

Winter 2023 Online Courses

Information and FAQs

OSAP online courses have been organised in response to the COVID-19 pandemic. The goal of these online courses is to minimise the need to gather in large groups and spend prolonged time in close proximity with each other in spaces such as classrooms, dining halls, and residential buildings. This is consistent with the recommendations made by leading health officials on how to limit the spread of COVID-19 and is consistent with similar decisions made by a number of our peer institutions.

General Information	
Programme dates	26 January- 8 February 2023
Course list	Course 1 Artificial Intelligence & Machine Learning Course 2 Robotics and Artificial Intelligence Course 3 Future Cities and Public Policy
Requirements	<p>* At the time of application, you will normally be able to demonstrate an average grade, or equivalent academic experience, of:</p> <p>China Grading System: minimum 2.5/4.0 GPA or average percentage score of 70%</p> <p>UK Grading System: minimum 2:2 / average percentage score of 50%</p> <p>* English language requirement</p> <p>IELTS: minimum 5.5; or TOEFL: minimum 80; or CET - 4: minimum 425; or CET - 6: minimum 425</p>
Contact hours	45 hours in total, 2 weeks
Credits	<p>Each course is worth 6 ECTS (European Credits)</p> <p>The Oxford Study Abroad Programme is entitled to award 6 ECTS credits upon the participant's satisfactory passing the exam at the end of the Winter course.</p> <p>The Oxford Study Abroad Programme has received full Accreditation from the Education Quality Accreditation Commission and obtained the qualification to issue ECTS credits (European Credit Transfer and Accumulation System).</p> <p>More info on ECTS credits can be found here https://www.study.eu/article/what-is-the-ects-european-credit-transfer-and-accumulation-system</p>
Transcript and certification	All students will receive a transcript and certification of attendance,

	upon successful completion of the programme.
Tuition fees, scholarships/awards, and discounts	<p>Tuition Fee (after the partner university group discount): £1, 150 Pounds</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. Partner University Student Discount of GBP 100 Each applicant from the partner universities is offered a favourable discount of £100 off the original tuition fee of £1, 250. 2. There is no additional fee to be charged beyond the above tuition fee for this online programme. 3. An Additional Tuition Fee Reduction of GBP 100 is eligible for the students with <ol style="list-style-type: none"> 1) a minimum cumulative weighted GPA of 3.5/4.0 or equivalent, e.g.: a weighted average mark of 85/100 (China Grading System), or an upper second-class (2:1) /average percentage score of 60% (UK Grading system), or an academic class rank in the top 30%, or equivalent at the home university 2) And an A+, A or A- (about 30%-35% of all participants) on the final assessment of the course
Mode of Study	<p>Online and live via Zoom</p> <p>Available reading materials and lecture notes and slides will be provided.</p>
Contact	apply@oxfordstudyabroad.org.uk

1. What are Online Courses like?

The Oxford Study Abroad Programmes are held at Oxford colleges all year round. These academic programmes are organised for students from universities all over the world. The programmes allow students to gain knowledge from Oxford University and other world-famous institutions in the UK while experiencing Oxford city and student life during your stay.

Online courses are similar to classroom courses, except that the delivery of learning (lectures, homework, quizzes, readings, etc.) and interaction with students and instructors are all online. The 3-week programme of modules includes intensive online lectures and hands-on practical exercise workshops or group discussions, followed by a period for assignment work. Attendance on the modules is required in order to complete each course.

Most days start with a lecture delivered by the instructor, which is complemented with a seminar for Q&A, discussions, and feedback. Workshops, tutorials, and group work are followed to consolidate the students' learning on the course. Case studies are used to illustrate real-world examples and develop the students' knowledge and understanding of the subject.

A certificate of participation and transcript will be awarded to each participant for their constructive contributions in lectures, seminars, discussions, exercises, and assignments for the duration of the courses. Each course is worth 6 ECTS credits with 150 study hours consisting of 45 teaching hours and the other workload of 105 hours for independent study, project work, and assessment preparation.

2. Outlines for the Online Courses Winter 2023 (3 Courses)

Please note the course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session.

Course 1: Artificial Intelligence and Machine Learning (45 contact hours in total)

Course Outline

(45 Contact Hours)

Part 1 AI and Machine Learning Module

including online lectures and hands-on practical exercise workshops

(Week One and Week Three - 30 Contact Hours)

- * Model Building
- * Unsupervised Learning
- * Model Fitting
- * Beyond Linear Models: Polynomial and logit fits
- * Classic ML Algorithms
- * Gaussian Mixture Models
- * Natural Language Processing
- * Deep Learning
- * Reinforcement Learning

Part 2 Interdisciplinary Module and Sharing Sessions

Delivered by Guest Speakers

(15 Contact Hours)

* More detailed information about this module can be found in [3. Interdisciplinary Module and Sharing Sessions](#) below.

Final Assessment

A programming project required by the instructor

Prerequisites

Mathematics

Students should develop some skills and familiarity with the mathematical topics below before the course starts.

Matrices

- What a matrix is: Matrix representation of data-sets
- Matrix operations: Addition (+), Subtraction (-), Multiplication (.), Transpose (T)
- The link between algebra and matrices: Expressing systems of algebraic equations in matrix form

Probability

- What is a 'probability'?
- Different views of what a probability represents: Bayesian Vs. Frequentist view
- Operations on probabilities: 'AND' and 'OR'
- Definitions: 'Statistical distribution', 'Sample Space', 'Random Variable'

- Discreet Vs. Continuous Random Variables and the relationship between them
- Expectation: Definition and use in valuing options

The course programming language: Python

- You do not need to be highly skilled at Python before starting the course.
- The majority of activities will require you to read and replicate existing code, but not write new programmes.

Session Time and Dates

3.5-5 hours per day 26 January- 8 February 2023

12:30 - 22:00 China Time / 4:30 - 14:00 UK Time

Lectures and practical exercise workshops

Course 2: Robotics and AI

(45 contact hours in total)

Part 1 Robotics and AI Module (30 Contact Hours)

Including online lectures and hands-on practical exercise workshops

Lecture 1: Robot Kinematics

- Frames of reference, rigid body transformations
- Forward and Inverse Kinematics

Session 2: Computer Vision

- Image formation and pinhole camera model
- Image Filtering
- Feature extraction and Description

Session 3: Robot Control

- Principles of robot control

Session 4: Localization

- Iterative Closest Point Matching
- Bayesian Filtering

Session 5: Robot Planning

- Path planning in robotics
- Popular algorithms for path planning

Session 6: Introduction to Machine Learning

- Introduce the terms Machine Learning, Deep Learning and Artificial Intelligence
- Different kinds of learning schemes
- Introduce Regression

Session 7: Introduction to Deep Learning

- Biological Neuron vs Artificial Neuron
- Building a neural network with an example
- How to train a neural network – back propagation, gradient descent

Session 8: Convolutional Neural Networks (CNNs)

- Introduction to CNNs
- How CNNs are used for Computer Vision
- Popular CNN architectures and their applications – Autonomous Driving

Session 9: Reinforcement Learning

- Fundamentals of Reinforcement Learning
 - Markov Decision Process
 - Value function and Q-value functions
 - Q-Learning and Deep Q-Learning
- Session 10: Case studies and discussion
- State of the art applications

Part 2 Interdisciplinary Module and Sharing Sessions

Delivered by Guest Speakers
(15 Contact Hours)

* More detailed information about this module can be found in [3. Interdisciplinary Module and Sharing Sessions](#) below.

Final Assessment

A group programming project required by the instructor at the end of this course

Prerequisites

Mathematics and Statistics

Working knowledge of linear algebra, calculus, basic probability, and statistics

Programming

Familiarity with the basics of Python

Python 3.7 or 3.8 installed as a part of the Anaconda Python distribution of Data Science, or equivalent.

Session Time and Dates

3.5-5 hours per day 26 January- 8 February 2023

13:30 - 22:00 China Time / 5:30 - 14:00 UK Time

Lectures and practical exercise workshops

Course 3: Future Cities and Public Policy (45 contact hours in total)

Course Outline

(45 Contact Hours)

Part 1 Future Cities and Public Policy Module

(Week One and Week Three - 30 Contact Hours)

Sustainable Urban Development Module

- * Why Cities Exist
- * Resilience, Urbanism, and City - Building in the Age of COVID - 19
- * Urban and Regional Growth
- * Designing Resilient Cities in East Asia

* Social Science Research Methods: Design, Data Collection, and Data Analysis

Sustainability Module

- * Leadership, Management, and Strategy for Net Zero, Sustainable Development
- * Navigating Complexity: Surviving and Thriving in Turbulent, Uncertain, Novel and Ambiguous times
- * Mental and Physical Health in Future Cities
- * Sustainability and Corporate Social Responsibility

Part 2 Interdisciplinary Module

Delivered by Guest Speakers
(Week Two - 10 Contact Hours)

* More detailed information about this module can be found in [3. Interdisciplinary Module and Sharing Sessions](#) below.

Part 3: Social Science Research Methods Workshop (5 Contact Hours)

Final Assessment

- * A group presentation on a city plan project

Session Time and Dates

3.5-5 hours per day 26 January- 8 February 2023
16:30 - 22:00 China Time / 8:30 - 14:00 UK Time
Lectures, discussions, and research methods workshops

[3. Interdisciplinary Module and Sharing Sessions](#)

The interdisciplinary module is meant to give a broader understanding of the work of the individual departments and their interconnections. These courses are usually attended by a large number of students and offer a lively intellectual meeting ground for the entire student body to share insights.

Lectures are co-taught by professors from different departments. These are offered in various combinations and can feature cooperation between professors and students.

Besides the top Oxford Academics, some guest speakers from the VCs and the local government will also be invited to deliver fantastic talks in their fields. Therefore, the students will have the opportunity to explore a wide range of interdependent topics that shape the contemporary world.

Proposed Topics

- * Machine Learning, Neural Networks, and Web-Scale Data
- * The Secrets of Creativity from Big Data
- * Planning for Long-Term Autonomy
- * Big Data and Deep Learning

- * Performing transdisciplinary creativity: Making-with Arts and Sciences

- * Internet and Fake News
- * Online Dating in the Digital Age
- * Social Inequality and Mobility

- * Innovation and Technology Transfer in Oxford
- * Cambridge Technology Innovation
- * My Life at Oxford and My Application Experience Delivered by Oxford PhD students
- * My Entrepreneur Story Delivered by the Entrepreneur at Oxford

4. Entry Requirements?

◆ Eligibility

Undergraduate and graduate students (including MSc students and PhD students), or equivalent

◆ GPA requirement

At the time of application, you will normally be able to demonstrate an average grade, or equivalent academic experience, of:

China Grading System: minimum 2.5/4.0 GPA or average percentage score of 70%

UK Grading System: minimum 2:2 / average percentage score of 50%

Notes:

First-year undergraduates from some partner universities do not need to submit academic performance proof. For more details, please contact your home institution.

Please note that for some of the courses, there are additional prerequisites. Please see individual course pages for details or contact us at apply@oxfordstudyabroad.org.uk.

◆ English language requirement

Proof of English proficiency is not required for applicants whose first language is English, those whose first language is not English but have been involved in a full-time degree-level academic programme at a university where English is the language of instruction, or those who have extensive experience working in a professional English-speaking environment. Otherwise, you will need to demonstrate proficiency by providing us with a recognised qualification.

The majority of modules normally require a level of minimum IELTS 5.5 or equivalent. Please find more details below:

English proficiency

(1) IELTS: minimum 5.5 for an overall average

(2) TOEFL: minimum 80 for the overall score

(3) College English Test (CET) - 4: minimum 425 (applicable to Chinese university applicants only)

(4) College English Test (CET) - 6: minimum 425 (applicable to Chinese university applicants only)

For applicants who have not taken the above tests by the time of application or have not been in a professional English-speaking environment for years, their English proficiency will be assessed through a virtual interview by the programme officer.

Please note that the selection panel of the programme will consider the overall qualifications of each applicant.

5. The Tuition Fee

Tuition Fee (after the partner university group discount): £1, 150 Pounds

Notes:

* Partner University Student Discount of GBP 100

Each applicant from the partner universities is offered a favourable discount of £100 off the original tuition fee of £1, 250.

* There is no additional fee to be charged beyond the above tuition fee for this online programme.

* Additional Tuition Fee Reduction of GBP 100

An Additional Tuition Fee Reduction of GBP 100 is eligible for the students with

1) a minimum cumulative weighted GPA of 3.5/4.0 or equivalent, e.g.:

a weighted average mark of 85/100 (China Grading System),

or an upper second-class (2:1) /average percentage score of 60% (UK Grading system),

or an academic class rank in the top 30%,

or equivalent at the home university

2) And an A+, A or A- (about 30%-35% of all participants) on the final assessment of the course

6. Time vs. Pace

One of the benefits of doing an online class is that you can complete the work and the readings at any time of the day or night and at your own pace. Online classes do have deadlines for assignments, which are due towards the end of the course, and the instructors/examiners will let you know more details including the DDL for the assignments.

You will spend about 20-30 hours each week attending lectures, reading course texts, studying for assignments, posting to the discussion forums, or working on projects with your classmates.

The instructors will share the lecture slides and notes after each session. Please note that not all lectures will be recorded on video to protect intellectual property, so please try to make sure you attend as many sessions as possible in order not to miss out on the course content.

7. I am going to be in another country during the course schedule. Can I still take an online course? How do I take my final exam in another country?

Yes, as long as you have a smooth Internet connection, you can participate fully in the online course at home or abroad.

Note: Students themselves are responsible for all arrangements connected to the final exam or assignment and reading materials before the course starts.

8. How and when do I get my course materials, course schedule, assignments, and grades?

The course support officer will deliver you all the essential course materials and course schedule 1-2 weeks before the course starts. If your course lists additional texts or reading materials, you may choose to purchase them by yourself.

Within 1-2 months after the course ends, the certificate and transcript will be delivered to your home institution.

9. How do students interact in an online class?

Students may communicate with other participants through discussion forums and social media, in particular during group work, video conferencing, as well as by phone and email.

Discussion time allocated during or after each session is your opportunity to apply what you have learnt and interact with your classmates to discuss your ideas. Participation in discussions is a vital part of the courses, and students are encouraged to actively participate throughout by asking questions to the instructor and discussing ideas with their fellow students.

Online learners interact with instructors in a similar way, though they may need to be more proactive than on-campus to develop strong relationships. This may involve introducing yourself to the instructors and to the other students on the course before lectures or discussions start. Please note that a few minutes before each lecture ends, or after the explanation for one point is completed, the instructor will ask if anyone has questions or comments relevant to the course or the mentioned point. The participants are expected to take this opportunity to ask questions and make comments.

Students on the online courses are encouraged to turn their cameras on when they speak; so that the instructor can engage with them more easily. Students can turn the video off when the instructors are giving their lectures in order to improve their online connection functions.

10. What are typical assignments on the online courses?

In general, students should expect assignments that are similar to those in on-campus programmes, such as research papers – in addition to online-specific assignments, such as responding to questions posed by the professor in a discussion.

The online courses may also require group projects where students communicate virtually, as well as give remote presentations. These may be challenging for online learners, who often live across various time zones.

The final assignments for the courses are listed in [**2. Outlines for the Online Courses Winter 2023 \(Courses\)**](#)

11. Platform and Technology Requirements?

The online courses are held on Zoom for videoconferencing.

You need access to a computer (desktop or laptop) and a reliable internet connection for the duration of the course.

Web camera and microphone (most laptops have them built-in), to interact with the instructors and students.

Email access to communicate with the course programme staff of any absence or issues.

No advanced technology or additional software is needed.

12. Add/Drop/Withdraw from Course

Online classes are bound by the same add/drop/withdraw from course deadlines, which is clearly explained in the terms and conditions of the Programme Application Form.

13. Application Procedure

Step 1: Complete and submit the Application Form according to the instructions from your home institution.

Step 2: Confirm the Acceptance Letter and Invoice.

Please check your email. You'll receive the Acceptance Letter 10-30 days after you submit the Application Form if you are offered a place in the course; the tuition fee invoice will also be attached. Please note that the programme administrative staff may receive your Application Forms three or more weeks after your document submission, as it may take a long time to collect and pass on the Application Forms among different departments of your home universities after the application deadline. The fee payment will be due within 10-14 days after the invoice is sent to you via email.

Step 3: After enrolling for an online course by completing the payment, you will receive an email confirmation that your payment has been received from the programme officer. Usually, the overseas transfer reaches our bank account not instantly but a few days later.

A few days before the classes begin, the course support officer will email instructions to your email account.

Courses are hosted on Zoom. You will need to download the Zoom Client before the course starts.

14. Course Feedback

Course feedback will be done completely online at the end of class. The feedback form will come to your email.

The feedback is extremely important: instructors and teaching assistants value your feedback and use it to make real change.

15. Background Information: Oxford University and Colleges

The college system is a major traditional feature of Oxford and Cambridge. This Collegiate System is different from the colleges we usually understand. According to the divisions of the majors such as "School

of Science”, “Business School” and “Engineering School”, the Oxford College is not divided by different subjects but has a multi-community of multiple subjects and inclusive packages. The Oxford University's college is more like an independent small university, with higher autonomy, in charge of its own finances, managing students' food, clothing, housing, and transportation, and cooperating with the university's various subject teaching departments to manage student teaching. In addition to having a tutor in the department and a tutor at the college, the college provides an important place for both academic and social life.

In addition to the College, Oxford's teaching and research activities (especially the latter) are organised into 16 departments. The faculty is not an autonomous unit within the university. Faculties are inter-academic institutions and are not affiliated with any college. However, the teachers and students of each department must first be a member of a college within Oxford. At the same time, the students of each college belong to different departments.

Oxford University does not have a tangible independent campus but is scattered throughout the city and integrated with the city, so it is described as “a city in the university”. This is due to historical reasons. Since the 11th century, scholars have spontaneously gathered here to carry out teaching research, and the University has gradually evolved with the expansion of scale, rather than in the process of unified planning and construction. Therefore, Oxford is also the only university in the world that has no anniversary of its founding, because the year and date of founding cannot be defined.

The organisational structure of Oxford University has two dimensions: one dimension is the academic level, divided into 59 Departments; the other dimension is the administrative level, divided into 38 Colleges. Each faculty member and student are associated with one Department and one College. This system, quite unique, is called the Collegiate System. Its biggest feature is the decentralisation of power. Each college is responsible for funding, teaching, and research. The university is only responsible for integrating the colleges. The Vice-Chancellor of Oxford University also has duties such as attending University ceremonies and the organisation is very similar to the federal system of a state polity. This system is common in large and comprehensive academic institutions, such as Cambridge University when it was first established.

If you have any additional questions or concerns, please feel free to go to your home institution or send emails to apply@oxfordstudyabroad.org.uk.