Further Algebra and functions
- Topic 3 – Further calculus
- Topic 4 – Polar coordinates
- Topic 5 – Hyperbolic functions
- Topic 6 – Differential equations

#### Assessment Overview

- Students must answer all questions
- Calculators can be used in the assessment.

#### Paper 3: Further Mathematics Option 1

1 hour and 30 minutes written examination

25% of the qualification

75 marks

#### Content Overview

3A: Further Pure Mathematics 3

- Further calculus
- Further differential equations

|   |
|---|
| <ul style="list-style-type: none"> <li>▪ Coordinate systems</li> <li>▪ Further vectors</li> <li>▪ Further numerical methods</li> <li>▪ Inequalities</li> </ul>          |
| <p>Assessment Overview</p> <ul style="list-style-type: none"> <li>▪ Students must answer all questions</li> <li>▪ Calculators can be used in the assessment.</li> </ul> |

|  |
|--|
| <p>Paper 4: Further Mathematics Option 2</p>   |
| <p>1 hour and 30 minutes written examination<br/>25% of the qualification<br/>75 marks</p>   |
| <p>Content Overview</p> <p>4D: Further Mechanics I</p> <ul style="list-style-type: none"> <li>▪ Momentum and impulse</li> <li>▪ Collisions</li> <li>▪ Centres of mass</li> <li>▪ Work and energy</li> <li>▪ Elastic strings and springs</li> </ul> |
| <p>Assessment Overview</p> <ul style="list-style-type: none"> <li>▪ Students must answer all questions</li> <li>▪ Calculators can be used in the assessment.</li> </ul>  |

## IB Mathematics

It is expected that most students embarking on a DP mathematics course will have studied mathematics for at least 10 years. There will be a great variety of topics studied, and differing approaches to teaching and learning. Thus, students will have a wide variety of skills and knowledge when they start their DP mathematics course. It is expected that mathematics students will be familiar and confident with the topics taught at IGCSE before they take the examinations, because examination questions assume knowledge of them.

### Mathematics: Applications and Interpretation

Mathematics: Applications and Interpretation SL and HL is appropriate for students who are interested in developing their mathematics for describing our world and solving practical problems. They will also be interested in harnessing the power of technology alongside exploring mathematical models. Students who take Mathematics: Applications and Interpretation will be those who enjoy mathematics best when seen in a practical context. This subject is aimed at students who will go on to study subjects such as social sciences, natural sciences, statistics, business, some economics, psychology, and design, for example. Interpretation of results in context is an important element of the subject.

## Syllabus Outline

|                            |   |  |
|----------------------------|---|--|
| Syllabus component         | SL  | HL: All topics taught at SL with the following additional topics   |
| Number and Algebra         | Scientific notation<br>Sequences and series<br>Logarithms and exponentials<br>Proof<br>Approximations   | Further Logarithms<br>Complex numbers<br>Matrices  |
| Functions                  | Functions<br>Modelling  | Further functions<br>Further modelling   |
| Geometry and Trigonometry  | Coordinate geometry<br>Trigonometry<br>Voronoi diagrams   | Further trigonometry<br>Vectors<br>Graph theory  |
| Statistics and probability | Statistical sampling<br>Data presentation and interpretation<br>Probability<br>Statistical distributions<br>Statistical hypothesis testing<br>Linear regression | Data collection<br>Non-linear regression<br>Confidence intervals<br>Further Statistical distributions<br>Markov Chains     |
| Calculus                   | Differentiation   | Techniques for differentiation<br>Integration<br>Techniques for integration<br>Differential equations<br>Numerical methods |

### SL assessment outline

| Assessment Component  | Weighting |
|---|-----------|
| External assessment (3 hours)   | 80%       |
| Paper 1 (90 minutes)<br>Technology required (80 marks)<br>Compulsory short-response questions   | 40%       |
| Paper 2 (90 minutes)<br>Technology required (80 marks)<br>Compulsory extended-response questions  | 40%       |
| Internal assessment<br>This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.<br><br>Mathematical exploration<br>Internal assessment in mathematics is an individual exploration. This is a piece of written work that involves investigating an area of mathematics. (20 marks) | 20%       |



## HL assessment outline

| Assessment Component  | Weighting |
|---|-----------|
| External assessment (5 hours)   | 80%       |
| Paper 1 (120 minutes)<br>Technology required (110 marks)<br>Compulsory short-response questions   | 30%       |
| Paper 2 (120 minutes)<br>Technology required (110 marks)<br>Compulsory extended-response questions  | 30%       |
| Paper 3 (60 minutes)<br>Technology required (55 marks)<br>Two compulsory extended-response problem-solving questions  | 20%       |
| Internal assessment<br>This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.<br><br>Mathematical exploration<br>Internal assessment in mathematics is an individual exploration. This is a piece of written work that involves investigating an area of mathematics. (20 marks) | 20%       |

## Mathematics: Analysis and Approaches

Mathematics: Analysis and Approaches at SL and HL is appropriate for students who enjoy developing their mathematics to become fluent in the construction of mathematical arguments and develop strong skills in mathematical thinking. They will also be fascinated by exploring real and abstract applications of these ideas, with and without the use of technology. Students who take Mathematics: Analysis and Approaches will be those who enjoy the thrill of mathematical problem solving and generalisation. This subject is aimed at students who will go on to study subjects with substantial mathematics content such as mathematics itself, engineering, physical sciences, or economics for example. There is an emphasis on calculus and on algebraic, graphical and numerical approaches.

## Syllabus Outline

| Syllabus component | SL  | HL: All topics taught at SL with the following additional topics                          |
|--------------------|---|---|
| Number and Algebra | Scientific notation<br>Sequences and series<br>Logarithms and exponentials<br>Proof<br>Binomial theorem | Number theory<br>Complex numbers<br>Further Proof   |
| Functions          | Quadratic functions<br>Exponential functions<br>Basic reciprocal functions                              | Polynomial functions<br>Further reciprocal functions<br>Modulus functions<br>Inequalities |

|                            |   |   |
|----------------------------|---|---|
| Geometry and Trigonometry  | Coordinate geometry<br>Trigonometry   | Further trigonometry<br>Vectors   |
| Statistics and probability | Statistical sampling<br>Data presentation and interpretation<br>Probability<br>Statistical distributions<br>Statistical hypothesis testing<br>Linear regression | Probability density functions   |
| Calculus                   | Differentiation<br>Techniques for differentiation<br>Kinematics<br>Integration  | Further techniques for differentiation<br>Techniques for integration<br>Differential equations Series |

#### SL assessment outline

| Assessment Component  | Weighting |
|---|-----------|
| External assessment (3 hours)   | 80%       |
| Paper 1 (90 minutes)<br>No technology allowed (80 marks)<br><i>Section A</i><br>Compulsory short-response questions<br><i>Section B</i><br>Compulsory extended-response questions   | 40%       |
| Paper 2 (90 minutes)<br>Technology required (80 marks)<br><i>Section A</i><br>Compulsory short-response questions<br><i>Section B</i><br>Compulsory extended-response questions   | 40%       |
| Internal assessment<br>This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.<br><br>Mathematical exploration<br>Internal assessment in mathematics is an individual exploration. This is a piece of written work that involves investigating an area of mathematics. (20 marks) | 20%       |

#### HL assessment outline

| Assessment Component          | Weighting |
|-------------------------------|-----------|
| External assessment (5 hours) | 80%       |
| Paper 1 (120 minutes)         | 30%       |

|  |                          |
|--|--------------------------|
| <p>No technology allowed (110 marks)</p> <p><i>Section A</i></p> <p>Compulsory short-response questions</p> <p><i>Section B</i></p> <p>Compulsory extended-response questions</p><br><p>Paper 2 (120 minutes)</p> <p>Technology required (110 marks)</p> <p><i>Section A</i></p> <p>Compulsory short-response questions</p> <p><i>Section B</i></p> <p>Compulsory extended-response questions</p><br><p>Paper 3 (60 minutes)</p> <p>Technology required (55 marks)</p> <p>Two compulsory extended-response problem-solving questions</p> | <p>30%</p><br><p>20%</p> |
| <p>Internal assessment</p> <p>This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.</p><br><p>Mathematical exploration</p> <p>Internal assessment in mathematics is an individual exploration. This is a piece of written work that involves investigating an area of mathematics. (20 marks)</p>  | <p>20%</p>               |

Ms JM Maguire

## MODERN LANGUAGES (Pre-U and IB)

Modern languages provide an exciting opportunity to gain real insight into different cultures and make the leap towards fluency. They offer a good mix of history, society, literature, language, communication and analytical skills. A language qualification in the Sixth Form is highly prized and will complement any other subject study. IB students will have a classroom teacher and a language assistant for an additional one-to-one lesson. Pre-U students will have two different classroom teachers as well as the additional oral lesson. We have an excellent department of passionate and positive-minded teachers and assistants. We encourage our students to participate in a number of academic competitions, including Oxford and Cambridge essay competitions, the EU Juvenes Translatores competition, German Olympiad and the UK Linguistics Olympiad. There are always cultural events taking place in the department, and students are invited to film nights, to hear visiting speakers, participate in the MFL Society and to go abroad on language trips.

### Pre-U Modern Languages

The Cambridge Pre-U is an exciting alternative to A Level, that offers better opportunity to score high grades and offers a more varied and interesting course of study. Universities accept and welcome the Pre-U and you can 'mix and match' Pre-U with A Levels. The Pre-U course provides an excellent opportunity for students to gain a high level of fluency as well as a solid grounding in the culture, film and literature of the language studied. It is a very desirable academic qualification.

The Pre-U is a varied and flexible course, which is aimed to give you relevant and up-to-date knowledge about the language and the culture of the country (countries) where your language is spoken. You will study a wide range of topics: from identity, leisure and media to law, religion and science. A cultural topic is further greater detail (examples include the Berlin Wall, children growing up in times of political crisis, exile, journeys, France during WWII, sport, justice and oppression in Latin America...) For this, you will cover one text and one film which help you to explore the topic area. Finally, in the second year of the course, you will study one literary text in detail.

### *How will I be assessed for the Pre-U?*

Paper 1 – Speaking: discussion of a short article and a presentation (prepared beforehand) followed by discussion

Paper 2 – Reading and Listening: students control the listening and work through the reading and listening exercises, synthesising information and drawing inferences

Paper 3 – Writing and Usage: a discursive essay in the target language and three grammar exercises

Paper 4 – Topics and Texts: an essay in the target language based on the cultural topic studied and an essay in English on the literary text studied

You will be awarded one of the grades from the table. Distinction 1 (D1) is the highest, and is valued above an equivalent A\* at A Level. Merit 2 (M2) is roughly equivalent to a B at A Level. Pass 1 (P1) is roughly equivalent to a C at A Level.

The Pre-U is designed to test students of all abilities, and extends beyond the scope of A Level. This means that if you want a D3 (between A and A\* at A Level), you would need about 60% across all 4 papers.

|             |   |
|-------------|---|
| Distinction | 1 |
|             | 2 |
|             | 3 |
| Merit       | 1 |
|             | 2 |
|             | 3 |
| Pass        | 1 |
|             | 2 |
|             | 3 |

In 2018 our students achieved some impressive results with 80% achieving an MI or above.

## IB Modern Languages

The IB has an international focus and languages form part of its core curriculum. Language study in the IB aims to give students practical language skills and aims to equip learners with the vocabulary, grammar and contextual knowledge to successfully communicate in different situations in a foreign language. By the end of the course, you will be able to adapt language to write emails, formal letters, speeches, pamphlets and use more casual language. The emphasis is on communication, and students are encouraged to explore a variety of cultures and societies where the language is spoken. Topics covered include identity, experiences, human ingenuity, social organisation, and sharing the planet. Higher Level students are also required to read two literary texts although reading authentic texts and literature in the foreign language is encouraged across the DP language acquisition courses as it promotes international-mindedness and broadens vocabulary.

### *What modern languages are available in the IB?*

If you have previously studied a language, at GCSE for example, you can build on this by studying French, German, Mandarin or Spanish at Higher Level (HL) or Standard Level (SL).

It is also possible to begin a new language from a beginner level: German and Italian are available at Ab Initio SL.

It may be possible for native speakers of a language other than English to study a second language A, allowing them to graduate with a bilingual IB diploma – this is dependent on numbers so Language A courses may not run every year.

### *How will I be assessed for the IB?*

The IB programme for languages has changed and the current Upper 6<sup>th</sup> are the final cohort to sit the old specification. For the exams taken in 2020 onwards, Paper 1 is a writing paper worth 25% and Paper 2 is a reading and listening paper worth 50%. The remaining 25% comes from oral assessment testing your ability to communicate orally on the themes. At HL it will also involve a conversation about a literary work you have studied. IB specific rubrics are used to assess each paper individually and at the end of the course you will be awarded a grade from 1-7. Fettes has an excellent record of results in Modern Languages IB; in 2018 90% of our HL students scored 6 or 7; 75% of our SL students scored 100% of our students scored 5-7 (equivalent to B-A\*).

### *IB Extended Essay in Modern Languages*

Modern Languages is one of the most flexible subjects for the Extended Essay. There are three main strands from which to choose: language, literature or a cultural artefact.

- 1) Language-based essays will take a more linguistic approach, and might look at the evolution of language over time, or the interaction of dialects and a more dominant language.
- 2) Literature-based essays offer an opportunity to explore any text type from an analytical point of view. Poetry, theatre, novels, short stories could all be the focus.

- 3) A cultural artefact could be almost anything: music, food, fashion, jewellery, a piece of law, historical documents, art, architecture, TV programmes...

There is huge scope to study almost anything you are interested in, provided it is from, and linked to, the culture of the language you are studying.

You write the EE in the language you are studying and it is recommended for HL only.

Ms KM Hopkinson

## MUSIC (A Level and IB)

### A Level

At Fettes, the Music A Level is studied following the AQA Syllabus and it extends the skills of Performing, Composing and Appraising which became familiar at GCSE.

Students need to have reasonably strong practical music skills in order to be able to do well at A level Music. As a benchmark, students who are working towards the Associated Board Grade 5, or its equivalent, or playing at Grade 5 standard at the start of the course (with an anticipated upward progression during the course) ought to be able to score highly enough in the two practical units to be able to secure strong grades in the overall qualification.

### Component 1: Appraising Music

This two and a half hour written paper assesses a wide range of analytical and aural skills. In the first section of the paper students answer short listening questions on some unfamiliar pieces of music linked to music studied as part of the course. Section B includes more analytical questions on the set works themselves. The final section of the paper requires students to write an extended essay based on one of the areas of study explored during the course.

The current crop of A Level students are studying areas 1, 3 & 7 from the following list:

Area of Study 1 (compulsory): Western Classical Music 1650-1910

Area of Study 2: Pop Music

Area of Study 3: Music for Media

Area of Study 4: Music for Theatre

Area of Study 5: Jazz

Area of Study 6: Contemporary Traditional Music

Area of Study 7: Art Music since 1910

### Component 2: Performing

Students put together a performance of pieces lasting a minimum of ten minutes. This can combine solo and ensemble performance on instrument or voice performance, and music production (via technology). The recording is made internally and must be undertaken between March and May of the examination year. This is externally assessed.

### Component 3: Composition

Students produce two compositions of a combined duration of at least four and a half minutes. One is a free composition led by the student, and the other is a response to a brief set by AQA in September of the Upper Sixth. This is externally assessed.

## IB

A major objective of the IB music programme is to encourage students to be aware of the variety and complexity of different musical practices worldwide. It also allows the candidate sufficient choice to continue a musical specialism or emphasis on what s/he likes best.

The Higher Level (HL) and Standard Level (SL) courses consist of the following sections:

Musical Perception and Analysis (30%)  
Musical Investigation (20%)

The HL course also requires Composition (25%) and Solo Performance (25%)  
In SL there is the option of choosing Solo Performance OR Group Performance OR Composition (50%)

Musical Perception and Analysis is externally assessed and comprises of a study of different musical genres and styles which focus on socio-historical and cultural context, as well as musical characteristics. This is done through the study of 2 set works and also an exploration of a wide variety of music throughout history and from different parts of the world, covering a multitude of genres.

Musical Investigation encourages the student to carry out an independent investigation into an area of personal interest. It must feature a study of two different musical genres from any tradition and is presented in the form of a 2000 word media script. This should resemble something like a magazine article or a TV/ radio script for public presentation.

Two types of performance can count towards assessment. Solo performing is mandatory for HL In SL, group performance can be substituted for the less confident performer.

There are four criteria by which performances will be judged, namely overall impression, technical competence, style and interpretation, and repertoire.

Compositions can be in any style or genre and each should be between 5 and 15 minutes. HL requires three works, all of which must have a notated score and be recorded for assessment purposes.

This IB course can accommodate the highest levels of technical accomplishment in performance, in any style. However, it is also aimed at the student who wishes to appreciate a wide range of musical cultures and who is not content to concentrate solely on the traditions of Western Music. At Standard Level there is no mandatory performance, so this is an ideal course for those more interested in composition.

Mr BL Watson

## PHYSICAL EDUCATION (A Level and IB)

Sport Science looks to explain and explore the different areas that influence our health and performance. It takes the cores subjects of Biology, Chemistry, Physics, Sociology and Psychology and applies them to us. This allows you to see how the body and brain are influenced and therefore gives you the understanding over how people function both physically and emotionally. This is a subject that you can apply not only to your performance but to many aspects of everyday life.

Previous experience of Sport Science/PE is not essential but you must have an interest in human biology as this makes up a large part of the course.

Sport Science fits well with Biology and Psychology as well as many other related fields of study. We offer course at both A Level and IB (Standard and Higher level).

### A Level

This is a broad (covering over 50 principles) and academically demanding subject, which will challenge all students in a number of key areas of understanding: physiology, biomechanics, psychology, history, sociology and practical performance. The desire for breadth in the academic development of students makes Physical Education and increasingly relevant subject.

Fettes follows the AQA specification. This has been designed to address current contemporary issues in sport and equip students with skills and knowledge for entrance into higher education or the world of work. The content will maintain the academic rigour of the subject, building on the student's experience from GCSE to enhance their knowledge and increase their understanding of the factors that affect performance and participation.

The A Level course will encourage candidates to:

- a) become increasingly physically competent by:
  - developing the skills and techniques they require to perform effectively in physical activities.
  - applying and adapting a wide range of skills and techniques effectively in different types of physical activity.
  - developing and applying their skills in different roles, such as performer, leader and official within physical activities.
  - applying their skills in different contexts within a physical activity.
- b) maintain and develop their involvement and effectiveness in physical activity through:
  - developing their knowledge and understanding of factors that enable them and others to be physically active: as part of a balanced lifestyle, and as part of a lifelong involvement in an active and healthy lifestyle.
  - developing their knowledge and understanding of the relationship between skill, strategy / composition, and body and mind readiness in ensuring effective and efficient performance in their own and others. Roles such as performer, leader and official.
- c) be informed and discerning decision makers who understand how to be involved in physical activity through helping them to:
  - understand how they and others make the most of the opportunities and pathways available to be involved in physical activity.
  - understand and critically evaluate how contemporary products and consumer-focused influences related to physical activity affect and inform young people's decisions about being involved in a range of physical activities.
  - understand and critically evaluate current key influences that might limit or encourage young people's involvement in physical activity.

### Syllabus

An outline of the specification is given below:

<http://www.aqa.org.uk/subjects/physical-education/as-and-a-level/physical-education-7582>

It contains 7 key topic areas:



1. Applied anatomy and physiology 2. Skill acquisition 3. Sport and society 4. Exercise physiology 5. Biomechanical movement 6. Sport psychology 7. Sport and society and the role of technology in physical activity and sport

Assessment

| Assessment Component  | Weighting |
|---|-----------|
| External assessment (4 Hours)   | 70%       |
| Paper 1 Factors affecting participation in physical activity and sport.<br>Written exam: 2 hours. 105 Marks.<br>What's assessed: Section A: Applied anatomy and physiology. Section B: Skill acquisition. Section C: Sport and society                                    | 35%       |
| Paper 2 Factors affecting optimal performance in physical activity and sport.<br>Written Exam 2 Hours. 105 Marks.<br>What's assessed: Section A: Exercise physiology and biomechanics. Section B: Sport psychology. Section C: Sport and society and technology in sport. | 35%       |
| Non-exam assessment: Practical performance in physical activity and sport.<br>Students assessed as a performer or coach in the full sided version of one activity.<br>Plus: Written/verbal analysis of performance. Internal assessment, External moderation. 90 Marks.   | 30%       |

IB Sport, Exercise and Health Science (SL 150 hours and HL 240 hours)

This is a column 4 science option for the IB. We currently offer both HIGHER and STANDARD LEVEL.

It is a broad and academically challenging subject which allows students to develop their scientific understanding of humans. It focuses on both health and performance. It is a broad and exciting course!

Syllabus:

The complete syllabus can be found on firefly: <http://fettes.fireflycloud.net/pe/ib>

Core: There are six compulsory topics in the core.

80 hrs for SL and HL

|         |         |
|---------|---------|
| Topic 1 | Anatomy |
|---------|---------|

|         |   |
|---------|---|
| Topic 2 | Exercise Physiology                             |
| Topic 3 | Energy Systems                                  |
| Topic 4 | Movement Analysis                               |
| Topic 5 | Skill in Sport                                  |
| Topic 6 | Measurement and evaluation of human performance |

|  |
|--|
| <p>Additional content for Higher Level (50 Hours)<br/> <u>There are seven additional topics for higher level.</u></p> <p>Further anatomy</p> <p>The endocrine system</p> <p>Fatigue</p> <p>Friction and drag</p> <p>Skill acquisition and analysis</p> <p>Genetics and athletic performance</p> <p>Exercise and immunity</p> |
|--|

Options: There are four options. Students are required to study any two options.

SL – 30 Hours. HL 50 Hours.

|          |  |
|----------|--|
| Option A | Optimising physiological performance     |
| Option B | Psychology of sport                      |
| Option C | Physical activity and health             |
| Option D | Nutrition for sport, exercise and health |

We currently tend to study Option A and B.

#### Assessment

| Assessment Component  | Weighting |
|---|-----------|
| External assessment (3 Hours)   | 76%       |
| Paper I (45 Minutes SL – 60 Minutes HL) Syllabus content: Multiple Choice questions on the core syllabus. | 20%       |

|   |     |
|---|-----|
| Paper 2 (75 Minutes SL – 145 Minutes HL). <u>Section A</u> : Data based question and short answer questions on core topics. <u>Section B</u> : One extended-response question on the core, from a choice of three. (20 Marks)   | 32% |
| Paper 3 (1 Hour SL – 75 Minutes HL) Syllabus content: Options. Several short answer questions (all compulsory) in each of the two options studied. (40 Marks)   | 24% |
| Internal assessment/Practical Work (40 Hours for SL and 60 hours for HL - 48 marks)<br><br>Internally assessed by the teacher and externally moderated by the IB at the end of the course.<br><br>Investigations (30 Hours for SL and 50 Hours for HL). Long and short-term investigations (42 Marks)<br><br>Group 4 Project (10 Hours). Interdisciplinary project. Assessed for personal skills only | 24% |

Mrs M Raeburn

## PHYSICS (A Level and IB)

Physics seeks to explain the universe itself, from the very smallest particles—quarks (perhaps  $10^{-17}$  m in size), which may be truly fundamental—to the vast distances between galaxies ( $10^{24}$  m).

Classical physics, built upon the great pillars of Newtonian mechanics, electromagnetism and thermodynamics, went a long way in deepening our understanding of the universe. From Newtonian mechanics came the idea of predictability in which the universe is deterministic and knowable.

However, experimental discoveries dating from the end of the 19th Century eventually led to the demise of the classical picture of the universe as being knowable and predictable. Newtonian mechanics failed when applied to the atom and has been superseded by quantum mechanics and general relativity.

Despite the exciting and extraordinary development of ideas throughout the history of physics, certain things have remained unchanged. The scientific processes carried out by the most eminent scientists in the past are the same ones followed by working physicists today and, crucially, are also accessible to students at Fettes College.

At Fettes College, theory and experiments are undertaken by all students. The physics department allows students to develop traditional practical skills and techniques and to increase facility in the use of mathematics, which is the language of physics. It also allows students to develop interpersonal skills, and information and communication technology skills, which are essential in modern scientific endeavour and are important life-enhancing, transferable skills in their own right.

## A Level

Candidates for this course should have at least an A grade in IGCSE Physics and Mathematics.

A Level Physics is made up of six mandatory units, all of which are externally assessed. The A Level specification has been written to provide progression from IGCSE Physics; furthering the student's understanding all of the topics covered at IGCSE while introducing some new and exciting topics such as Quantum Physics.

| Module  | Content  |
|---|--|
| 1. Development of practical skills in physics | Skills of planning, implementing, analysis and evaluation  |
| 2. Foundations of Physics                     | Includes: <ul style="list-style-type: none"><li>• Physical quantities and units</li><li>• Scalars and vectors</li><li>• Measurements.</li></ul>  |
| 3. Forces and motion                          | Includes: <ul style="list-style-type: none"><li>• Motion</li><li>• Forces in action</li><li>• Work, energy and power</li><li>• Materials</li><li>• Newton's laws of motion and momentum.</li></ul> |
| 4. Electrons, waves and photons               | Includes: <ul style="list-style-type: none"><li>• Charge and current</li><li>• Energy, power and resistance</li><li>• Electrical circuits</li><li>• Waves</li><li>• Quantum physics.</li></ul>     |
| 5. Newtonian world and astrophysics           | Includes: <ul style="list-style-type: none"><li>• Thermal physics</li><li>• Circular motion</li><li>• Oscillations</li><li>• Gravitational fields</li><li>• Astrophysics.</li></ul>                |
| 6. Particles and medical physics              | Includes: <ul style="list-style-type: none"><li>• Capacitors</li><li>• Electric fields</li><li>• Electromagnetism</li><li>• Nuclear and particle physics</li><li>• Medical imaging.</li></ul>      |

The assessment at A Level will follow the format shown below. All practical skills will be assessed internally on a pass/fail basis at the end of the course according to criteria supplied by the exam board. The students will complete at least 12 practical assessments throughout the course. These will be carefully integrated into the theoretical teaching of each part of the course to aid learning and develop understanding of the concepts covered.

| Paper   | Marks   | Duration     | Weighting |    |
|---------|---|--------------|-----------|----|
| Paper 1 | <b>Modelling physics</b><br>Content – Modules 1, 2, 3, 5                                  | 2 hr 15 mins | 37%       |    |
|         | Section A – Multiple choice   |              |           | 15 |
|         | Section B – Structured questions, covering theory and practical skills                    |              |           | 85 |
| Paper 2 | <b>Exploring physics</b><br>Content – Modules 1, 2, 4, 6                                  | 2 hr 15 mins | 37%       |    |
|         | Section A – Multiple choice   |              |           | 15 |
|         | Section B – Structured questions, covering theory and practical skills                    |              |           | 85 |
| Paper 3 | <b>Unified physics</b><br>Content – all modules   | 1 hr 30 mins | 26%       |    |
|         | Structured questions and extended response questions covering theory and practical skills |              |           | 70 |

## IB

Physics students at standard level (SL) and higher level (HL) undertake a common core syllabus, a common internal assessment (IA) scheme and have some overlapping elements in the options studied. Students at HL are required to study some topics in greater depth, to study additional topics and to study extension material of a more demanding nature in the common options. The distinction between SL and HL is one of breadth and depth.

### Higher Level

The Higher Level course has a large element of theory that covers the full range of physics, i.e. Mechanics, Heat, Waves, Electricity, Electromagnetism, Quantum and Nuclear Physics. It is a well-structured but demanding course and should only be considered by students who have an A\* in Maths and Physics at GCSE. A large proportion of the course is given over to practical work also and this is internally assessed, culminating in one 10 hour assessed piece. Students must show the ability to plan their own practical work as well as the usual skills of data collection, processing, evaluation and drawing conclusions. A Group 4 project (10-15 hours) must be completed in conjunction with other science students.

The Higher Level Assessment Specifications are as follows:

|                          | Higher Level                                     |  |  |
|--------------------------|--|--|--|
|                          | Paper 1  | Paper 2  | Paper 3  |
| Duration (h)             | 1.00   | 2.25   | 1.25   |
| Proportion of total mark | 20%  | 36%  | 24% *  |
| Questions to be answered | All 40 multiple-choice questions on core and AHL | • short-answer and extended-response questions covering SL and HL material | • short-answer questions on experimental work; one data-based question in section A<br>• short-answer and extended-response questions from one option in section B |

In addition to these exams, Higher Level students will carry out 60 hours of practical work, which will be internally assessed. This will contribute to an overall weighting of 20% of the final grade.

#### Standard Level

At Standard Level the theory content is a sub-set of the Higher Level course, covering a wide range of physics but omitting the more challenging conceptual and mathematical topics. An A grade at GCSE Physics and Maths should be a suitable minimum background. The practical work makes similar demands to the Higher Level, and the assessment is of the same standard.

The Standard Level Assessment Specifications are as follows:

|                          | Standard Level                              |   |  |
|--------------------------|---|---|--|
|                          | Paper 1                                     | Paper 2   | Paper 3  |
| Duration (h)             | 0.75  | 1.25  | 1.00   |
| Proportion of total mark | 20%   | 40%   | 20% *  |
| Questions to be answered | All 30 multiple-choice questions on SL core | • short-answer and extended-response questions covering SL material | • short-answer questions on experimental work; one data-based question in section A<br>• short-answer and extended-response questions from one option in section B |

In addition to these exams, Standard Level students will carry out 40 hours of practical work, which will be internally assessed. This will contribute to an overall weighting of 20% of the final grade.

Mr NCR Ward

### POLITICS (A Level and IB)

Politics is all around us, yet all too often people's opinions about it are reduced to inarticulate prejudice or confused apathy. We aim to remedy that in our students with a comprehensive examination of both the institutions and the ideas which dominate political life in Scotland, the United Kingdom, Europe and the wider world.

Politics goes well with History, Geography, Economics, Modern Languages, and English. It is an invaluable background for students wishing to pursue careers in the media, civil service, business, Europe, NGOs, and, perhaps unsurprisingly, politics. Politics and International Relations are popular courses for Fettesians at university.

We offer two routes through Sixth Form:

### POLITICS (A Level)

This syllabus aims to provide a programme of political education which will develop the skills, knowledge and content necessary for an understanding of how the British and political system works, including the impact of the European Union, the creation of the Scottish Parliament and the Ulster Peace Process. The British system is compared with others, especially the American Constitution, to see it in context.

Although no previous study of the subject is required, a good grade in GCSE History and English is preferred; Politics is an essay-based subject with a lot of reading. An active interest in and awareness of British politics is a definite advantage for students, who are expected routinely to read the newspapers and watch or listen to news programmes about political matters.

In the lower sixth, we focus on British politics, looking at issues such as:

- How can we influence politics?
- Is the government too powerful?
- What are the beliefs of the political parties?
- Is the UK democratic, and how could we improve it?

Later, we look at political ideas and global politics, looking at questions like:

- Is Thatcherism a coherent ideology?
- Do all socialists sell out in the end?
- Are liberals secretly afraid of democracy?
- Will China replace the USA as a superpower?
- Is war an inevitable feature of international relations?

- To what extent is international aid effective?

How is A Level Politics assessed?

Politics is assessed through examined modules based on a choice of essay and document-based questions.

3 x 2-hour exams (there is no coursework)

## GLOBAL POLITICS (IB)

IB Global Politics is a new course which has just completed its pilot, with first examinations in 2014. Although much of the taught part of the course is similar in content to the Upper Sixth element of the A Level course, it differs in significant other ways; it is primarily international rather than focused on the UK, with no papers on British government, and there is a significant proportion of coursework.

“The global politics course develops international mindedness in students through an examination of fundamental political concepts and debates which have global significance, and through an exploration of key contemporary global challenges. The course considers contemporary examples and case studies at a variety of levels, from local to global, as well as encouraging comparison between such examples and case studies.” - *IB subject guide*

The course consists of four compulsory units:

Power, sovereignty and international relations

This unit gives students an understanding of how power is distributed, recognised and contested at various levels; the nation state, international organisations, and non-state actors.

Human rights

This unit focuses on the nature and practice of human rights. This includes the development and evolution of human rights, and how human rights agreements are ratified, enforced and contested. It looks at how different groups and organisations pursue and advocate human rights controversies, and it analyses debates surrounding human rights.

Development

This unit looks at how economic forces, state policies, local concerns and practices, and international organizations affect development.

Peace and conflict

This unit focuses on different types of conflict and violence within and between nation states; and at post-conflict transformation, reconciliation and reconstruction.

How is Global Politics assessed?

- Paper 1: 1 hour 15 minute examination based on sources (30% SL, 20% HL)
- Paper 2: HL: 2 hour 45 minute essay-based examination (40%)
- Paper 2: SL; 1 hour 45 minute essay-based examination (45%)
- Internal assessment (25%SL, 20% HL).

*NB this assessment structure closely resembles IB History*



In addition to the components above, the HL extension has two externally assessed 10-minute oral presentations of case studies from two different HL extension topics, worth 20% of the total marks.

### General Course Requirements

We cannot stress too highly that whatever Politics course you do, it will require both a high level of written English and a strong interest in current affairs. You need to be comfortable with extended writing as a form of assessment, since essays are central to both IB and A level. It is also very important that you have an active interest in current affairs if you are taking these courses; if you are not in the habit of watching the news or reading the papers, and discussing current affairs with friends, you will find it both more difficult and less enjoyable. Examiners are looking for evidence of personal political awareness, and this cannot be spoon-fed.

Mr DB McDowell

## PSYCHOLOGY (A Level and IB)

Psychology is the scientific study of people: how they think, act, react and interact. It is concerned with all aspects of behaviour (normal and abnormal) and the thoughts, feelings and motivations underlying such behaviour.

In other words, in Psychology we study all aspects of human behaviour. In this way, learning about Psychology can also help us to understand behaviour in our own, everyday lives. Psychology crosses the division between the sciences, arts and humanities and therefore can complement and enhance the study of all other subjects.

Due to its applied nature, Psychology is an accessible science which has relatively little mathematical content. Like all sciences, we study research design and analysis, but we do this from the perspective of when and how we would use these techniques.

Psychology is highly valued by universities and by future employers (Times Education Careers Services Unit). This is due in part to the diverse and rounded set of transferable skills which it develops, including: critical writing, research design and data analysis. Psychologists are well placed for careers and further training in many fields and often go on to work in disciplines such as: Medicine and Healthcare, Social Care, Business, Marketing, Public Relations, Human Resources, Psychology (Clinical, Educational, Research, Forensic, Counselling, Health, Neuropsychology, Occupational), and so on.

## A LEVEL

### Course Structure

The Psychology A Level follows the new linear format and we will adhere to the AQA Syllabus. At A Level, Psychology is classed as a Science.

### Topics

The topics which the A Level will cover are diverse and include three options (topics 9-II) (see below). These topics will allow us to explore such questions as: why do some relationships flourish while others fail? How do forensic psychologists construct psychological profiles of criminal offenders? How do eating

disorders start and how are they treated? How can individuals or groups influence a majority opinion? How is information stored in memory and when does it go wrong (e.g. in mistaken eyewitness testimony)? How do neurons communicate with each other in the brain?

1. Social influence
2. Memory
3. Attachment
4. Psychopathology
5. Approaches in psychology
6. Biopsychology
7. Research methods
8. Issues and debates
9. Relationships
10. Eating behaviour
11. Forensic psychology

### Assessment

The Psychology A Level is 100% assessed by three final two hour exams - there is no assessed coursework. The final exams are:

1. Paper 1 (7182/1): Introductory Topics in Psychology. Covered in topics 1-4.
2. Paper 2 (7182/2): Psychology in Context. Covered in topics 5-7.
3. Paper 3 (7182/3): Issues and Options in Psychology. Covered in topics 8-11.

Research Methods are assessed over the three exam papers and together will make up approximately a third of your final grade. The exams assess your knowledge (AO1), the application of this knowledge to everyday situations or research settings (AO2), and your ability to evaluate evidence (AO3).

## IB

### Course Structure

In the IB, Psychology is placed with Group 3: Individuals and Societies. Psychology will be offered at both Standard Level (SL) and Higher Level (HL).

### Topics

In this course, students are given the opportunity to explore a range of topics in Psychology and also to conduct a practical Psychology experiment which is the basis of the internal assessment (IA). We will examine human behaviour from the perspective of several different areas of Psychology, including cognitive (to do with thinking and memory), sociocultural (how we behave within a social group) and biological (how our genes, neurotransmitters and other aspects of our biology affect behaviour). Another key subject of study within Psychology is Research Methods – how we design, implement and assess studies of behaviour.

The topics which we will cover are listed below, including the options which will be Abnormal Psychology (i.e., mental disorders such as schizophrenia) and the Psychology of Human Relationships (e.g., why do relationships form and why do they end?).

1. Part one: Core (HL and SL).
  - The biological level of analysis
  - The cognitive level of analysis

- The sociocultural level of analysis
- 2. Part two: options (HL 2, SL 1).
  - Abnormal psychology
  - Developmental psychology
  - Health psychology
  - Psychology of human relationships
  - Sport psychology
- 3. Part three: qualitative research methodology (HL).
  - Qualitative research in psychology
- 4. Part four: simple experimental study (HL and SL).
  - Introduction to experimental research methodology

#### Assessment

This course is assessed at Higher Level or Standard Level and involves both internal and external assessments.

#### Higher Level:

Students must complete all three compulsory levels of analysis, two options from a choice of five, qualitative research methodology and one simple experimental study.

- External assessments for HL consist of three written papers.
- The internal assessment for HL consists of one written report of a simple experimental study which is conducted by the student, then marked internally and moderated externally.

#### Standard Level:

Students must complete all three compulsory levels of analysis, one option from a choice of five and one simple experimental study.

- External assessments for SL consist of two written papers.
- The internal assessment for SL consists of one written report of a simple experimental study which is conducted by the student, then marked internally and moderated externally.

Dr JC Teale

## THEORY OF KNOWLEDGE (IB)

Theory of Knowledge (TOK) is a compulsory component of the IB Diploma. It is considered a core that helps students engage fully in the Diploma Programme. If you stop to think for a moment about the world in which you are living as you study, you will find that its complexity raises many questions about knowledge, such as: What counts as knowledge? How does it grow? What are its limits? Who owns knowledge? What is the value of knowledge? TOK is based upon such questions. It will not provide simple answers, but it provides students with the tools to think and discuss critically the nature of such questions and the issues that they raise. TOK develops the ability to analyse the information that students encounter and to sift objectively through the evidence for knowledge. It helps to develop awareness of the possibility, and sources, of bias. TOK can be a reference point for students and their Diploma Programme studies against a backdrop of ever-shifting change. It is a discipline that challenges students to question the very foundations of knowledge and also to develop familiarity with the varying forms of knowledge that they encounter.

#### A core and interdisciplinary subject

TOK is an interdisciplinary IB diploma subject, because it applies to all the subject areas possible to study for a diploma, whether it be chemistry, mathematics, history, language or visual art. TOK gives students the opportunity to reflect upon and evaluate all the knowledge and experiences they gain while taking the

diploma. TOK can also be applied to their creativity, action, service (CAS) pursuits, which promote a balance between theoretical and practical knowledge through out-of-class activities, and to the extended essay (EE), which provides students with the opportunity to research a sphere of knowledge of special interest and to develop critical and analytical writing skills.

#### TOK assessment in the Diploma Programme

##### TOK internal assessment

The internal assessment is the TOK oral presentation, in which students lay out a real-life situation they have chosen, and identify and explore a knowledge issue that arises from it. They deliver their TOK presentation to an audience of their fellow students. Their TOK teacher awards a global impression score out of 10. This score can be translated into a TOK component grade ranging from Level 5 (Excellent), through Level 4 (Very good), Level 3 (Satisfactory), Level 2 (Basic) to Level 1 (Elementary).

##### TOK external assessment

Students' final TOK essay, written on a topic they choose from a list of 6 prescribed titles, is marked by an external examiner, again awarding a global impression score out of 10 and translated into the same component grades as in the presentation.

##### Overall TOK assessment

Although both the essay and the presentation are assessed using global impression marking out of 10, the marks for the essay contribute 67% of the final mark and the presentation contribute 33% of the final mark. Finally, students are given an overall TOK performance grade. This final overall TOK grade is combined with the Extended Essay grade, which can result in up to 3 points towards the Diploma total. Two As and an A and a B score three points; two Bs and a B and a C score two points; and two Cs score one point. There are no points awarded for Creativity, Action and Service (CAS) but this component of the IB has to be completed for the IB Diploma to be awarded.

Mr IJ Loudon