

An aerial photograph of Cambridge, England, showing a dense cluster of historic buildings with red-tiled roofs and stone walls. A prominent church with a tall, ornate spire is visible in the lower center. To the right, a large green park area is visible. The city extends into the distance under a clear sky.

Understanding Cambridge Academics

Cambridge – need to start early

- Very quirky organization by subject – decentralized and can be hard to find class descriptions as some are behind firewalls.
- START EARLY, e.g., NOW if you want to apply to Cambridge. You really need to dig into the subject/tripos you will apply in and understand the system!
- Complete regular Study Abroad Application

Cambridge –

Is this a good option for you?

- You need to have a strong academic record – grades count in all the programs, but especially so at Cambridge.
- A **minimum** of 3.6 cum is required but **3.7 GPA & up in your option.**
- Is the academic fit a good one for you? Don't apply to Cambridge solely because of social reasons! You need a strong academic fit.
- Do you have strong ref letters from instructors your option? This is particularly important.

Cambridge –

Is this a good option for you?

- Supervisions – *are you willing to speak up and engage in lively intellectual conversation with the supervisor?*
- **Supervisions** involve 1 supervisor to 2 or 3 students. **You need to be someone who speaks up and does not worry about whether you are “getting the answer correct!”**

Cambridge –

Is this a good option for you?

- Are you socially confident?
- Are you articulate?
- **Do you keep up with the world news and like discussing world events?**
- Can you relate well to students majoring in non-science/engineering disciplines such as literature, philosophy, history, etc.?
- Are you fussy about what you eat as you will often eat in the “Hogwarts” dining hall of your college?

Cambridge GPA Advisory

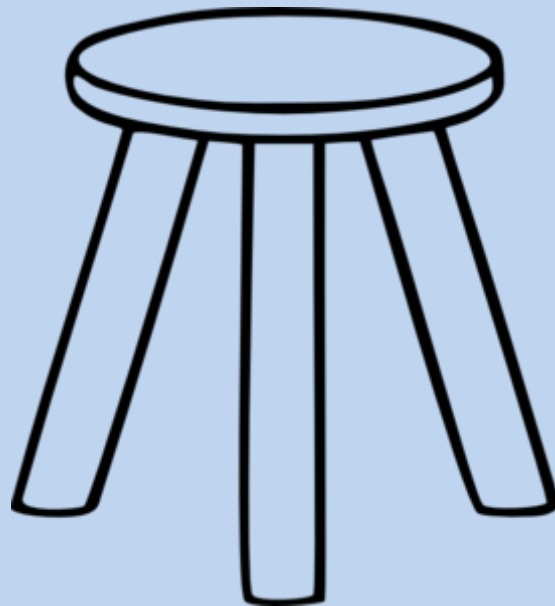
- Cambridge: 3.7 and up in option classes related to your tripos classes & min 3.6 cum
- Math at Cambridge 3.8+. Best to have taken Analysis for Part II
- Chemistry Part III – need 3.8 +. These are master's level classes – need Part II background.

How Actual Cambridge Students Are Admitted

- **Regular degree undergrads are NOT admitted by a central university committee as at US universities —students are admitted by a college in a specific tripos/subject area!**
- Students apply to a college. College faculty (fellows) select applicants to interview and test. Interviews are academic – **not about personal fit. This is about academic fit.**
- Students are selected based on A level & college test scores, references, & the interview – faculty run process.

Triplos/Subject

Chemical Engineering
Computer Science and Technology
Engineering
Natural Sciences*
Mathematics



*Natural Sciences Triplos
contains multiple ***subjects...***

**You can only take courses
in your tripos/subject.**

One exception: In the Natural Sciences Tripos there are interdisciplinary classes for Physics, Earth Sciences, & Chemistry for Lent Term only

Typically, parts are split up
as follows:

Part 1A – 1st year
Part 1B – 2nd year
Part II } 3rd year
Part IIA }
Part IIB } 4th year
Part III }

You can mix parts,
just beware of
'schedule clashes'.

Limited Tripos & Subject

- At Cambridge you **CANNOT TAKE CLASSES IN SOCIAL SCIENCE OR HUMANITIES** Departments! No exceptions – Cambridge rule! A few tripos subjects offer electives, e.g., **Engineering, that have language or BEM/Econ classes.**

Tripes Info

- In some tripes areas, the subject is the same as the tripes, e.g., ChemE or CS.
- In NatSci or Engineering, there are subsets of subjects.
- In the Natural Sciences you choose ONE subject, e.g., PDN, Neuroscience, Earth Science, Chemistry, Physics, Math, etc., with exception of max of 1 interdisciplinary class in Lent. ***Cannot do Materials or Biochemistry***

Cambridge Colleges

- Each of the thirty-one Colleges is an autonomous corporation & is self-governed.
- 16 “old” colleges, founded between 1284 and 1596, and
- 15 “new” colleges, founded between 1800 and 1977.
- Three for women only & **Darwin** only admits only postgraduates

U. Cambridge Colleges

- We partner with 4 of the old colleges:
- Pembroke — founded 1347
- Corpus Christi — 1352
- St. Catharine's — 1473
- St. John's — founded 1511
- You cannot pick your college.

Role of the Colleges

- The elected or appointed Head of a College may be termed Master, President, Principal, Mistress, Provost, or Warden.
- The Governing Body is made up of the Head and some or all of the Fellows - the elected senior members of the College whose primary duty is teaching, administration or research.

The Role of the Colleges (cont.)

- Residential system – member only of your college.
- Lots of rules & traditions!
- Exeat Rule example.
- Much more scrutiny of your behavior and high standard expected.

You must have a 2nd choice program

- Michaelmas (fall) – 6 places
- Lent (winter) – 4 places
- **Apply to both to maximize selection to Cambridge, BUT you still need to apply to a program other than Cambridge! No exceptions.**
- If you don't get Cambridge, you don't have to study abroad, but you'd be missing out!

University & Departments

- 100 academic departments organized into six schools.
- They are:
- [Arts and Humanities](#)
- [Biological Sciences](#)
- [Clinical Medicine](#)
- [Humanities and Social Sciences](#)
- [Physical Sciences](#)
- [Technology](#)
-

Michaelmas Term



Or Lent Term?



Winter Becomes Spring in Lent!



Apply for both terms if you are serious about Cambridge

- Look at classes for best match.
- Both Michaelmas and Lent have their charms!

2nd Choice Options

- Copenhagen: DTU & UCPH
 - DTU works for engineering and most natural sciences & applied math.
 - UCPH for physics, biology, CS and math.

2nd Choice Options

- **Edinburgh** has the same feel to it as Cambridge – ancient university in a beautiful, walkable, small city, great academics that work for most options, i.e., CS, ME, EE, Physics/Astrophysics, GPS options, Biology, Chemistry, ChemE, Math, etc.
- You can take HSS classes – 1 or 2

2nd Choice Options

Want Old: Edinburgh –Founded 1583

TEVIOT
UNION
FOUNDED
1889



2nd Choice Options

If UCL is your 2nd choice look carefully at the admitting department 1st and 2nd year classes so you meet prerequisites.

- **UCL:** only an hour away from Cambridge!
 - Only allow fall students in biological sciences, chemistry, geology, mechE and neuroscience.
 - Can take HSS courses (up to 50% of classes)
- No Math/ACM, EE, Physics, or BioE or Chem E

2nd Choice Issues

- All Edinburgh & UCL programs have a supervision-like system (tutorials)
- DTU and KU have recitation sessions as part of block system

All Bachelors Degrees are 3
Years Long in England

All Engineering and some Science
degrees have an optional 4th year
(coursework masters), which is
equivalent to a class at the 100 level.

Natural Science (Natsci) Tripos

- **Physics & Astronomy - Parts II or III**
 - Math is its own tripos, and includes Applied Math
 - Experimental and Theoretical Physics or DAMTP: Physics & Math overlap (Physics students may be able to take some Maths Part II classes)
 - Astronomy students may take physics classes & vice versa
 - **Chemistry – Part III only & very challenging for jrs**
 - ChemE is a separate tripos (you can't mix them)
 - No biochemistry – no exceptions No work assigned – just lectures.
 - **Geological Sciences - Parts II or III** (classes alternate by year)
 - Ok to take field courses for field credit
 - **Interdisciplinary Classes - Part III**
 - Limited to Chemistry, Geological Sciences, or Physics. You can propose up to 2 of these- but check schedule carefully for time conflicts with your subject.
- Go to: <https://fasa.caltech.edu/studyabroad/programs/cambridge>

Natural Science (Natsci) Tripos

- Mathematics – Part IA, IB, or II only.
Have C & D level classes. D much harder! (There is no separate applied math dept. Applied math is in math
NO PART III CLASSES ALLOWED in Maths! (Can audit for fun)
- Biological Subjects - Part Ib and II only

Biological Sciences

- Natural Sciences Tripos
 - Biology: Part II preferred. Some IB allowed.
 - Neuroscience, PDN, Plant Sciences, Zoology-one only
 - Writing more than 1 well researched & well written essay per week
 - Choose 4 classes
 - Must be excellent time manager - student arranges supervisions
 - NOT ALLOWED: anatomy, biochemistry, clinical or veterinary medicine, genetics, pathology, or pharmacology.

Mathematics Tripos

Includes Applied Math

- The Brits say “Maths”, not “Math”
- Take classes from Part II. You cannot take Part III classes that is a graduate program.
- There are some interesting “non-examinable” classes that you can attend, but will not get credit for because there is no assigned work, such as:
 - Topics in the History of Mathematics, Ancients to the Renaissance (Michaelmas)
 - Topics in the History of Mathematics, Renaissance to the 19th Century (Lent)
- Must have at least 16 lectures = 6 CIT units & 24=9

Chem Eng versus Engineering

- Most Chem Eng students have opted for the Engineering tripos. Some have selected Chemistry Part III – depends on your track in the Chemical Engineering option.
- Best to check classes in both the Chemical Engineering Tripos and the Engineering Tripos.
- NOTE that the Engineering Tripos has Information Eng, Materials & Bioengineering "Groups."

Engineering Tripos

- You can take courses in Part IIA or Part IIB (3rd or 4th year), but must take at least 2 in IIA (IIB has no supervisions & max of 2 IIB). Classes are called MODULES.
- Has sub-groups such as:
 - Group A: Energy, Fluid Mechanics and Turbomachinery
 - Group B: Electrical Engineering
 - Group C: Mechanics Materials and Design
 - Group D: Civil & Structural Engineering
 - Group E: Management and Manufacturing
 - Group F: Information Engineering
 - Group G: Bioengineering



















Engineering Tripos

- You can take 4-5 classes, but at least 2 out of 4 or 3 out of 5 must be “real” engineering courses (not management, languages, etc.)
- Has BEM type classes & Language classes.

IIA:








<http://teaching.eng.cam.ac.uk/node/2979>
(Look at Group E Management & Mfg

Examples of Part IIB Engineering elective classes

Module		Term (set)	Prerequisites	On-line resources	Leader	Lab Leader
Code	Title (linked to syllabus)		Assumed			
3E1	Business economics	M(9)		Moodle 	Dr A Rosato 	Dr A Rosato 
3E2	Marketing	M(9)		Moodle 	Dr V. Mak 	Dr V. Mak 
3E3	Modelling Risk	L(8)		Moodle 	Dr F Erhan-Oguz 	Dr R. Zanjirani-Farahani 
3E6	Organisational behaviour	L(8)		Moodle 	Dr J Stollberger 	Dr J Stollberger 
3E10	Operations management for engineers	L(8)		Moodle 	Dr F Erhan-Oguz 	Rev R McKenzie 
3E11	Environmental sustainability & business 	M (9)		Moodle	Prof J A Howard-Grenville 	Prof J A Howard-Grenville 



IIB Group M Modules

Group M: Multidisciplinary Modules

Module		Term (set)	Form of assessment	Prerequisites		On-line resources	Leader
Code	Title (linked to syllabus)			Assumed	Useful		
4M1	French	L(10)	Coursework			Moodle 	Mr D. Tual 
4M2	German 	L(10)	Coursework			Moodle 	Mr A Bleistein 
4M3	Spanish	M(10)	Coursework			Moodle 	Mr S. Bianchi 

IIB Group E Mgmt & Manufacturing

Group E: Management and Manufacturing

Module		Term (set)	Form of assessment	Prerequisites	
Code	Title (linked to syllabus)			Assumed	
4E1	Innovation and strategic management of intellectual property 	M(9)	Coursework		
4E3	Business innovation in a digital age 	M(9)	Coursework		
4E4	Management of technology	M(9)	Coursework		
4E5	International Business	L(9)	Coursework		
4E6	Accounting and finance	M(9)	Coursework		
4E11	Strategic management	L(9)	Coursework		
4E12	Project management	L(9)	Coursework		

Engineering Continued

- IIA:
<http://teaching.eng.cam.ac.uk/node/2979>
- IIB:
<http://teaching.eng.cam.ac.uk/content/iib-course-information>
- LOOK VERY CAREFULLY AT ENGINEERING
– COULD BE BETTER FIT FOR CS, BioEng,
CHEM ENG STUDENTS than the tripos that
seems to match option.

Chemical Engineering

- You can take courses in Part IIA or Part IIB – senior electives and specialization
- Some classes split into 2 sections, meaning some finish after winter break. You cannot take these.
- Has themes such as:
 - process applications and systems
 - mathematical methods
- The syllabus is available by going to the FASA Cambridge Page:
<https://fasa.caltech.edu/studyabroad/programs/cambridge>
- Many ChemE's select the Engineering Tripos or can opt for Chemistry Part III

Computer Science and Technology

- Is a 3 year program. LOOK AT INFORMATION ENGINEERING in Eng Tripos. Could be better fit.
- You can take classes from any part, as long as there are no time conflicts
- Part II is the 3rd year- equivalent to junior/senior
Part IA is ok, but likely too easy
Part IB is sophomore/junior level
- Must have at least 16 lectures to equal 9 CIT units
- Classes are taught for various #'s of weeks.

CompSci Tripos Info

- Computer Science – CompSci is its own subject. Has lots of issues as classes are taught for as few as two weeks to as many as 8. You must have at least 3 classes taught at any time in the term – no clustering at the start, middle or end of term.
- Note: CS students should also look at Info Science Track in Engineering Tripos-but can't "mix" with CompSci. One tripos ONLY!

CompSci Tripos Info

- Units of Assessment Classes – students can ONLY chose 2 max of these classes. They are have twice the workload of a regular class, have a final exam taken during the term.
- Go to this link to see the CompSci classes including the units of assessment type classes:
<https://www.cl.cam.ac.uk/teaching/1920/part2-75.html>
- Limited Enrollment due to exam spots!

Units of Assessment Michaelmas Term

- Advanced Graphics & Image Processing
- Data Science: Principles and Practice
- Digital Signal Processing
- Multicore Semantics & Programming
- Natural Language Processing

Units of Assessment Lent Term

- Cloud Computing
- Mobile Robot Systems
- Probability and Computation
- Topics in Concurrency

All classes CST (Computer Science Tripos)

- Part II Classes – have supervisions
- <https://www.cl.cam.ac.uk/teaching/1920/part2-50.html>
- <https://www.cl.cam.ac.uk/teaching/1920/part2-75.html> - includes units of assessment-see below
- Part II Units of Assessment-exams and no supervisions
<https://www.cl.cam.ac.uk/teaching/part2-units.html>

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Cambridge Caveats

- You can take only take classes in one tripos/subject with exception of Natsci Lent only interdisciplinary classes (propose 2, take only 1)
- Cambridge has a shorter term than other study abroad programs (good and bad)
- Some timetables/syllabi are listed on CamCORS/Raven, a locked system, so you'll have to write to the department for info or see if the FASA Office has a copy or has a copy posted online.

Cambridge Advantages

- The supervision system – but you need to be willing to engage!
- No Exams – but you still must learn and integrate material to be able to engage properly in supervisions where hard questions can be asked.
- Has fall or winter option (Michaelmas or Lent)
- It is a shorter term than other study abroad programs, both positive & negative & has residency requirements – no travel out of UK & limited to occasional daytrips or weekends

Cambridge Page

- Go to Cambridge Handout page first to get to specific departments and class lists:
- https://fasa.caltech.edu/documents/207-cambridge_scholars_study_abroad_program_2020_pdf.pdf
- Direct links to classes by subject/tripos area:
<https://fasa.caltech.edu/studyabroad/programs/cambridge>

The Cambridge Timetable

<https://www.timetable.cam.ac.uk/>

This does not encompass all subjects & RAVEN firewall for some subjects! Always check FASA Cambridge Handout for subject links.

Course Info – getting complete info can be painful so start now

Natural Sciences Overview – go to specific
subjects via Cambridge Program Page:

[https://www.natsci.tripos.cam.ac.uk/contacts
/course-websites](https://www.natsci.tripos.cam.ac.uk/contacts/course-websites)

Computer Science:

<https://www.cl.cam.ac.uk/teaching/1920/>

Mathematics:

<https://www.maths.cam.ac.uk/undergrad/course/coursesII.pdf>

Course info continued

- Engineering
 - Part IIA:
<http://to.eng.cam.ac.uk/teaching/courses/y3/index.html>
 - Part IIB:
<http://to.eng.cam.ac.uk/teaching/courses/y4/index.html>
 - The Cambridge Handout – online at fasa.caltech.edu is your best source for specific class info – use the links provided.

Reference Letters – Cambridge prefers professors/instructors!

- Who can write for you?
 - Need at least one prof/instructor in your STEM option or highly related field for your 1st letter. (No Hum or SS letters.)
 - 2nd Letter:
 - Another Prof/Instructor in your option
 - Graduate TA's in your option or related field
 - Post-Docs you have done research with you
 - Employers in STEM related areas-research related only
 - Research supervisors
 - Your advisor or option rep – OK if that professor has not taught you as long as they know you
- Don't know who to ask? Come talk to us.

Punting on the Cam



Questions?

