

## I A Level courses at ISZN Secondary

Dear Parents/Guardians,

I am pleased to introduce our International A Level Subject Option Booklet for Grade 11 (August 2016). Details of the option choices for next academic year are presented within this document.

Here at ISZN we offer a full International A Level programme of study, covering a range of subjects, which allow our students entry into a variety of courses at University or equivalent.

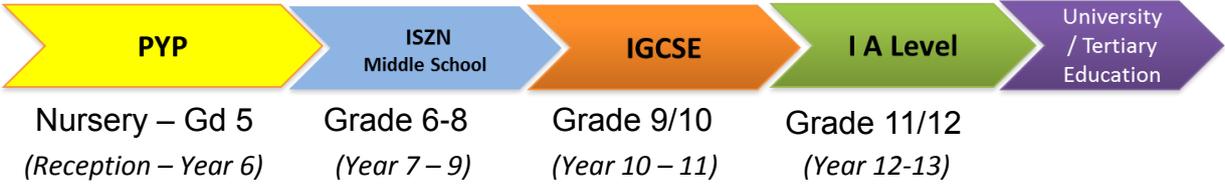
While making the subject choices, please bear in mind your child's aptitude and grades for the subject in Grade 10 (Year 11), their interest level and any future plans they may have.

Please note, some countries have very specific entry requirements for future study, for example, to study in Switzerland you will need a variety of subjects taken at both IGCSE and A Level, including science and humanities and some countries require 3 sciences for medicine.

Please feel free to contact me to discuss any issues or questions with regard to the curriculum and option process. In the meantime, I wish you and your child success, as you prepare to make some very important decisions regarding their future.

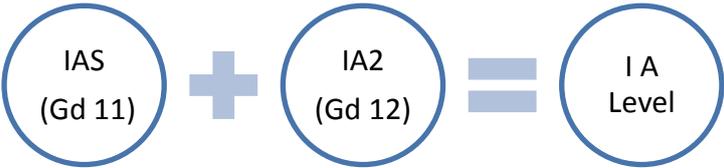
Dr. K. Sarbach  
Head of School  
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### ISZN Secondary Curriculum



ISZN Secondary School builds on our students’ PYP Primary School experience. Our school is divided into Middle School (Grade 6-8), High School (Grade 9 & 10) and Upper School (Grade 11 & 12). Grade 10 will complete their current stage of the curriculum in June 2016. The next stage in the curriculum we offer is to begin study towards the International AS and A Level Qualifications. As such, students must now make decisions regarding the subjects they wish to pursue at this Level. In order to cope with the content and be entered for the IAS and IAL courses we would expect a student to have at least a Grade C in that subject at IGCSE level.

### General Certificate of Education



#### IAS Level

(International Advanced Subsidiary)

The IAS is a 1-year academic qualification awarded for individual subjects and is externally assessed on a scale from A (highest) to E, with students sitting external examinations at the end of Grade 11.

#### IA Level

(International Advanced Level)

An International A Level is awarded to students who have sat examinations at IAS and IA2 levels in both Grade 11 and 12. Generally students would continue with 3 or 4 of their chosen subjects in Grade 12. An A\* grade is available at the I A Level for students who have performed outstandingly. Examiners from the examination boards determine the boundaries for the awards and results are usually published during the last week in August.

Most of our IAS and IAL courses are modular and students sit the unit exams at the end of each year.

IA Levels are recognised as university entrance qualifications by institutions around the world.

**Compulsory (Core) Subjects:**

- Physical Education (Grade 11 only)
- Career Education
- Service Programme

**Optional Subjects:**

Students choose 4 - 5 optional subjects. We must be aware of the fact that many students have no definite career in mind at this stage of their school life. It is therefore essential that we guide them to make choices that will keep their options open for the future.



Edexcel, a Pearson company, is the UK's largest awarding body offering academic and vocational qualifications, and testing to schools, colleges, employers and other places of learning in the UK and internationally.

[www.edexcel.com](http://www.edexcel.com)



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The University of Cambridge International Examinations is the world's largest provider of international qualifications for 14-19 year olds and is part of the University of Cambridge.

[www.cie.org.uk](http://www.cie.org.uk)

**Commitment to study**

It is essential that students have a real commitment to study at the I A Level level. Good organisation skills and hard work are paramount to success at I A Level, as the amount of independent study and homework will increase. Good attendance is essential and research suggests that 10 days or more missed during Gd 11 and 12 could reduce a student's performance by at least one grade at I A Level.

## Careers Information

The greater amount of information your son/daughter is able to gather about a specific career or interested area, the more informed their final decisions will be. Below are just some of the many useful websites that can assist your child with their research. In addition, we encourage students to discuss their thoughts with both subject and Homeroom teachers.

careers-portal.co.uk	General careers site
hotcourses.com	Courses guide
ucas.ac.uk	UK University applications site
trotman.co.uk	Books, course Information
mathscareers.org.uk	Maths careers
pass.maths.org.uk/interview.html	Maths careers
kent.ac.uk/careers/ScienceJobs	Science careers
kent.ac.uk/careers/Humanities	Humanities careers
kent.ac.uk/careers/SocialScience	Social Science careers
languageswork.org.uk/home.aspx	MFL
kent.ac.uk/careers/modernlanguages	MFL

## Making the best choice for the correct reasons

### The correct reason:

Students should consider the following questions very carefully:

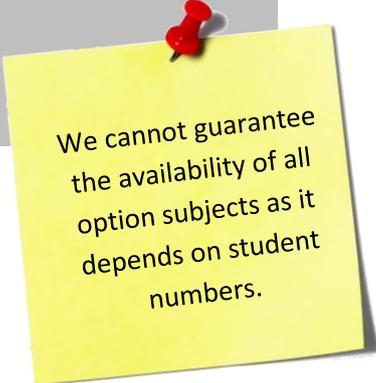
- ***What do I enjoy doing?***
- ***What am I good at?***
- ***What subjects do I dislike?***
- ***How do I learn best?***
- ***Which types of assessments I am most successful with?***
- ***What do my teachers say about my ability to take I A Levels in their subject?***
- ***What subjects will help me get on to the right course at university?***
- ***What course at university will help me reach my chosen career?***

### The wrong reasons

- ***What subjects my friends have chosen?***
- ***My friend in Grade 11 told me it was easy?***
- ***Which teachers I like?***

## Option Subjects

- Art and Design
- Business Studies
- Biology
- Chemistry
- English Literature
- Geography
- German
- History
- Information Technology
- Mathematics Core 12
- Mathematics Core 34
- Mathematics Statistics 1
- Music
- Physics



We cannot guarantee the availability of all option subjects as it depends on student numbers.

## **ART AND DESIGN**

Exam Specification: CIE 9704  
 Teacher: Joelle Newby  
 Teacher Contact: joelle.newby@iszn.ch

### Objectives of the Course:

- To enable students to perceive, understand and express concepts/feelings.
- To record from direct observation and personal experience.
- To develop awareness and appreciation of the interdependence of Art and Design.
- To communicate by using appropriate materials and techniques in a discipline way.
- To experiment, innovate and use intuition and imagination
- To develop the ability to identify, research and evaluate problems in a systematic way.
- To develop confidence, initiative and a sense of adventure and achievement
- To acquire a relevant working vocabulary

### Course Summary:

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|--|--|
| <ul style="list-style-type: none"> <li>• Candidates are expected to show an individual, sensitive and creative response to a stimulus.</li> <li>• They need to show ability to develop an idea, theme or subject and show independence in concept and execution.</li> <li>• Candidates are expected to select and control materials, processes and techniques in an informed and disciplined way to meet an objective.</li> <li>• They should select and record analytically from direct observation and personal experience.</li> </ul> | <ul style="list-style-type: none"> <li>• Candidates are expected to use and compose formal elements (contour, shape, colour/tone, texture, structure and the relationships between form and space) as appropriate.</li> <li>• Candidates are expected to select and communicate information relevant to an idea, subject or theme and evaluate this in a systematic way.</li> <li>• They should make critical judgements and use personal ideas and images to show they are developing appreciation and cultural awareness.</li> </ul> |
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### How the Course is examined:

IAS			
Component 1:	Controlled Test	15 Hours	60 % of IAS mark (30% IA Level)
Component 2:	Coursework		40 % of IAS mark (20% IA Level)
IA2			
Component 3:	Coursework		30 % of IA Level
Component 4:	Personal Study		20 % of IA Level

### Potential Careers in this Field:

Fine Artist, Museum/Gallery Curator, Printmaker, Teacher, Architect, Art Therapist, Art Administrator, Illustrator, Art Historian, Designer.

## **BIOLOGY**

Exam Specification: Edexcel XBI01 and YBI01  
 Teacher: Elizabeth Walters  
 Teacher Contact: elizabeth.walters@iszn.ch

### Objectives of the Course:

- To provide information about technological advances in medicine.
- To develop ethical viewpoints relevant to biology.
- To stimulate interest in, and care for, the environment.

### Course Summary:

*IAS, 3 units:*

#### **Lifestyle, Transport, Genes & Health:**

- Biological molecules.
- The circulatory system and cardiovascular disease.
- Cell membranes and transport.
- Genes and DNA.
- Genetic disorders including Cystic Fibrosis.

#### **Development, Plants & the Environment:**

- Eukaryotic and Prokaryotic cell structure.
- The use of stem cells.
- Cell differentiation.
- Plants and their uses.
- Taxonomy, biodiversity and conservation.

#### **Practical Biology & Research skills:**

- Graph drawing.
- Identifying variables.
- Analysis of scientific articles.

*IA2, 3 units:*

#### **The Natural Environment & Species Survival:**

- Speciation.
- Natural selection.
- Ecological relationships and sampling methods.
- Photosynthesis.
- Forensic science.
- Disease and Immunity.

#### **Energy, Exercise and Coordination:**

- Respiration.
- Skeletal muscular system.
- Exercise and health.
- The brain and nervous system.
- Animal behaviour.
- Gene therapy.

#### **Practical Biology & Investigative Skills:**

- Planning Investigations.
- Analysing and representing data.

### How the Course is examined:

#### **6 exam units in total:**

Unit 1, 2 & 3 in AS year:	Written answer questions. Approx. 1h 30min each	50% of total mark
Unit 4, 5 & 6 in A2 year:	Written answer questions. Approx. 1h 30min each	50% of total mark

### Potential Careers in this Field:

Medicine, Ecology, Psychology, Physical therapy, Botany, Radiology, Forensics, Geneticist, Zoologist, Immunologist.

## **BUSINESS STUDIES**

Exam Specification: Edexcel XBS01 and YBS01  
 Teacher: Simon MacArthur  
 Teacher Contact: simon.macarthur@iszn.ch

### Objectives of the Course:

- To develop an interest in and enthusiasm for the study of business.
- To gain a holistic understanding of business.
- To develop a critical understanding of organisations and their ability to meet society's needs.
- To understand that business behaviour can be studied from a range of perspectives.
- To generate relevant solutions to business problems and issues.
- Aware of the ethical dilemmas and responsibilities faced by organisations and individuals.
- To acquire a range of relevant business and generic skills e.g. decision making, problem solving.

### Course Summary:

*IAS, 2 units:*

#### **Unit 1: Business Enterprise**

- Entrepreneurship.
- Researching a business opportunity.
- Supply and demand.
- Finance.
- Measuring business performance.
- The wider business environment.

#### **Unit 2: Business Structures and processes**

- Marketing.
- Managing operations.
- Managing finance.
- Managing people.

*IA2, 2 units:*

#### **Unit 3 : Strategic Business Decisions**

- Corporate objectives and strategies.
- Making strategic and tactical decision.
- Assessing competitiveness.
- Company growth.

#### **Unit 4: Business in a Global Context**

- International markets.
- Changing global economy.
- Business locations.
- Other considerations before trading Internationally.
- Global marketing.
- Multinational Corporation.

### How the Course is examined:

#### IAS

Unit 1 (IAS):	Business Enterprise	1hr 30min	25% of total mark
Unit 2 (IAS):	Business Structures and processes	1hr 30min	25% of total mark
<b>IA2</b>			
Unit 3 (IA2):	Strategic Business Decisions	2 hours	25% of total mark
Unit 4 (IA2):	Business in a Global Context	2 Hours	25% of total mark

### Potential Careers in this Field:

Marketing, Administration, Recruitment, Sales, Accountancy, Education and Finance.

**CHEMISTRY**

Exam Specification: Edexcel WCH01 to WCH06

Teacher: Daniel Perez

Teacher Contact: daniel.perez@iszn.ch

**Objectives of the Course:**

- To provide a solid foundation in chemistry that stresses scientific reasoning and analytical problem solving with a molecular perspective.
- To provide students with the skills required to succeed in the higher Education.

**Course Summary:***IAS, 3 units:***The Core Principles of Chemistry:**

- Matter and Energy in the Universe.
- Atom Structure and Chemical Equations.
- Energy Changes and Bonding.
- Introduction to Organic Chemistry.
- Hazard and Risk.

**Application of Core Principles of Chemistry:**

- Shape of Molecules, Polarity, and Intermolecular Forces.
- Redox Reactions, Group II and Group VII
- Reaction Rate and Chemical Equilibrium.
- Organic Chemistry (Mechanisms)
- Mass Spectra, NMR, IR, Greenhouse Effect and Green Chemistry.

**Chemistry Laboratory Skills II Alternative:**

- Analytical Chemistry, Organic Techniques
- Titration techniques and Evaluation of Error.

*IA2, 3 units:***General Principles of Chemistry I:**

- Rates Equations.
- Entropy Changes.
- Calculations with Equilibria Constants  $K_c$  and  $K_p$ . Altering Equilibrium Conditions.
- Acid-Base Equilibria. PH scale, Buffers, Indicators and Titration Curves.
- Isomerism, Carbonyl, and Carboxylic Acid compounds. Spectroscopy and Chromatography.

**General Principles of Chemistry II:**

- Electrochemistry and Redox Equilibria.
- Transition Metals
- Arenes and Their Derivatives. Organic Nitrogen Chemistry. Organic Analysis and Synthesis.

**Chemistry Laboratory Skills II Alternative:**

- Analyse, Interpret, Explain and Evaluate the methodology, results and impact of experimental and investigative activities in a variety of ways.

**How the Course is examined: 6 exam units in total:**

IAS

Unit 1:	The Core Principles of Chemistry	1hr 30min	40 % of IAS (20% IA Level)
Unit 2:	Application of Core Principles of Chemistry	1hr 15min	40 % of IAS (20% IA Level)
Unit 3:	Chemistry Laboratory Skills I	1hr 15min	20 % of IAS (10% IA Level)

IA2

Unit 4:	General Principles of Chemistry I	1hr 40min	40 % of IAS (20% IA Level)
Unit 5:	General Principles of Chemistry II	1hr 40min	40 % of IAS (20% IA Level)
Unit 6:	Chemistry Laboratory Skills II	1hr 15min	20 % of IAS (10% IA Level)

**Potential Careers in this Field:**

Medicine, Chemical Engineer, Environmental Engineer, Veterinary, Dentistry, Healthcare Scientist, Forensic Scientist, Genetic Engineer, Toxicologist, Biochemistry, Exochemistry, Research and Development in Drug Discovery, Clinical Research, Project Management, Laboratory Management, Cheminformatics, Material Scientist, Metallurgy and Nanotechnology.

## ENGLISH LITERATURE

Exam Specification: Edexcel XET01 and YET01  
 Teacher: John Black  
 Teacher Contact: john.black@iszn.ch

### Objectives of the Course:

- To develop an understanding of different literary genres and enhance independent interpretation and reflection through the close study of important literature.
- To undertake a close study of texts based on the literary heritage as well as modern texts that are different and stimulating.
- To encourage independent research and analysis of literature, which stimulates creative ability and a deeper understanding of humanity.

### Course Summary:

IAS

#### **Unit 1: Post-2000 Poetry and Prose**

- Explore techniques used in poetry and prose.
- Develop the skills of critical response to poetry and prose.
- Develop different approaches to the reading of texts.

#### **Unit 2: Drama**

- Explore drama texts through the study of two plays - one pre-1900 and one post-1900 text.
- Consider the contexts in which the texts were written and are received.
- Explore techniques used in dramatic writing.
- Develop skills of critical response to drama.
- Communicate their knowledge and understanding of texts effectively.

IA2

#### **Unit 3: Poetry and Prose**

- Comment on unseen poetry.
- Response by the developed reading skills.
- Compare two novels on a specific theme.
- The independent responses will be informed by an appreciation of the contexts in which texts are written and read and by the interpretations of other readers over time.

#### **Unit 4: Shakespeare and Pre-1900 Poetry**

- Explore aspects of drama through the study of a Shakespeare play.
- Explore the use of literary and dramatic devices in the chosen play.
- Choose a specific literary movement and study a selection of poems from that movement.
- Develop a depth of knowledge about poetic style and apply their knowledge of form, content and meaning to consider the concerns and choices of poets.

### How the Course is examined:

IAS

Unit 1: Post-2000 Poetry and Prose	2 Hours	25 % of total mark
Unit 2: Drama	2 Hours	25 % of total mark

IA2

Unit 3: Poetry and Prose	2 Hours	25 % of total mark
Unit 4: Shakespeare and Pre-1900 Poetry	2 Hours	25 % of total mark

### Potential Careers in this Field:

Teacher/Lecturer, Media, Publishing and Editing work, Journalist.

## GEOGRAPHY

Exam Specification: Edexcel XGE01 and YGE01  
 Teacher: Simon MacArthur  
 Teacher Contact: simon.macarthur@iszn.ch

### Objectives of the Course:

- To use much of the information that was studied in IGCSE Geography and see how it fits into the world around us.
- To learn important depth and breadth tasks.
- To improve the skills as a communicator as well as to improve the ability to be a self motivated learner as there will be times to do research.

### Course Summary:

*IAS, 2 units:*

#### **Global challenges:**

- The World at Risk (Global Hazards and Disasters, patterns and trends, Climate Change and its impact and how to cope).
- Going Global.

#### **Geographical investigations:**

Study 1 topic from each section

#### *Section 1: Physical:*

- Extreme Weather.
- Crowded Coasts.

#### *Section 2: Human:*

- Unequal Spaces.
- Rebranding Places.

*IA2, 2 units:*

#### **Contested Planet:**

- Energy Security.
- Water conflicts.
- Biodiversity.
- Superpower geographies.
- Development.
- Technology fix

#### **Geographical Research:**

Research 1 topic from six

- *Tectonic Activity and Hazards.*
- *Cold Environments.*
- *Life on the Margins.*
- *Cultural diversity.*
- *Pollution and the human risks.*
- *Consuming the rural landscapes; leisure and tourism.*

### How the Course is examined:

#### IAS

Unit 1:	Global challenges	1hr 45min	30% of total mark
Unit 2:	Geographical investigations	1hr 30min	20% of total mark

#### IA2

Unit 3:	Contrasted planet	2hours	30% of total mark
Unit 4:	Researching Geography	1hr 30min	20% of total mark

### Potential Careers in this Field:

Town and Transport Planning, Chartered Surveying, Education.

**GERMAN**

Exam Specification: Edexcel XGN01 and YGN01

Teacher: Daniel Willfroth

Teacher Contact: daniel.willfroth@iszn.ch

**Objectives of the Course:**

- To increase the ability to communicate effectively and using different registers of language both written and spoken.
- To offer insights in German speaking culture and to understand current concerns.
- To understand the nature of language in different cultural contexts in order to build up competence in communication.

**Course Summary:**

IAS, 2 Units

**Youth matters:**

- Family relationships and friendships
- Peer pressure and role models
- Music and fashion
- Technology and communication

**Lifestyle, Health and fitness:**

- Food and diet
- Sport and exercise
- Health issues
- Urban and rural life

**Environment and travel:**

- Tourism, travel and transport
- Natural disasters and weather
- Climate change and its impact
- Energy, pollution and recycling

**Education and Employment:**

- Education systems and types of schooling
- Pupil /student life
- Volunteering and internship
- Jobs and unemployment

IA2, 2 Units

**Technology in the German speaking world**

- Scientific advance
- Technological innovations
- Impact on life and environment

**Society in the German speaking world**

- Migration
- Equality
- Politics
- Customs

**Ethics in the German speaking world**

- Beliefs
- Law and order
- Moral issues

**How the Course is examined:**

Unit 1:	Spoken Expression and Response	Oral	15.4% of total mark
Unit 2:	Understanding and Written Response	2h30mins	34.6% of total mark
Unit 3:	Understanding and Spoken Response	Oral	15.4% of total mark
Unit 4:	Research, understanding and Written Response	2h30mins	34.6% of total mark

**Potential Careers in this Field:**

Career in German speaking countries, Translator, Teacher, Journalist.

## HISTORY

Exam Specification: Edexcel XHI01 and YHI01  
 Teacher: Simon MacArthur  
 Teacher Contact: simon.macarthur@iszn.ch

### Objectives of the Course:

- To continue on with the study of History, becoming better at historical analysis and synthesis of information.
- To focus on a specific period of time of their choice (with coordination of the teacher).
- To delve into the connections between events of historical nature that makes this a fascinating topic of study.

### Course Summary:

*IAS, 2 units:*

#### **Students study from one of four options:**

- Germany 1918 – 1945
- French in Revolution 1774 - 1799.
- Russia in Revolution 1881 - 1917.
- .Britain 1964 - 1990.

*Assessment:*

- Section A: Depth question.
- Section B: Interpretation question.

#### **Students study one breadth study:**

- Russia 1917 - 1991: From Lenin to Yeltsin.
- India 1857 - 1948: The raj to partition.
- China 1900 - 1976.
- South Africa 1948 - 2014.

*Assessment:*

- Section A: Analyse and evaluate two sources.
- Section B: Essay question.

*IA2, 2 units:*

#### **Students study from one of four topics:**

- USA, Independence to Civil War 1775 - 1865.
- The British experience of warfare 1803 - 1945.
- Germany 1870 - 1990.
- Civil rights and race relations in the USA 1865 - 2009.

*Assessment:*

- Section A: One source essay.
- Section B: One breadth essay.

#### **Students study one of the following:**

- The making of modern Europe 1805 - 1871.
- The World in crisis 1879 - 1945.
- The World divided: Superpower relations 1943 - 1990.
- The Cold War and Hot War in Asia 1945 - 1990.

*Assessment:*

- Section A: Evaluate contrasting interpretations.
- Section B: Depth question.

### How the Course is examined:

Paper 1 (AS): Essay questions	2 hours	25 % of total mark
Paper 2 (AS): Source based questions/essay	2 hours	25% of total mark
Paper 3 (A2): Source based questions /essay	2 hours	25% of total mark
Paper 4 (A2): Essay questions	2 Hours	25% of total mark

### Potential Careers in this Field:

Archaeologist, Archivist, Historical Researcher, Museum work, Teacher, Tour Guide, University Lecturer, Civil Service, Insurance and Risk Intelligence work, Law, Library and Information work.

## INFORMATION TECHNOLOGY

Exam Specification: CIE 9626  
 Teacher: Kamyar Saes  
 Teacher Contact: kamyar.saes@iszn.ch

### Objectives of the Course:

- To develop a broad range of IT skills.
- To develop an understanding of the parts, use and applications of IT systems within a range of organisations, including the use of basic computer networks.
- To develop an understanding of how IT systems affect society in general.
- To develop an understanding of the main system life cycle and apply this understanding to workplace situations.
- To develop a broad knowledge of the use of IT in workplace situations.
- To develop an understanding of project management skills.
- To be aware of new and emerging technologies.
- To be aware of the role, potential and risks of the internet.
- To apply knowledge and understanding of IT to solve problems.

### Course Summary:

#### IAS

- Data, information, knowledge and processing
- Hardware and software
- Monitoring and control
- E safety and health and safety
- The digital divide
- Using networks
- Expert systems
- Spreadsheets
- Databases and file concepts
- Sound and video editing

#### IA2

- Emerging technologies
- Role and impact of IT in society
- Networks
- Project management
- System life cycle
- Graphics creation
- Animation
- Mail merge
- Programming for the web

### How the Course is examined:

#### IAS

Paper 1:	Theory exam	1h 45min	25 % of total mark
Paper 2:	Practical exam	2h 30min	25 % of total mark

#### IA2

Paper 3:	Advanced Theory	1h 45min	25 % of total mark
Paper 4:	Advanced Practical	2h 30min	25 % of total mark

### Potential Careers in this Field:

Web designer, computer programmer, systems analyst, IT in various industries e.g. finance, health.

## **MATHEMATICS CORE 12 (IAS)**

Exam Specification: Edexcel WMA01  
 Teacher: Ioanna Kaloudi  
 Teacher Contact: ioanna.kaloudi@iszn.ch

### Objectives of the Course:

- To develop logical reasoning and make connections with different areas of Maths.
- To understand mathematical processes in a way that promotes confidence and enjoyment.
- To improve knowledge and skills for further education, to communicate mathematical ideas.

### Course Summary:

#### **Algebra and Functions:**

- Indices and Surds.
- Quadratic Functions.
- Linear Relationships.
- Graphs of Functions.
- Simple algebraic division.
- Use of the Factor Theorem and the Remainder Theorem.

#### **Coordinate Geometry in the (x,y) plane:**

- Equation of a straight line.
- Coordinate geometry of the circle.

#### **Sequences and series:**

- Sequences, including those given by a formula for the  $n$ th term and those generated by a simple relation of the form  $x_{(n+1)}$ .
- Arithmetic series.
- The sum of a finite geometric series and infinity of a convergent geometric series.
- Binomial expansion.

#### **Exponentials and logarithms:**

- Equation and graph.
- Laws of logarithms.

#### **Trigonometry:**

- The sine.
- cosine rule.
- Cosine and tangent (functions, graphs, symmetries and periodicity).
- Area of a triangle.
- Radian measure.
- Use of trigonometric identities and solution of trigonometric equations.

#### **Differentiation:**

- The derivative of  $f(x)$ .
- Second order derivatives.
- Applications of differentiation to gradients.
- Tangents and normals and representation of functions.

#### **Integration:**

- Indefinite integration as the reverse of differentiation.
- Evaluation of definite integrals.
- Interpretation of the definite integral as the area under a curve.
- Approximation of area under a curve using the trapezium rule.

### How the Course is examined:

Paper 1:	Written Paper	2hr 30min	66.6 % of IAS (33.3% of IAL)
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### Potential Careers in this Field:

Engineering, Meteorology, Research/Science (Maths), Teacher, Statistics, Computer Science, Biomathematics, Finance, Cryptography.

## **MATHEMATICS CORE 34 (IA2)**

Exam Specification: Edexcel WMA02  
 Teacher: Ioanna Kaloudi  
 Teacher Contact: ioanna.kaloudi@iszn.ch

### Objectives of the Course:

- To extend the range of mathematical skills and techniques and use them in more difficult, unstructured problems.
- To develop an understanding of coherence and progression in mathematics.

### Course Summary:

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| <ul style="list-style-type: none"> <li>• Algebra and functions.</li> <li>• Sequences and series.</li> <li>• Trigonometry.</li> <li>• Exponentials and logarithms.</li> </ul> | <ul style="list-style-type: none"> <li>• Coordinate geometry in the <math>(x, y)</math> plane.</li> <li>• Differentiation.</li> <li>• Integration.</li> <li>• Numerical methods.</li> <li>• Vectors.</li> </ul> |
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### How the Course is examined:

Paper 1:	Written paper	2hr 30min	33.3 % of IA Level
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### Potential Careers in this Field:

Engineering, Meteorology, Research/Science (Maths), Teacher, Statistics, Computer Science, Biomathematics, Finance, Cryptography.

## MATHEMATICS STATISTICS 1

Exam Specification: Edexcel WST01  
 Teacher: Ioanna Kaloudi  
 Teacher Contact: ioanna.kaloudi@iszn.ch

### Objectives of the Course:

- To acquire the skills needed to use technology such as calculators and computers effectively.
- To recognise when such use may be inappropriate and be aware of limitations.
- To develop an awareness of the relevance of Mathematics to other fields of study, to the world of work and to society in general.

### Course Summary:

- Mathematical models in probability and statistics
- Representation and summary of data
- Probability
- Correlation and regression
- Discrete random variables
- Discrete distributions
- Normal distribution

### How the Course is examined:

Paper 1:	Written paper	1hr 30min	33.4 % of IAS Level (16.7% of IA Level)
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### Potential Careers in this Field:

Engineering, Meteorology, Research/Science (Maths), Teacher, Statistics, Computer Science, Biomathematics, Finance, Cryptography.

## Mathematics at International A Level.

Students who chose International A Level Mathematics study:

**Core 12** in Grade 11 (IAS)

**Core 34** in Grade 12 (IA2)

And choose 2 options from

**Statistics 1**

**Decision Maths 1**

**Mechanics 1**

This year we will offer **Statistics 1** for both AS and A2 levels.

*Core 12 and Statistics 1 = IAS level after one year*

*Core 12, Core 34, Statistics 1 and one more option = IA level after two years*

## MUSIC

Exam Specification: CIE 9703  
 Teacher: Dermot Kelly  
 Teacher Contact: dermot.kelly@iszn.ch

### Objectives of the Course:

- To foster a discriminating aural appreciation of, and an informed critical response to, music of the Western tradition from at least two representative genres and periods.
- To encourage the development of creative and interpretative skills through the disciplines of composing and performing in Western and/or non-Western traditions.
- To deepen understanding of music in its wider cultural context.
- To communicate understanding, supporting judgements by argument based on evidence.

### Course Summary:

#### **Listening:**

*Candidates must answer 3 questions, one from each section.*

- Sections A and B will each offer a choice of three questions on a prescribed topic.
- Section C will offer a choice of four questions. These will require wider knowledge of the historical, social and cultural background to both topics, and understanding of other relevant contextual and interpretative issues.

#### **Practical Musicianship:**

*Candidates must present any two of these four.*

- Element 1: Performance of a representative selection of music in a programme of 6 to 10 minutes, presented as one continuous performance.
- Element 2: Performance throughout the course in 2 or more of the following: Main instrument, second instrument, accompanying, improvisation or conducting.
- Element 3: A set of 6 to 8 progressive composing exercises to develop student's ability to handle typical techniques in an established tradition.
- Element 4: Two contrasting compositions, together lasting not more than 5 minutes, for two or more instruments/voices.

#### **Performing:**

*Candidates will be required to perform music that reflects a single focus from any tradition.*

- E.g. One substantial piece or a group of pieces which reflect a common theme, style or purpose, on any instrument (or voice).
- The programme should last at least 12 minutes, but not more than 20 minutes, and should be presented as one continuous performance.

#### **Composing:**

- A single composition (or a group of shorter related pieces conceived as a whole) for any instrument, voice or combination, lasting no more than 8 minutes.
- The composition may draw on, or be a fusion of, any traditions or styles. It should be submitted in both written and recorded (audio CD) forms.

### How the Course is examined:

Component 1:	Listening exam	2 hours	25% of total mark
Component 2:	Coursework	5 min & 10 min	25% of total mark
Component 3:	Performing Coursework	20min	25% of total mark
Component 4:	Composing Coursework	8min	25% of total mark

### Potential Careers in this Field:

Composer, Performer, Producer, Conductor, Music Journalist, Music Therapist, Sound Engineer.

## PHYSICS

Exam Specification: Edexcel WPH01 and YPH01  
 Teacher: Dermot Kelly  
 Teacher Contact: dermot.kelly@iszn.ch

### Objectives of the Course:

- To appreciate how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society.
- To develop and demonstrate a deeper appreciation of the skills, knowledge and understanding of 'How Science Works'.
- To develop essential knowledge and understanding of different areas of the subject and how they relate to each other.

### Course Summary:

IAS

#### **Mechanics:**

- Forces.
- Rectilinear Motion.
- Work, Energy and Power.

#### **Materials:**

- Fluids.
- Solid Materials.

#### **Waves:**

- Nature of Waves.
- Transmission and reflection of waves.
- Superposition of waves.

#### **DC Electricity:**

- Charge and Current.
- Potential difference, EMF and power.
- Current-potential difference relationships.
- Resistance and resistivity.
- Electric circuits.

#### **Nature of Light**

IA2

#### **Further Mechanics:**

- Linear momentum.
- Momentum and energy.
- Motion in a circle.

#### **Electric and Magnetic Fields:**

- Electric fields.
- Capacitance.
- Magnetic fields.

#### **Particle Physics:**

- Electrons and nuclei.
- Particle physics.

#### **Thermal Energy:**

- Specific heat capacity.
- Internal energy and absolute zero.
- Gas laws and kinetic theory.

#### **Nuclear decay, Oscillations, Astrophysics & Cosmology:**

- Universal gravitation.
- Astrophysics.
- Cosmology.

### How the Course is examined:

#### **6 exam units in total:**

Unit 1, 2 & 3 in AS year: Written answer questions. Approx. 1h 30min each 50% of total mark  
 Unit 4, 5 & 6 in A2 year: Written answer questions. Approx. 1h 30min each 50% of total mark

### Potential Careers in this Field:

Astronaut, Astronomer, Engineering, Architect, Medicine, Computer Games Designer.

**I A LEVEL COURSE OPTIONS (Grade 11) 2016 – 2018**

<b>BLOCK</b>	<b>COURSES</b>	<b>LESSONS</b>	<b>CHOICE</b>
<b>C O R E</b>	<i>Physical Education</i>	<b>2</b>	<i>Physical Education</i>
	<i>Career Education</i>	<b>1</b>	<i>Career Education</i>
	<i>Service Programme</i>	<b>2</b>	<i>Service Programme</i>
<b>Students must take at least FOUR SUBJECTS</b>			
<b>A</b>	<i>English Literature Chemistry Geography</i>	<b>6</b>	
<b>B</b>	<i>Physics History</i>	<b>6</b>	
<b>C</b>	<i>Maths Art</i>	<b>6</b>	
<b>D</b>	<i>Business Biology</i>	<b>6</b>	
<b>E</b>	<i>ICT Music German</i>	<b>6</b>	

Student's name: \_\_\_\_\_ Grade: \_\_\_\_\_

Parental signature: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_