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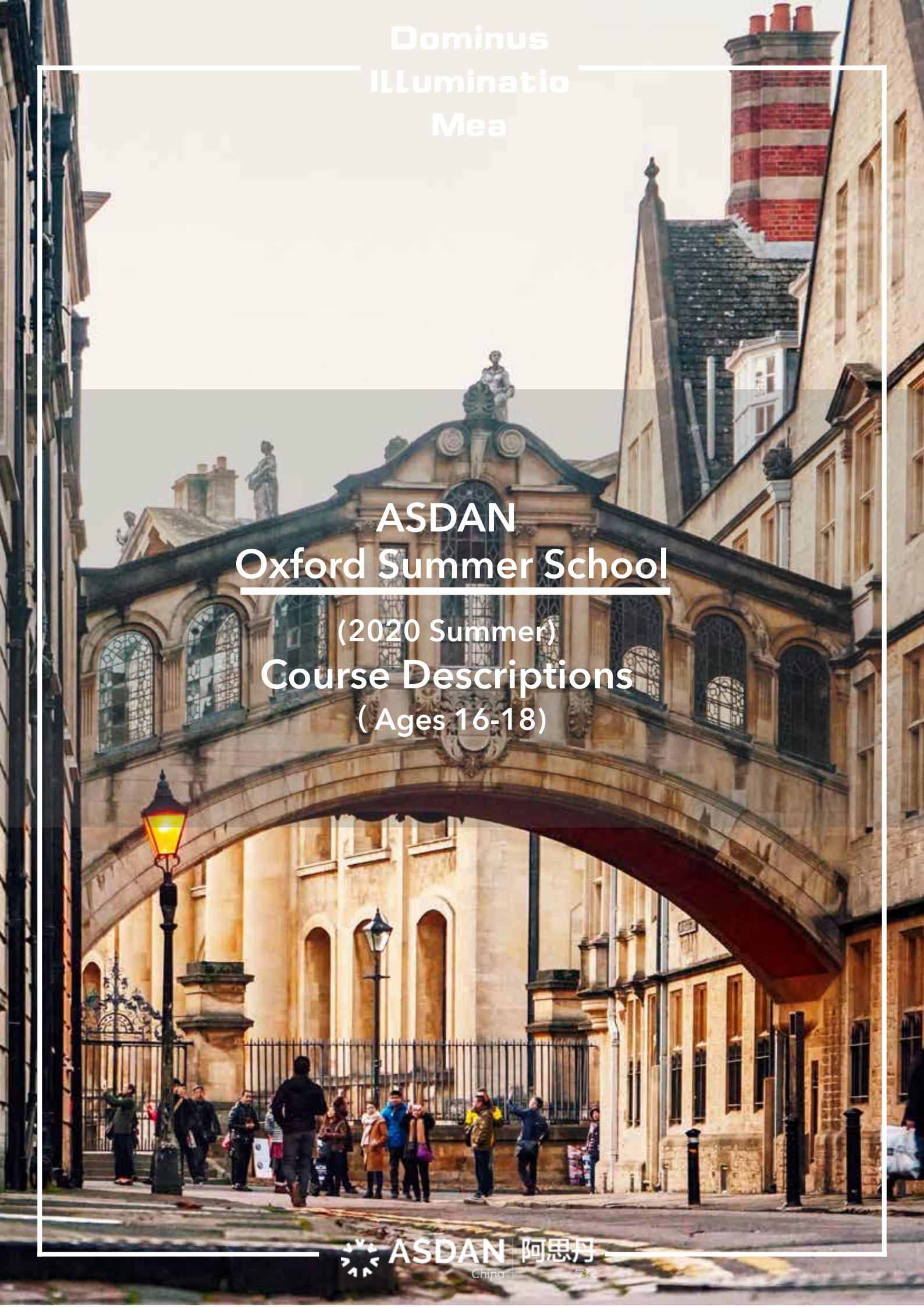
ASDAN
Oxford Summer School

(2020 Summer)
Course Descriptions
(Ages 16-18)



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Oxford Summer School 2020
Course Introduction(Ages 16-18)

32 subject options | 11 afternoon workshops

Course Descirptions

Archaeology and Anthropology

This course introduces students to a broad array of intellectually stimulating and thought-provoking debates within Archaeology and the associated discipline of Anthropology.

Over two weeks, the course will explore some of the key theoretical principles underpinning archaeological and anthropological practice, illustrated by real case studies from prehistory to the present day. Ultimately, students will find themselves reconsidering humanity in an entirely new light.

A particular advantage of our Oxford location is that students also have the opportunity to adopt a hands-on approach on this course: handling archaeological artefacts, visiting one of Oxford' s most outstanding museum collections and even participating in a mock excavation. Students are also encouraged to take a personalised approach to the subject in reassessing their own day-to-day behavioural manifestations and social relations. Oxford' s Pitt Rivers Museum is also a fantastic resource for students to visit at leisure: founded in 1884, it houses more than 500,000 anthropological artefacts sourced from across the globe, ranging from the beautiful (intricate Micronesian amulets) to the bizarre (a tiny silver bottle from Sussex, believed to contain an even tinier witch⋯).

Astronomy

This course gives students the chance to explore a fascinating subject seldom taught at school, gaining an understanding of celestial phenomena including supernovae, planets, and stars.

The oldest of the natural sciences, astronomy employs physics, maths and chemistry in order to understand celestial objects such as planets and stars, and phenomena such as supernovae. Astronomy is one of the most popular contemporary sciences, with several Physics Nobel Prizes being awarded to astrophysics in recent years.

Students will begin by exploring the chronological development of astronomy as a discipline, through renaissance and modern times looking at the ways in which astronomers have sought to make sense of the Universe and how our knowledge has changed and evolved. They will then start to look at some of the fundamental principles astronomy employs, such as orbital mechanics, and apply this to our own Solar System.

Students will be introduced to contemporary astronomical topics such as the birth and death of stars, exoplanets (planets outside of our Solar System), and the formation and development of galaxies. In discussing these subjects, students will learn the intricacies and scientific methods employed in each field. For example, the thermonuclear reactions that govern the life cycle of stars and the various end stages of the evolution of a star, such as white dwarfs and black holes; radial velocity and transit methods for planet detection and galaxy classification methods such as the Hubble tuning fork.

Students will also have the chance to debate some of the biggest and most popular questions within the discipline, developing their public speaking skills as they address questions such as 'will humans ever populate Mars?', 'is there life beyond Earth?', 'what lies beyond the Universe?' and 'when and how might the Universe end?'. Students will also consider the practical differences between observational and theoretical

astronomy, as well as what' s involved in studying the various sub-branches of astronomy, such as planetary sciences, stella, galactic and extragalactic astronomy and cosmology.

Biotechnology

New for 2020, this course will immerse students in this cutting edge discipline. Students will learn how biological processes can be used for technological innovations and purposes.

Blockchain Foundations

This academic course explores one of the most exciting and promising technologies of the 21st century, looking into the use and abuse of blockchain technology from multiple different perspectives. Students will begin by looking into the technical and mathematical details of how the blockchain functions, as well as the other new technologies, such as greater data transfer and storage capacities, that have enabled blockchain to become viable. Following this, they will consider the myriad uses to which this technology can be put, from the positive uses - such as the charities using blockchain to ensure their donations reach the intended recipients, to the negative - such as those who use blockchain technology to enable organised crime. Finally, students enrolled on this course will learn about the societal impact this technology has already had, and the consequences its use may have in the future.

Blockchain is an emerging technology that governments and policymakers have, in some cases, been slow to respond to. Students will be encouraged to use blockchain as an example of how the technologies of the future may take us by surprise in the ways in which they affect our daily lives, and consider how those in positions of political, social and economic power should best respond to disruptive technology as it appears in future. Students can also analyse the impacts of comparable technologies in the past to forecast where the further development of blockchain could take us.

This cutting-edge course is truly interdisciplinary, covering computer science, politics, sociology, economics and more, all explored and analysed through the lens of blockchain technology. At the end of this course, students will have learned valuable new skills for analysing a complex and novel subject from a multidisciplinary perspective and will thoroughly understand blockchain technology, its uses and its ongoing impact on our society.

Business finance

On this course, students will delve into the complex world of business finance, covering aspects ranging from company finance to the bigger picture of the UK economy. Students will investigate how big businesses weather the storm of turbulent economic times, with topical debate on the impact of Brexit on the UK' s businesses and their finances.

Students will be introduced to aspects of business finance such as investment, the finance of mergers and acquisitions and financial forecasting. They will explore what happens when a company becomes publicly listed, and gain an understanding of the relationship between a business and its shareholders. They will discuss specific business case studies, as well as working in groups to complete exercises such as creating a pitch for investment for a fictional company.

Finance is a lucrative and sought-after career, and attendance on this course will stand students in good stead for pursuing jobs in this sector. Students will gain an excellent introduction to the world of business finance during their time on this course, providing valuable knowledge and experience that can be mentioned on CVs and in job applications. Students who wish to pursue a career in business finance will have the chance to quiz our expert teachers about university applications and what employers in this sector look for in candidates.

Chemistry

The course aims to give students more confidence and foster curiosity about pursuing the subject in their

future studies; no one should leave this course under the impression that Chemistry is boring. The course uses class discussions, debates, presentations, role plays and written work to explore topics that students will not have encountered before in their academic career. It encourages students to think broadly and to apply transferable skills both within the programme and in their future academic studies.

As all teachers are qualified at least to Masters level, they will be happy to answer students' questions concerning Chemistry, even if it is not within the purview of the course as specified above. Teachers will also be able to give advice on university applications, interview questions, and the plethora of careers that are open to Chemistry graduates.

Classical Civilisations

An introduction to the history, literature, philosophy and belief systems of Ancient Greece and Rome.

Studying Classical Civilisations course furnishes students with valuable transferable skills – such as the ability to examine and analyse primary sources – through our study of original classical texts.

Students will be encouraged to think analytically about the cultural constructs operating in the Greek and Roman worlds, including their politics, society and philosophy, in order to understand how different, as well as how similar, the ancient and modern worldviews are. You will understand how the ancient world contributed to modern society in the areas of architecture, politics, literature, religion, philosophy, sports, visual arts, warfare, drama and science, seeing the world through ancient eyes to gain a new perspective on present-day problems and situations.

Not only does this course provide students with an in-depth introduction to a fascinating subject that they may not previously have had the chance to study, but it also allows them to evaluate whether Classical Civilisations is something they might wish to study further at university.Climate and Sustainability

New for 2020, will give our students an in depth understanding of the strategies used by countries, businesses, and individuals to tackle the issues of climate change and sustainability.

Climate and Sustainability

In an era where the climate seems increasingly volatile, humanity is realising the great impact that we have on our planet. This new course for 2020, will give our students an in depth understanding of the strategies used by countries, businesses, and individuals to tackle the issues of climate change and sustainability.

Contemporary History

This course takes students through the most important global events and processes which have taken place since the end of the Second World War, from the Cold War to the decolonisation process, the rise of China, the Middle Eastern conflicts, and the response of the international community to the rise of terrorism.

The course will seek to encourage students to think more like professional historians: students will read original primary sources, and be introduced to the debates which continue to divide historians about the best way in which to interpret events that continue to shape our world today. The class looks at processes which gave rise to major international bodies like the UN and the European Union. It also explores the most significant international conflicts of recent decades such as the Vietnam War and the Israel-Palestine conflict. Special emphasis is placed on the most recent events, including the rise of global terrorism and the Iraq war.

Each session on this course will consist of brief talks by the tutor, intended to provide students with background information on the subject, and group discussions. This course also uses video material from the British Pathé archive in order to bring the past to life. Asking questions and engaging in debate is very much supported, as this is a world history course, and each student, coming from a different home country and background, will be encourage to bring their own unique insights to this history summer course.

Creative Writing

This course aims both to inspire students, and to provide students with an overview of techniques and processes available to writers, encouraging them to think beyond their perceived limitations while equipping them to exceed themselves.

Students are encouraged to experiment with their own writing, as well as engaging in literary reviews of writing that have preceded them. Based around advice and examples from famous literary figures, students will encounter the obstacles and opportunities that present themselves when writing – including learning ways to overcome the dreaded writer' s block.

Criminology

New for 2020, this course will allow students to develop an understanding of this fascinating interdisciplinary discipline. Students will learn why crime occurs, about societal reactions to crime, and effective crime prevention techniques in an immersing new syllabus.

Cryptocurrencies

Trading in bitcoin and other cryptocurrencies has made some people wealthy, while causing others to lose staggering sums from unwise trades. It' s been criticised for its huge energy costs, but also praised as the future of money supply in a world where fiat currency can be an unreliable store of wealth and other forms of electronic transaction can have privacy and security risks. Its true impact on the economy remains to be seen.

It' s all of these factors in combination that make cryptocurrency a fruitful and interesting area for academic study. This course, at the very cutting-edge of modern technology, will introduce students to the world of cryptocurrency and equip them with the knowledge and skills they need to understand how it works and analyse its impacts.

Students studying this course will learn how the field of economics has changed in the 21st century, setting the context for the emergence of cryptocurrency and using this understanding to explore the consequences that the development of cryptocurrencies has already had and may continue to have in future. Using cryptocurrency as an example, students will also explore the phenomenon of economic bubbles: how they develop, how to spot them, how to avoid them and how they can be mitigated or leveraged. They will learn about different types of cryptocurrency and explore how they differ.

At the micro level, students will consider how cryptocurrency, as a private and secure means of payment, can be used either for good or to enable organised crime and evade government detection. At a societal level, they will consider how such dual-use technologies can be appropriately regulated by government without losing their economic and social benefits, and debate how much regulation is appropriate. This course gives students the economic, social and technological context for a holistic understanding of cryptocurrency.
Economics

Designed for students with little or no pre-existing knowledge of economics, this course provides a thorough grounding in the topics studied at pre-university and university level in economics and related disciplines.

Economics

This exciting course in Oxford has been designed to introduce students to basic economic theory while also looking at the way in which it is applied, to help students understand current economic issues, from unemployment to the benefits and disadvantages of the Eurozone.

Over two weeks, students will look at a range of topics in microeconomics, macroeconomics and international economics. In microeconomics, students will look at the basic economic problem of scarcity and choice, supply and demand, different models of market structure, the occurrence of market failure (e.g. due to the absence of markets for public goods, problems of information, and externalities), and the incidence and effectiveness

of government intervention. In macroeconomics, students will learn about about policy objectives, the AD-AS model, and the operation of an independent central bank. Finally, in international economics, students will learn about about trade, protectionism and exchange rates. A great deal of ground is covered in these two weeks, spurring students to take their new-found economic curiosity further once they leave Oxford.

English Literature

This course takes in a huge swathe of English Literature from the past 500 years, from Shakespeare' s The Tempest right up to modern-day metafiction. Students will be provided with the fundamental skills for literary analysis and to build on these with the introduction of more complex texts.

Students will not only learn about literary analysis and criticism, but will also learn the key to structuring a strong Oxbridge-style essay – a skill that will be of immense value in their future studies. A wide variety of different lesson styles and approaches will be used in order to keep all students engaged, including lectures, readings, drama activities, multi-media clips, textual analysis, written tasks and discussion work. Students will be expected to contribute to the class by sharing their written work and by engaging in lively in-class discussions and debates.

Experimental Psychology

This course follows the pioneers of the field in seeking answers to some of life' s most intriguing questions, giving students the opportunity to study, discuss and debate issues of identity, consciousness, morality, and more.

Experimental Psychologists have addressed some of the most intriguing questions of life: What makes you you? What makes you different from other people? Is there always a clear difference between Good and Evil? This class provides students with the opportunity to study, discuss and debate these alongside a wide range of other fascinating and controversial issues.

This course will cover some of the most fundamental psychological concepts and introduce some of the most influential theorists. Students are encouraged to evaluate the material critically, to engage in discussion and debate, to gain insight into their own personalities and development and to relate the material to their own lives and experiences. Topics will be explored through a combination of structured teaching, varied activities and exercises, class discussion, and video sessions.

FinTech (Financial Technologies)

New for 2020, students will learn about the ways in which technology is used to improve and modernise the provision of financial services. A truly 21st century discipline, this course will equip students with a real head-start ahead of further education.

Forensic Science

Brand new for 2020, our forensic science course will immerse students in the scientific methods used to solve crime effectively. Our students will be given an insight into a range of methods: from the development of DNA testing to the increasingly important discipline of digital forensics.

Genetics

Students on this demanding Genetics course will gain an understanding of human evolution while being introduced to advanced concepts such as genetic engineering.

During the course, students will explore DNA and proteins, and how these form the building blocks of the body. They will learn about genes and chromosomes, gaining an insight into how genetic mutations lead to certain medical conditions and syndromes. They will also be introduced to genome sequencing and to some of the on-going research projects in the field of genetics, such as the 100,000 Genomes Project currently being run by the NHS.

Human Science

This course has been designed to provide students with an overview of the social and biological factors that affect human life, ranging from the study of genetics and evolution to how humans are affected by their own social structures, and also considering the academic interplay between the subject and others.

Students will discuss the fundamental question of what it means to be human, looking at how we can apply human sciences to modern life. Throughout the series of lessons, students examine current sociological issues such as population growth, as well as the quantitative methods used in human sciences. The course takes a hands-on and interactive approach, looking at objective areas of research and the methodologies of Human Science, through lively experiments and case studies.

This course doesn' t focus on Human Sciences as a dry, academic discipline, but looks at its relevance to modern everyday life, considering how the biological, social, genetic and cognitive aspects of human nature inform our daily experiences. The huge diversity of nationalities in attendance at Oxford Summer Schools – with students from nearly 100 nations attending last year – is a particular advantage in Human Sciences, allowing students to explore the multiplicity of human societies and cultures to consider the impact of Human Sciences in the daily lives of people from cultures other than their own.

Journalism

This course is designed to introduce students to the study of journalism by developing their ability to respond critically to a wide range of journalistic media; it is suitable for both those seeking general exposure to the field and those who aim to pursue a career in journalism and want to hone their skills while considering journalism' s requirements.

"I am deeply interested in the progress and elevation of journalism, having spent my life in that profession, regarding it as a noble profession and one of unequalled importance for its influence upon the minds and morals of the people." Joseph Pulitzer – journalist, publisher, and founder of the Pulitzer Prizes.

The course will look at broadcast as well as print journalism, and the increasingly relevant world of online news. While the primary focus will be on journalism in the UK, the diversity of nationalities in attendance on the course (students from nearly 50 different nationalities attended last year) will also provide a valuable perspective on how news is reported around the world.

The course combines analysis of the theories behind journalism with practical guidance on writing and approaches to journalistic technique. Consequently, assessment will take two forms: students will produce their own article from a range of options and will also analyse a publication, considering its style, target audience and editorial tone, and producing a 'pen portrait' of a typical reader. They will consider how writing can inform, educate and entertain, and how best to write for different purposes and audiences. Profile and travel writing will be addressed alongside comment and news pieces.

In the second week students will be placed into small groups with a view to producing their own print magazine. This will educate students about all the processes of journalism, from writing to publication, while developing skills in teamwork and collaboration. Finally, the course will provide invaluable experience for students who are interested in embarking on a future career in journalism, teaching them about the day-to-day reality of a journalist' s work and providing some career guidance for this competitive field.

Management Studies

A course with direct relevance to students' future careers, Management Studies provides an excellent introduction to the world of business and the challenges it entails.

Students will spend part of their time on this course exploring the skills and personality traits required for management, as well as learning about the responsibilities typically expected of the modern manager.

They will discuss leadership and management styles, and they will be introduced to some of the techniques required to be an effective manager. Students will gain an understanding of hierarchies of management and of human resources, discussing some of the challenges a manager might come up against in the course of their duties and debating how best to approach various challenging scenarios.

Some of the Management Studies course will be devoted to teaching students about the theories underpinning modern management, such as the economics of business and management. They will explore the financial considerations and constraints that most managers will be required to work within, both at the company level and in the context of an unstable economy.

Marketing

This course has been designed to open students' eyes to the wide-ranging field of marketing, omnipresent but seldom taught at school. The course explores marketing in its many guises, from traditional television advertising and public relations to the various forms of digital marketing, such as social media, email, search engine optimisation and paid search marketing.

Students on this course will consider the crossover between traditional and digital marketing, learning how online marketing techniques can complement offline marketing campaigns. This theory will be supported with reference to well-known examples; for instance, certain big supermarket Christmas television adverts and the social media campaigns that support them.

Students will spend part of this course developing an understanding of marketing strategy and how to plan effective market research, including how to segment groups of people into appropriate target audiences. Classes will also examine the psychology behind marketing and what makes people buy, teaching students an overview of the consumer decision-making process, which every marketer must understand in order to plan an effective campaign.

Throughout the course, students will have the chance to analyse a number of famous marketing campaigns, learning about how such campaigns are put together and debating what it is that makes them successful. They will also critically evaluate the Conventional and Digital Marketing strategies and campaigns of an organisation making such recommendations.

Mathematics

This course in Oxford is designed for students with a keen interest in Mathematics. Our focus will be on the introduction of basic concepts from higher mathematics, on the development and practise of critical thinking skills, and on fun and exciting topics that the student is not likely to be taught on a standard school curriculum.

The class introduces several different facets of modern mathematics; students will encounter important ideas in arithmetic, geometry, graph theory, logic, computer science, and game theory, to name a few. Students will also solve riddles and critical thinking puzzles, draw tessellations and fractals, play strategic mathematical games, and even get the chance to build a primitive computer! The aim is to give students more confidence and curiosity towards the subject of mathematics for the future. Students will see how mathematics is evident in art, music and nature as they learn to think visually and imaginatively about the subject.

Medical Biology

This course is designed for students who wish to extend their knowledge and understanding of the science behind modern medical practice, encouraging students to consider human health and its wider impact more broadly.

The course uses class discussion, debates, presentations, role plays and written work to explore topics that students might not have encountered before, and to encourage students to think more broadly about

human health and how it relates to wider social, political and environmental factors. The lessons aim to be an interactive and challenging introduction to medical sciences, and students are expected to get involved in discussions and to participate fully in class activities.

The Medical Biology course consists of ten 90-minute sessions, in which the following topics are covered: diabetes, arterial disease, heart attacks and strokes, infectious diseases, brain diseases, the the designing of medical research studies, and medical imaging techniques. Students will even have the opportunity to participate in a hands-on heart dissection, should they wish to try this.

This course provides the perfect introduction for students who are thinking of pursuing future careers such as nursing, pharmacology, midwifery, nutrition or medical technology, or indeed broader related fields such as public health or global development. It may also be of interest to students who have settled on a path in the sciences and who are unsure which specialism they might like to pursue in future. Of course, having future plans that relate to medical biology is not essential for taking this course; it has relevance in all of our lives and students may wish to pursue it out of pure intellectual curiosity and the desire for a challenge.

Neuroscience

Students on this course will explore the complex workings of the human brain, covering difficult issues including memory, the storage of information, the role of sleep, and how emotions and pain affect neural pathways.

Over the course of two weeks, students will build up an understanding of the brain's structure and how it functions. After studying the anatomy of the human brain, they will then learn about how different parts of the brain control movement and emotions. They will also explore memory and how the brain learns and stores information, why the brain needs sleep, and now neural pathways form responses to emotions and pain.

As part of this course, students will study nerve cells and the way in which they transmit information, as well as considering how they may be affected by illness and drugs. In this context, students will look at the relationship between the brain and the spinal cord, as well as gaining an appreciation of sensory systems such as vision, touch and hearing.

Students will have the opportunity to carry out practical experiments – such as an eye dissection – to illuminate what they have learned, providing hands-on scientific research experience that will come in useful at university and beyond. The course is ideal for students who are aiming to study medicine, human biology or medicine-related degrees at university, as well as those with a more general interest in biology or science.

Philosophy

This course has been designed to offer our brightest learners the opportunity to study challenging topics which rarely features in the school curriculum, offering some of the most brilliant ideas of history' s most brilliant thinkers, in addition to universally applicable transferable skills.

Students will be introduced to the four main branches of analytic philosophy – logic, metaphysics, epistemology, and ethics – and will have the opportunity to analyse and debate some of life' s most fundamental questions with their peers: "What makes an action right or wrong?"; "How can we trust our senses?"; "What is truth?"; "What defines the human mind?". The class serves more as an introduction to analytic philosophy, as studied at most major English-speaking universities, although some discussion of religious systems will be encouraged under the umbrella of metaphysics. Students will also get the chance to explore the philosophy of science.

Physics

This course aims to introduce students to aspects of physics beyond what is taught in most schools,

introducing them to topics encountered at a degree level in order to give an impression of the current state of modern physics and its most intellectually challenging -and rewarding- aspects.

The class contains very little overlap with conventional high school physics. The physics covered in high school is over two hundred years old. It can be archaic and boring, yet physics today is on the brink of exciting new discoveries. For students to gain an appreciation of physics, it is best that they are exposed to the ideas and problems of modern physics which are covered in class.

The structure of this course is based mainly on discussion and worksheets, with one homework sheet and one student presentation. Problem solving in groups captures the activity of research physics well, and this is why group worksheets in class are an important part of the curriculum. The homework and presentation give the students further opportunity to test their understanding, and to research and explain to their peers topics not covered in the classes.

During the first four days, the underlying ideas of relativistic physics are introduced. During the next three days quantum physics is introduced and analysed from perspectives of philosophy and technological applications. On the remaining days, a survey of other major areas of physics is offered for discussion.

Political Science & International Relations

This course is designed to introduce students to the academic disciplines of Political Science and International Relations, exposing them to the methods of social scientific enquiry and contemporary issues dominating the discipline.

Over the course of two weeks, the classes build a progressive understanding from the foundations of Political Science to some of the most pressing issues faced in the field of International Relations.

Week One

During the first week, students examine basic academic principles; the focus thereafter is on the development of international politics, with classes exploring issues such as the consequences of globalization, human rights, the ethical dilemma of torture, and the evolution of modern warfare (with particular emphasis on counter-terrorism legislation).

Week Two

In their second week students on this politics summer course will study the conceptual basis of global governance, present to their peers on a major international institution, and participate in a class debate on whether or not war can be just.

Business and Enterprise Programme

The Business and Enterprise Programme is designed to provide students with the strong theoretical and practical foundations needed to be successful in the field of business and enterprise, from setting up start-ups to working in large, multinational corporations.

Students will develop their knowledge of all aspects of running a business, such as accounting and finance, marketing, human resources, market research, business ethics and what makes businesses fail – all valuable preparation for a business career. Students will also look at real-life case studies and be set fun business challenges of their own, giving them a deeper appreciation of what' s involved in setting up and running a business, and of the hard work that goes into developing, researching and bringing a product or service to market.

Topics covered

Students are taught the principles of business management, economics and finance in small groups. They will

also be given the opportunity to learn the principles of accounting, marketing, human resources and business ethics.

Course Outcomes

By the end of this course, students will:

- Have developed an understanding of the workings of key economic models, business concepts and management techniques
- Have grasped the different objectives of businesses and understood the factors that affect total revenue and total cost
- Be able to describe how managers seek to motivate workers and appreciate the causes of business failure
- Be experienced in debating the ethical issues faced by firms
- Gained relevant experience for their CV, university or career interviews
- Participated in a Business Challenge
- Improved their teamwork skills

Engineering

This course is designed to give students a deeper understanding of the real-life issues and challenges faced by modern engineers, putting students in a better position to give intelligent answers to questions they might be asked in future job interviews, as well as providing a head-start in understanding what students might be up against in a future career.

Students will have the opportunity to explore what degrees are on offer from different university engineering departments and understand how courses differ. The course will help students to narrow down their options to a particular branch of engineering that they are most interested in studying, and will assist them in finding out which universities offer a course you think would best suit them. They will work on their university application, and excellent teaching staff will be on hand to assist with aspects of their application such as personal statements and interview techniques.

Topics Covered

Students will explore calculus, applied fluid mechanics and dynamic modelling. They will learn how to use vital software and apply this knowledge in conjunction with essential engineering concepts to solve problems. By learning to use software such as GNU Octave, students will gain fundamental problem-solving skills that they can use across the discipline of engineering and other disciplines like finance, the sciences, and mathematics.

Also students will delve further into the core principles of engineering; their academic ability will be stretched as they explore advanced applied thermodynamics and how to apply these principles to key engineering systems. Students will have the chance to showcase and test their understanding of the material as they will present technical content to the class and be questioned on it. To round up the course, students will participate in a robotics competition! Using LEGO Mindstorms sets, they will build their own custom programmable robot and race them against each other. The competition aims to give students an appreciation for everyday challenges of engineering, and is part of their continuing assessment and general feedback given throughout the programme.

Course Outcomes

By the end of this course, students will have:

- Explored calculus, applied fluid mechanics and dynamic modelling
- A head start towards a successful University application and admissions interview
- Learned how to use vital software and apply this knowledge in conjunction with essential engineering concepts to solve problems
- Learned how to use software such as GNU Octave
- Gained fundamental problem-solving skills that they can use across the disciplines of engineering, finance, the sciences and mathematics
- Explored the core principles of engineering, including thermodynamics and how to apply these principles to key engineering systems
- Participated in a robot competition using LEGO Mindstorms sets

Computer Science

This course provides a complete introduction to the thriving field of Computer Science, using the internet to illustrate key concepts. Students will learn website design using HTML for structure, CSS for formatting and Python to provide them with a foundation in a more scientific programming language. The mathematical principles behind computer science will also be explored, as students investigate the use of algorithms in programming.

Course Outcomes

By the end of this course, students will have:

- learnt about all aspects of Computer Science
- learnt three computer languages: HTML, CSS and Python
- built their own website
- acquired invaluable skills for the modern workplace
- participated in lessons on programming theory combined with skills-based workshops

Medical School Preparation

The course is geared towards students aged between sixteen and eighteen who want to apply to medical school and ultimately become a doctor. If you' ve set your sights on studying medicine, the course helps you prepare a strong application for this incredibly competitive and challenging university course, as well as introducing you to how medicine is taught at various UK universities, including Oxford and Cambridge. If you' ve not yet decided where you want to apply, this programme will help you make the right decision. What' s more, the course introduces you to what it' s like to study medicine and pursue a career in this field, and it should help you confirm to yourself that medicine is definitely what you want to study.

Medical school is a very specific university choice, and as such, this course is only really suitable for those who already know that this is what they want to study. If you have only a passing interest in medicine or simply want to learn a little more about it to improve your general knowledge, you would be better off choosing our Broadening Horizons course, which covers Medical Biology among a wide and fascinating selection of other academic subjects.

How will the Medical School Preparation course help me achieve my ambitions?

To be successful in applying to medical school and ultimately forging a career in medicine, you' ll need to put in some groundwork before you submit your application, and Medical School Preparation course helps you do just that. The course will be an invaluable headstart for your application to study medicine at university, as

well as providing you with relevant experiences that you will be able to discuss in your personal statement and interviews. Some of the aspects of the course that will help you prepare a strong application, and set you on the right path for achieving your ultimate goal of becoming a doctor, are outlined below.

Preparing for your BMAT exam

The BMAT exam – also known as the BioMedical Admissions Test – is a crucial part of your application to medical school, but if you' ve never seen or done one before, the style of questions can be confusing. The last thing you want is for your dreams of a career in medicine to be cut short at the entrance exam stage, so diligent preparation is key. During your time at Oxford, we' ll familiarise you with what to expect during the exam, and give you plenty of opportunity for practising the test under exam conditions. This thoroughly prepares you for the real thing, boosting your confidence and giving you a headstart over your fellow applicants. We can also explain how the UKCAT (UK Clinical Aptitude Test) works and how you can prepare for it.

Writing your medical school personal statement

It' s common for prospective medical school students to come to us with very little idea of what to write in their personal statement, which many see as the most daunting aspect of completing the UCAS form. What' s more, with so many exceptionally well-qualified students applying to study medicine, it can be difficult to know how to make your personal statement stand out from the crowd. That' s why we' ve worked lots of personal statement guidance into our Medical School Preparation programme. As well as learning more about what medical schools are looking for in your personal statement, you can get personalised advice on how to write your personal statement and actual practice at writing a first draft. You can then take this away with you to refine further when you get home and go back to school.

Preparing for medical school interviews

The entrance exam and personal statement aren' t the only significant hurdles you' ll need to overcome in applying for medical school. You' ll also have interviews to contend with, and this can be a nerve-wracking experience. At Oxford, we' ll teach you different interview techniques and give you the opportunity to sit mock interviews. These are designed to give you experience of likely question styles, as well as highlighting areas for improvement in your answers, which gives you the chance to work through any problems long before you get to the real thing.

Getting a feel for what it' s like to be a medical student

The aspect of the Medical School Preparation course that our students tell us they most enjoy is the practical workshops, which teach you how to perform basic medical procedures, such as blood tests and how to use a stethoscope. These enjoyable but informative workshops introduce you to the kind of tasks you' ll learn when you' re a medical school student, as well as giving you a flavour of the jobs you' ll one day do when you' re a fully fledged doctor. What' s more, you' ll spend some time considering, in debate with your fellow students, the ethical problems that can arise when studying or practising medicine. You' ll find that this is all excellent background experience to fall back on, as well as being interesting and relevant material to cover in your personal statement and medical school interviews.

Why attend the Medical School Preparation course now?

Medicine is an extremely competitive course, and only the most gifted of candidates will be successful in their applications. This means that you' ll need to do everything you can to catch the eye of the medical school admissions tutors and show them that you have what it takes to succeed on this challenging course. In choosing to join Oxford Summer School' s Medical School Preparation course, you' re taking a powerful step towards achieving your ambitions. If you' re applying for medical school within the next academic year or two, this is the time to devote a couple of weeks of your summer holiday to studying this valuable medicine preparation course.

Afternoon Workshops

Academic Writing Skills

The course is the perfect choice for any student looking to add that extra polish to their course work, personal statement or exam essays. The workshop complements any of the morning subjects on the Broadening Horizons course, helping improve students' writing skills for a broad spectrum of subjects.

The ability to write a clear, coherent, and persuasive essay in good English is crucial in many areas of academia and beyond. This workshop is designed to assist students in the development of this key skill. Under guidance from expert teacher, students will hone their abilities through such activities as:

- Discussing what makes a "good" essay, including grammatical constructions and paragraph presentation
- Study of academic writing conventions, such as formatting a bibliography and how to avoid plagiarism
- Writing short essays for assessment, and peer-reviewing them as a class

Essay styles and best practices vary widely around the world; the skills that make for a good essay by the standards and norms of one country' s academic environment might not hold in another. Therefore, any student from outside the UK who is considering moving to an English school or going to university in the UK would be well advised to give themselves a head start by learning the style that British teachers, lecturers and admissions tutors will prefer.

The skill of writing a good essay is hard to master, but once learned, is immensely valuable. Having good ideas is only half the battle; presenting them in an engaging, persuasive and mature way is the other half, and it is equally crucial. The conventions of academic English, such as the strict avoidance of the first person, the differing use of tenses in History and English essays, or the correct tone for a scientific report, can be mystifying and ignorance of them can lose a student a significant number of marks before they have been grasped. In this workshop, students will learn these conventions so that they can write essays in the preferred academic style.

Acting & Performance Skills

An overview and a 'taster' of the fundamental skills and techniques that are used by actors on both stage and screen.

Students will explore essential body, voice and acting skills through the medium of skill-based improvisation. This is a form of improvisation devised by the originator of theatre improvisation, Viola Spolin, and unlike many forms of improvisation does not have its focus on 'performance'.

Instead, students will focus on skill development for all aspects of theatre work; voice, body, characterisation, blocking/use of the stage, stage crafts, motivation and emotion. A non-judgemental approach to acting is encouraged on this course – where it is not encouraged to see things in terms of 'good and bad' or 'right and wrong' but rather to promote intuition, imagination, problem solving and freedom of action (both internal and external/physical), which will give all students on the course a sense of confidence, and is designed to bring out true potential, however hidden. The influences on the techniques used in this course are derived not just from Spolin but also from Konstantin Stanislavski, Uta Hagen, Michael Shurtleff and Augusto Boal.

Business Challenge

This course designed for students aged 16-18 with a keen interest in business and entrepreneurship.

Our workshop has been designed to get students thinking about what makes a good business strategy,

as they start up their own entrepreneurial brainchild and test it against the practical realities of business management. Students are divided into groups for the challenge, and much negotiate real-life obstacles such as marketing, budgeting, and the importance of leadership and teamwork in a business context. Within this context students are encouraged to be innovative and consider their own role in the launching of a hypothetical new product.

Students have the opportunity to develop any idea of their group' s choice, in order to exercise their creativity to the full. Each group will be expected to present some detailed written work, which will be produced collaboratively, and make a formal presentation to the judges and other students. This reflects the skillset required of entrepreneurs in real life and helps students improve their own approach to management and enterprise. Students can expect to increase their confidence in themselves and in their ideas as their presentation and sales skills are honed.

Each group will be expected to present a brief in which they describe their product, outline their mission statement and corporate objectives, present a marketing audit consisting of their own primary and secondary research, outline their marketing objectives and marketing strategy as well as how much finance they require. The workshops will use a variety of visual, auditory and kinaesthetic activities, tasks and skills to help all learners participate effectively. The main aim of the workshop is to consolidate their class-based learning and encourage students to be business leaders – creative, innovative and team-spirited.

Global Issues Seminar Series

This course gives students the opportunity to examine the issues that dominate headlines around the world, from the global economy to current political controversies, as well as development and sustainability.

This course has been designed to introduce students to some of the most important environmental, economic, social, and political concerns of modern life. Through a series of seminars, students will have the opportunity to examine the issues that dominate headlines around the world, from the global economy to current political controversies, as well as development and sustainability. Whatever a student' s particular political interests, they should find themselves engaged by this wide-reaching course.

The concept of development is used throughout this course to illustrate how different global issues can be interrelated and to emphasise the fact that international politics now places more emphasis on global rather than regional relationships.

The seminar series is composed of two major units, consisting of key sessions on development and sustainability and current political and economic controversies. During the first week students examine the basics of development and sustainability, and in the second week you will discuss major issues in global affairs. To develop an awareness of competing views about how global issues can be best tackled, students examine the themes of ageing and of the environment. In the second week students discuss major issues in global affairs, focusing on the role of civil society in the Arab world and in recession-plunged Europe. To explore the emergence of new global security threats, students examine the concepts of energy, regime and economic security.

The course is suitable for both those seeking general exposure to the issues that are dominating the headlines around the world, from the global economy and current political controversies, to development and sustainability and for those who aim to pursue further education in the field of development politics and international relations.

Graphic Design

This afternoon workshop introduces students to the basics of graphic design, teaching them about how it can be used to communicate visually and improve user experience.

This workshop has a practical focus, but students will also have the chance to analyse examples of different uses of graphic design.

During the workshop, students will work through enjoyable graphic design tasks that make use of their existing creativity and build new skills. Our expert graphic design teachers will guide students through fun exercises that teach new design techniques, introducing them to some of the tools used by graphic designers.

The focus of the workshop will be on using visual designs to solve problems, and students will be introduced to concepts such as visual language and typography along the way. Students will come away with a deeper appreciation for the work that goes into visual communications, and for the ideas and techniques behind the designs with which modern life is surrounded.

Leadership & Teambuilding

This course replicates contexts that students are likely to encounter in their future academic, professional, and social development, equipping them with lessons from great leaders of the past.

This course involves activities, games and exercises that aim to develop principles of teamwork and leadership, replicating contexts that students are likely to encounter in their future academic, professional, and social development. Students are encouraged to reflect on their own experiences, as well as to look at the behavioural styles of famous leaders.

In this course students consider what it really means to be a part of a team, and what attitudes and insights they might need if they were placed in a position of leadership. In addition to practical team-building activities, students are also required to reflect upon and discuss the more theoretical elements of leadership. These two elements will be used in conjunction with each other to allow students to replicate the kinds of situations faced during everyday life, as well as discuss and evaluate their performance. It goes without saying that these transferable skills will be of immense use to students even outside the classroom.

In spite of its more serious elements, the course is also designed to allow students to enjoy themselves and have the opportunity to get to know their peers as they work together to solve the tasks that the workshop leader throws at them. Students come from a wealth of diverse backgrounds, and the the unique insights that this provides can be used to great advantage over the course of the workshops.

Oxford's Art & Architecture

This course is intended to offer students a brisk and lively introduction to the history of European art and architecture, with particular close attention paid to Oxford' s unique heritage, to endow students with the skills needed to critically engage with works.

The course is divided into six separate classes, with each session following roughly the same format. After approximately thirty minutes of classroom learning on a particular artistic period or style, students then embark on a ninety-minute walking tour of Oxford' s buildings, colleges, art collections and museums, observing 'case studies' which illustrate the period under discussion. Periods range from the development of art and architecture in Europe between the Roman and Norman Conquests to the architecture of the University in the 20th and 21st centuries, looking at how the forces of Modernism and Post-Modernism have shaped art and architecture in Oxford. These developments will be viewed through the expression of these major currents and styles in the artistic and architectural legacy of Oxford, one of the world' s greatest cultural centres.

The final class is based in the Ashmolean Museum and takes students on a grand tour of 2,500 years of European Art – a fantastic resource for keen art historians. The city of Oxford contains an example of every

major period of English architecture from the Saxons to the present day, and is consequently the ideal location for our course.

Students will all bring their own insights from the artistic traditions of their respective countries, so entering debate and making contributions for the benefit of the whole class is strongly encouraged.

People Management

New for 2020, this workshop will introduce students to the fundamentals of people management, from the strategic mindset to the vital communication and interpersonal skills required.

Project Management

New for 2020, this workshop will cover the fundamentals of project management, teaching our students how to conceptualise their ideas, and progress them into a completed and successful project.

Public Speaking & Debate

In this course, students focus on developing their presentation and advocacy skills: an understanding of how to plan a speech; build a strong and persuasive argument; and to give a convincing speech, with plenty of practice to build confidence for the future.

Over two weeks, students will work on practical aspects of speech giving, such as body language, clarity of delivery and maintaining eye contact with their audience. Students gain wide-ranging experience of public speaking and debate, and by the end of the course they have a firm grounding in essential skills and feel confident in their ability to take on new challenges.

In each session students are shown new techniques and strategies, and then given plenty of opportunities to put these into practice. Sessions are structured so that there is plenty of time for questions and discussion; this approach is central to all courses, but none more so than Public Speaking and Debate, where the chance to speak up is paramount. The two-week period leads up to a formal debating competition for the whole class on a chosen subject.

The course also looks at a variety of famous speeches from history up to the present day to see how famous speakers have used various techniques, and what students can learn from their success: Martin Luther King' s 'I have a dream' and Julia Gillard's 'misogyny speech' are both rigorously analysed.

The workshop debates address a variety of issues, ranging from easily accessible topics (e.g. the length of school holidays or the value of school uniform) to more complex and challenging social issues (the death penalty, euthanasia, the legalisation of drugs) as the students' confidence increases.

Students will work alongside peers from across the world, often from very different cultures and backgrounds. This is a valuable opportunity to learn respectful discourse with those who hold different beliefs – crucial when discussing delicate social and political problems in debate.

Sustainability Challenge

In an era where the climate seems increasingly volatile, humanity is realising the great impact that we have on our planet. This new workshop for 2020, will teach our students how they can contribute to a sustainable environment, not just individually, but on a wider scale.

Oxford Summer School 2020
Course Introduction(Ages 13-15)

16 subject options | 9 afternoon workshops

Course Descirptions

Artificial Intelligence

Artificial Intelligence (AI) seeks to create systems that can learn just like humans. The field is inspired by multiple disciplines; statistics, biology, psychology and computer science, and is continuing to grow in today' s society. The advancement of AI has been fuelled by exponentially growing amounts of data being collected by various systems.

Brand new for 2020, Oxford Summer School is delighted to present our very own Artificial Intelligence course. This course will introduce students to the rapid technological advances made in the simulation of human intelligence, its implications for society, and the debate over the risks posed by highly intelligent AI. With cutting edge AI displaying increasingly 'human' abilities (such as learning and reasoning), there is no better time to study this exciting topic!

Climate and Sustainability

The field of Climate and Sustainability is rapidly evolving. This course will help you understand the new information available, to help you progress into future studies and help you to become a more sustainable citizen, striving for a more sustainable society.

In an era where the climate seems increasingly volatile, humanity is realising the great impact that we have on our planet. This new course for 2020, will teach our students how countries, business, and individuals can tackle the issues of climate change and sustainability.

Creative Writing

In this Creative Writing course, students will be introduced to a wide range of literary techniques, being coached in the development of a readable piece of prose, guided around the pitfalls of cliché, and learning how to compose, draft, and edit their own work.

All you need for this course is creativity, enthusiasm, and imagination – although a blank notebook and lots of spare pens will come in handy too! Our Creative Writing course has been designed for students with an interest in taking their writing to the next level. The class aims to extend and challenge writing techniques learned in schools and encourages students to find their own 'voice' through which to express themselves.The first week will be spent acquiring a 'writing tool kit', providing students with key basic skills and introducing them to a variety of literary techniques. During the second week students plan, draft and edit their own short story, allowing them to experiment with some of these newly learnt techniques in their own work.

The course is necessarily interactive: students regularly share their writing with the group and are expected to give constructive feedback on the work of others. A varied classroom environment combines teacher-led experimental activities with interactive group work and work-shopping, as well as giving time for individuals to work on their own writing. It can be difficult to critique the work of others, and harder still to take criticism in return, but both are valuable skills for budding writers, and indeed for life in general!

The most successful authors love what they do, and we hope to provoke the same level of passion for all students enrolled on this course.

Economics and Management

The Economics and Management course has been designed as an introductory course for students who are relatively or entirely new to either subject, to outline the sorts of theories and issues with which business management theorists and economists are concerned, that students might study at university, and that generally allow students to engage with the world around them to a greater degree.

In economics, students learn about the basic economic problem concerning scarcity and choice, study the supply and demand model, different models of market structure, the occurrence of market failure (e.g. due to the absence of markets for public goods, problems of information, and externalities), and the incidence and effectiveness of government intervention. The differing theories of Adam Smith, John Maynard Keynes, and Friedrich August von Hayek are addressed and debated.

In management, they look at the different objectives that firms may have (e.g. profit-maximisation, revenue-maximisation, sales maximisation, market share) and the different organisational or market conditions under which these emerge, the impact of price elasticity on demand upon price and revenue decisions, the (managerial and other) sources of falling/rising average costs (i.e. internal/external economies of scale and dis-economies of scale), and the different techniques managers could use to motivate their workers.

Students further consider the purposes of advertising and branding, and to what extent firms should be constrained by ethical considerations; in this way, the course touches on the philosophy as well as the practice of economics and management. Classes involve discussion, analysis of articles, presentations (both by the teacher and by the students), and visual resources. Interactive elements such as 'The Equilibrium Game' express fundamental economic theory in an dynamic way: students are randomly allocated 'buyer' or 'seller' cards by the 'broker' and instructed to negotiate the best sale price per round. This varied atmosphere ensures that all students get the maximum possible learning experience out of the course, accommodating all learning styles as thoroughly as possible.

Students are also given the opportunity to consider and express their own point of view, both through an essay task set in the first week and through a group task where they decide and justify what motivational strategies are most appropriate in different scenarios. Students benefit from the diversity of backgrounds, cultures and nationalities on the Oxford Summer Schools ages 13-15 programme, as they can share and exchange their experiences of different economic systems around the world, alongside considering how cultural differences affect management strategies; a vital area of knowledge in the modern globalised economy.

English Literature

Students on this English Literature course will spend their time grappling with some of the most famous works in the English language. They will learn the basics of literary criticism and develop an understanding of how to examine and dissect literature, helping them to identify and understand sub-text, imagery and metaphor. Looking at structure, themes, motifs and symbols within texts, students will gain an appreciation of the variation between different forms of literature. The course will span some 400 years of history, review giants of literature such as Shakespeare, Austen and Orwell, and explore genres such as poetry, Gothic literature and contemporary works.

As part of this course, students will have the chance to contribute their own ideas and interpretations as part of group discussions, thus building valuable communication skills that will stand them in good stead at school, university and beyond. In addition to debate, students will learn in a variety of other ways, including lectures, readings, interactive drama activities, textual analysis and written tasks. They will also be introduced to the art of writing an English literature essay, which will help them develop skills that will be invaluable for any humanities subjects they pursue in the future.

Environmental Science

This Environmental Science course is designed to introduce students to a broad-ranging and hugely topical subject area – never more relevant than in today' s rapidly changing world. The central theme of the class is the relationship between people and the natural world, and it is aimed at any student with an interest in the future of our global environment.

Week 1 is used to explore some of the most significant issues for contemporary environmental scientists: climate change, biodiversity loss, and environmental disasters. Week 2 introduces a more theoretical context to the topical issues covered previously. Students will learn about the different approaches to managing the environment, and also how Environmental Science is very much bound up with politics, ethics, and culture – what might the repercussions be if a country' s government decided to implement nuclear power plants, for instance?

By the end of the course, students will understand the key issues facing environmental scientists today. They will have gained a working knowledge of both the scientific processes at play and the sociopolitical aspects of many environmental issues, as well as familiarity with the main theoretical approaches to managing environmental issues. The way environmental problems are viewed and framed can be as important in determining solutions and responses as the empirical science involved, so students will leave this course having developed valuable transferable skills. Both in Environmental Science and beyond, the ability to present, analyse, and work as part of a team are essential to success.

Experimental Psychology

The Experimental Psychology class has been designed to offer students from varying backgrounds an introduction and insight into studying Experimental Psychology. Experimental Psychologists have addressed some of the most intriguing questions of life: What makes you you? What makes you different from other people? Is there always a clear difference between good and evil? This class provides students with the opportunity to study, discuss and debate these alongside a wide range of other fascinating and controversial issues.

The class provides students with the opportunity to study topics beyond those they will have met in formal education, and to discuss and approach established arguments from alternative and challenging perspectives. Topics include the study and measurement of personality, infant development, social development, and attachment in childhood. The class also looks at key principles of experimental design, animal testing and the issue of ethics in experimental research – how should we engage with ethically controversial studies which have nevertheless helped further psychologists' research?

Forensic Science

Forensic Science applies science to criminal and civil laws during a criminal investigation. By the end of this course, you will be able to interpret forensic evidence and you will have covered a wide range of related topics to the field. This course is for those who want to be empowered to think more widely about the value that forensic science can add to our society and potentially go on to further study and/or a career in forensic science.

Genetics

Genetics is a branch of biology concerned with the study of genes. This two-week course will cover basic concepts underpinning modern genetics; DNA and how it is replicated; the scientists who discovered DNA; the topic of inheritance; and the relationship between genetics and the environment.

Human Biology

This Human Biology course is designed for students who wish to extend their knowledge and understanding of the science behind human physiology. It uses class discussion, debates, role plays, worksheets, quizzes and games to help students understand the basic scientific principles behind human biology and to get them thinking about some ideas and topics that they might not have encountered in the science teaching they have received at school.

The class aims to be an interactive and fun introduction to human sciences, and so students are expected to get involved in discussions and to participate fully in class activities. These will be varied in order to engage all types of learner and will include plentiful use of examples and props.

During the two-week course, students learn the basic principles of human biology, including cell biology, homeostasis and genetics; gain an insight into how a medical research study is designed and carried out; and develop a greater understanding of specific areas of human biology, including hormones and diabetes, infectious diseases, the cardiovascular system, cell growth and death, the immune system, DNA and genetic diseases. In this way, students get a solid overview of the subject of Human Biology that may help inform their decision if they are considering studying Biology, Medicine or Human Biology specifically at university.

Furthermore, students get the chance to learn about what is being done at the cutting edge of human biology, such as genetic engineering and cloning; controversial topics that students are encouraged to discuss and debate with their peers. Similarly, in the class on vaccination, students vote on a motion and then debate it with the class, both as a means of testing their knowledge of the subject in ensuring that they debate with the correct facts in hand, and as means of honing discussion skills and rhetorical and persuasive ability. Biology as it pertains to humans can often lead to divisive or controversial topics and it is important that students learn how to discuss these in a mature, respectful and constructive manner, both for the purposes of this course and for their future studies.

The course is assessed by means of a piece of written work and a role-play, thus allowing students to display their strengths regardless of whether those strengths lie more in written or spoken work. The written work will take the form of a practical report on an experiment performed in class and the role-play will be performed in pairs, where one student is a doctor and one student is a newly-diagnosed patient, in order to assess the students' understanding of their work on diseases and their ability to convey their knowledge in spoken form.

Human Geography

This Human Geography course encourages students to explore the relationship between humans and their natural environment. Studying economic and cultural geography, students will gain an understanding of the social patterns that shape human life. Through interactive challenges, project work, and classes on a broad range of topics, students will learn how communities around the world are coping with major changes in society through economics, government, and how corporate and individual decisions can shape cultural identity.

The course is designed to introduce students to the study of human geography by exposing them to the principles of global politics and culture, whilst discussing contemporary issues surrounding economics, religion, identity, and health. The course is suitable both for those seeking general exposure to the subject and those who aim to pursue further education in the field of human geography. During the first week, students examine the basics of culture, society and economics, looking at Oxfam as a case study. In the second week they prepare a class project on a chosen country, and engage in more specific debate over contemporary issues in global affairs, such as development and aid. Classes are structured so as to offer the

greatest opportunity for discussions; thus the course offers a combination of lectures, issue debates, written assignments and group presentations.

Students are encouraged to think widely about issues affecting cultural and environmental geography. A range of case studies and debates are used to increase students' cultural awareness. Oxford Summer School is proud of the huge diversity of nationalities among our student body (students from 75 different nationalities attended in 2017) and this is a huge advantage for studying Human Geography, as students can share and learn from each other' s experiences. This is particularly advantageous in providing a broad variety of perspectives for the debates and discussions that are central to this course. Topics of debate include contemporary issues in Human Geography such as population, settlement and culture. Students leave the course with a greater understanding of their own culture as well as that of others, having experienced a truly international learning environment.

Mathematics

The Maths course is designed for students with knowledge equivalent to GCSE level. The focus is on strengthening fundamental skills and techniques as well as introducing new and advanced topics. The aim is to strengthen existing knowledge and to give the students more confidence in dealing with more sophisticated topics in the future. Moreover, new techniques for solving well-known problems will be introduced. In addition, the students will be faced with completely new concepts such as those arising from the history of maths. Mathematics is relevant and important for a huge variety of subjects, so will be useful to students regardless of the path that they are interested in taking in future – and if they are budding mathematicians, then so much the better.

Students will have the opportunity to present work in small groups, to practise graph drawing, and to learn about general logic using mathematical puzzles and riddles. The class will also give short 'previews' of the mathematics taught in higher classes and an explanation of the practical importance of the subject. In this way, it helps prepare students for further studies in Mathematics, and may even assist them in deciding whether it is something that they would like to study at degree level.

Along the way, students also practise teamwork and collaboration to produce presentations in groups, summarising and explaining the history of a mathematical topic to the rest of the class. The course concludes with a quiz, testing the students' knowledge in a more informal way. In this fast-paced and engaging environment, students who have studied any of the course topics before are given differentiated activities in order to deepen their understanding further.

Modern History

There' s more to history than the dim and distant past; historical events within our own lifetimes are paramount in shaping the culture, politics and economics of our present day. This course looks at recent history, how it is studied, and its continuing repercussions on the international community. While the course will look at the changes and trajectories around the world from the end of the Second World War onwards, its focus will be on the late 20th century, approximately from the fall of the Berlin Wall, up to the present day. Much of the course content will cover history that is within or nearly within the lifetimes of its students (for instance 9/11), some of which they themselves may even be able to remember clearly.

From their school history courses, students may be used to thinking of history as something that has happened before living memory, that must be investigated through archaeology, or that contains mysteries that we can never really unravel. At best, they are likely to think of history as something that extends to the end of the Second World War. Our Modern History course reconfigures students' view of history and encourages them to see it as something that is happening right now, shaping interpretations right up to the

present day or even the present hour. It helps students assess how narratives of history are constructed even when we have all the facts to hand, and how we can work out the importance of events or the establishment of themes even as these processes are still ongoing.

As this course covers world history, it benefits particularly from the broad range of cultural backgrounds and experiences represented on any ages 13-15 course. Students will get to see how their peers in other countries interpret the same set of events, and how history is filtered through different cultural and national lenses. Students will get to discuss not only how our narratives of history are shaped, but also how they think those narratives should be shaped and how historians can ensure that a balanced picture of the past is preserved.

Physics and Chemistry

Our Physics and Chemistry course develops students' curiosity as well as their scientific imagination and reasoning, experimentation, and perseverance, boosting their understanding of core physical and chemical concepts beyond school curricular to introduce new, more advanced concepts.

Scientists love to ask questions: How does this work? Why is it here? What happens if I…? Our Physics and Chemistry course aims to harness students' curiosity, as well as develop their scientific imagination and reasoning, experimentation, and perseverance. As their confidence grows, so too will their understanding of core physical and chemical concepts, building on and often going beyond what they will have studied at school. New, more advanced concepts will be introduced that students might not otherwise have encountered, spurring them on to pursue Physics and Chemistry at a higher level – fostering enthusiasm for the subjects is a key aim of this course.

In Physics, students look at the principles governing forces and how they interact with matter. This will encompass mechanics and the laws of motion, types of energy, and the key differences between waves and matter – using light and sound as examples. Practical elements include learning how to plot a graph correctly, using gradient and area.

In Chemistry, students look at atomic structure and the concept of moles. The course also covers solutions and molar calculations and explores the properties of acids and bases. Students will learn about the various types of chemical bond and look closely at chemical reactions and equations, as well as some simple kinetics and the collision theory of reactions.

In Week 2, there will be ample opportunity for students to pursue their own topic of interest, and to request specific topics for their final class. Throughout, the two subjects will be closely aligned, with emphasis on how physics and chemistry interact and how topics studied in one subject can readily be applied to the other. The course establishes important exam and presentation techniques of the kind that will be expected in universities such as Oxford and Cambridge, thereby giving budding scientists a head start in their future studies. Successful scientists need curiosity, observation skills, imagination, reasoning, experimentation, enthusiasm and perseverance: this course aims to foster and encourage all of these vital traits and leave students feeling passionate about the sciences and eager to learn more.

Politics and International Relations

This Politics and International Relations course introduces students to the methods of social scientific enquiry and contemporary issues which dominate the two disciplines. In each class, students are progressively exposed to the principles of liberal democratic politics and the contemporary issues dominating world politics. The course is suitable for both those seeking general exposure to the subject and those who aim to pursue further education in the field of politics and international relations. Classes are structured so as to offer the greatest opportunity for discussion, which is provided by a combination of lectures, issue debates, written assignments and class activities.

Week One

The first week of the course is dedicated to politics, providing a broad introduction to democracy in general to begin with, and then later focusing on the British political system in particular. The assessment for this week is a piece of written work about the political system in students' native countries. This course takes advantage of the wide variety of countries of origin that students come from (students of 75 different nationalities attended the ages 13-15 course in 2017) to discover and share a plethora of valuable perspectives.

Week Two

The second week of the course introduces students to the most accessible parts of international relations, namely international law, security and human rights, focusing on outcomes rather than theory. Students deliver a presentation on a detailed case-study as their assessment for international relations.

Sociology

A new course for 2020, Sociology is a ubiquitous discipline, which informs the decisions made by politicians, businesses, charities, and more. this course will offer students a taster of this huge field of study. Students will be introduced to the scientific methods of studying society, what we can learn from them, and the patterns they reveal to us about society.

Afternoon Workshops

Acting & Performance Skills

Through a combination of drama theory and practical activities, our Acting and Performance Skills course aims to provide students with an initial grounding in fundamental performance techniques, as well as increased on-stage confidence and the ability to work creatively in a group. Students will get a chance to experiment with skill-based improvisation, focusing not only on 'performance' but also on voice, body, characterisation, and the use of stage crafts.

From day one students get the chance to act, working in groups of two to five on a short scene from a classic English dramatist (starting with Shakespeare' s Richard III and Midsummer Night' s Dream). In the second week, once the students have gained sufficient confidence, they are asked to concentrate on key scenes from modern works such as Samuel Beckett' s Waiting for Godot, Willy Russell' s Blood Brothers, or John Godber' s Teechers. On Fridays these are performed to the rest of the class who offer their feedback. This progression from Early Modern drama to more contemporary theatre also allows students to explore how English drama has developed over the years.

Working towards this personalised scene at the end of each week provides students with a goal-orientated framework around with to develop their performance creativity.

Business Challenge

Through a series of presentations and practical exercises, this course for ambitious teens focuses primarily on developing a new business or product and encourages them to think about the effect businesses have had on their daily lives. Students are introduced to different aspects of business through various scenarios, including setting up a new business, getting funding, developing a unique product and pitching it to the rest of the class.

Students who take part in our Young Enterprise Workshop: Design-an-App Challenge gain a hands-on insight into the fast-moving world of mobile app development – whether for iPhone, iPad, or Android – and its market. The workshop is designed to encourage students to apply their own ideas through interactive tasks and group activities: they learn how to make an effective and persuasive presentation, think about the opportunities and challenges involved in the development of innovative new products or technologies, and consider the most effective strategies to market and advertise such new and non-tangible 'products'. As a result, students learn through their own experience what it is that makes certain apps so profitable and successful, whilst others fail to get off the ground.

There will be the opportunity to work in groups on the development of either a games or a lifestyle app, and each group will be expected to present a brief explaining their app, its market demand and justification of their pricing strategy, a series of app screenshots demonstrating how it will look and what it does, an iTunes app store page showing what their app will look like at point of sale, and an advertising video. This workshop will, therefore, develop their skills as well as give an insight into the world of business and e-commerce. The workshops will use a variety of visual, auditory and kinaesthetic activities, tasks and skills to help all learners participate effectively.

Digital Skills

In our current digital era, the digital economy is continuing to experience exponential growth. This two-week series of workshops will enable you to take advantage of digital technologies to further your academic, personal and professional pursuits.

Essay Writing Skills

Essay styles and best practices vary around the world, but the skill of writing is generic: in this workshop, students will be equipped with the ability to write clearly and the construct thoughtful, readable prose, a skill of immense benefit in every walk of life.

The Essay Writing Skills workshop is ideal for the younger learner who needs to learn how to communicate in writing using an academic style. Learning these skills now will stand them in good stead as they work their way up through their school exams and on to university. By learning these skills at this early stage students' clarity of thinking will improve as their minds develop.

The workshop complements any of the morning subjects on the ages 13-15 course, helping improve students' writing skills for a broad spectrum of subjects.

Although essay styles and best practices vary around the world, the skills that the students will learn in these workshops will be generic: they will be the skills that lead to thoughtful, clear writing that is a pleasure for the reader to follow. Therefore the differing academic environment of individual countries will not matter for our learners on this workshop: the necessity to be clear, accurate and controlled in English will be our and their goal.

Nevertheless, the young learner will be given a taste of different styles of writing so that they are aware of how language can change depending on the type of writing that is being attempted. So there will be contrastive analysis on differing types of writing: a blog, an article, a creative story, a report and an essay. Students will be given the chance to write using these different styles.

For the younger learner, the workshop is based on 'having a go' – that is, trying out the skills learnt. The learners will be encouraged to enjoy each other' s attempts at writing, to listen to each other attentively and to respect the good work achieved as well as the errors made: errors which are of great value in learning.

Only helpful feedback from learner to learner will be of interest. Students will provide positive feedback to one another at all times – in other words, feedback that can help make a positive improvement to their peers' learning.

The tutor will lead this workshop. The tutor will direct the learning at the beginning of each session, encourage ideas from learners and then the tutor will further direct the practice involved to achieve each outcome. The learners will be invited to become fully involved in any discussion and activities and to use their own individual school learning environments, as well as their morning classes, to fully inform each workshop. In this way individuals will build on their own current learning rather than learn something 'foreign'. The aim is therefore that the students return to their own schools armed with skills that they can put into immediate use.

Film Challenge

Film Challenge is a fully practical series of workshops over the course of two weeks. You will gain hands-on experience of the filmmaking process, including directing, producing, cinematography and post-production. This is an incredible opportunity for all budding filmmakers to start their career, producing their very own short film.

Journalism Challenge

New for 2020, this engaging workshop will expose students to the practical demands of the world of journalism. Throughout the workshop, students will develop a keen awareness of how to successfully create various forms of media - from traditional forms like print and broadcast, to the modern and increasingly dominant digital form.

Leadership and Teambuilding

This Leadership and Teambuilding course for teens is designed to increase confidence and self-belief in the students, by engaging them in a number of dynamic team activities and scenarios. Students are encouraged to develop their leadership skills through speeches and presentations. The highly-practical workshop sessions also aim to foster their creativity through activities such as designing a brand or invention, as well as emphasising the importance of team discussion.

In this course, students think about what it means to really be a part of a team, considering what attitudes and insights may be called upon if they were placed in a position of leadership. They are called upon to participate in a range of group activities and initiatives, which thrust them into different and varied scenarios and ask them to think about the range of strategies that they might employ to navigate the task at hand successfully, as well as any obstacles that may arise.

In addition to these practical offerings, they are also required to reflect upon and discuss the more theoretical elements of leadership. These two elements are used in conjunction with each other to allow students to explore the kinds of responsibility that they find themselves adopting in their everyday lives. Working collaboratively, they are encouraged to discuss and evaluate their performance in activities, enabling them to prepare for similar eventualities outside the classroom.

Photography and Sketching

In this Photography and Sketching course students practise their artistic skills in a number of practical sessions. They learn about different aspects of scenic art, sketching, composition and photography in the beautiful setting of Oxford University and its exquisite architecture. Students are introduced to the theoretical concepts surrounding different artistic schools, which can then be applied in their own work.

This course is all about encouraging the students to find and turn on their creativity. Students work both individually and in small groups developing skills in sketching, drawing and composition. Students are encouraged to see their surroundings with a photographer' s eye, and to take photos which they can later use as a backdrop to their sketches. On-site sketching visits range from the Oxford' s Ashmolean Museum, housing art and artefacts from all over the world, to its picturesque Botanical Gardens. The course is primarily about the students' individual ways of seeing and capturing creative images.

There are few places in the world better suited to a sketching and photography workshop than the city of Oxford. Admired by artists, writers and poets throughout history, Oxford' s stunning architecture with its famous 'dreaming spires' is sure to inspire students to produce their best possible work. Oxford contains examples of every significant architectural period in British history from the Saxons onwards, so whether you are interested in medieval towers, Gothic spires or the sharp lines of Functionalism, Oxford' s architecture will offer something to catch your eye. Alternatively, it may be the abundant parkland, such as Christ Church meadow, or the rivers that flow through Oxford that draw your attention as an artist or photographer.

Public Speaking and Debate

In this Public Speaking and Debate course for teens, students learn how to compose a speech on a particular topic, compose a strong argument, and respond composedly to different speakers. Under expert guidance, students discover more about the intricacies of debate, from selecting a topic to generating and allocating arguments, the roles of different speakers, and using stylistic techniques to achieve maximum effect. They test their new skills by preparing speeches on their favourite topics and participating in debates with fellow members of the class.

Throughout this two-week course, students are provided with ample opportunity to familiarise themselves with diverse public speaking scenarios – from individual speeches to team debates – as well as the most

effective and appropriate presentation techniques. By analysing famous speeches from the past, students learn to appreciate excellent oratory, and recognise the skills and techniques that they can use when constructing their own speeches. The course aims to increase students' enthusiasm for public speaking and debate, and encourages them to share this with their peers. By the end of the course, students will be on easy terms with the 'three Ms' of public speaking: manner, method, and matter.

The diversity of the Oxford Summer School student body is a real advantage in Public Speaking and Debate, as it provides a variety of viewpoints and experiences that students might otherwise not have encountered, thereby making debates livelier and more interesting. However, as students work alongside peers from across the globe, from varied cultures and backgrounds, it is important for them to keep the tone of the debate considerate. This is a valuable skill for life in our globalised and multicultural world, which is honed on this course. Students are often called upon to debate difficult and controversial social and political topics, and therefore must be prepared to treat their peers with the utmost respect.