



## Reuben College: Further Particulars for Official Fellowships in Artificial Intelligence & Machine Learning; Cellular Life; and Environmental Change

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## I Reuben College

### *I.I The vision*

The founding of Oxford's newest college, supported by a generous benefaction from the Reuben Foundation of £71 million, which includes £15 million for Reuben College scholarships, offers an exciting opportunity to bring together academic researchers focused on exploring some of the most important questions of the 21st century.

[Reuben College](#) will provide an environment that stimulates and facilitates interdisciplinary research, while emphasising the qualities of innovation, leadership and entrepreneurship. It will support a community of scholars who embrace opportunities to interact with researchers beyond the boundaries of their own disciplines and to engage with colleagues beyond the realm of academia. As a new college, we are building a community of people and practice that recognises the importance

of equality and diversity in our community and in our intellectual endeavours. The goal is to create a working environment for the active promotion of entrepreneurial thinking, collaborative working and interdisciplinary exchange.

All Fellows will be expected to subscribe proactively to the college ethos and to commit to developing both its intellectual and outreach activities. The College Fellows will together foster a culture of interdisciplinary exchange by organising regular college events, such as seminars, workshops and reading groups.

Our community is enhanced and strengthened by the diversity of our staff and students, and we are particularly eager to find ways to expand and extend such diversity. Our differences in background, culture, race, national origin, class, religion, sexual orientation, and many domains of personal experience greatly enrich the College community. We are committed to making certain that a wide array of perspectives is heard. For more information please contact the Senior Tutor ([senior.tutor@reuben.ox.ac.uk](mailto:senior.tutor@reuben.ox.ac.uk)), or see: [www.reuben.ox.ac.uk](http://www.reuben.ox.ac.uk)

## *1.11 Strategic and Academic Themes*

One of the main goals of Reuben College is to facilitate interdisciplinary research and collaboration in order to tackle some of the most challenging questions of our time, such as how to mitigate climate change or how to use artificial intelligence and machine learning to help improve healthcare outcomes or the reliability of our criminal justice system.

To promote the ethos and practice of interdisciplinary interaction, there is an initial focus on four research clusters, whose themes have been chosen for their wide reach across the University, their strongly interdisciplinary nature, Oxford's existing and potential strengths in these areas, and their innovation and entrepreneurship potential. The initial clusters focus on the topics of (a) [Artificial Intelligence & Machine Learning](#), (b) [Environmental Change](#), (c) [Cellular life](#), and (d) [Ethics & Values](#). These clusters have natural synergies, enabling cross-cutting discussions and research collaborations to emerge. Each of the four areas will be interpreted as broadly as possible, as we are keen to attract researchers from all four of the University's Academic Divisions.

The four themes are complemented by a number of strategic stands, notably in [Innovation and Entrepreneurship](#) and in [Public Engagement in Research](#).

### **1.11.1 Artificial Intelligence (AI) and Machine Learning (up to 2 further Fellowship posts)**

The University of Oxford is one of the world's leading centres for Artificial Intelligence (AI) and machine learning research, addressing problems of global significance from billions of data streams, people and sensors. In particular, there is pioneering work taking place in robotics, driverless cars, healthcare, finance, privacy and ethical issues in the Departments of Engineering Science, Computer Science, Statistics, the Mathematical Institute and the Oxford Internet Institute.



The Artificial Intelligence & Machine Learning research cluster currently consists of Fellows from the MPLS and Medical Sciences Division, working both on the development of novel machine learning algorithms, from optimal control theory to deep learning via digital twins, and on their applications to fields as diverse as climate science, digital health including remote patient monitoring, big data analytics using wearables, and smart cities. To promote further interdisciplinary interactions, we are keen to attract in this round candidates from any of the University's four Divisions who are working on applications of machine learning in any domain, whether or not they themselves have a mathematical or physical sciences background. We would also be interested in recruiting a neuroscientist or experimental psychologist whose research is in characterising and modelling human intelligence, and would be keen to engage in debates on the difference between human and machine intelligence.

Some examples of the Artificial Intelligence & Machine Learning theme activities planned as part of Reuben College's academic enrichment programme include:

- Introductory lectures on Artificial Intelligence and Machine Learning – applications and ethical implications (the latter jointly with Ethics & Values Fellows)
- A series of lectures, seminars and workshops on "AI for Good"
- Joint seminars with Reuben Fellows in other fields, such as healthcare, climate science and innovation & entrepreneurship
- Skills workshops on how to code (may be offered through the Oxford Foundry)
- Hackathons

It is our aim that our graduate students, whether or not they are working in AI & ML, should benefit from the expertise present in the theme. The perspectives and knowledge generated will contribute to their development as well-rounded scientists and researchers who are able to understand both the potential and the pitfalls which have been created the pervasiveness in our AI & ML in our 21<sup>st</sup>-century world.

### **I.II.II Cellular Life (1 further Fellowship post)**

One of the main goals of Reuben College is to facilitate interdisciplinary research and collaboration to tackle cellular life challenges in the 21<sup>st</sup> Century. The cellular life cluster brings together researchers seeking to understand the underlying mechanisms of living organisms, from the interactions of molecules to cells and tissues through to organisms and populations. From the nerve cells that wire our brain, root tip cells that provide nutrients for plant growth, immune cells that provide protection against infection, to the specialised cells of the pancreas and liver that control how our body processes food, interdisciplinary approaches to understand how different types of cells work together will transform our knowledge of how to treat and prevent human, plant and animal disease. Research on cellular life impacts not only medicine and biological sciences but also public policy; for example, ageing, which is caused by the accumulation of cellular defects, is of as much interest to social scientists as to gerontologists.



Within the Cellular Life cluster, we are keen to attract interdisciplinary researchers from across the four divisions at the University of Oxford working in any discipline from physiology to genomics, studying fundamental bioscience or diseases, or associated areas such as medical ethics and social sciences. We are looking for a fellow with expertise and scientific interests that complements current Cellular Life fellows.

Some examples of the Cellular Life theme activities planned as part of Reuben College's academic enrichment program in Hilary Term 2022 focus on pandemics include:

- An evening with a leading documentary film maker for the BBC on Vaccines
- Careers workshop with leaders from biotech, technology sectors and alternative career opportunities highlighting Women's Day 2022
- Short talks with Reuben Fellows in other fields, including AI, Environmental Change and Enterprise & Innovation
- Town hall discussions on controversial ethical issues relevant to cellular life (e.g. ethics of human pathogen challenge)
- A pandemic activities trail with the museums, Bodleian libraries and botanical garden.

### **I.II.III Environmental Change (1 further Fellowship post)**

The College will bring together researchers working on many aspects of the drivers and impacts of, and responses to, environmental change. The breadth of this theme covers research ranging from the institutional, social and behavioural drivers of biodiversity loss and climate change; earth system changes (physical, biological and social); and responses to these changes, including human relationships to their environment, international policy processes, and behavioural and technological innovations.

Within the Environmental Change cluster, we are looking for researchers with interests in environmental change across all four divisions. This includes both researching the processes of environmental change (biological and physical, at any spatio-temporal scale); human relationships to the changing environment (past, present and future); and societal and policy responses to these changes (from the individual to the global levels).

## **II Official Fellowships**

### *II.1 College Duties*

Reuben College is committed to maintaining an inclusive and internationally excellent research environment; it expects its Fellows to be active in research and to contribute to a high-quality learning experience for its student body.

All Fellows are expected to subscribe proactively to the college ethos and to commit to developing both its intellectual and outreach activities. The College Fellows together foster a culture of interdisciplinary exchange by organising regular college events that catalyse them.



It is expected that all Official Fellows of the College will:

- Be active and engaged members of its Governing Body, developing strategies and policies as the College grows. They will be expected to attend the majority of scheduled meetings, presenting and considering papers and proposals as appropriate.
- Be involved in the recruitment and mentoring of the College's Research Fellows (post-docs) and graduate students (200 p.a. in the steady-state).
- Regularly attend academic and social events organised by the College or other Fellows.
- Play a full role in the life and administration of the College. This will involve, from time to time:
  - holding office within the College;
  - sitting on, or chairing, College Committees;
  - taking part in public engagement projects and events, development, access and outreach work, and/or other activities which help to sustain a thriving college community.

From October 2021 all Fellows will act as adviser to a number of Reuben College graduate students. Fellows will be expected to organise seminars, workshops, reading groups and invited lectures. (Seminars and workshops will typically be jointly organised by two Fellows, from different disciplines but with a common interest.)

## *II.II College Benefits, Terms and Conditions*

Successful candidates will be elected to a Fellowship on a five-year renewable basis, with a mid-term review, and with renewal dependent on satisfactory performance in college duties. The contract will be coterminous with University employment.

Official Fellows will receive the following benefits:

- An annual allowance in the region of £3,000 per annum (which will be revalorised annually in accordance with the University pay uplift). This can be paid either directly (for non-Tier 2 postholders only, and thus will be taxable), or as a research allowance (to support, for example, conferences, events, or research costs).
- Subsidised dining and luncheon rights (in accordance with the facilities available at the time) from October 2021 (exact terms *tbc*).
- The right to bring guests to college meals, subject to capacity, and at their own costs.
- Membership of the Common Room.

Benefits will continue as normal during any period of family leave, or sickness absence but will be suspended for the period of any research leave, other paid leave (excepting the above), or unpaid leave of 12 months or more, taken by an Official Fellow, during which time they choose not to fulfil their



college duties. All decisions in these regards will be taken by the President in consultation with the Senior Tutor, with a view to promoting fairness and consistency of treatment amongst the Fellows.

## III. Applications

### *III.I Eligibility*

This is not an employment position and to be eligible applicants must be currently employed by the University in an RSIV, Grade 10, or 9 post, or in an 8 post if they are an independent researcher in an area related to the relevant Reuben theme. Tier 2 postholders are welcome to apply - this is not an employment position and should not necessitate a new visa application. (This also means that the College would not be able to act as sponsor for any visa renewal.)

Candidates with University contracts of less than five years are welcome to apply, with College election then coterminous with that shorter contract. The Selection Committee will however have regard for continuity in the college fellowship, and particular for provision for its graduate students from October 2021. University postholders who do not hold a contract for beyond October 2022 are thus unlikely to be elected.

Those who already have a Governing Body Fellowship with another college or society will not be eligible.

If you have any questions about your eligibility, please contact the Reuben College President, Professor Lionel Tarassenko CBE FREng FMedSci ([president@reuben.ox.ac.uk](mailto:president@reuben.ox.ac.uk)).

### *III.II Person specification & Selection Criteria*

Postholders' research must be related to the relevant theme. All applicants must also have a strong commitment to the values of the College.

As active and engaged members of the Governing Body, postholders will develop strategies and policies as the College is established, and begins to thrive. They will also be involved in the recruitment and mentoring of the College's Research Fellows (post-docs) and graduate students, and participate in the outreach, engagement and social activities which will help to build a thriving college community. From October 2021 all Fellows will act as adviser to a number of Reuben College graduate students.

To summarise, the following are the requirements of the fellowship:

- a record of research leadership and an academic reputation commensurate with that of a Senior Research Fellow or Professor, in a relevant area



- strong commitment to, and track record in, interdisciplinary research
- commitment to the vision and approach of Reuben College
- commitment to advancing diversity and inclusion
- enthusiasm for working with colleagues from other Departments and Divisions, including the Gardens, Libraries and Museums, as well as researchers from centres of excellence outside the University, in the setting up and delivery of interdisciplinary activities within the college (for example seminar series, workshops and reading groups)
- willingness and capacity to act as the college adviser for Reuben College graduate students
- ability to work effectively as part of a small, collaborative team, to influence and to build consensus
- strong communication skills, both written and oral
- ability to build relationships at all levels, to network effectively and to inspire confidence in students and colleagues
- as appropriate, a commitment to outreach, knowledge exchange, public engagement, and promoting innovation.

In selecting the Fellows, the Selection Committees will have regard for promoting a diversity of perspectives and approaches, and candidates will thus be assessed in relation both to the stated person specification, and the College's need for intellectual diversity within the advertised themes.

### *III.III Equality, Diversity & Inclusiveness*

As a new college, we are building a community of people and practice that has diversity at the heart, for students and staff, for our academic and applied endeavours. We will be embedding and advancing equal rights as we tackle the big challenges in our academic research and as we build our College community. This gives our students both the opportunity and the shared responsibility to shape the culture and ethos of our community.

We are keenly aware that work on the protection and advancement of equality of opportunity is never truly complete. We have appointed a College champion for Equality, Diversity and Inclusion (EDI), and as appropriate will similarly appoint to posts to support specific protected characteristics, to guide and support all members of our College community where issues arise. We are proactive in our approach, embedding best practice from across the University, including adopting the University's common framework for supporting disabled students, from ensuring accessible facilities to support at strategic and day-to-day levels.

Through every one of its committees, events, procedures and practices, the growing community of Reuben College are creating an environment in which everyone can take advantage of the unique opportunities that living, working and studying in Oxford bring, whatever their background. We hope that, as our community grows, all members continue to work towards ensuring equity of opportunity for each individual, without exception.



### *III.IV How to apply*

To apply, please send a (maximum) 10-page CV to the President's Executive Assistant (president-pa@reuben.ox.ac.uk) **by noon on 26th May 2021**, specifying for which of the Fellowship posts you are applying. This CV, attached as a pdf, should include your publications list, and a supporting statement (a) specifying your relevant skills and experience; and (b) describing how you would be able to contribute to the college:

- Given the overall limit of 10 pages, you may not be able to include your complete list of publications, in which case you should select the ones which are most relevant to your application.
- The supporting statement should explain how you meet the selection criteria for the post using examples of your skills and experience.
- In your text for how you would contribute to the college, it may be helpful for you to describe the first few interdisciplinary seminars that you would intend to run, should you be appointed to this post.

Please include contact details for two referees, one of whom should be your current Head of Department or equivalent. Referees will be contacted for shortlisted candidates only – please confirm if you consent for them to be contacted at that time.

Applicants are also asked to complete an [equality form](#) for monitoring purposes only; these forms will not be viewed by members of the Selection Committees.

It is anticipated that interviews for shortlisted candidates will take place on by Teams on the following dates:

Interviews for Artificial Intelligence & Machine Learning Fellowships: Wednesday 9<sup>th</sup> June

Interviews for Cellular Life Fellowship: Thursday 10<sup>th</sup> June

Interviews for Environmental Change Fellowship: Friday 11<sup>th</sup> June

