



**SUMMARY**  
**OF MOTHER TONGUE COURSES**  
**IN YEARS 6 & 7**  
**ANGLOPHONE SECTION**  
**BXL II**  
**2018-20**



## **BIOLOGY OPTION (4 periods)**

**Formal testing.**Written examination at the end of each semester.

Oral may be selected for the Bacc in Year 7

The course aims to cover key concepts necessary for understanding contemporary biology, stressing evolutionary biology as the keystone for this understanding. A broad range of skills are developed, including data analysis, observation and transference of knowledge between domains as the unity of biological science is explored.

Although it is not necessary to study chemistry alongside this course it is desirable that the student has a sound understanding of basic chemistry.

*Students should be aware that chemistry is usually obligatory for entry to Higher Education courses in biology and its allied subjects.*

It is helpful if laboratory biology is chosen with this option, but it is not a necessary prerequisite.

### **Year 6**

Introduction to living systems

Cytology and biochemistry

Metabolism

Homeostasis

Behaviour

Immunology

### **Year 7**

Membrane biology

Photosynthesis

Respiration

Nucleic acids and genetics

Evolution

## **BIOLOGY (2 periods)**

**Formal testing.**Two B-tests per semester.

Oral may be selected for the Bacc in Year 7

The two period biology course aims to give students an overview of contemporary issues in biology and their impact on society.

*This short biology course is not suitable for entry into science courses at university.*

### **Year 6**

Health and disease

Neurobiology

Ecology

Nutrition

### **Year 7**

Cytology

Nucleic acids and genetics

Evolution

## **CHEMISTRY**

### **Years 6 and 7: Four Periods per Week**

This course is important for those students who intend to follow university courses in most Science subjects. This includes the Pure Sciences (especially Biology and Chemistry), plus others such as Environmental Sciences, Materials Science, Biochemistry, Genetics, Microbiology, Medicine, Veterinary Science, Dentistry, Pharmacology, Metallurgy and Chemical Engineering.

It is also suitable for students who have interest and ability in Chemistry but who do not intend to pursue a Scientific career. The academic rigour of the subject means that it is well regarded when applying for other competitive courses such as Law and Economics.

Students choosing this subject should have achieved a high standard in year 5 Chemistry and should feel competent in all aspects of the course. Because ability in Mathematics is necessary, students who have studied 6 hour Maths in year 5 are best placed to succeed. Chemistry students will be expected to use their ICT skills. In general, students will need to be enthusiastic and committed to developing a greater understanding of Chemistry. They need to be independent learners.

Formal assessment in Year 6 comprises two written examinations at the end of each semester. In Year 7 there is a three hour written paper at the end of the first semester, followed by the three hour BAC examination for most students in June. It is also possible to be assessed by an oral examination at the end of the course. There is no practical examination, although laboratory work is an integrated part of the course.

The current syllabus was introduced in September 2004, and the following topics are covered.

#### *Year 6*

- Atomic structure and the Periodic Table
- Structure and Bonding
- The Gaseous State
- Energetics
- Kinetics and Equilibria
- Organic Chemistry I: Aliphatic and Aromatic Hydrocarbons

#### *Year 7*

- Acids and Bases
- Electrochemistry
- Redox Reactions

- Organic Chemistry II: Alcohols, Aldehydes and Ketones, Carbohydrates, Carboxylic Acids, Fats and Oils, Amines and Amino acids

### **PHYSICS – a 4 period course**

Physics is the study of the physical world and the laws which govern it. It is thought by many to be the most fundamental science, which underpins other branches of science and technology. Studying Physics at school is a passport to a huge range of university courses in pure and applied sciences and engineering. The academic, practical and thinking skills which it helps to develop are also invaluable for those going on to courses and careers outside science and technology and, in every case, Physics is a highly-regarded component of the student's overall qualifications.

Physics graduates might work in areas as diverse as medical or biological physics, astronomy, electronics, materials or particle research or successfully apply their problem-solving approach in the financial sector. Engineering spans the whole range from ICT to construction.

The EB syllabus is rooted in just a few basic principles which are built up to form a coherent body of knowledge and understanding. These ideas can be applied to any changing situation and so material is always up-to-date. Even a question about the discovery of the Higgs-Boson, or the development of nuclear fission space rockets, is totally possible within the current syllabus.

There is a strong practical element running throughout, but there are also challenging theoretical concepts. Students will need sufficient competence to deal with the mathematics and calculations involved.

The programme is as follows:

<p><b>6<sup>th</sup> year</b></p> <p><i>Kinematics</i>  <i>Circular motion and gravitation</i>  <i>Simple harmonic motion</i>  <i>Electric and magnetic fields</i>  <i>Electromagnetic induction</i></p> <p>Assessment is based on regular tests and assignments and an exam each semester.</p>	<p><b>7<sup>th</sup> year</b></p> <p><i>Gravitational fields</i>  <i>Motion of charged particles in electric and magnetic fields</i>  <i>Waves</i>  <i>Atomic physics</i>  <i>Nuclear physics</i></p> <p>The Baccalaureate mark is based on assessment during the 7<sup>th</sup> Year. There are regular tests and an exam of 3h at the end of each semester. An oral examination is available as an alternative to the final written paper.</p>
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## **MATHEMATICS COURSES IN YEARS 6 AND 7**

### **Mathematics is compulsory for all students in Years 6 and 7.**

It is offered at three levels: there are courses of **three**, **five** and **eight** periods per week - the eight-period course being made up by combining the five-period course with an extra, advanced course of three periods per week.

It is important that mathematicians in school use modern technology as they do in the outside world. As such, possession of a Computer Assisted System (CAS) graphing calculator is compulsory. Further details are available on the school website. It is used firstly to enrich each course by reinforcing and saving time on 'pen and paper' skills which are also acquired during the course. Secondly, it is used to model realistic data, which would be impossible to do otherwise. As the assessment process reflects the programme, its use is obligatory in at least two-thirds of all formal assessments.

### **5-PERIOD MATHEMATICS**

This is the mathematics course for students who are strong in Mathematics and have completed the six-period course in the fourth and fifth years. They may also need a good knowledge of mathematics for university entrance onto specific courses or may just wish to keep more career options open at this stage.

**SYLLABUS:** The emphasis of the syllabus is mainly pure mathematics, developing students' ability to analyse functions and their graphs, including differential and integral calculus. The course also includes work on vector geometry, probability, complex numbers, sequences and series.

**EXAMINATIONS:**

There are end-of-semester exams in year 6 (3 hrs in total), and year 7 (4 hrs in total). In each session, one paper involves using the CAS calculator, while the other does not.

**3-PERIOD MATHEMATICS**

This course, which is not as demanding as the five-period course, is aimed both at students who find the subject demanding as well as students who do not intend to continue their studies in areas where mathematics plays an important rôle. Whilst not attempting to cover the full breadth of the five period course, several of its topics are covered in some depth. The four-period mathematics option in years four and five automatically leads on to this course. Although students who found the six-period course in fourth and fifth year demanding will feel this is their first option to consider.

**SYLLABUS:** The emphasis of the syllabus is mainly pure mathematics, developing students' ability to analyse functions and their graphs, whilst continuing the probability work from previous years. The course also includes work on series, trigonometry and statistics.

**EXAMINATIONS:**

There are end-of-semester exams in year 6 (2¼ hrs in total) & year 7 (3 hrs in total). In each session, one paper involves using the CAS calculator, while the other does not.

**ADVANCED MATHEMATICS (3-PERIODS)**

***(Students taking this course must also take the 5-period course.)***

Students intending to go on to study science, engineering, computing, technology or mathematics itself should consider this interesting course - former students who have moved on to areas with scientific or mathematical bias have frequently remarked on its value and relevance to their university studies. It is not exclusively geared to such students, however - in recent times students have enjoyed this course before moving on to study Law, P.P.E., languages, and various other humanities subjects at university.

The course is not concerned with more *difficult* material than five-period mathematics, but rather with a *broadening* of the syllabus, introducing topics not included in that course.

**SYLLABUS:** There is a **compulsory** section, consisting of the study of algebraic structure, linear algebra, complex numbers, matrices, and advanced series.

The **optional** part of the syllabus is intended to allow for the requirements of different university systems. Recent topics have included: correlation and regression, differential equations, numerical analysis, kinematics, partial differentiation, Markov chains . . .

**EXAMINATIONS:**

There are end-of-semester tests in both years 6 and 7 (1½ hrs in total), with some questions involving use of the CAS calculator. In addition for the Baccalaureate there is a **compulsory oral** examination at the end of the course which assesses work studied in year 7. It lasts for twenty minutes, and takes the form of the student presenting and explaining the solution to a problem and answering follow-up questions of a related nature.

**ENGLISH FIRST LANGUAGE – MAIN COURSE**

***This course, of 4 periods per week, is compulsory for all students in Years 6 and 7.***

**PROGRAMME IN YEAR 6 AND 7:**

The course is theme based and the theme for Bac 2016 will be: Thicker Than Water: Family and Community Ties. Students undertake a wide range of reading which is mainly, but not exclusively, literary in nature. The list of writers will include:

*King Lear* – William Shakespeare

*Death of a Naturalist* – seamus Heaney

*A Thousand Splendid Suns* – Khaled Hosseini

*Angela's Ashes* – Frank McCourt

**ORAL DISCUSSION**

This is used extensively in class, as a means to develop students' immediate responses and afford opportunities for the exchange of ideas. Regular and active participation is therefore very important for any student who wishes

to get the maximum benefit out of the course. It is also essential practice for the oral examination (see below).

### **HOMEWORK:**

Written homework is set regularly – usually one assignment each fortnight. Its purpose is to allow the students to develop their skill and confidence in planning, setting out and justifying an argument, as well as in other forms of writing. In addition to this, students are also required to do a substantial amount of reading at home in preparation for class discussion.

### **ASSESSMENT:**

Students' oral and written work are continuously assessed during the two-year course. In addition, two end-of-semester written exams are set in Year 6, and again in Year 7. The final written examination in Year 7 is compulsory for all students except those studying the Advanced First Language course, who take their own exam instead.

Besides the written papers, an oral examination takes place at the end of Year 7, and this, too, is compulsory for all except Advanced Course students, who take their own equivalent. We recommend that students read a wide range of newspapers and current affairs magazines as part of their preparation for this aspect of their baccalaureate assessment.

## **ENGLISH FIRST LANGUAGE – ADVANCED COURSE**

***Those selecting this course take it in addition to the Main course. It consists of a further 3 periods per week.***

The course is intended for those students who have shown ability and strong motivation in their English work so far. Certainly it is a recommended choice for anyone considering an English or other literature-based course in Higher Education. As the course is of a literary nature, students are expected to be enthusiastic readers and must be willing to participate actively in discussion.

### **PROGRAMME IN YEAR 6 and 7:**

The theme will also be Thicker Than Water and the main course reading will be extended through the following texts:

*Hamlet* William Shakespeare

*Untold Stories* Alan Bennett



*Mansfield Park* Jane Austen  
*Translations* Brian Friel  
*Collected Poems* Philip Larkin

## **A DISSERTATION**

of 3000-5000 words on a subject chosen by the individual student in consultation with the teacher is a compulsory part of the 7<sup>th</sup> Year programme, and forms the basis for the student's A-mark in Year 7.

## **ASSESSMENT:**

At the end of both semesters in Year 6, and at the end of the first semester in Year 7, students take written examinations in this subject as well as those for the Main Course. At the end of Year 7, an Advanced Course oral exam is taken instead of the Main Course equivalent. Students taking Advanced English will have a literary text to analyse in the oral.

## **PHILOSOPHY 2 HOURS / 4 HOURS**

### ***What is Philosophy about?***

It's about everything. It examines all the assumptions we make when we claim to understand ourselves and our situation as human beings. It seeks to open new ways of thinking about and engaging with the world. It is a drive towards self-awareness which sharpens our thinking skills. The subject moves from the Theory of Knowledge (Is the room still there after I left it?) to Ethics (Should I have been in the room in the first place?) to the Theory of Art (I think we could hang some pictures up); science, politics, history, psychology and sociology also come under scrutiny.

The thinkers engaged with these topics are themselves intriguing. Socrates was executed in his search for the truth, Nietzsche lost his sanity, Schopenhauer kept a nice collection of poodles, Bentham is still sat in a jar of formaldehyde in a University Library, and Marx lived and worked briefly in Belgium.

### ***How do we do it?***

The subject requires a critical examination of texts, some are accessible and talkative (e.g. Descartes) others are metaphorical and poetic (eg. Nietzsche) and some are just simply tough and complex (eg. Heidegger). These ideas need dissecting and evaluating through discussion and written work.

There are modern movie clips from the comic (Beavis and Butthead) to the serious (Sophie's Choice) to help engage with what are often highly abstract ideas, and a range of other resources too. Outside the classroom it should be possible to attend Philosophy conferences, either in Brussels or London. Guest speakers are frequently organised too, from the film director Michael Wadleigh who talked about sustainability, to the Bhutanese ambassador to the EU who came to talk about happiness.

***What are you going to have to do?***

You will have to think. Philosophy is a rigorous subject that demands an open and flexible mind. There is real content to understand. You will complete short exercises and extended essays, you will make class presentations and engage in the class discussions.

***Why do it?***

Because great minds don't think alike.

Many universities and employers hold philosophy in a high regard because of the skills of analysis and judgement which it promotes.

***Is there a big difference between the 2 period and the 4 period course?***

Yes and no. There is more space and time in the big course to explore the ideas further and to look at different perspectives on the problems, this can help firm up your understanding, but it can also lead to further, deeper complexities. In both the 2 and 4 hour courses, the basic content remains the same.

## **LATIN**

Why study Latin for the Baccalaureate? In what other course will you legitimately study magic and religion, gladiators and chariot racing, philosophers and emperors? Where else will you talk about the pleasures of love and sex, the perils of politics and war? Corrupt governors, mad emperors, femmes fatales, upstart ex-slaves – Latin has all this and more!

For the well-rounded student, Latin is:

- Essential for an understanding of medical and scientific terminology
- Essential for an understanding of legal terms and phrases
- Vital for students who want to study linguistics and philology
- Essential for historians of antiquity through the Renaissance and Reformation to the early 20<sup>th</sup> Century
- Essential for an understanding of medieval to modern literature.

Furthermore, through Latin you will learn about the foundation and development of a variety of modern institutions and systems:

- Legal codes

- Political ideas
- Morals and ethics
- Rhetoric
- Modern languages
- History and historiography
- Art and Architecture
- Medicine and Medical Procedures
- Philosophy and Religion
- Roads and Communication
- Water Supply and Sewage

And finally, Universities and employers alike recognise that a Classical education indicates a capacity for:

- Quick thinking
- Accepting a challenge
- Organisation and a logical approach to difficult problems
- Careful and detailed analytical ability
- A deep comprehension of linguistic and grammatical concepts □ The ability to understand and to articulate complex ideas.

The seventh year work is based on a harmonized school 'pensum' of +/- 20 pages for the prebac plus the centrally determined Bac pensum, of the same length. The oral exam offers students the opportunity to explore themes relevant to the course in detail. The written exam involves 50% unseen translation and 50% answering questions on selected set texts, including the cultural and historical background of those works.

Typical texts include Vergil's *Aeneid*, a poem which traces the founding of the Roman dynasty by the Trojan wanderer Aeneas; the speeches of Rome's finest statesman and orator, Cicero; Ovid's *Metamorphoses*, a fascinating exploration of human and divine changes in circumstance; Petronius' *Satyricon*, the lively tale of a millionaire's dinner party complete with all the extravagances that one would expect during the reign of Rome's most decadent emperor, Nero.

At the end of the course students will have achieved a much greater appreciation of the Classical foundations of modern Europe. This knowledge will offer them a thorough foundation for success in their later subject and career choices.