

# AN INTRODUCTION TO A LEVEL

Sixth Form students at Elizabeth Moir School study the GCE Advanced (A Level) course set by Edexcel International, the examining body that includes the former London Examinations board. The A Level qualification is recognised by universities around the world and will allow students to gain entry not only to British universities but to universities in the USA, Australia and elsewhere.

The A Level course is divided into two sections, each comprised of two or three units. The first units form the GCE Advanced Subsidiary (AS) section, for which students gain a separate grade; the other units form the A2 section. Students' final A Level grade is a combination of their results on both the AS and A2 sections. Thus a student who takes both the AS and A2 sections of the course will receive two grades – a GCE Advanced Subsidiary grade and an overall GCE Advanced grade – but it is possible for a student to take only the AS section of the course and receive a grade for it. Students are entered for the examinations through the British Council: in 2011 the costs were Rs. 7,100 per unit in most subjects with six units and Rs. 10,300 or more per unit for subjects with four units.

Students at Elizabeth Moir School take both AS and A2 examinations at the same time at the end of the Upper 6<sup>th</sup> year, in common with many top private schools in Britain, unless an exception is made for a specific reason. This enables students to benefit from the increased knowledge, understanding and maturity they gain in the second year of the course before taking the AS examination.

## *Entrance Requirements*

***Students should have gained good grades in IGCSE, or equivalent, examinations – including 'A\*' or 'A' grades in their A Level subjects – if they are to cope with the demands of the challenging courses. The minimum requirements for a student to start the course are:***

EITHER to have gained AT LEAST grade 'C' or above in six subjects including English Language and Mathematics and AT LEAST a B in their prospective A Level subjects in IGCSE, or equivalent, examinations

OR to have passed the relevant Sixth Form Entrance Tests

Exceptions will only be made by the Head of School for a specific reason.

## *Choice of Subject*

Factors that will affect students' choice of subject will include their interest in and enthusiasm for the subject, their ability in the subject, and their future career aspirations. Some university courses have specific A Level requirements, including:

Medicine	Chemistry and either one or two of Mathematics, Physics or Biology
Engineering	Mathematics and Physics

Most university courses, however, do not have specific requirements and all subjects offered at Elizabeth Moir School will be accepted as having equal academic value. Students should not, therefore, think that choosing Science subjects rather than Arts subjects will improve their chances of admission to a good university. Both universities and future employers will look for well-rounded students with varied interests and all subjects teach skills such as literacy, numeracy, problem solving, research and communication that are in demand with employers.

Students are strongly encouraged to consult their teachers for advice on their choice of subjects and their potential to study subjects at A Level.

## *Number of Subjects*

All students must choose at least three subjects and universities will only expect students to have taken three subjects. Some students may choose to study four subjects, however, and this may be an advantage when applying to top universities where competition for places is fierce. Students

should be aware, however, that taking four subjects is a substantial challenge involving a large amount of work and requiring considerable determination, organisation and motivation.

## **BIOLOGY**

### *What is A Level Biology about?*

A Level Biology is about understanding the diversity of living organisms, their evolutionary trends and ecological relationships. The innovative new A Level syllabus includes the most recent developments in the field from genetic engineering to the causes of heart disease to how DNA is used by forensic scientists in crime scene investigations. It covers many topical and controversial issues such as genetic screening, stem cell research, biodiversity and evolution. Students also conduct a stimulating and thought-provoking study of the human brain, the least understood organ in the human body, learning about its role, the effect of drugs and stimulants on cerebral function, and the potential consequences of even minor damage.

### *What skills do you need?*

Students should have enjoyed and successfully completed the IGCSE courses, or equivalent, in Biology, Human Biology and Chemistry.

Interpretation of data is important – students should be able to use and process raw data in order to arrive at meaningful inferences as well as be able to present information in the form of tables, charts and graphs. A high standard of practical skills is also useful.

### *What is Biology useful for?*

Students who study the Biology of living organisms will learn to develop a sense of caring for the environment, when they learn how our very existence depends on the fine balance maintained between the organisms and the environment. It also helps to look after their own health and that of their families.

Biology may also be a pre-requisite for specific courses in the universities e.g. Medicine, Veterinary Science, Biological and Environmental Sciences.

Study of Biology will open you to a host of professional courses in a wide range of fields, such as Agriculture, Horticulture, Nutrition, Forensic Science, Food Technology and the Pharmaceutical industry. Biotechnology is a major growth industry in the modern world and careers are opening up in many new areas

### *Suggested Reading*

Edexcel AS & A2 Biology  
Advanced Biology – Michael Roberts

# CHEMISTRY

## *Introduction*

Chemistry is a subject that is changing and expanding and is now very diverse in its methods, and ranges over very wide fields. In the scientific revolution, chemistry has played an increasingly prominent part. It seems that in the future it will contribute to the development of new and important materials for construction, medicine, clothes and foodstuffs and provide for the basic needs of health, shelter, food and clothing. In addition to these material benefits, it gives power to free us from ignorance.

What is A Level Chemistry about?

A Level Chemistry provides the essential components and practical skills to explore the application of Chemistry in both a local and global perspective, thus providing students with a better understanding of Chemistry and the impact it has upon their lives. The A Level syllabus includes new topics such as climate change, green chemistry, pharmaceuticals and nanotechnology.

What skills do you need?

Successful completion of the IGCSE Chemistry course is an essential requirement. You need to be competent in basic mathematics and great emphasis is placed on problem solving and on laboratory skills which involve data analysis, use of formulae and interpretation of findings.

What is Chemistry useful for?

Successful completion of A Level Chemistry offers students several routes for progression as Chemistry is recognised as an entry qualification for a wide range of higher education courses and careers. It is also an essential requirement for Medicine, Veterinary Science, Dentistry and Chemical Engineering. It overlaps with other subjects such as Biology, Physics, Mathematics and other fields such as medical science, without any sharp dividing line.

Suggested Reading

Visit the following websites to find out more about careers involving Chemistry:

[www.rsc.org](http://www.rsc.org).

[www.abpi-careers.org.uk](http://www.abpi-careers.org.uk)

# ECONOMICS

## *What is A Level Economics about?*

Those who can relate Economics to the real world around them find that Economics is an interesting subject. That is easy for most people to do because examples of Economic forces are all around us and are constantly in the media. Economics includes a study of people and production; markets and institutions; enterprise and exploitation; individual behaviour and social relations; scarcity and choice; prosperity and poverty; power and free trade; national economies and globalisation; efficiency and waste; crisis and growth; inequality and welfare; rent and reward; the creation and destruction of resources; the environment and the prospects for the economic future of humankind.

It is a dynamic subject which studies changes in the economy, and a subject which changes as new ideas battle for influence with traditional interpretations. Economics is a wonderful way in which to understand how the world works. It helps students to relate and understand the vast changes taking place in the world today from the establishment of the single currency in Europe to the breakdown of the former Soviet Union.

## *What skills do you need?*

No previous knowledge of Economics is required in order to study the A Level course. However, a background in Mathematics is essential to enable students to cope with data analysis and use of formulae. Excellent comprehension of the English language is also required as students will be required to answer essay questions as part of the course. Economists need to use a variety of skills and as such, the A Level course complements many other subjects including Mathematics, History, Literature and Geography.

## *What is Economics useful for?*

Economics is an essential part of life. A Level Economics will equip students with the skills and knowledge to understand economic phenomena and current economic issues. For example, do you want to find out why certain economies are so under-developed while others have such rapid rates of economic growth? Do you want to learn why Odele can increase prices and still continue to expand while other industries would go bankrupt if they increased their prices, or why stock markets crash and why investors like Bill Gates have made it big?

Economics will also help to encourage students to question the world around them. It is uncommon to find one answer to any economic problem and as a result all economists are constantly being tested and stimulated. The course is interesting and students are encouraged to debate and argue on all topics being studied. As such, Economics provides a good foundation for many careers including Actuarial Science, Accounting, Business, Banking and Law.

## *Suggested Reading*

In order to determine whether or not to study A Level Economics, students should look at recent issues of *The Economist*.

# **GEOGRAPHY**

What are the forces influencing our natural environment – landscapes, plants and animals, the weather and climate? What are the issues affecting people and the places where they live? How and why are the cities and countryside changing? What are the economic forces that drive the world economy and how are they changing? How are people affecting the environment we all live in? What opportunities, challenges and constraints does our world offer us? What decisions are being made about the use and management of resources and who makes these decisions? What causes global problems such as poverty, the plight of refugees, natural hazards, and global warming and how can we solve them? These are the sort of questions that you will be answering if you choose to study Geography.

*What is A Level Geography about?*

The A Level course focuses on the interaction between humans and their environment and although central geographical theories are covered, the course is firmly based in reality, emphasizing the application of Geography and using case studies, examples and personal enquiries at every opportunity. The course focuses on the unity of geography – the essential links between human patterns and processes and the natural world, and the human impact on the natural environment.

## **What skills are required?**

It is not necessary to have studied Geography at IGCSE in order to take the subject for A Level, as much of the material studied is new. However, several topics covered in the course develop work covered at IGCSE, and the skills and knowledge gained at IGCSE provide a solid foundation for the A Level course. It is also essential to have a thorough grasp of written English and basic Mathematics. What is most important is that you should have a lively and enquiring mind, an interest in the environment and current affairs, a willingness to explore new ideas and an ability to communicate your ideas effectively.

## **What is Geography useful for?**

Geography students have access to a wide range of possible career and higher education opportunities. You learn and use a variety of transferable skills throughout the course. These include collecting, analysing and interpreting data from many various sources, communicating your findings in different ways, and identifying and developing the links between different parts of the subject. These skills are in great demand and are recognised by employers and universities as being of great value.

Geography combines well with almost any other A Level subject. Taken with sciences like Mathematics, Physics, Chemistry and Biology, Geography supports applications for almost any science-based university course like Engineering, Psychology, Environmental Sciences, Geology, and Biology. Taken with humanities like Literature, History and Economics, Geography supports an equally large range of university subjects such as Business, Law, Media, Politics and Philosophy. Geography does not force you into an early decision about your future, but instead broadens your options.

## ***Suggested Reading***

If you are curious about Geography, either as a subject at A Level, or simply because it is a fascinating and absorbing subject, recent editions of the following magazines are worth reading over

the summer vacation: *National Geographic*, *Geography Review*, *The Economist*, and any other world news or current affairs magazines such as *Newsweek* or *Time*.

# HISTORY

Who would want to rule the world? Why aren't all people treated equally? Why is there so much war and suffering? Why are people persecuted for their beliefs? Study History and you will find out.

History is one of the most fascinating and intellectually stimulating subjects to study at A Level. It is not about learning dates but about developing individual ideas about the past and arguing about different interpretations of events. It is the study of how the modern world has come into existence, examining the role of new ideologies, great men, class conflict and wars in causing change.

If you are interested in current affairs and want to learn about why revolutions happen, if you want to change the world and need to find out how, if you want to find out how people lived in the past, or if you are just interested in bloodshed and bravery, then History could be the subject for you.

## *What is GCE Advanced History about?*

The course concentrates on the ways in which authority has been exercised by different rulers, the causes of revolutionary change and the process of creating new states and institutions. It is designed to have the maximum relevance to the concerns and interests of today's students. Students are introduced to the major ideologies, individuals, societies and events that have shaped the world in which we live today and consider how these forces will shape the future.

Students study three extremely exciting and very different periods of History: Tudor England, Communist Russia and the end of the British Raj in India. Students learn about exciting events like the English Reformation, the Russian Revolution, the Spanish Armada and the Amritsar massacre; about famous people like Henry VIII and Cardinal Wolsey, Gandhi and Nehru, and Lenin, Trotsky and Stalin; and about ideologies like Protestantism, Nationalism and Marxism.

Students have the opportunity to pursue an independent piece of research on a topic of their choice. This project means that students only have to sit three papers at the end of the course.

## *What skills do you need?*

The most important skill required is the ability to express your ideas clearly in good written English and the course is very demanding in the amount of reading and writing required. Although IGCSE History is not a pre-requisite of the course and is examined in a very different way, it will be a significant advantage.

## *What is History useful for?*

First and foremost History provides a general education in the modern world and in humanity that all young people should aspire to. It also teaches key skills that will be useful in many fields of later life. Students will be taught to communicate with clarity and erudition both orally and in their written work, to organise individual research, to develop original and persuasive arguments and support them with well-selected evidence, and to discuss difficult concepts confidently and intelligently. Historians have gone on to enjoy success in Law, Business, Politics, Journalism, Broadcasting, Public Relations and Advertising among other fields. History can be taken in any combination of subjects but, in particular, complements Literature, Economics and Geography.

## *Suggested Reading*

*A People's Tragedy* by Orlando Figes provides a magisterial panorama of Russian society during the Revolution. Sheila Fitzpatrick's *The Russian Revolution* is the best short introduction. The best book on Tudor England is Susan Brigden's illuminating, absorbing and beautifully written *New Worlds, Lost Worlds*. Students are also encouraged to read novels such as *Animal Farm* and *1984* by George Orwell, *Dr. Zhivago* by Boris Pasternak, *Anna Karenina* by Tolstoy and *Wolf Hall* by Hillary Mantel.

## INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

### ***Introduction***

In a world where Information and Communication Technology (ICT) is constantly changing, individuals increasingly need technological and information literacy skills that include the ability to gather, process and manipulate data. Studying Applied ICT at A Level will provide students with an understanding of how the latest technology works and how it can be used. The impact of ICT on society is enormous and as the percentage of businesses and households connected to communication networks such as the internet grows, so does the need for individuals who understand these new technologies. This syllabus encourages students to become effective and discerning users of ICT and helps them to develop a broad range of ICT skills.

### *What is A Level Applied ICT about?*

The aims are to encourage candidates to:

1. develop a broad range of ICT skills and be aware of new and emerging technologies;
2. develop an understanding of the parts, uses and applications of ICT systems within a range of organisations, including the use of basic computer networks;
3. develop an understanding of how these ICT systems affect society in general;
4. develop an understanding of the main systems life cycle and apply this understanding to workplace situations;
5. develop a broad knowledge of the uses of ICT in workplace situations;
6. apply their knowledge and understanding of ICT and use these skills in workplace situations;
7. develop an understanding of the parts, uses and applications of ICT systems within a wide range of organisations, including the use of a range of computer networks;
8. develop an understanding of project management skills and other problem solving skills.

### *What is ICT useful for?*

Employers will always look for people with good computer skills so the skills that students learn in ICT will be of use whatever they do in the future.

Students that would like to increase their awareness of the benefits and drawbacks of ICT and its impact on the way people live their lives will enjoy this course.

### *What skills do you need?*

It is helpful but not essential for students to have studied IGCSE ICT before attempting the A Level ICT course. All students should have an interest in the theoretical as well as practical aspects of ICT. It is recommended that students have access to a computer for personal use out of school.

# **ENGLISH LITERATURE**

English Literature is a subject that allows you to think for yourself and to apply knowledge with confidence and accuracy, as well as develop analytical skills to a high standard. Other subjects require you to learn facts and formulae, but not English Literature. Choosing English Literature at A Level is choosing independent thought, articulate argument and lively discussion. The course is assessed through both examinations and coursework. This allows a more thorough analysis of the texts and will suit a variety of learners.

## *What is A Level English Literature about?*

The A Level course aims to give students an appreciation of a variety of literary forms such as novels, poetry, drama and short stories and an introduction to a wide range of literature from different periods, countries and cultures.

Studying literature is about approaching texts with an open, analytical mind and being willing to look at things from new and often challenging perspectives. It is also about trying to understand other people's point of view, whether it is the author's or your classmates'. It is about getting involved with texts, caring about the issues they raise, and trying to understand ourselves through reading about other people.

## **What skills do you need?**

The most important requirement for anyone wanting to study English Literature is a love of reading. Without this, you will neither enjoy nor do well on the course. You also need to value language and appreciate it in all its subtleties: not only will you be reading a lot, you will also be writing, and developing your own unique literary style. Students should have excellent comprehension of the English language and be able to communicate fluently and stylishly in their writing. Although it is not a requirement, previous study of Literature or History would assist you in developing the style of writing needed to excel in English Literature.

## *What is English Literature useful for?*

All universities and colleges recognise the usefulness and relevance of the skills which you develop studying Literature, and these skills – the fluent expression of ideas, a clear yet personal style, the analysis of various types of information – will be of great help in whatever university course, and indeed job, you choose. People who study English Literature follow many different paths after school: some go on to university to read Law, Business or other social sciences; others move into the media, whether it is the world of newspapers, or television, or the ever-expanding Internet industry.

Whatever career you are aiming for, whichever university you want to get to, choosing English Literature for A Level is a step towards becoming an articulate, astute individual who can voice their opinions and make others listen.

## **Suggested Reading**

Students should read the first year's set texts as carefully as possible before starting the course, but will also benefit from reading as much and as widely as possible.

# **MATHEMATICS and** **FURTHER MATHEMATICS**

## **Introduction**

Mathematics provides a language for Science, Finance, Engineering and for many other fields. The study of Mathematics develops skills of analysis, logical argument and problem solving. Mathematicians are trained to think logically about problems. This training will be useful in whatever future career is adopted. It offers committed students enjoyment and encourages critical thinking. The Further Mathematics course is very challenging and deals with a number of abstract concepts and is useful for those who might want to study Engineering or higher Mathematics at university level.

### ***What is A Level Mathematics and Further Mathematics about?***

The Mathematics course is a combination of Pure Mathematics, Particle Mechanics and Statistics. The Further Mathematics course consists of an additional six units of Pure Mathematics and Particle Mechanics and is only for students who take Mathematics as one of their subjects. Mathematics is a good supplementary option for those who have selected Physics, Economics or ICT.

What skills do you need?

Students will have successfully completed the IGCSE Mathematics course or an equivalent examination. A genuine enjoyment of analysing problems will help students to complete the course successfully.

Commitment and aptitude for Mathematics are essential to study Further Mathematics and students should have gained an 'A\*' in O IGCSE Mathematics, or an equivalent examination.

### ***What is Mathematics useful for?***

Mathematics provides training for a diverse number of fields including Technology, Economics, Research, Education and any area in which a logical and numerate approach is prized. There is a growing demand for mathematically-oriented degrees in areas such as Actuarial Science, Finance, Accounting, and Engineering which provide an almost unlimited choice of careers.

## **Suggested Reading**

Heinemann Modular Mathematics (New edition) C1, C2 and M1

# **PHYSICS**

## *Introduction*

Physics – you may love it or hate it, but you cannot live without it. Even before a baby is born, Physics is at work in ultrasound scanning, producing pictures of an unborn child in a mother's womb. Can you imagine that glass fibres no thicker than a hair use the property of light called 'total internal reflection' to carry information from one computer to another computer miles and miles away. Physics is everywhere and studying Physics brings an understanding of how things work.

## *What is A Level Physics about?*

It is an introductory course to the challenges of Physics, providing a foundation of key principles. Applications of the content taught at AS include sports, spare-part surgery, medical Physics, music, solar cells, and even the production of sweets and biscuits. In the A2 section, students learn about transport, communications, construction of buildings in earthquake zones as well as the latest research in particle Physics, astrophysics and cosmology. There are also two papers based on practical skills.

## **What skills do you need?**

The course builds on the knowledge, understanding and process skills attained in IGCSE Physics so successful completion of the IGCSE Physics course is an essential requirement. Students should also have successfully completed the IGCSE Mathematics course or an equivalent examination as numerical and mathematical skills are important in A Level Physics. Students also need to be able to communicate effectively, carry out research and think critically about problems.

## **What is Physics useful for?**

Physics is an essential requirement for all university Engineering courses and leads on to a wide range of courses and careers, including:

- Civil, Mechanical and Electrical Engineering
- Mathematics
- Natural and Physical Sciences
- Medicine
- Chemical Engineering
- Computer Science

In fact Physics is recognised as an entry qualification for a wide range of Higher Education courses and many fields of employment.

## *Suggested Reading*

- NAS Modular Series for Physics (Ellse & Honeywill)