

UCL Summer Challenge 2019

Anthropology

Summer Challenge Title: Thinking 'outside the box': anthropological perspectives on human diversity

Do you want to think differently about what it means to be human? Do you want to understand the cultural and social differences that influence how people live and make meaning of the world around them? Then this summer challenge is for you!

Anthropology is the comparative study of the ways in which people live in diverse social and cultural settings across the world. Social Anthropologists devote themselves to studying this variation in all of its complexity, with a view to contributing to a broader understanding of what it is to be human- what unites us as human beings, as well as what makes us so diverse.

This course delves into the radical and unique diversity of humanity in order to make you think critically about the many aspects of our daily lives that we simply take for granted. Drawing on culturally variable studies of gender, inequality, identity and belonging, the course encourages you to grasp what it means to live in someone's shoes, and in turn, to think 'outside the box' and challenge how we understand humanity itself.

Required A level subjects: No specific subjects

For further information and other qualifications, please visit our website:

<http://www.ucl.ac.uk/prospective-students/undergraduate/degrees/anthropology-bsc/>

Chemical Engineering

Summer Challenge Title: Engineering Solutions from Nature

Nature evolves by adaptation. By admiring, studying and understanding nature, engineers can find solutions to address the environmental problems facing our ever-changing world. Chemical, Biochemical and Mechanical engineering are evolving disciplines that allow us to learn tricks from nature, which we can use to change the world for the better!

On this Summer Challenge course, you will work in small groups to use some of these tricks. You will design reliable processes for obtaining energy via environmentally friendly methods. If your design is feasible, reliable, economical, and environmentally friendly, you could change the world.

The course is taught by PhD students from UCL's Chemical Engineering Department, and includes visits to the UCL Institute of Making (www.instituteofmaking.org.uk), the Centre for Nature Inspired Engineering (www.natureinspiredengineering.org.uk) and the Centre for Innovative Manufacturing (www.ucl.ac.uk/biochemeng/industry/epsrc).

The course will be useful and interesting for those interested in engineering degrees at UCL.

Required A level subjects: Mathematics and Chemistry

For further information and other qualifications, please visit our website:
<http://www.ucl.ac.uk/prospective-students/undergraduate/degrees/engineering-chemical-meng/2019>

English

Summer Challenge Title: Against & After Slavery: American writers-in-resistance from the Civil War to Civil Rights movements

In this Summer Challenge course, you will get the opportunity to study the ways in which African-American writers have responded to slavery and its aftermaths. From the slave narratives of the 19th century and the jazz-inflected poetics of the Harlem Renaissance, to the essays and speeches that defined the Civil Rights era, African-American writers have a long history of writing in resistance. These narratives continue to shape movements for racial and social justice today, both in the United States and in the wider world.

This survey of American literature features fiction, poetry, journalism and essays spanning the 19th, 20th and 21st centuries. You will read authors including Frederick Douglass, Toni Morrison, Ida B. Wells, James Baldwin, Langston Hughes and Ta-Nehisi Coates. Together, we will discuss the literary structure and technique of these works as well as the significance of these texts in the context of slavery, voting rights, political violence, artistic achievement, civil rights and protest.

We will begin each session with a short lecture to introduce our main text and theme, followed by seminar-style discussion. There will be varied group and individual activities about the primary and secondary materials, including literary theory and criticism, historical records, and other media, such as film, music and visual art. We will close our Challenge with a look at civil rights activists today before students are invited to share their voices and critical ideas with small group presentations.

Required A level subjects: English Literature (or combined Literature and Language)

For further information and other qualifications, please visit our website:

<http://www.ucl.ac.uk/prospective-students/undergraduate/degrees/english-ba/2019>

Geography

Summer Challenge Title: Environmental Change: Past, Present and Future

The environment is constantly changing, whether this be natural or driven by human activity. Scientists want to track, monitor and reconstruct environments to understand the impact we are having on the environment. We can then use these observations of the responses of the climate and ecosystems to help model and predict what might happen in the future. This summer challenge introduces various ideas of environmental change in the recent past (last few decades) and the long term (thousands to hundreds of thousands of years) and how researchers predict the future use this information. You will attend short lectures and practical sessions, allowing you to get a taste of the sorts of skills that researchers use to study

environmental change. These include looking at various types of imagery, a laboratory practical, a multi-proxy challenge and climate modelling exercise.

The themes for each week are:

Week 1: 'Tracking Recent Change'

Week 2: 'Archives and Proxies'

Week 3: 'How old?'

Week 4: 'A Climatic Reconstruction'

Week 5: 'The Future'

Week 6: 'Poster Presentations'

The challenge finishes with group poster presentations based on a theme of your choice from the first five weeks, which you will present in the final session.

Required A level subjects: Geography

For further information and other qualifications, please visit our website:

<http://www.ucl.ac.uk/prospective-students/undergraduate/degrees/geography-ba/>

History

Summer Challenge Title: Black American Freedom Struggles from Slavery to Black Lives Matter

From the founding of the nation to the present day, black Americans' continued struggle for racial equality has shaped and reshaped the society, politics, and culture of the United States. By tracing resistance to slavery, segregation, and present-day police brutality, you will study the key figures, institutions, and movements that have defined the black American freedom struggle. This is not a straightforward narrative of continuous racial "progress", but rather an uneven and contested process marked by discontinuities, divergent aims, and racist backlash. While racial equality has remained a consistent overarching goal, the protest agenda of different groups of black Americans has varied depending upon the social and cultural circumstances in which they acted.

You will examine a range of primary sources, such as letters, newspapers, and speeches as well as maps, audio interviews, and film, to investigate the means and strategies utilised by various groups of black Americans in their struggle for freedom. You will learn to place each source in its own historical context and evaluate their effectiveness. Overall, this course will enable you to put the current American racial strife in historical perspective by engaging with issues that have defined the nation's history and shaped the United States we know today.

Required A level subjects: History

For further information and other qualifications, please visit our website:

<https://www.ucl.ac.uk/history/prospective-students/undergraduate/history>

History

Summer Challenge Title: *Windrush*: What came before? Black London in the interwar years

The tale of commonwealth migration to Britain has been fixated on the post-war period, especially since 1948 – the year that the *Empire Windrush* arrived. But what was life in London like for black people who came before this post-war mass migration? This summer challenge course will explore the lives and ideas of black people in London in the interwar period, important figures who fought against colonialism from the heart of the empire. Students will examine how London was a central place of cultural and intellectual production – acting as a hub of resistance. Exploring ideas of race, anti-colonialism, cultural resistance and gender, this short course will introduce you to critical concepts, which are essential for studying history at degree level. Looking at significant figures from the Caribbean and Africa, this course will equip you with the empirical and theoretical knowledge to challenge conventional ideas about Britain's history. Special attention will be paid to inspirational black women in the period, those who were previously hidden and marginalised in the literature on this topic. By the end of this course, you will have a good understanding of 'Black London' in the interwar period.

Required A level subjects: History

For further information and other qualifications, please visit our website:

<https://www.ucl.ac.uk/history/prospective-students/undergraduate/history>

Immunity and Transplantation

Summer Challenge Title: Weaponising the immune system in the war against cancer

The immune system is our greatest weapon yet in the fight against disease. Immune cells can travel all over the body, have a broad range of actions and can be easily isolated from the blood. Imagine then, isolating these cells and modifying their DNA to produce designer cells that can target specific tissues to cure everything from autoimmunity to cancer.

In this Summer Challenge, you will attend a mixture of lectures and practical sessions to learn what role the immune system can play in the development of cancer. You will also learn about the scientific techniques used in gene engineering and how we can use these techniques to weaponise immune cells. Together we will discuss the ethical and safety implications of genetically modifying human cells.

Finally, you will have the opportunity to use gene engineering to make glow in the dark bacteria in the lab!

Required A level subjects: Biology and Chemistry

For further information and other qualifications, please visit our website:

<https://www.ucl.ac.uk/prospective-students/undergraduate/degrees/infection-immunity-bsc/2019>

Laws

Summer Challenge Title: Introduction to Legal Philosophy

Most of us are aware that we are governed by law. We know that we go to jail if we commit murder. We know that if we enter into a contract, we have to keep it. We know that we enjoy certain human rights. But what is law? Can there be such thing as evil laws? If so, should we still follow those evil laws?

These questions are at the heart of jurisprudence, or philosophy of law. Once we engage with them, we start to see how looking to philosophy can help us to better understand law. We can understand what a contract is by asking what it means to make a promise. Or we might try to understand why we punish criminal offenders by looking to penalties in sports. When we begin to think in a philosophical way, we see philosophical questions everywhere in the law.

On this course, you will be introduced to legal philosophy, how it applies to the law and how to engage with it critically. You will attend lectures on human rights law, criminal law and contract law and discuss questions on law and morality. You will leave this course more confident in the critical argumentative skills necessary to engage with legal debates.

Required A level subjects: No specific subjects

For further information and other qualifications, please visit our website:

<http://www.ucl.ac.uk/prospective-students/undergraduate/degrees/law-llb/>

Laws

Summer Challenge Title: Law in Action

This course will introduce you to the reality of law in modern society and address key issues such as:

- What is law for, how is it made and how is it studied?
- Is law always good?
- Who are the key players in the legal system?
- How does law deal with the advantaged and disadvantaged in society?
- What is the role of the public in the justice system?
- How can law address deeply divisive and complex issues in society?
- How can law address complex issues between societies, countries and regions?

The sessions will explore these issues through a number of specific examples of 'law in action'. These include legal disputes between individuals, branches of government as well as disputes between states. The course approaches the study of law from an interdisciplinary perspective. On this course, you will acquire skills for understanding and studying law. You will gain an insight into what it is like to study law at university, an increased awareness of important legal issues, and improved ability to think critically.

Required A level subjects: No specific subjects

For further information and other qualifications, please visit our website:

<http://www.ucl.ac.uk/prospective-students/undergraduate/degrees/law-llb/>

Maths

Summer Challenge Title: Adventures in Topology

On this Summer Challenge, you will explore the intriguing world of mathematical shapes, known as Topology. You will see how 3D shapes can have only one side and what interesting things you can find when you cut these shapes up. You will also investigate ideas of orientation, how you can add two shapes together, and even extend thinking beyond the fourth dimension! Furthermore, you will investigate questions such as - do angles always add up to 180° ? How can we do geometry on a sphere? This mind-bending adventure will culminate in classifying all surfaces and showing some real life applications of this seemingly abstract area of maths. You will also investigate ideas of orientation, how you can add two shapes together, and even extend thinking beyond the fourth dimension! This Summer Challenge is a great way to understand what studying Maths at the University level is like.

Required A level subjects: Maths and Further Maths

For further information and other qualifications, please visit our website:
<https://www.ucl.ac.uk/maths/study/bscmsci-mathematics/admissions>

Medicine

Summer Challenge Title: Doctors' Dilemmas

Imagine...a critically ill 14-year-old girl refuses to have a lifesaving operation...a woman with a painful, disabling and debilitating chronic condition asks the doctor to help end her life. What should the doctor do? What are the underlying ethical challenges?

These are examples of ethical dilemmas doctors face. They often seek the help of their colleagues – other doctors as well as lawyers, ethicists and scholars. Perhaps, one day, you might be one of these people.

Over six sessions this course will introduce you to a range of relevant ethical challenges and controversies in the medical world and will provide you with the opportunity to engage with important ethical issues such as organ donation, treating children and young people, and euthanasia.

Drawing on real-life cases reported in the media, this course will help you develop your critical thinking skills and your ability to reflect on personal and professional values through discussion and debate. The course will also help prepare you for application to higher education by developing your essay writing skills and interview skills.

Required A level subjects: Biology and Chemistry

For further information and other qualifications, please visit our website:

<http://www.ucl.ac.uk/prospective-students/undergraduate/degrees/medicine-mbbs-bsc/>

Natural Sciences

Summer Challenge Title: Chaos in the Natural World

The study of chaos has widely influenced scientific research of the last 60 years, and the term “chaos theory” is in popular use by the general public. But how well do you understand chaos? And, do you know if chaos theory is still a hot topic today?

In this course, you will receive an introduction to the core mathematical ideas of chaos and you will undertake a computer-assisted investigation to understand these principles.

You will learn about ideas of mathematical modelling in the sciences, and you will experience the planning and execution of a research-type activity. You will be guided to interpret your findings in a cross-disciplinary context, and you will take part in discussion activities about modern nonlinear dynamics research.

This course would be suitable for any students with interests in science and applied mathematics.

Required A level subjects: Any two subjects from Biology, Chemistry, Mathematics or Physics

For further information and other qualifications, please visit our website:

<http://www.ucl.ac.uk/prospective-students/undergraduate/degrees/natural-sciences-msci/2019>

Political Science

Summer Challenge Title: Saving Democracy

What is so great about democracy? Since the end of World War II, democracy has been celebrated as the best form of government. Yet in today’s era of voter dissatisfaction, international conflict, and online misinformation, democracy is under pressure. In this six-week course, you will explore what democracy is, what challenges it faces, and why so many believe it is worth fighting for. In doing so you will explore one of the central topics covered in UCL’s BSc in Politics and International Relations. Together we will assess the challenge of internet hate speech and fake news, asking whether companies such as Facebook and Twitter should face greater regulation or whether this would be an affront to free speech. You will investigate the role of political parties in democracy and question whether they should be seen as a positive or a negative. You will explore the challenges democracies face abroad, assessing the kinds of wars democracies tend to fight, and what an era of “cyber-war” might involve. You will also learn about alternatives to democracy by studying various forms of authoritarian and totalitarian regime, identifying the conditions under which democracies could transform. In the final week, you present their ideas on how to improve democracy. This course is perfect for anyone interested in studying Politics and International Relations at the University level.

Required A level subjects: No specific subjects

For further information and other qualifications, please visit our website:
<https://www.ucl.ac.uk/prospective-students/undergraduate/degrees/politics-international-relations-bsc/2019>

Population Health

Summer Challenge Title: Health and Society – An introduction to Population Health and Social Epidemiology

We are told how our health can be affected by the food we eat, the exercise we do and whether we smoke cigarettes or drink alcohol; but what about the effects of our socioeconomic position and how it intertwines with where we live and the environments in which we work or go to school?

In Sierra Leone, the life expectancy for women is 51 years, whereas in Japan, women can expect to live to 87. Population health considers the health of groups of individuals, and social epidemiology is concerned with how health is distributed in the population and what causes poor and good health. In the Health and Society Summer Challenge, you will learn about the background to population health and epidemiology and why they are important. You will consider how living in an unequal society with a large gap between rich and poor, can affect peoples' health. Focusing on issues such as obesity and cardiovascular disease, you will learn about the factors which contribute to these issues, as well as how we measure these factors. You will also think about how we can address these issues at a population level.

You will get a tour of UCL as part of this interactive course and you will be assessed through a group presentation at the end of the course.

Required A level subjects: No specific subjects

For further information and other qualifications, please visit our website:
<http://www.ucl.ac.uk/prospective-students/undergraduate/degrees/population-health-bsc/>

Philosophy, Politics and Economics

Summer Challenge Title: The Future of Policy Making

What makes good public policy? Why do some policy solutions succeed while others fail? What issues are most on the mind of real-world policymakers? In this course, you will be introduced to five of the most consequential policy challenges facing the UK and the world: 1) education; 2) healthcare; 3) the environment; 4) energy; and 5) migration. You will explore the key philosophical, political, and economic dimensions of these policy challenges. You will learn to think critically about policy innovations, consider why formulating good policy is so difficult, and learn how to measure and evaluate policymaking success. With a focus on applied policy topics, this interdisciplinary module will prepare you to think about public policy through multiple disciplinary lenses and to understand what philosophers, political scientists, and economists have to contribute to our knowledge of policymaking.

Required A level subjects: Maths

For further information and other qualifications, please visit our website:
<http://www.ucl.ac.uk/prospective-students/undergraduate/degrees/philosophy-politics-economics-bsc/>

Science and Technology Studies

Summer Challenge Title: iPhone therefore I am

What kind of relationship do we have with our mobile phones? We have them in our pockets, on our tables and at our parties – they are with us nearly all the time. Who is your phone designed for? What is it be used for? How is it connected to your personal life? How could it be used as a political tool? How do we talk about our phones and our relationships with them?

On *iPhone, therefore I am* you will consider different ways Science and Technology Studies can help us think about and interrogate the relationships we have with our mobile technology. Using different approaches to thinking about the phone in the modern world, this course will help you critically examine the ways technology and science are part of societies around the world. Do all people and societies interact with technology the same way? Can we ever develop technologies that suit everyone's needs? This course is perfect for anyone interested the interdisciplinary studies of how the sciences and technology affect our world.

Required A level subjects: No specific subjects

For further information and other qualifications, please visit our website:
<https://www.ucl.ac.uk/sts/sts-admissions/undergraduate-bsc-degrees>

Security and Crime Science

Summer Challenge Title: Professional Policing –Introduction to the role of a police officer

This summer challenge provides a series of taster sessions for those interested in becoming a professional police officer, pursuing a career in the criminal justice system, or developing expertise in crime prevention and analysis.

From 2020 onwards, recruits wishing to join the police in England and Wales will be expected to possess an undergraduate degree or work towards getting an undergraduate degree as part of an apprenticeship scheme. This summer challenge is an opportunity for you to get a fuller understanding of the role and expectations associated with a career in law enforcement and related careers. You will expand your knowledge of the craft and skill of professional policing, as well as encountering some of the challenges and complexities of modern day policing. It will provide you with a safe space to explore your perceptions and expectations of the police and discuss whether this would be a suitable career or study discipline for you. You will gain an understanding of the requirements for undertaking a degree in professional policing. You will also receive sessions on the application process to continue this study at the University level.

Required A level subjects: No specific subjects

Sustainable Resources

Summer Challenge Title: Climate change and sustainable development

Climate change is one of the great challenges of our century. We need to reduce substantially our greenhouse gas emissions, but also achieve an equitable global distribution of energy and resources.

For developed, industrialised countries like the UK, this means a total transformation of the way we consume energy and resources. In the developing world, many people still need access to basic energy and resource needs, to improve their health, education and well-being.

In this course you will explore these questions, and what they mean both for a developed country like the UK, and for countries in the developing world. You will learn about technologies and environmental systems, as well as about human societies, aspirations, policies and politics.

In this course, you will work directly with UCL environmental researchers, learning from their expertise as well as being supported to apply your own reasoning and analysis to develop your own arguments. You will be supported in developing skills such as assessing evidence, writing and presentation skills. Developing these skills will help you to make a strong university application, as well as to succeed and thrive when you get there.

Required A level subjects: No specific subjects

Please note, this is not a subject you can study at Undergraduate level, for information on UCL Undergraduate degrees, please visit:

<http://www.ucl.ac.uk/prospective-students/undergraduate/degrees>