Mintnib

Project mentorship

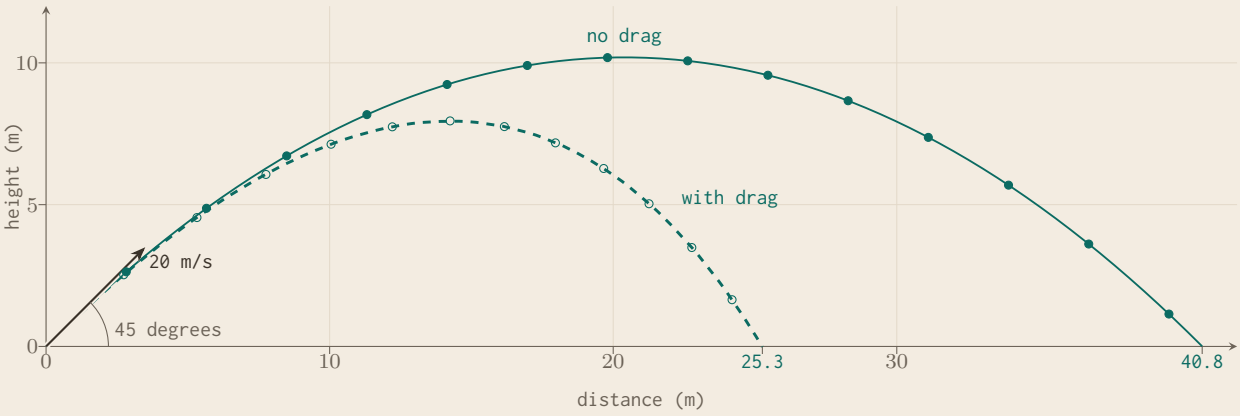
with Lucas Rey

Build a real project of your own, outside the syllabus, and the university application around it.

The kind of result a project ends with: one launch computed from the exact equations, without drag and with it. The sample roadmap on page 08 builds this simulation.

Sessions 3 and 4 of 10

20 m/s at 45 degrees; linear drag k = 0.3 per second



Dots every 0.2 s: filled without drag, open with drag. Drag cuts the range from 40.8 m to 25.3 m.

00

At a glance

A finished project is evidence, not a claim. Everything in thirty seconds; the pages after this one give the detail.

What it is

One-to-one mentorship for students aged 14 to 18, with one mentor from start to finish: a real project of your own, outside the syllabus, and the university application around it. It ends in something that can be checked, not a certificate.

What you end up with

A finished project you built and can explain: a code repository, a simulation report, a website or app, or a written report.

How it works

Intake, a project shortlist, a written plan, 60-minute live sessions and your own work in between, with written feedback and admissions guidance alongside.

Fees

Programmes from GBP 850, for programmes starting by 31 March 2027. Your exact plan and fee are agreed on the free introductory call. Programmes start from January 2027.

Your mentor

Lucas Rey, DPhil candidate in Engineering Science at the University of Oxford, working on turbine research for aerospace; more than ten years teaching and mentoring. Mintnib is Lucas Rey's practice; calls and bookings run through lucasrey.com.

The one rule

The work is yours. I teach, question and review; I never write any part of your project.

For parents

A parent is copied on every email and every booking. Sessions are online and are not recorded unless the family asks in writing; my DBS certificate is shown on request.

One next step

Book the free introductory call at lucasrey.com/enquire

01

What project mentorship is

Help to plan, build and finish a real project of your own, outside the school syllabus.

The idea

The project belongs to you: the idea, the work and the result are yours. My role is to help you choose a project that is ambitious but finishable, to teach the methods it needs, to review your work between sessions, and to make sure it ends with something concrete that you can show and discuss.

Why it strengthens an application

UK universities

Selective universities look for evidence that you have gone beyond the classroom in your subject. Since 2026 entry the UCAS personal statement answers three questions, one of which asks what you have done to prepare outside education and why it is useful. A project answers that directly, and at Oxford and Cambridge interviewers may ask about anything you mention, so you must be able to explain it in depth.

US universities

The Common App activities list and, at many universities, extra essays reward sustained depth and initiative more than a long list of short activities. A project developed over months, with a clear outcome, shows exactly that.

Both

A finished project is evidence, not a claim. A repository, a report or a working website can be described precisely, and because you built it, you can explain every decision in it.

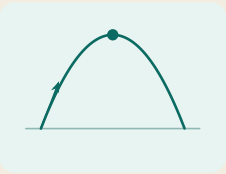
The one rule

I never write any part of your project for you: not the code, not the report, not your statement. Admissions tutors and interviewers can tell, and a project you cannot explain is worth less than none. Everything you show is yours.

02

Five kinds of project

Examples, not a fixed menu: the right project starts from what you are already curious about.

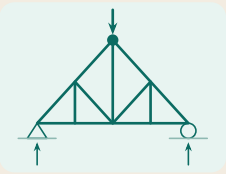


Physics

A simulation of motion with air resistance, or of planets and moons under gravity, checked against cases with known answers.

Outcome a code repository on GitHub and a short simulation report.

The worked example: cover, page 05 and page 08.



Engineering

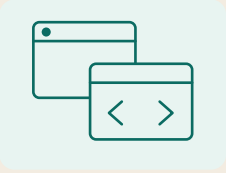
Design a small wind turbine blade, bridge truss or drone frame in free CAD software, then test it with simple simulation and, where possible, a physical model.

Outcome a design report with test data; a science fair entry.

Mathematics

Explore a question such as random walks or chaos in a simple equation through computer experiments, then try to explain the patterns found.

Outcome a mathematical write-up; an essay competition entry where eligible.



Software

Build a web application that solves a real problem for a real group of users, for example a planner or a data dashboard.

Outcome a live website or app and its code repository.

Data and modelling

Collect or download an open data set (weather, energy use, transport) and build a model that explains or predicts it.

Outcome a notebook and report with clear figures and limits stated honestly.

03

What you end up with

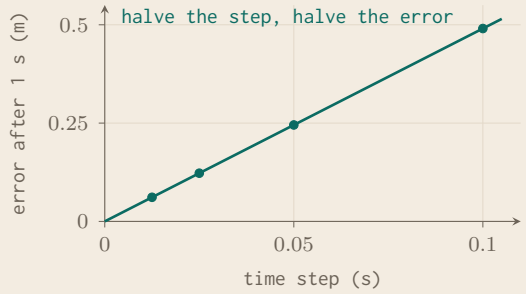
Four typical outcomes. Your own will look different, and every line of it will be yours.

01 A code repository

```
project/
├─ README.md
├─ simulate.py  -------● the model
├─ check_exact.py  -----● checks the model
├─ tests/
├─ results/
└─ report.pdf
```

The code, the tests that check it against known answers, and the results, in one place.

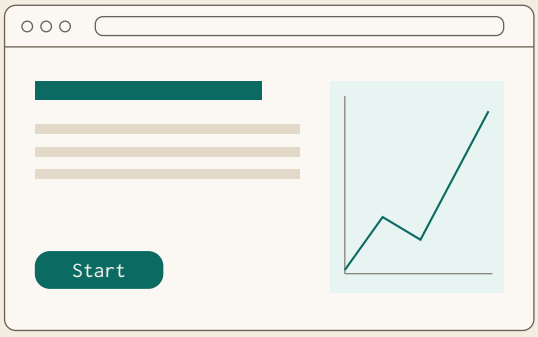
02 A simulation, checked (session 4)




```
Euler, 1 s of fall: error = g t h / 2 = 4.905 h m
```

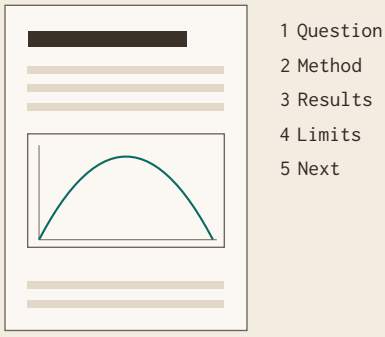
Checked against the exact answer: the error shrinks in step with the time step.

03 A website or app



A working site or app, live on the web, with its code.

04 A written report



In your own words: the raw material for your statement and interview.

Illustrations only, drawn for this booklet; not any real student's work.

Every project

Every project ends with a short write-up in your own words: the question, what you built, what worked, what did not, and what you would do next. That write-up is the raw material for your personal statement, your activities list and your interview preparation.

04

About Lucas

An engineer who builds models, simulations and experiments for a living, and has taught and mentored students for more than ten years.

Credentials

DPhil candidate, Engineering Science, University of Oxford

MRes, University of Cambridge

MEng and BEng, First Class Honours, Mechanical Engineering

Qualified engineer (Italian State Exam, 2020)

DBS certificate, the UK check for people who work with young people, shown to any client on request

I am a mechanical engineer working in aerospace research. My research is in turbine aerothermal performance for future propulsion and power, carried out at the Oxford Thermofluids Institute.

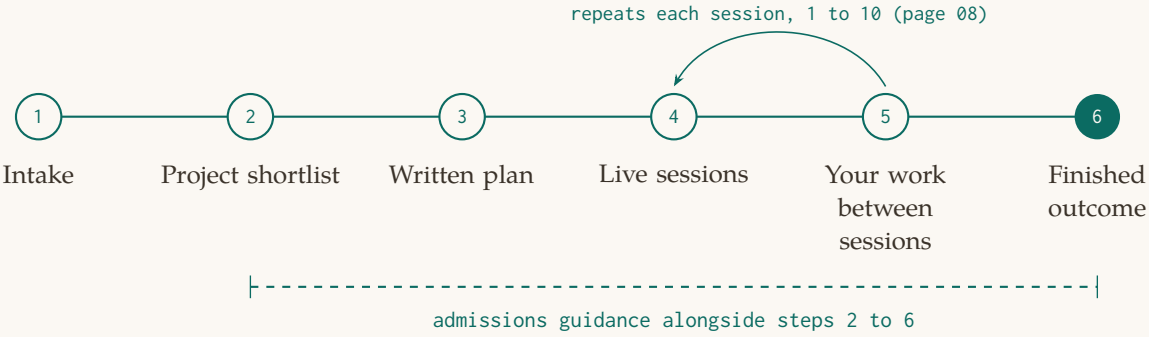
My daily work is the kind of work a strong student project is built from: designing an experiment, writing software to process the data, building simulation and reduced-order models, and writing the results up so that someone else can check them.

I have worked with students in physics, mathematics, software engineering and engineering on projects such as writing software, building websites, building models in software and running simulations. I also prepare students for university admissions tests and interviews, and I am the author of a preparation book for the ESAT, the admissions test used by Cambridge, Imperial, Oxford and UCL for engineering and science courses.

Mintnib is my practice: online preparation for the ESAT, the TMUA and Oxbridge interviews at mintnib.com, and this one-to-one project mentorship with me.

05

How it works

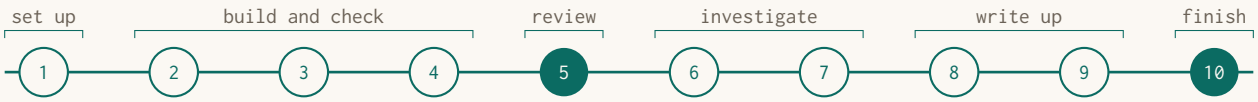


01 Intake	You send me the work you have done so far, the subjects and topics that interest you most, your current courses, and the countries and universities you are considering. I read everything before we meet.
02 Project shortlist	I send two or three project ideas matched to your interests and level, each with its outcome, the skills it needs and a realistic timeline. You choose, or we shape your own idea.
03 Written plan	We agree milestones, what happens in sessions, what you do independently between them, and the finished outcome.
04 Live sessions	Online sessions teach the methods your project needs (programming, modelling, simulation, experimental design, technical writing), solve problems together and review progress.
05 Your work between sessions	You build the project yourself. I review your code, results or drafts between sessions and send written feedback before the next one: up to about 30 minutes a week is included.
06 Finished outcome, and admissions guidance	The project ends with something you can show. Alongside it: which courses and universities fit your interests, how to present the project in a UCAS statement or in US applications, and which admissions tests your choices require, with a plan to prepare for them.

06

A sample ten-session roadmap

The worked example from the cover: a simulation of motion with air resistance. Your own plan is written around your project and your pace.



Session	In the session	Before the next one
1	Agree the question and the outcome; set up the tools and the code repository.	Read two short pieces on the physics; write a first version of the question.
2	The physics of drag; turning equations of motion into steps a computer can take.	Write the first simple simulation without drag.
3	Check the simulation against a case with an exact answer: the moment you know it works.	Fix what the check reveals; add drag.
4	How accurate is it? Step size, errors and how to measure them.	Run the accuracy tests and plot them.
5	Midpoint review: what the results show so far, and what to explore next.	Choose two questions to investigate.
6 and 7	Ask what happens if drag doubles or the angle changes: change one thing at a time and record what happens.	Run the experiments; keep a log.
8	Figures that make the result clear; stating limits honestly.	Draft the report.
9	Review of the report draft, line by line.	Revise the report; tidy the repository.
10	Final review; how to describe the project in a statement, an essay and at interview.	Publish the repository and the report.

07

Admissions guidance

The project is the evidence. Guidance makes sure it reaches the right courses, in the right form, with the right tests prepared.

Applying in the UK

- Applications go through UCAS, with up to five course choices and one personal statement shared by all of them.
- In almost all cases you can apply to Oxford or to Cambridge in the same year, not both. Their deadline, and that of most medicine courses, is 15 October, earlier than the main UCAS deadline.
- Many competitive science, engineering, mathematics and computer science courses set an admissions test, such as the ESAT, the TMUA or the MAT. Which test applies depends on the course and the university, and I check the current requirements for each of your choices.

Applying in the US

- Many selective universities use the Common App: a personal essay of up to 650 words, up to ten activities described in 150 characters each, and, at many universities, extra essays. Some, such as MIT and the University of California, use their own forms.
- Testing policies differ between universities and change from year to year, so the SAT or ACT and AP exams are planned against each university's current policy.
- A substantial project gives material for the activities list, the essays and any interview, and shows the depth that selective universities look for.

Interviews

Oxford and Cambridge interview shortlisted applicants, as do some other UK universities for some courses. These interviews are academic: you work through unfamiliar problems aloud, and you may be asked about anything you have written. US interviews, where offered, are usually shorter conversations, often with a graduate of the university.

Applying to both

Many students apply in both systems. They place different demands on the same material: the UK statement is about the subject, while US essays are about you as a person as well. I help you plan one body of work that serves both.

When to start

To use the project in an application made in autumn 2027, it should be finished by the end of the summer, so a ten-session programme starting between January and April 2027 fits well.

08

Formats and fees

Flexible, and set by your project and your school calendar. The introductory call is free.

Frequency

From more than once a week during an intensive phase, to weekly, fortnightly or once a term.

Timeline

A short, focused project over a few weeks, or an extended one over several months that grows in stages.

Mode

60-minute sessions; written feedback between them, up to about 30 minutes a week, included. Larger reviews at the single-session rate.

Time zone

Sessions are online. My booking page shows the available times in your own time zone, so there is nothing to convert.

Safeguarding

A parent is copied on every email and every booking, and sessions take place online. Sessions are not recorded unless the family asks in writing. Project files are shared through accounts the family controls.

Fees

Programmes from GBP 850, for programmes starting by 31 March 2027. Your exact plan and fee are agreed on the free introductory call.

You can stop after any session, and unused paid sessions are refunded.

09

Questions families often ask

01

Do I need to know how to code already?

No. The project is chosen to stretch you from your current level, and the methods it needs are taught in the sessions.

02

Whose work is the project?

Yours. I teach, question and review, but the ideas, the code and the writing are your own, which is what makes the project credible in an application and at interview.

03

What if the project changes direction?

That is normal in real research. The plan is reviewed at the midpoint and adjusted, while still aiming at a finished outcome.

04

How much time does it take between sessions?

It depends on the format. We agree it in the plan around your school workload, and it can be lighter during exam periods.

05

Can it lead to a competition or science fair?

Often, yes. Where you are eligible, we can shape the project and its write-up to meet a competition's rules and deadlines.

06

Who runs the sessions?

I do, every one. There is no matching to another mentor: the person on page 06 is the person in every session, and the person who reads your work between them.

07

Can this be my EPQ?

The EPQ is run and assessed by your school, so your school must register and supervise it. The project can be the same piece of work, provided your school agrees and its rules on outside help are followed.

Next steps

1

Book a call

Book the free introductory call at lucasrey.com/enquire.

2

Intake

Send your work so far, your interests, your courses and the universities you are considering.

3

Start

I send the shortlist and a draft plan, and we agree a start date.

Every graph in this booklet is computed from the exact equations and checked by script, the way your project will be.

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lucas@lucasrey.com mintnib.com