
Job family: Research

Technicians, specialist engineers, research professionals and staff scientists, and technologists¹ make critical intellectual contributions to research through the provision of core technical excellence, and in maintaining and developing new technologies and methodologies.

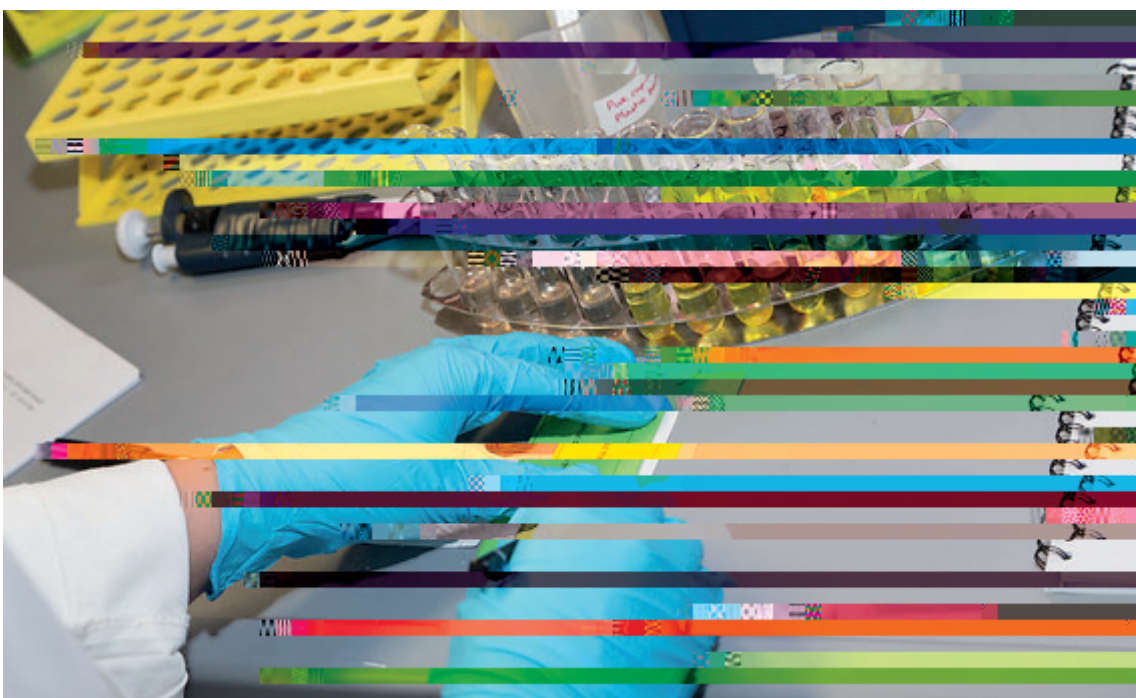
Technology Professionals can play a pivotal role in the development of technical skills that students and researchers need, being responsible for running, maintaining, and supporting research and innovation facilities and its resources. Many technicians are also researchers in their own right.

UCL's research strategy also establishes that "advancement and profile within UCL does not depend overly on easy metrics such as grant income or citation numbers that might penalise those who are advancing fields not yet fully appreciated by the wider research community, but instead suitably recognises and rewards creative and distinctive intellectual achievement". UCL strongly emphasises quality over quantity in research outputs.

Technical staff that contribute to research outcomes, are recognised by their contribution by means of fair attribution in the publications generated at a range of different levels depending on the level and relevance of the contribution going from acknowledgement of the use of facilities up to authorship when a significant contribution is made.

We encourage all researchers – and professional staff supporting the research endeavour – to view their work as part of a collective effort to help UCL make the most of its potential as a force for public good.

Technical Professionals within the research job family are expected to promote and encourage sustainable and professional practices in their fields, through appropriate professional bodies and activities. For example, laboratory workshop environment in relation to the University goals and Laboratory Efficient Assessment Framework (LEAF), and EDI activities.



¹ <https://www.ukri.org/wp-content/uploads/2020/10/UKRI-071020-StatementOfExpectationsTechnologySkillsSpecialists.pdf>

Research – Grade 4

Typical roles: Trainee Technician, Assistant Archaeologist, Laboratory Support Staff, Laboratory Assistant

Experiences

Health & Safety responsibilities

- Report faults or damage to equipment or infrastructure and assist with simple maintenance tasks under supervision
- Promote and follow safe working practices
- Understand and follow safety paperwork, with the ability to identify and report hazards
- Conduct routine compliance tasks under supervision
- Maintain good housekeeping, assisting with waste disposal procedures and cleaning activities under supervision

Core responsibilities

- Contribute to meetings
- Make suggestions to improve the service
- Contribute to and support change
- Assist with stock control and stores operations under supervision
- Assist with record keeping, inventory and asset management under supervision
- Assist in moving/relocating instruments and equipment
- With a high level of accuracy, prepare routine reagents and materials adhering to standard operating procedures where necessary
- Operate simple equipment following instructions or standard operating procedures and interpret simple results under supervision
- Assist with calibration and testing of instruments/equipment, following instructions and standard operating procedures under supervision
- Organise laboratory spaces in preparation of scheduled activities
- Report faults or damage to infrastructure
- Set up and operate equipment following well-established procedures under supervision
- Provide basic demonstration and support to students in the laboratory space with safe working practices

Personal and professional development

Learning on the job

Take responsibility for the delivery of events e.g. external events and open days
Under close supervision, begin to take responsibility for more stretching tasks relevant to the current role, e.g. delivery of a module, procurement of simple consumables
Liaise with important stakeholders e.g., senior members of the team and students
Develop an understanding of essential processes and procedures under supervision of management

Learning from others

Shadow senior members of the team in the working environment
Expand knowledge of other classes do not come under the current remit
Join a Community of Practice

Formal learning

Accreditation/certification from a recognised Professional body

UCL Ways of Working

For more information on the UCL Ways of Working, please refer to the UCL Handbook (pages 66-67).

(see pages 64-65)

Typical roles: Assistant Technician, Animal Technician, Technician

Experiences

Health & Safety responsibilities

- Report faults or damage to equipment or infrastructure, and assist with simple maintenance tasks
- Promote and follow safe working practices
- Understand and follow safety paperwork, with the ability to identify and report hazards
- Conduct routine compliance tasks
- Assist in Maintaining good housekeeping, waste disposal procedures and cleaning activities

Core responsibilities

- Contribute to meetings
- Make suggestions to improve the service
- Contribute to and support change
- Assist with stock control and stores operations
- Assist with record keeping, inventory and asset management
- Conduct portering duties
- With high accuracy prepare routine buffers/reagents and materials adhering to standard operating procedures where necessary
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Research – Grade 6

Typical role: Technician, Research Technician, Research Assistant

Experiences

Health & Safety responsibilities

- Complete routine equipment maintenance and repairs
- Liaise with suppliers and manufacturers to resolve simple problems
- Advise novice users on basic equipment capabilities
- With the academic lead, establish and maintain a safe/compliant working environment
- Assist/complete and update routine safety paperwork (dependent on the risk owner)
- Hold specific safety responsibilities
- Organise and complete compliance tasks
- Maintain up-to-date health and safety knowledge, providing support and advice to others

Core responsibilities

- Ensure effective delivery of objectives by planning and managing own workload
- Assist the academic lead with the day-to-day running and supervision of laboratory spaces
- Allocate work to one or more students
- Work collaboratively to deliver objectives, including sharing best practice
- Contribute to progress and management meetings
- Manage a small budget, monitoring resource usage and maintaining supplies of key items
- Assist with stores operations including ordering, receiving, processing, and distributing goods
- Source and negotiate with suppliers for routine items
- Provide a high standard of research support, including contributing to reports and publications
- Provide a high standard of teaching support, including preparing for classes and field work – (experimental work and analyse data)
- Conduct research experiments following protocols
- Support taught course projects by contributing to experimental design and data acquisition
- Prepare and manufacture a range of simple specimens/samples
- Report infrastructure faults and support small-scale building works
- Manage equipment bookings, calculate charges/costs and assist with re-charging
- Update and deliver local inductions, and provide training and demonstrations of techniques and equipment
- Input data and maintain databases

Personal and professional development

Learning on the job

Write advanced reports and read papers in relation to the testing, compliance and routine maintenance of equipment
Take on responsibility for more complex tasks e.g. completing personal licence application (Home Office) and undertaking licenced procedures
Seek out opportunities to learn new skills
Take on a specific role within a research project
Develop a level of expertise in a specific piece of equipment

Learning from others

Work shadow colleagues to gain an understanding of new or different work practices
Join a Community of Practice

Formal learning

Manufacturer-led training for highly specialised equipment/processes
Accreditation/certification from a recognised Professional body
Apply for training through a mid-career apprenticeship programme

UCL Ways of Working

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(see pages 64-65)

Typical Role: Senior Technician, Technical Specialist, Senior Research Technician, Specialist Lead Technician, Database Officer, Research Fellow, Lab Coordinator, Research Nurse, Laboratory Manager, Engineer, Project Manager, Staff Scientist, Data Scientist, Research Software Engineer

Experiences

Health & Safety responsibilities

- Complete a range of maintenance activities and repairs
- Liaise with suppliers and manufacturers to resolve problems and investigate replacement options
- Advise advanced users on advanced equipment or software or data capabilities demonstrating how results can be achieved
- Create department policies and contribute to improving and implementing policy/practice to support

Research – Grade 7

Personal and professional development

Learning on the job

Undertake procurement processes
Contribute to research project funding applications e.g. costings for consumables, equipment purchase and design/construction
Build management and supervision skills e.g., procurement process, dealing with conflict, presentation skills.
Build knowledge and experience to become a subject matter expert in areas of responsibility

Learning from others

Join a committee or Community of Practice
Participate and contribute to appropriate academic/ research meetings
Seek out opportunities to contribute to a journal club

Formal learning

UCL Leadership and/or Management training
Apply for training through a mid-career apprenticeship programme
Accreditation/certification from a recognised Professional body

UCL Ways of Working

UCL Ways of Working (UCLWOW) is a framework of values and behaviours that underpin the UCL mission. It is a set of principles that guide the way we work and interact with each other. For more information, see the UCLWOW website (66-67).

Research – Grade 8 – Specialist Pathway

Personal and professional development

Learning on the job

Lead on emergency response in areas of responsibility
 Liaise with Department Safety Officer during their investigations
 Participate in outreach activities and those which contribute towards Institutional Citizenship
 Liaise with and learn directly from equipment specialists or application specialists
 Provide data analysis for grant applications and manuscripts
 Provide fundamental support to MSc PhD students on a day-to-day basis
 Provide academic input as a thesis committee member or review MSc dissertations.
 Understand high value procurement and tender processes
 Contribute to the text of funding applications, or apply for external funding

Learning from others

Gain knowledge from others by visiting other sites with similar settings
 Attend relevant conferences, presenting where appropriate
 Attend builder user groups
 Attend safety standards meetings for specialist equipment/processes
 Attend and participate in a range of meetings, e.g. Department/ Divisional operations, team, strategic, committees (research and other)

Formal learning

Membership with relevant learned societies (e.g. RMS).
 Accreditation/certification from a recognised professional body
 Project Management and Continuous Improvement qualifications
 Training on finance and admin responsibilities
 Line management training

UCL Ways of Working

UCL Ways of Working (UCLWOW) is a framework of values and behaviours that underpins the UCL mission. It is a set of principles that guide the way we work and interact with each other. UCLWOW is a living document that evolves over time. For more information, please see pages 66-67.

Typical Roles: Technical Manager, Facility Manager, Technical Manager, Deputy Unit Manager, Senior Research Software Engineer, Senior Data Scientist

Experiences

Research – Grade 8 – Management Pathway

Personal and professional development

Learning on the job

Lead on emergency response in areas of responsibility
Liaise with Department Safety Officer during their investigations
Participate in outreach activities and those which contribute towards Institutional Citizenship
Liaise with and learn directly from equipment specialists or application specialists
Provide data analysis for grant applications and manuscripts
Provide fundamental support to MSc PhD students on a day-to-day basis
Provide academic input as a thesis committee member or review MSc dissertations.
Understand high value procurement and tender processes
Contribute to the text of funding applications, or apply for external funding

Learning from others

Gain knowledge from others by visiting other sites with similar settings
Attend relevant conferences, presenting where appropriate
Attend builder user groups
Attend safety standards meetings for specialist equipment/processes
Attend and participate in a range of meetings, e.g. Department/ Divisional operations, team, strategic, committees (research and other)
Work shadow colleagues to gain an understanding of new or different work practices
Join a Community of Practice
Access mentoring support from a colleague or local mentoring scheme
Attend internal or external networking events

Formal learning

Line management training
UCL Leadership and/or Management training
Apply for training through a mid-career apprenticeship programme
Accreditation/certification from a recognised Professional body

UCL Ways of Working

UCL Ways of Working (66-67).

Research – Grade 9 – Specialist Pathway

Typical Roles: Specialist Technician / Senior Technical Specialist, Principal Research Software Engineer, Principal Data Scientist, Principal Engineer, Principal Project Manager

Experiences

Health & Safety responsibilities

- Advise and oversee all equipment purchases relevant to the specialism ensuring compliance and alignment to facility priorities
- Plan and oversee all maintenance and repair activities including the completion of in-house, highly skilled repairs and maintenance
- Ensure that all equipment linked to the specialism is appropriately maintained
- Lead investigations into new equipment purchases/modifications
- By developing local procedures, establish and maintain a safe/compliant working environment within the specialist area
- Hold specific safety responsibilities relevant to the specialism
- Ensure all safety paperwork relevant to the specialism is completed/reviewed
- Oversee completion of all compliance tasks related to the specialist area
- Complete accident reporting and assist with investigations
- Maintain in-depth and up-to-date health and safety knowledge relevant to the specialism

Core responsibilities

- May provide direct line-management support, schedule, prioritise and monitor work and performance in line with demands and deadlines
- Supervise other staff and students working within the specialism
- Undertake the procurement of equipment for purchases up to £50,000
- Design and provide specialist training and training materials to research students and staff at all levels.
- Conduct complex research experiments contributing to the experimental design
- Lead on/prepare outputs as appropriate to the role, contributing to the development of the individual's or UCL's reputation.
- Specialise in a skillset deemed to be expert in their area and/or including project management of major technical projects
- Hold responsibility for the overall technical project management of research projects, including the design and implementation of systems
- Contribute to research outputs, including research papers, as a co- or lead author.
- Apply for grant funding from appropriate external funding agencies and internal funding programs.
- Work collaboratively with other research groups in UCL in addressing major research questions. This involves work at the cutting edge of the technology, where high level technical expertise in this field is required
- Lead your own research programme and disseminate research findings both within UCL, and externally in the form of publications, presentations and reports.

Personal and professional development

Learning on the job

Conduct outreach activities to work with academics e.g. summer schools
Seek out authoring opportunities e.g. contributing to books and research papers
Seek out opportunities to engage in TechTransfer projects

Learning from others

Work shadow senior members of the team
Attend and present at conferences
Represent UCL/Faculty/Department through participation in external working groups/committees
Organise and present at various research technique workshops

Formal learning

Membership with relevant learned societies (e.g. RMS).
Accreditation/certification from a recognised professional body
Project Management and Continuous Improvement qualifications
Training on finance and admin responsibilities
UCL Leadership training

UCL Ways of Working

For more information on UCL Ways of Working, please refer to pages 66-67.



(see pages 64-65)

Typical Roles: Technical Operations Manager, Biological Services Unit Manager, Head of Technical Services, Principal Research Software Engineer, Principal Data Scientist

Experiences

Health & Safety responsibilities

- Ensure that the University's health and safety policy is translated into effective local policies and procedures
- Ensure all necessary safety paperwork is completed/reviewed across the College/Faculty
- Ensure that all compliance tasks are completed
- Lead safety inspections and accident investigations
- Maintain up-to-date health and safety knowledge providing expert support/advice to others

Core responsibilities

- Provide management, motivation and support to the College/Faculty technical teams developing the teams to keep pace with changing teaching, research and technology needs
- Ensure that all work is appropriately scheduled in line with priorities and deadlines
- Maintain oversight of all technical staff recruitment within the College/Faculty
- Oversee space management and allocation across the College/Faculty
- Lead the development of College/Faculty services and facilities ensuring that they remain fit-for-purpose and deliver maximum benefit
- Lead change-management initiatives in collaboration with more senior staff
- Produce options papers, proposals, and reports for senior management review
- Ensure that inventory and asset management is appropriately managed across the College/Faculty
- Oversee the management of all College/Faculty facilities, monitoring budgets and overall performance
- Maintain oversight of all large-scale building works leading on those of a significant value/impact
- Coach staff
- Develop and implement policy, compliance and ways of working for the specific environment/equipment
- Contribute to research outputs, including research papers, as a co- or lead author.
- Apply for grant funding from appropriate external funding agencies and internal funding programs.
- Initiate and lead on the recruitment of technical staff

Personal and professional development

Learning on the job

Contribute to the text of funding applications, or apply for external funding
Provide academic input as a thesis committee member or review MSc dissertations.
Understand high value procurement and tender processes
Participate in outreach activities and those which contribute towards Institutional Citizenship

Learning from others

Work shadow senior members of the team
Attend and present at conferences
Represent UCL/Faculty/Department through participation in external working groups/committees
Organise and present at various research technique workshops

Formal learning

Membership with relevant learned societies (e.g. RMS).

Neil Hughes

Head of Technical Staff, Department of Earth Sciences

I am currently the Head of Technical Staff for the Department of Earth Sciences where I am responsible for managing the technical staff and the technical needs of the department.

In addition to my management duties, I primarily work as a Mechanical Engineer providing high level mechanical engineering design and development skills to build state-of-the-art scientific instruments to facilitate the department's research groups. Much of the research apparatus in my department are unique prototype high pressure systems which have been developed in house by myself and my engineering colleagues.

The work is very diverse and consists of many roles and responsibilities including the management of the engineering and technical aspects of major research projects and research laboratories involving supervision and training of academic staff and students in the effective and safe operation of potentially dangerous laboratory equipment. The troubleshooting of complex research equipment to ensure continued running of experimental research programmes. The design and development of highly specialised state-of-the-art scientific novel instruments, using Computer Aided Design (CAD) and Finite Element Analysis (FEA) software, to high performance, quality, and safety standards.

The preparation of detailed engineering drawings to high standards ready for production and the production of high tolerance components using a variety of mechanical workshop machinery including CNC operated and conventional machines. This varied engineering role along with my management responsibilities encompasses many of the job families to some extent but leans heavily towards the research family.

I started out at UCL in 1986 when I joined the Universities apprenticeship program as a Mechanical apprentice, after always having a big interest in Engineering at school. The apprenticeship

delivered extensive training in the use of all machine tools and techniques for precision manufacture. Throughout the apprenticeship I worked in a number of the Universities workshops in different departments including Physics & Astronomy, Electrical Engineering, Chemical Engineering as well as a spell in the design office in Physics and Astronomy learning technical drawing and Computer Aided Design techniques.

On successful completion of my apprenticeship I moved to the department of Earth Sciences (or Geology as it was known then) working as a mechanical technician supporting the department and its research groups. Computer Aided Design supporting the department