Study Abroad: How to Choose Classes

Copenhagen (UCPH & DTU), Ecole Polytechnique, Edinburgh, Melbourne, UChicago & UCL
Requirements for All Programs

• Students must take at minimum of 18 units (2 to 4 classes based on credit/unit system of partner university) for some type of option credit in the department closest to their option at the host university – can be for required, equivalent, or elective credit.

• If you have a double option, then the 18 credits will be in what you consider 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 Advisory

GPA recommendations above minimums:

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 AND background equal to two years in this field! Need 3.5 for Biological Sciences & 3.3 for Biomolecular.
Degree Structure-UK

• All English degrees are 3 years long – only 3 years of classes. UCL are all 3 years long, but some have add-on master’s – Master’s 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 visitors.)
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
Make sure you have the 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.
Course Background Continued

• 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
Copenhagen: DTU & UCPH

- Students are admitted to either DTU or UCPH, and take all science or engineering classes at admitting university – can’t mix
- DTU students choose either Danish language or Danish Culture at UCPH. UCPH students take both.
- DTU Danish class is not taught for credit at DTU, but you can take a conversation class that is not graded for no credit.
- Cannot do Econ/BEM at UCPH:. If BEM is your primary option or secondary option, DTU a good match for electives in BEM.
- E means autumn (efterår) and F means spring (forår). Be sure you are in the correct semester!
UCPH Option Subjects — (aka KU)

• UCPH Subjects: Biology, Chemistry, Computer Science, Environmental Sciences, Geological Sciences, Mathematics, Physics (Nils Bohr Institute)
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 + Danish Language & Danish Culture)
- 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](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 2\textsuperscript{nd} year for a thesis.

• The 4\textsuperscript{th} 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

- Can only do 3\textsuperscript{rd} year of engineering cycle:
- Must take 4 classes in their \textit{Programme d'Approfondissement (PA)}
- Must take French Language-placement test is given
- Can take hum or social science depending on offerings and schedule.
Ecole Polytechnique

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

- Innovation technologique (Innovation Technologies)
- Mathématiques
- Mathématiques appliquées
- Mécanique
- Physique
- Sciences pour les Défis de l’Environnement
- Space Sciences
- YOU TAKE 4 CLASSES IN ONE APPROFONDISSMENT PLUS FRENCH LANGUAGE
Avez-vous des questions?
Edinburgh
Edinburgh

- College of Science & Engineering (CSE) This is your admitting College.
- College of Arts, Humanities & Social Sciences (CAHSS)
- College of Medicine & Veterinary Medicine
- Visiting students cannot be admitted to or take classes in this college. Can take a class in Biomedical track if SV1/Semester 1: [http://www.drps.ed.ac.uk/20-21/dpt/cx_sb_bime.htm](http://www.drps.ed.ac.uk/20-21/dpt/cx_sb_bime.htm)
Edinburgh

- Each College is made up of Schools.
- A School is equivalent to a department
Edinburgh

- **Schools – College of Science & Engineering**
  - Biological Sciences
  - Chemistry
  - Engineering – ME, Chem E, EE, Civil, etc.
  - GeoSciences – Geology, Ecology, Envir. Sci, 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 & 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!
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 yearlong classes.

• **VV1** – Available to visiting one term students only – check to make sure class is taught Semester 1. 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 3\textsuperscript{rd} and 4\textsuperscript{th} 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 yearlong project classes visitors cannot take.
Engineering Class Choice Factors

• ME Subject has sustainable energy classes & lots of 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
• 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)
Questions?
(King’s Building’s- STEM campus 114 acres)
George Square Campus

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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 – SUBJECTS = Classes
- Courses = Degree
- 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
  - 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 – need strong refs
- Civil, Environmental and Geomatic Engineering-3.3
- Mechanical Engineering-3.3
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/
- Choose current academic year & 3A for class level
- Edinburgh: http://www.drps.ed.ac.uk/21-22/
- 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-email Samantha Skinner <sskinner@caltech.edu>

• You can look at the 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 speirins? **(Scots)**