



Immersive Research With **Oxbridge** **Academics***

For Current Secondary 4-5 / Year 11-12 / Grade 10-11 Students



Medicine



Law



Mathematics



Economics



Psychology



Medicine | Biomedical Sciences

The Neurology Behind Being “Stressed Out”

“I am so stressed out”—we’ve all heard this phrase being casually thrown around, not uncommonly overheard in a school or workplace. Many of us are familiar with the restless anxiety that plagues us before an important test, or the sweaty palms and dry tongue that come with the nervousness of having to speak in front of a crowd. But have you stopped to consider why your body reacts the way it does in stressful scenarios?

How does the brain and the body communicate with each other in their joint response to stress? What is the difference between ‘good stress’, which is motivational, and ‘bad stress’, which can be debilitating? Why does the same thing that stresses you out seem to have no influence at all on your friend? Can stress lead to mental illness? And last but not least - how can we build our resilience to stress?

Using the workings of stress as a gateway to discuss neurocognitive processes, the course is suitable for any student who has a strong interest in the workings of the brain. In particular, those with an interest in the biology of mental illness may find this material particularly stimulating. We will lay the biological foundation of stress and mental health in an integrative manner, taking into account new discoveries in up-to-date scientific literature that emphasise mental illness as multi-system disorders. Students will tackle the foundations of neurobiology and neuropharmacology as it relates to stress, trauma and mental illness. Most importantly, this course will introduce students to the exciting debate of whether genetic or environmental factors shape our mental health and contribute to mental illness.



Professor Zoltán Sarnyai MD PhD MA (Cantab)

Former Fellow of Pembroke College, University of Cambridge;

Former University Lecturer in the Department of Pharmacology, University of Cambridge

Professor Sarnyai, currently Head of the Laboratory of Psychiatric Neuroscience at James Cook University, Australia, is a medically trained PhD neuroscientist researching on the neurobiological mechanisms of stress and psychiatric disorders. Professor Sarnyai was previously University Lecturer in the Department of Pharmacology, University of Cambridge and a Fellow of Pembroke College, Cambridge. He has close to a hundred publications and was awarded the Curt Richter Prize by the International Society of Psychoneuroendocrinology; the DuPont-Warren Award by the Department of Psychiatry, Harvard Medical School; and the Brain Research Foundation (formerly NARSAD) Young Investigator Award.



Law | Politics

From Paris Peace Conference (1919) to Paris Agreement (2015): The Ever-Expanding Topics of Interest in Public International Law

If you have visited the front page of the site of any news outlets recently, chances are that you will have seen reports on the tension between one nation or another, each accusing the other of “breaching international law”. But what is public international law, really? How is it enforced—and, in modern-day setting, is it ever really enforced? How does one qualify for a trial on the International Criminal Court?

From cutting-edge hot topics in AI regulation, cybersecurity concerns, and climate change, to evergreen debates concerning human rights, ongoing armed conflicts, and the conduct of hostilities, the dynamic nature of international law makes it safe to say that public international law has always been, and will always be, one of the most relevant areas of legislation. It has an unprecedented influence on the daily lives of us as global citizens than it had had a century ago—an influence that will only grow.

It permeates national law affecting the rights and obligations of individuals, and encompasses intricate international institutions, such as the United Nations. As a result, acquiring knowledge of public international law has turned out to be an extremely valuable asset in pursuing diverse career paths, such as, law practice, government, diplomacy, journalism, and academia.

The course is suitable for any student with an acute interest of how international law affects the running of the world around us. We will discuss the nature and sources of international law, the role of States and international organisations, international treaty-making, jurisdiction, and the role of the UN. The research assignments and tutorials will focus on issues of use of force and armed conflicts. We will discuss the legality of recourse to armed force, including military interventions in foreign States for the promotion of human rights, the protection of civilians, or the elimination of international terrorism.



Dr Anna Ventouratou, DPhil, MPhil (Oxon)

Lecturer in International Trade Law at the University of Sheffield
DPhil, MPhil and MJur from University of Oxford

Anna is a Lecturer in International Trade Law at the University of Sheffield. She has studied law at the University of Oxford (DPhil; MPhil; MJur), the University of Athens (LLM in Public International Law; LLB) and Columbia Law School (Fulbright Schuman Visiting Scholar). Prior to joining Sheffield, she has taught Public International Law at Oxford and worked as a researcher in several international law research projects. She completed her legal traineeship at a leading criminal law firm in Athens, Greece (2014-2016) and is admitted to practice law in Greece (Athens Bar). In 2020-2021, she also worked as a trainee lawyer at the Legal Service of the European Commission (CFSP and external relations team) advising on issues of public international and European law, including disputes relating to the EU sanctions regime and investment arbitral proceedings.



Mathematics | Computer Science | Engineering

Mathematical Modelling as a Decision-making Tool

Where is the best place to aim a penalty kick to maximise your chance of scoring? What is the best approach to catch a rare Pokémon? How quickly will an infectious disease spread through a small town or city? And where does pollution go when it enters the ocean? The tool of Mathematical Modelling is key to answering these - and many more - important questions.

In this course, we will introduce the fundamental aspects of a Mathematical Model. We begin with estimation techniques and broad assumptions, before introducing further complexity through differential equations and scaling analysis. The problems encountered will be taken from a range of areas across Sciences, Computing and Engineering.



Dr. Tom Crawford MMath (Oxon) PhD (Cantab)

Current Tutor in Mathematics at St Edmund Hall, University of Oxford

Dr. Tom Crawford is a Mathematics tutor at St. Edmund Hall at the University of Oxford, as well as the person behind the award-winning Tom Rocks Maths. He obtained his degree in Mathematics at Oxford before completing his PhD in Applied Mathematics at the University of Cambridge. He can regularly be found discussing all things Maths on his YouTube channel and on the BBC, where he previously worked for a year as a science journalist.



Economics

“Playing Chicken”: Applications of Game Theory in Political Economics

Two players. Two cars. Each heading toward the other on a collision course. Would you take the risk of colliding into the opposing car if it meant that you would be rewarded hugely—on the condition that your opponent chickens out and chooses to swerve out of the way?

Such is the premise of the game of chicken. While it seems absurd that this game could be made applicable to any real-life situation, the concept of “Playing Chicken” can be applied on a multitude of levels: whether it’s a everyday quarrel with your next-door neighbour over your chihuahua barking in the middle of the night, or the Cuban Missile Crisis between the United States and the Soviet Union during the Cold War.

The game of chicken stands tall as one of the most popular models to exploit in the world of political economics, international relations, and comparative politics, as researchers apply game-theoretic insights to figure out ways to understand and resolve conflicts.

This course will provide a robust non-technical introduction to the fundamental concepts of game theory, such as strategies, rationalizability, Nash equilibrium, and subgame perfection. Then, we will explore their various applications in the realm of political economics. Throughout the duration of the course, we’ll discuss and analyse diverse themes ranging from war and conflict to climate change, and to voting, identity, and culture.



Tak Huen Chau BA (Oxon)
Graduate student in Political Science and Economics at UC Berkeley
BA in Philosophy, Politics and Economics from University of Oxford

Mr. Tak-Huen Chau is a graduate student in political science and economics at UC Berkeley. His PhD research applies game-theoretic methods in studying social identities, protests and nationalism. He has taught undergraduate and PhD students at Berkeley in game theory, public policy and research methodology. Prior to Berkeley, he obtained a BA (First Class) in Philosophy, Politics and Economics from Merton College, University of Oxford, where he wrote a prize-winning thesis on candidate identities in UK elections.



Psychology

The Psychology of Social Media

As we have firmly settled into the era of YouTube shorts and Instagram reels, it's proving to be incredibly difficult for most of us to spend a day without using some form of social media for content consumption, communication, or entertainment. While musicians have positively embraced the rise of Tiktok dances to promote their new singles, and netizens with niche interests have relished from building communities on Twitter spaces, attention has also been drawn to the negative defects of social media on its users' attention spans and mental health.

With users describing an unhealthy craving for the 'dopamine hits' they receive from gaining likes on Instagram and complaining about the constant interruption of Snapchat notifications, the importance of social media 'detoxing' as a way of practicing mindfulness has become a hot topic. As social media usage continues to exude its dominating presence in our everyday lives, understanding how the evolvement of

social media and its applications has come hand in hand with the re-wiring of some of our neuropsychological pathways is pivotal to understanding ourselves in the modern day.

Drawing references to psychological theories and research, this course will first explore the mechanisms of instant satisfaction gained from sharing a post on social media, followed by discussions on how social media creates identity, shapes self-perception, and contributes to peer pressure. Afterwards, we will discuss why social media may be deemed addictive from a cognitive neuroscience perspective, how stimuli on social media may affect children's learning and development, and the detrimental impact of internet addiction disorder. The course is suitable for students who are interested in psychology, especially on cognitive, social and educational psychology. There are no prerequisites, and we welcome students from all backgrounds.



Dr Claudia Chu, PhD, MPhil (Cantab)

BA(Hons) in Psychology, MPhil and PhD in Psychology and Education from University of Cambridge

Dr Chu attended Gonville and Caius College, University of Cambridge and graduated with a BA in Psychology, and subsequently a MPhil and PhD in Psychology and Education. Before that, she attended Stephen Perse School, also based in Cambridge, and Diocesan Girls' School in Hong Kong.

Dr Chu has always been passionate about education. Early on, as part of her undergraduate studies, she took interest in various cultures' use of literacy assessments. She then went on to develop a thesis on the interplay between learning capabilities and linguistic backgrounds during her MPhil and PhD years, before further honing her expertise in the field in post-doctoral positions at University of Cambridge.

Program Structure

Sessions	No. of Hours	Scope of Coverage
Session 1	2 hours	Mass Lecture Academic will deliver an insightful lecture on the captioned topic, inspiring students to consider the many aspects of academic perspectives related to the topic. A research assignment will be introduced towards the end of the session and will be completed by the end of the program.
Sessions 2-4	6 hours	Small Group Tutorials to Address Research Assignment Academic will lead students through the exploration of the topic by dissecting the analysis into different strands. Supporting materials will be provided and students will be encouraged to engage in small group discussions.
Session 5	2 hours	Small Group Tutorials to Evaluate Assignment Finale! Experience an Oxbridge-style tutorial! Students will share their work with Academic for feedback and exchange of ideas!

All Academics have research experience at or/ and have graduated from the University of Oxford or/ and University of Cambridge.
You may view their bio/ work by clicking on their bio.

Program Details

Date & Time:	Medicine Series (Online):	Aug 7, 8, 9, 10, 11	7:00pm - 9:00pm HKT
	Law Series (Online):	Aug 7, 8, 9, 10, 11	7:00pm - 9:00pm HKT
	Mathematics Series (Online):	Aug 3, 4, 5, 29, 30	6:00pm - 8:00pm HKT
	Economics Series (In-Person):	Aug 7, 8, 9, 10, 11	2:30pm - 4:30pm HKT
	Psychology Series (In-Person):	Aug 8, 9, 10, 11, 12	3:00pm - 5:00pm HKT
Target Student:	Current Secondary 4-5/ Year 11-12/ Grade 10-11 Students		
Group Size:	Maximum of 6 Students		
Fee:	HK\$10,000		
Certification:	To be acknowledged, authenticated and granted by instructor in charge		
Evaluation:	Students' performance and written works will be evaluated by instructors at the end of the program		

Sign up:



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