

Study Abroad: How to Choose Classes

Copenhagen (UCPH & DTU), Ecole Polytechnique, Edinburgh, Melbourne & UCL (U Chicago covered in the U Chicago session)

Requirements for All Programs

- Students must take a minimum of 18 units (2 to 4 classes based on credit/unit system of partner university) in the department closest to their STEM option at the host university – can be for required, equivalent, elective credit, broadening, etc. Must be a STEM class.
- If you have a double option, then the 18 credits will be in your primary STEM option. Can't split 9 & 9.

Requirements for All Programs

Must take at least 36 Caltech units and minimum of 4 classes with max of 5.

(6 sometimes allowed where classes are offered that are less than 9-unit equivalents, e.g., 3 or 6 – primarily occurs at Cambridge in certain subjects such as CS or physics to achieve the 36 unit minimum.

No need to get professor/instructor's approval for courses at this point. (This happens after selection into a program.)

GPA
Need stable or
rising GPA &
Minimum GPA
for each
program must
be met. No
exceptions.

GPA factors for programs requiring more than a 3.0:

Cambridge: 3.6 and up cum and 3.7+ in option classes/tripos classes. Math at Cambridge 3.8+. Should have taken Analysis!

Cambridge Chemistry Part III – need 3.8 +. These are master's level classes – need background. Best to go senior year for Part III Chemistry.

UCL: Best to have a 3.9 minimum for CS plus strong reference letters. UCL states a 3.3, but experience shows 3.9 needed.

UCL: Recommend 3.9 minimum for Biomedical Sciences & background equal to 2 years in this field! Need 3.5 for Biological Sciences & 3.3 for Molecular Biosciences



Degree Structure-UK

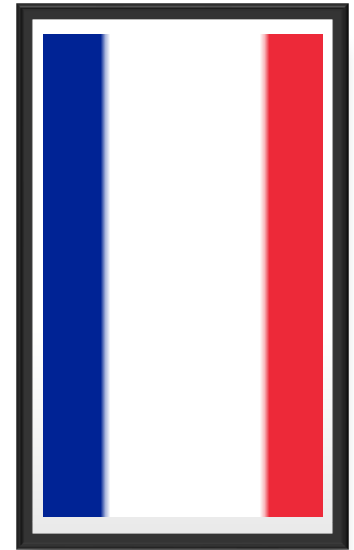
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- All English degrees are 3 years long – only 3 years of classes. UCL are all 3 years long, but some have add-on “integrated” master’s – Master’s classes not open to affiliate students.
 - Cambridge – all biology subjects only 3 years, math only 3 years, CS 3 years, all other NatSci subjects and Engineering, include Chem Eng are 3 undergrad plus 1 master’s. Caltech students can take 4th year classes.
 - Scotland (Edinburgh) – all degrees are 4 year plus have a 5th year is master’s (not open to visiting students.)
 - Finals in the UK take place in their 3rd term for both 1st & 2nd term classes. The 3rd term is NOT taught. It is review and exams. Edinburgh & UCL do fall term exams. Cambridge does not. UCL & Edinburgh allow visiting students to take classes outside their major/admitting subject. Cambridge has few exchanges. All are college run and they are exclusive and not interested in university wide exchanges.

Degree Structure- Demark

- Denmark (U. Copenhagen & DTU) – first 3 years are undergrad. Last 2 master's. 4th year coursework for master's. 5th year thesis. Can take 4th year master's classes. No PhD classes.
- UCPH)— natural sciences and computer science. Can take 4th year master's classes.
- DTU — engineering science, but also space sciences, computer sciences, physics, chemistry, math, management engineering, energy, bio-sustainability and bioinformatics, etc.

Degree Structure French Grande Ecoles

- Ecole Polytechnique – 4 years (3 to get degree + 1 required year away from the Ecole in France or abroad.
- Can only take classes **ONLY** from Year 3 of curriculum (only Year with exams in Dec.) and ALL 4 of classes in your area of specialization the *programme d'approfondissement plus French language*. Can follow a French lit class. If there is no schedule conflict can take an elective in the humanities/soc sci IF your schedule allows. 3 HSS units.





Degree Structure Melbourne

- Melbourne Science — B.S. has over 41 majors (**subjects**) in science and engineering fields
- 3 Year Degree, option to extend for 4th year
- Go to this link for majors:
<https://coursesearch.unimelb.edu.au/undergrad/1510-bachelor-of-science>
- If you have an official option in HSS you can apply in that option to Melbourne

Need to have background for classes

- In most universities abroad students are **admitted IN a specific subject.**
- They are not required to take HSS classes and HSS students don't take STEM classes
- Universities abroad have DEPTH study & their curricula does not aim to make students WELL-ROUNDED, i.e., Breadth Study like US.
- This means students have much more content background their field.
- Prerequisites are usually not listed as it is presumed students have taken the needed classes in the previous year.

Course Background Continued

- STEM classes – need to look carefully at previous year's classes.
- For example, you won't be allowed by our partner universities to take a 3rd year class on Emotional Themes in Victorian Literature, unless you have a general British lit survey class & a specific survey class on Victorian Lit. Upper-level classes may require 2 to 4 graded (not frosh hum) classes – depends on program.
- BEM/Econ classes – need not only EC 11 & Accounting – 3rd year business or econ students will have 8 to 12 classes in their major.

Copenhagen: DTU & UCPH aka KU



Copenhagen: DTU & UCPH (KU)

- Students are admitted to either DTU or UCPH, and take all science or engineering classes at admitting university – can't mix
- DTU students choose 1 Danish Culture at UCPH plus 3 to 4 DTU classes. **DTU has a Danish class conversation class not taught for credit.**
- UCPH take two Block 1, one Block 2 classes in their STEM option plus 2 Danish Culture classes.
- Cannot do Econ/BEM at UCPH. If BEM is a primary option or secondary option, DTU works for electives in BEM.
- E means autumn (efterår) and F means spring (forår). Be sure you are in the correct semester!

Danish Culture Classes at UCPH/KU

Fall 2023 – get 9 Hum credits & can get advanced

- Course in Danish Culture
- Sustainable Development of Denmark in the World (could be SS units)
- Danish Architecture and Urban Design
- Danish Design
- Danish Film, Television, and Streaming
- Nordic Mythology
- Søren Kierkegaard and the Challenge of Existence

UCPH Option Subjects — (aka KU)

- UCPH Subjects: Biology, Chemistry, Computer Science, Environmental Sciences, Geological Sciences, Mathematics, Physics (Nils Bohr Institute)
- NO ENGINEERING!

DTU Subjects

- DTU Subjects: Natural Sciences & Engineering: Bioengineering, Bioinformatics, Chemical & Environmental Eng, Bio-Sustainability, Micro & Nanotechnology, Applied Math, Computer Science, Systems Biology, Physics, Transport, Food Science, Photonics, Space Sciences, Wind Energy, & **Mgmt Eng (BEM)**

Copenhagen: DTU & UCPH Credit

- ECTS = European Credit Transfer Credits
- DTU: classes are usually 5 or 10 ECTS. Both = 9 Caltech unit unless you are trying to get credit for a 12-unit CIT equivalent class.
- UCPH: classes are 7.5 or 15 ECTS. Only take 7.5 classes to reach required min of (3 STEM + 2 Danish Culture classes)
- Both universities have something called a Block System, but that means something different at each...

UCPH: Block System

- UCPH semester in science is composed of 2 teaching blocks:
 - Block 1, Sept – mid Nov.
 - Block 2, Mid Nov.- January with 1 week break.
- Exams are given at the end of each block.
- Students choose two 7.5 classes in Block 1 and one 7.5 class in Block 2. At least two classes (18 CIT units) must be in option subject & qualify for option elective or requirement credit. (Why ONE class only in Block 2? - due to exam issues & finishing class without being there.)
- Students also take Danish Language and a Danish Culture course: <https://danishculturecourses.ku.dk>

DTU: Block System

- The weekly schedule is composed of ten teaching blocks.
- Each block is 4 hours long 8am to noon or 1pm to 5pm: Lecture/coffee break/lecture & discussion/break/problem or project session with faculty member attending
- Each 5 ECTS class is taught in one 4-hour block.
- Each 10 ECTS class is taught in two 4-hour blocks, but not on the same day.

Bachelor's vs Master's Classes

- Bachelor's classes are first 3 years of program. Most Danish students opt to do two additional years to get a master's with the 2nd year for a thesis.
- The 4th year classes are master's level and open to qualified Caltech students.
- When choosing classes pay attention to the term taught (fall only) and to the level of class, e.g., Bachelor's or Master's.

Questions?

- Please ask – we know this is complicated.



Ecole Polytechnique



Ecole Polytechnique

- Need to speak good Intermediate French minimum!
- Can only do 3rd year of engineering cycle:
- Must take 4 classes in their **Programme d'Approfondissement (PA) (Area of Scientific Specialization.)**
<https://programmes.polytechnique.edu/en/ingenieur-polytechnicien-program/program-details/year-3-of-the-ingenieur-polytechnicien-program>
- **Must take French Language-placement test is given & take for 3 units**
- **Can take hum or social science depending on offerings and schedule – 3 units**
- **Cannot do Bachelor's classes. Not at the Caltech rigor level.**
- Some PA's are primarily taught in French like Physics and some like CS primarily in English. Good French is needed to engage fully in the social experience.

Ecole Polytechnique

- **Programme d'Approfondissement (PA)**
- (36 blocs, 144 h of teaching, 20 ECTS)
- **Biologie**
- **Bio-Informatique**
- **Chimie**
- **Économie**
- **Electrical engineering**
- **Énergies du 21st siècle** (Energies for the 21st Century Engineering)

Ecole Polytechnique

Programme d'Approfondissement (PA)

- Informatique (CS)
- Innovation technologique (Innovation Technologies)
- Mathématiques
- Mathématiques appliquées
- Mécanique
- Physique
- Sciences pour les Défis de l'Environnement
- Space Sciences
- YOU TAKE 4 CLASSES IN **ONE** PA/Area of Scientific Specialization PLUS FRENCH LANGUAGE

Avez-vous des questions?



Edinburgh



Edinburgh

- Has 3 Colleges
- College of Science & Engineering (CSE) This is your admitting College.
- College of Arts, Humanities & Social Sciences (CAHSS)
- College of Medicine & Veterinary Medicine (CMVM)
- ***Visiting students cannot be admitted to or take classes in this college even if the class says open to all students – they mean students in CMVM not exchange students.***



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Edinburgh

- Each College is made up of Schools.
- A School is equivalent to a department & can have more than one “option” or track.



Edinburgh

- **Schools – College of Science & Engineering**
- Biological Sciences
- Chemistry
- Engineering – ME, Chem E, EE, Civil, etc.
- GeoSciences – Geology, Ecology, Environmental Science, Geography, which has some Social Sciences classes
- Informatics (Computer Science)
- Mathematics
- Physics and Astronomy

Edinburgh

- **College of Arts, Humanities & Social Sciences**
- Art & Art History (Limits on what visitors can take, but offer art history/gallery & a few studio classes to visiting students)
- Divinity
- Economics
- Education
- Health in Social Science
- History

Schools: College of Arts, Humanities & Social Sciences continued

- Classics and Archaeology
- Law
- Literatures,
- Languages and Cultures
- Music (some limitations)
- Philosophy
- Psychology and Language Sciences
- Social and Political Science

Edinburgh

- Admitted to College of Science and Engineering (CSE)
- Max of 40 credits in College of Arts, Humanities and Social Sciences (CAHSS)
- MUST HAVE 40 CREDITS IN CSE to take 40 CAHSS
- Take minimum of 4 classes and minimum of 60 Edinburgh credits. Take **max** of 80 credits & 4 to 5 classes from all Colleges.

Edinburgh

- Some CSE subjects are 20 credits per class, while some are 10, e.g., engineering-all get 9 CIT units except 12-unit equivalent classes
- Can only choose Semester 1 classes – not Semester 2 or full year classes because you can't take the exam!
- Check Availability in course description: must say *Open to All Students and be Semester 1.*
- *Check prereqs! Not always obvious. Need to look at classes the level under.*
- *Must be SV1*

Meaning of the availability codes

- **SV1** – available to all students including visiting students – *check semester class is taught* – MUST BE **SEMESTER 1** & has Dec. Exam or assessment. April/May exam diet classes NOT allowed.

SV1 are taught in Semester 1 or 2. Only Sem 1 = fall.

- **SS1** means that visiting students cannot take an **SS1** class – usually field classes, project, limited enrollment, or year-long classes.
- **VV1** – Available to visiting one term students only – check to make sure class is taught Semester 1 **AND has Dec. Exam.** This could be a special section of a class is reserved for visiting students for examination purposes.

Edinburgh

- Courses are designated by level: 8, 9, 10, 11
- For HSS courses, choose level 8 (intro) unless you have significant background in the specific subject
- Courses taken by 3rd and 4th year students are usually level 9 and above.
- **PREREQUISITES** – Noted on each class description. When prereq indicates *visiting students not required to have the prereq* – This ACTUALLY means you need to have taken a similar class at Caltech. You are NOT exempt!

Credit Codes

- SCQF = Scottish Credit and Qualification Framework (Look for SCQF 10 or 20)
- **CAUTION** – do not pay attention to the ECTS credit code, applies only to European visitors.
- For example, could see SCQF 20 and ECTS 10, or SCQF 10 and ECTS 5.
- Look ONLY AT THE SCQF. All classes = 9 CIT units

School of Biological Sciences

- Biochemistry
- Biology
- Biotechnology
- Cell Biology
- Developmental Biology
- Ecology
- Evolutionary Biology
- Genetics
- Immunology
- Molecular Biology
- Molecular Genetics
- Plant Science
- Zoology

School of Biological Sciences

- Some subjects do not have intro levels, e.g., Biochemistry starts at level 10.
- 10 is the top level for undergrad classes – you cannot take postgraduate classes
- You must have the prerequisites to take level 10 classes
- Not all level 10 classes are available to visiting students

School of Chemistry

- Chemistry
- Chemical Physics
- Levels are 8, 9, 10 & 11
- Some level 11 classes are available to all students, but must be taught in Semester 1 and have a December exam or assessment. Always check the exam diet date and it must say December!

School of Engineering

- **Classes are 10 or 20 credits.** *9 Caltech units are given to both 10 and 20*
- Chemical Engineering (levels 8 -11)- level 8 only 2nd Semester as students take core science Semester 1.
- Civil – level 8-11 & SV1 level 11 are available
- Electronics – (EE) levels 8-11
- Management only a few of these 8-10 and Level 11 in 2nd Semester
- Mechanical has levels 8-11 and level 11 available
- School of Engineering – redundant name – has year-long project classes visitors cannot take. But also has semester project classes you can take.

Engineering Class Choice Factors

- ME Subject has sustainable energy classes & lots of fall project and design classes
- School of Engineering has a few group design project classes, e.g, Design of Microsystems
- Chem Eng has design and project classes open to fall exchange students
- Electronics (EE) 8 to 11 and several design and project classes open to visitors, e.g., Electronic Product Design and Manufacture

School of Geosciences

- Earth Science
- Ecological Science
- Environmental Courses
- Geography
- Geosciences
- Meteorology

School of Geosciences

- Very broad department, encompassing human geography, economics-oriented classes, environmental science, and geology/geochemistry
- Geography has Social Science-type classes, e.g., *Economic & Political Geography*
- Postgraduate classes may be available to visiting students – depends on your background

School of Informatics

- Informatics 8-11
- *Dozens* of classes taught each semester!
- Can take classes at level 11.
- Many classes are 10 Edinburgh credits = 9 CIT units
- Classes in design, machine learning, human-computer interaction, robotics, etc.

School of Mathematics

- Mathematics 8-11
- Both pure and applied math
- Most level 11 classes are not open to visitors as they are only open to students in the graduate program, i.e., MIGSAA = Maxwell Institute for the Mathematical Science

School of Physics & Astronomy

- Levels 8 through 11
- Level 11 classes are usually open to undergraduates.
- Astronomy can work well for GPS
Planetary Science option students

Edinburgh Points to Remember

- Classes must be SV1 or VV1 and Open to All Students (NOT SS1)
- Classes must be taught in Semester 1
- Class must have a December Exam Diet (date)
- Can take up to 40 Edinburgh Credits in the College of Arts Humanities and Social Science-40 allowed as long as you have 40 in CSE & meet minimum of 18 CIT option school credit
- Take min. 4 classes & max 5/60 credits (max of 80 credits)

George Square Campus



George Square (central) campus

Questions?

(King's Buildings- STEM campus 114 acres)



Melbourne



Melbourne

- All subjects (classes) are 12.5 points each
- Can take max of 50 points – no more! At least 50 % (18 credits min) of classes in option
- Can do 25% of classes as research class & Melbourne offers topics so easy to arrange
- Up to 50% in other subjects in science/eng or in humanities or social –your choice.
- Choose Semester 2 subjects (classes) only

Melbourne Subject Handbook

- REMEMBER that SUBJECTS = Classes
- Courses = Degree program & not a class!
- <https://handbook.unimelb.edu.au/subjects/undergraduate>
- Choose **Semester 2** Choose Undergraduate **Subjects**
- Choose Subject Study Area, Faculty & Depts.

Questions?

(Yarra River - CBD)



University College London



UCL

- No course catalog have to search by Subjects:
- Admitted to one department (Admitting Dept.) MUST TAKE 50%
- In Science, Engineering, Humanities and Social Sciences 15 credits is one class
- Restriction on which subjects admit fall only students

UCL Science Subjects Allowed

- UCL SCIENCE departments that ACCEPT fall students-minimum required cum GPA noted:
- Biomedical Sciences-**3.5 GPA & have extensive background, but we have found a 3.9 plus extensive background is needed**
- Molecular Biosciences-3.3
- Biological Sciences-3.5
- Global Health-3.3

UCL Science Subjects Allowed

- Chemistry-3.3
- Earth Sciences-3.3
- Geography-3.3
- Infection and Immunity-3.3 (Need background)
- Linguistics-3.3
- Neuroscience-3.7
- Psychology or Psychology & Language Sciences-3.3

Engineering/Applied Science Subjects **admitting** fall students

- Computer Science 3.3, but experience shows you need a 3.9 to be admitted & **need strong refs**
- Civil, Environmental and Geomatic Engineering - 3.3
- Mechanical Engineering - 3.3 (Check if class is fall only or yearlong and allows a fall exam.)

UCL Subject Restrictions

- Departments you CANNOT be admitted to for fall only:
- Biochemical Engineering
- Chemical Engineering (BioE students-Molecular Biosciences & Chem E enter Chemistry or a Bio Department)
- Electrical Engineering
- Mathematics
- Physics & Astronomy
- Statistics

Humanities & Social Sciences

- **Most** allow "affiliate" students to take fall classes. Usually level 1 or 2 only. Check offerings.
- Anthropology & Archaeology
- Economics – level 1 only
- Education
- European Languages, Culture & Society-lit classes
- European Social & Political Studies (has law & econ classes you can take)

HSS allowed subjects cont'd

- Geography (physical & human)
- Global Health
- Greek & Latin – Classics/Ancient World-**lit classes**
- Hebrew & Jewish Studies-**lit classes**
- History
- History & Philosophy of Science
- History of Art – very popular gallery classes
- Linguistics

HSS allowed subjects cont'd

- Liberal Arts & Sciences (has some hidden gems, e.g., Science Meets Religion in the Global Community, Creative Writing, Migration & Health, etc.)
- Philosophy
- Planning
- Political Science & International Relations
- Population Health & Global Health

HSS allowed subjects cont'd

- Psychology
- Psychology & Language Studies
- Slavonic and East European Studies (SSEES) –
has econ classes.

Restricted HSS Subjects

Cannot take classes in these departments

- Architecture
- English Literature
- Fine Art
- Law
- UCL Centre for Languages **(Can take lit classes in a foreign language or in translation in many of the area studies departments.)**

Literature Class Options

- Students **cannot** take **English literature** classes, but can take classes in other literature departments of which there are many including the Classics, e.g., Roman Poetry, or Spanish literature, etc.
- ***Go to Edinburgh if you want to take English lit classes!***
- **Reminder – can take Econ in SEES & European & Political Studies**

UCL & Econ Classes

- The **Slavonic Studies** teaches many econ classes, e.g., ***Topics in Financial Management or the Economics of Entrepreneurship***
- Only **LEVEL 1** classes can be taken in the **Economics** department

Credits Continued

- Students will take four 15 credit classes
- **EXPRESS CLASSES IN UCL CREDITS NOT ECTS CREDITS!** Ignore the ECTS and US unit translation. **Only list 15 UCL credits.**
- Pick Fall only classes, not Year or Spring
- Some subjects have fall classes, but do not give fall exams: math, stat sci, physics, etc.

Questions?



How to get find classes

- U Copenhagen: <http://kurser.ku.dk>
- DTU: <http://www.kurser.dtu.dk/>
- Ecole Polytechnique:
<https://moodle.polytechnique.fr/course/index.php>
- Choose current academic year & 3A for class level
- Edinburgh: <http://www.drps.ed.ac.uk/22-23/> or go to www.ed.ac.uk/global/study-abroad/courses-credits
- Melbourne:
<https://handbook.unimelb.edu.au/faces/htdocs/user/search/SimpleSearch.jsp> (Semester 2 ONLY) Click Show All. **Pick SUBJECTS – don't pick COURSES (degree programs)**
- UCL: <https://www.ucl.ac.uk/prospective-students/study-abroad-at-ucl/subjects>

Course List & Proposal Examples

- Examples in FASA Library-make Doodle reservation for library time. Doodle is posted by month at fasa.caltech.edu. You can look at examples by option & university
- Remember that you always need to check the course catalog of the host university as offerings change
- After program selection you are allowed to change classes via a petition/ approval process

Questions

- Har du et spørgsmål om disse oplysninger?
(Danish)
- Avez-vous une question à propos de cette information? *(French)*
- G'day, mate, do you have a question? *(Australian)*
- Do you, per chance, have a question about what we have discussed thus far? *(Real English)*
- Dae ye hae a quaistion aboot this? *(Scots)*