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 3.6+ 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 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 & KU
Copenhagen: DTU & UCPH

• Students are admitted to either DTU or UCPH, and take all science or engineering classes at admitting university – can’t mix

• ...except Danish Language, all students take at UCPH for credit. DTU Danish class is not taught for credit at DTU.

• 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)

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 prep)
• Students also take Danish Language and a Danish Culture course
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 2 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 3rd year of engineering cycle:
- Must take 4 classes in their 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
• **YOU TAKE 4 CLASSES IN ONE APPROFONDISSEMENT 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: http://www.drps.ed.ac.uk/20-21/dpt/cx_sb_bime.htm
• 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 (Geography = SS)
  - Informatics (Computer Science)
  - Mathematics
  - Physics and Astronomy
Edinburgh
Can apply in CA as main subject or take classes

- **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!*
What do the availability codes mean mean?

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

• **SS1** means that visiting students *cannot* take an **SS1** class – usually field classes or yearlong classes.

• **VV1** – available to visiting students, but need to check if *taught in Semester 1 & has Dec. exam*. Most VV1 classes if not all have an exam in April/May & are not allowed.
• 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 Semester 1 and have a December exam or assessment.
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, econ 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
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)
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:
  - Biomedical Sciences - **3.9 GPA & have extensive background**
  - Biomolecular Sciences (Molecular Biosciences)
  - Biological Sciences
  - Chemistry
UCL Science Subjects Allowed

- Earth Sciences
- Geography
- Infection and Immunity
- Neuroscience
- Psychology
Engineering/Applied Science Subjects admitting fall students

- Computer Science – 3.9 cum GPA + strong refs
- Civil, Environmental and Geomatic Engineering
- Mechanical Engineering
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
• 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
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 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

• KU: 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/18-19/
• 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-ucl/study-abroad-guide/subjects
Course List & Proposal Examples

• **During Pandemic:** These are posted online at [http://fasa.caltech.edu/studyabroad/apply](http://fasa.caltech.edu/studyabroad/apply)

• You can look at them by option and then look at others to get more ideas.

• Remember that you always need to check the course catalog of the host university.

• 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)*