

Career Essentials: Better PhD Applications

Dr Jana Dankovicova

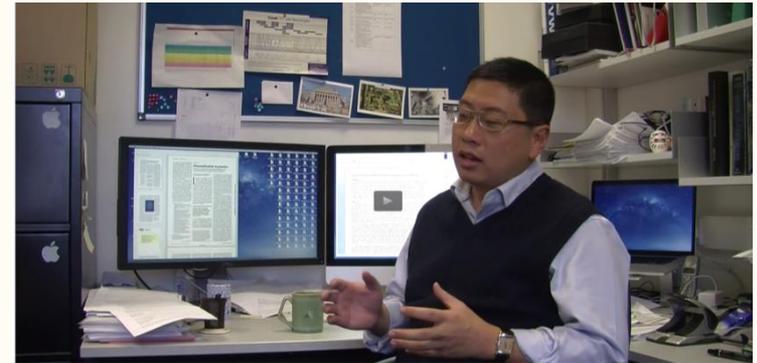
What we will cover today

- What academic recruiters want
- Personal statements
- The academic research CV
- Speculative approaches to supervisors
- Research proposals
- Sourcing PhDs

What are the key things that are looked for in applications for a PhD place?

Dr QueeLim Ch'ng, Chair of the LIDo Research Training Committee:

“We look for several things in applications. First academic excellence, usually a first or upper second. This is very important as our programmes are very challenging.



[Video](#)

Continued...



Second, research experience, the student has spent some time in the lab or doing research at the computer. They should be able to execute [work] in the lab – this is really important. Those [two] are what most programmes look for.

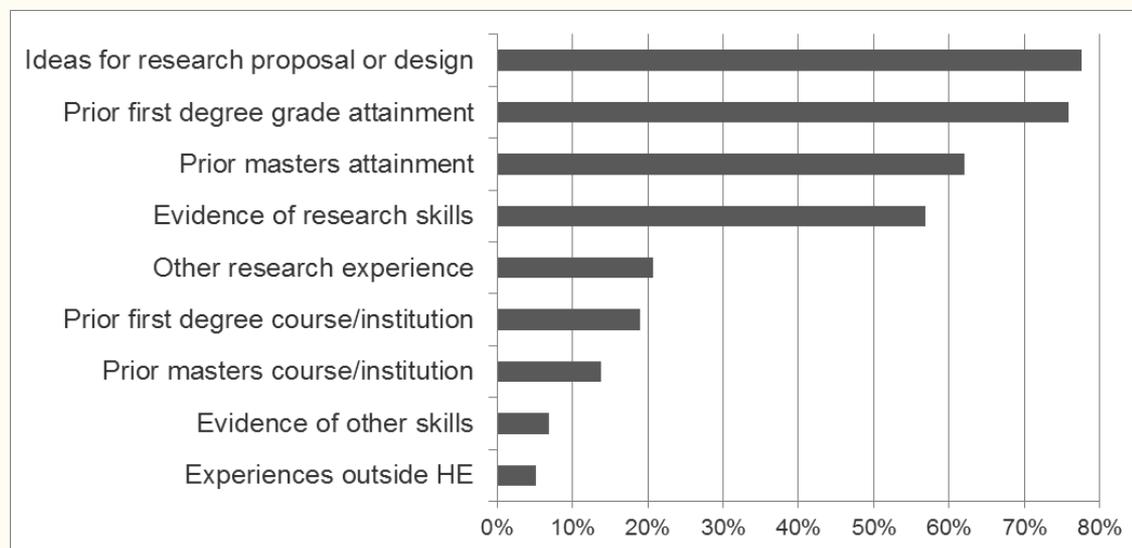
In addition, students have to be highly motivated.. a burning desire to achieve.. and generally interested in doing our kind of research [highly inter-disciplinary]”

How HEIs are recruiting PhDs

- 2014 Survey by HECFE
- Surveyed senior academics across disciplines, 60 institutions
- Application success rates between 10% and 50% were reported by institutions in the Russell Group and other pre-1992 group
- Respondents' most important factors constituting a high quality application for a PGR programme (three most important choices allowed, n=57) :

How HEIs are recruiting PhDs Continued...

- A higher proportion of Russell Group institutions rated attainment in a prior masters as more important than attainment at first degree level
- Far more of them (than other Unis) considered the specific course or institution of the first degree to be very important



Personal Statements

Midlands Consortium Interdisciplinary Doctoral Programme (MCDIP)

- Representing a collaboration five of leading universities in the English Midlands, the consortium provides students with a unique opportunity to pursue innovative interdisciplinary research projects
- Disciplines: Cell biology, Neuroscience, Immunology, Developmental biology, Physiology, Structural biology, Chemical biology, Biotechnology, Microbiology, Genetics, Evolutionary biology.
- In year one - research training that provides mathematical and computational skills to understand and model biological processes and function.
- In year one you will experience three, 2-month lab rotations
- In years 2 – 4 you will work on your selected project
- At any point in years 2 – 4 you will undertake a 3 month industrial placement

Example: Statement of Purpose P1

[P1] The challenge of elucidating the complex interplay between neurons and the subsequent network computations is a compelling one. The implications of characterising these computations are vast and it represents one of the major obstacles in our understanding of the human brain. Such a challenge is attractive to me on a personal level because it allows me to address both my affinity for physiology and computer science. After considering the opportunities available on the Midlands Consortium Interdisciplinary Doctoral Programme (MCDIP) and the potential range of research projects, I am sure the programme offers the best platform on which to further my career in neuroscience and satiate my interests. To be able to complete two four-month research projects in different laboratories is especially appealing, as the breadth of research across the five universities is one of the greatest strengths of the programme. The work of principle investigators utilising computational modelling to investigate neuronal networks is of particular interest to me and I hope the programme will allow me to expand upon this.

Example: Statement of Purpose P2

[P2] My undergraduate degree In Biomedical Sciences at Kings College London focused on Pharmacology, Psychology and Mathematics. Elective modules such as Pharmacology of the Central Nervous System and Biological Psychology demonstrated the complexity of our nervous system, from neuronal networks to receptor properties. Other modules such as Stress, Immunity and Health, taught me how psychological factors can affect other parts of the human body via Hypothalamic-Pituitary-Adrenal axis-mediated cortisol release. I believe these modules established much of the core biological knowledge needed for a successful career in neuroscience. My final year dissertation focused on Major Depressive Disorder (MDD) and allowed me to utilise the knowledge and critical thinking skills I had developed during my degree. As a result, I was able to analyse and investigate current scientific findings to produce a critical literature review. Not only did my undergraduate degree provide a firm foundation for further study in neuroscience, but my academic success was recognised by the award of a British Neuroscience Association first prize.

Example: Statement of Purpose P3

[P3] While studying Biomedical Science I was keen to gain work experience in neuroscience and this was achieved during my research year at The University of California, Berkeley. My work there was predominately focused on the neuronal basis of MDD and the role of neuronal nicotinic acetylcholine receptors (nAChRs). It was this research year that inspired me to pursue neuroscience as a career. It was fascinating to be able to target just one subunit of a nAChR in a specific brain region and visibly observe its effect on animal behaviour. I was intrigued by the fact that such a minuscule change at the molecular level can influence complex behaviours like anxiety and depression. The research itself was structured in such a way that I was given the opportunity to be responsible for my own project and experiments which generally involved behavioural testing, histology and microscopy. These data were then presented as a prize winning poster when I returned to Kings College. The experience enabled me to develop many core skills such as data analysis and interpretation that are required to succeed in a research environment. In addition, it demonstrated that I can apply myself to challenges both academic and personal.

Example: Statement of Purpose P4

[P4] Upon completion of my bachelor's degree I wanted to challenge myself and learn skills that would transfer well to neuroscience research. I identified computer programming and data analysis as suitable skills because I believe they are key elements of both current and future neuroscience research. As a result, I accepted a position with the company Geotech Enterprise as a software developer, My primary role was to provide database solutions for a range of clients, including the NHS. Exposure to some of the possibilities of current computer technology opened my eyes to how it could be related to neuroscience. I believe that many future advance will be formed from the partnership between information technology and neuroscience, ranging from new analysis techniques to pragmatic artificial intelligence. Importantly my year at Geotech Enterprise was an excellent opportunity to experience working outside of academia. I gained valuable insight into the world of business and the inner working of a variety of companies. The industry placements for PhD Students that is incorporated into the MCDIP is a unique chance to develop this further and guide my future career decisions.

Example: Statement of Purpose P5

[P5] The culmination of all these experiences was my application to the MSc Neuroscience at Imperial College London, a leading contributor of neuroscience research. Currently I am in the process of studying for the taught part of the course whilst also working on a masters project in the Sherborne group at the MRC Laboratory for Cell Biology. My project is focused on producing and testing a computational model of layer 2/3 cells in the mouse barrel cortex. This is a particularly exciting competent of the course because it is an opportunity to investigate neuronal circuitry on a practical level, which will in turn prepare me for future research in the field. It is also an ideal way to apply the computer programming skills I learnt at Geotech Enterprise to the world of neuroscience. The SysMic course fits well with this as additional training in mathematical, computational and statistical techniques is ideal for the modelling of neuronal networks of the option of a tailored third module will be particularly useful for a PhD project in the field.

Example: Statement of Purpose P6

[P6] Taking these experience into account, I believe I would be well suited to the MCDIP with my biological and computational background as well as my knowledge of both academia and business. The programme itself is attractive for numerous reasons. Firstly, the sheer breadth of high quality of research and number of universities participating in the programme is ideal for identifying a project suited to my interests and experience. Secondly, the taught components of the programme and the opportunity for experience in industry provide a strong foundation for a successful career in neuroscience. Finally and most importantly the programme will help me make an informed decision about whether to pursue academia or industry upon completion of a PhD.

Content Analysis

- Emphasised **relevant knowledge** gained during academic studies & some research skills – critical thinking [P2]
- Highlighted an **academic achievement** (BNA prize) [P2]
- **Relevant tech. skills** in California lab & commitment to research [P3]
- **Transferable skills** gained from other work experience [P4] & evidence of interdisciplinary knowledge [P4]
- Highlighting nature of masters demonstrates **commitment to discipline**. [P5]
- Additional **research skills & experience** highlighted [P5]
- **Programme choice**: Identifying elements of programme that fit with self development needs & usefulness [P5]
- How PhD fits with ideas of **long term career** [P6]

Personal statement

- Why you want to pursue a PhD, career aims
- Why is this particular area of research of most interest to you?
- Why you have chosen to apply to this particular university, research group?
- **MOTIVATION: provide examples to illustrate key points, have you read the papers? Do you have an opinion / ideas?**
- What previous academic and practical experience have you got that shows your capability to do the job?
- Technical & methodological skills you have to offer
- Academic & personal skills & qualities
- **THINK KEY SELLING POINTS** (not necessary to cover every skill needed), key examples - evidence
- **THINK ACHIEVEMENTS**

The Academic CV

SAMANTHA A. SINGH

28 Oakfield Lane, Wembley, London,

Telephone: 020 800 xxxx Mobile: 0700 xxxxxx Email: s.a.singh9307@yooohoo.co.uk

Summary

Current postgraduate student with an interest in neuronal networks and computational modelling, particularly in relation to central nervous system architecture. Previous experience in a research environment at the Department of Cellular Physiology at The University of California, Berkley and the MRC Laboratory for Cell Biology at Imperial College London.

Education

MSc Neuroscience, Imperial College London 2017 – 2018

Modules - Receptors and Synaptic Signalling, Developmental Neurobiology, Systems and Circuit, Neuroscience, Cognitive Systems Neuroscience.

- Project - Computational modelling of Layer 2/3 neurons in the mouse barrel cortex
- Journal Club – Co-organiser of a series of lunch time discussions for current students reviewing recently published papers

BSc Biomedical Sciences, Kings College London 2014 – 2017

Key Modules - Pharmacology of the Central Nervous System, Stress, Immunity and Health, Mathematics for Scientists, Cognitive and Behavioural Psychology.

- First Class Honours, Programme Percentage = 75.15%
- Dissertation - 'The Resurgence in the Cholinergic Theory of Major Depressive Disorder and its Potential to Provide Novel Therapeutics.'
- Awarded a British Neuroscience Association first prize for academic achievement.

AS/A2 Levels, The Queen's School, Wembley, London 2012 – 2014 |
Mathematics A*, Chemistry A*, Biology A, AS: Geography A

GCSEs, The Queens School, Wembley, London 2009 – 2012
11 at grades A-A*, including Mathematics, English and Science

Research Experience

Masters Research Project, Imperial College London Oct 2017 – Oct 2018

Currently conducting a 10 month masters project in the Sherborne Laboratory at the MRC Laboratory for Cell Biology, Imperial College London

- The project is focused on creating and testing a computational model of layer 2/3 neurons in the mouse barrel cortex.
- Involves application of *PyDream* bioinformatics software for parameter inference and extensive data analysis using MATLAB

Research Associate, University of California, Berkeley Sept 2015 - May2016

Year-long industrial work placement in the Rutger laboratory at the Department of Cellular Physiology at The University of California, Berkley. Investigated the role of the cholinergic system in Major Depressive Disorder, using the mouse as a model system.

PhD CV Example

PhD CV Example Continued

- Common experimental procedures involved viral stereotaxic surgery, behavioural paradigms and basic immunohistochemistry.
- A scientific write up of my work was required at the end of the year.
- Subsequently named as a co-author of the paper - '*Expression of the 8-GT1C Dopamine Receptor in the Corpus Collosum Is Required for Stress Resilience and the Antidepressant-Like Effects Induced by the Nicotinic Agonist Guanine.*' Published in Nature, Cell Biology

Work Experience

Software Developer, Geotech Enterprises

Jun 2016 -Sep2016

Developed business solutions for a range of clients across a variety of industries, including small medical technology firms, professionally liaising with clients daily.

- **Software development using the program Filemaker.**
- Utilised problem-solving skills and the ability to create novel solutions to provide technical support to clients for the personalisation of data management systems.
- Expanded my knowledge of IT and the industry through interactions with industry specific data and exposure to a number of industry experts.

Positions of Responsibility

Team Leader, Outlook Expedition

Jun 2015-Jul 2015

A month long expedition to Thailand, Cambodia and Laos with the aim of improving amenities in a small Laos community.

- Developed leadership skills when designated as team leader for six of the volunteers for part of the expedition, tasked with building a temporary school hut.

Primary School Volunteer, The Queen's School

Sep 2014-May2015

- Volunteered at a local primary school once a week and helped children to understand scientific concepts, including basic cell biology and chemistry
- Improved communication skills through the teaching of younger pupils using visual media and practical demonstrations using microscopy and simple bench chemistry.

Skills

Proficiency with Microsoft Office, Apple products, *Filemaker* scripting language, cloud services and MATLAB. Coding proficiency in Python and C++.

Interests and Activities

Long distance running

- Competed as a member of various clubs and currently part of Imperial College London cross country team. Running has developed my determination and persistence.

Intermediate level guitar skills.

- Produce short compositions using *Propellerhead* computer software.

References

Available on request

PhD Graduate CV Example

ADMINISTRATION

- Assisted in examining, talking to students and parents at Open Days and invigilating examinations
- Responsibility for leading a team of students in planning and organising a university conference
- Experienced in report writing and writing up research work

SKILLS

- Confident in use of various software packages: SQL, Windows, Unix
- Skilled database writer and user

POSITIONS OF RESPONSIBILITY

- Participated in academic and policy dissemination activities and workshops
- Supported students' research activities
- Undertook administrative tasks relating to student induction programme
- Assisted in coordinating day to day running of residential Vitae programme

CONFERENCES ATTENDED

- 2009 The Woman Question – Wolverhampton West University
- 2009 The Challenge of Big Data – The British Library
- 2008 20th Century Opportunities for and Expectations of Women in Work

FUNDING AND AWARDS – AHRC

REFERENCES

Professor J M Smithson	John Engelhard, Tutor
West Birmingham University	West Birmingham University
School of Humanities	School of Humanities
The Ringway	The Ringway
Birmingham	Birmingham
B9 7QZ	B9 7QZ
Email: profsmithson@westb.ac.uk	Email: Engelhard@westb.ac.uk
Tel: 0121 5722099	Tel: 0121 5722097
Professor Philippa Miles	
Somerset College	
Cambridge	
CB1 1RD	
Email: pmiles@cam.ac.uk Tel: 01223 337324	

Research CVs for Academia: Key sections

KEY INFORMATION:

- PERSONAL DETAILS
- EDUCATION / QUALIFICATIONS
- RESEARCH EXPERIENCE
- SKILLS (SPECIALIST / TECHNICAL)
- OTHER WORK EXPERIENCE
- INTERESTS / HOBBIES
- REFEREES

OTHER (experience dependent):

- PUBLICATIONS
- AWARDS
- RELEVANT TRAINING
- CONFERENCES / SEMINARS
- TEACHING / MENTORING
- PUBLIC ENGAGEMENT
- GRANTS / FUNDING
- MEMBERSHIPS
- ADMINISTRATIVE DUTIES

Recruiter Advice for all CVs

CONTENT

- Targeted, Relevant, Evidence Based
- Achievements / Outcomes
- Avoid overly descriptive language, use active verbs (e.g. achieved, controlled, etc.)

FORMAT

- Note: Academic CVs of experienced researchers can be more than 2 pages
- Distinct Sections & clear headings & subheadings
- Keep to point, use bullets, paragraphs to 4 lines or less
- Appropriate & consistent formatting/ highlighting
- Check for spelling or grammar errors

Approaching Potential PhD supervisors speculatively

Dr Joe Devlin, Head of Department of Experimental Psychology at UCL

Q: What advice would you have regarding contacting potential supervisors?

“When contacting [an academic] bear in mind we are fairly busy people and want to see some evidence you made an effort to really focus [on us]. Address them as ‘Dear Doctor X’ – get their title right! Keep it really short, it should be two paragraphs or less. First paragraph has to be why you are contacting them, and specifically them.

Show you have done some research to know that they are the right person .. And it’s not a generic email sent to lots of people.”

Making a Research Enquiry UCL (Guidance Document PDF)

www.ucl.ac.uk/prospective-students/graduate/research/application



Guidance on how to contact potential supervisors

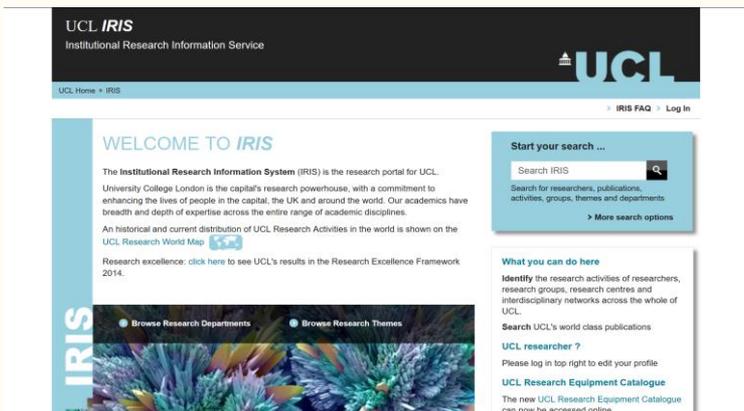
Identifying a PhD supervisor

Choosing to undertake graduate research is a big decision and it is extremely important that you identify a research project that really excites you. Identifying the right supervisor is critical as this relationship provides you with invaluable support and guidance from a leading academic in your field.

How to identify a suitable supervisor at UCL

- Thoroughly research your options on UCL departmental websites and in the UCL online Graduate Prospectus: www.ucl.ac.uk/gradprospectus
- You can also search for relevant supervisors and research groups in the Institutional Research Information Service: www.ucl.ac.uk/iris. Not all academics are listed in this database but it is a good place to start.
- You can read research papers written by UCL academics in our research repository. All papers are put here subject to academic approval: www.ucl.ac.uk/discovery
- Make contact with either the specific academic you are interested in working with, or the appropriate Department Graduate Tutor (listed either on the department website or next to the programme entry in the Graduate Prospectus), to explore research opportunities in more depth.

Creating your own project: Finding a potential supervisor



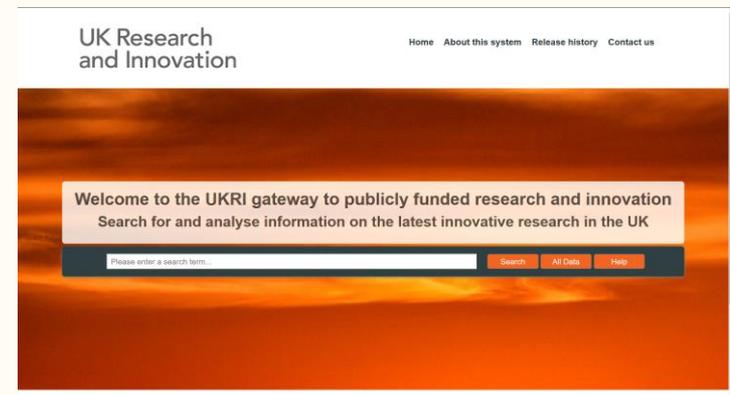
Institutional Research Listings e.g. <https://iris.ucl.ac.uk/iris/>



Discipline – specific publications



Learned Societies: Conferences, Member List



Gateway to Research: Funded Groups: <https://gtr.ukri.org/>

Research Proposals

Dr Richard Freeman, Deputy Director of the UBEL ESRC Doctoral Training Partnership based in the UCL Institute of Education

What's looked for in an application – **research proposal**

- “..the kind of things we're going to look at are ‘what is your proposal .. Specifically:
- Is it deliverable in the time frame of 3 years full time or 5 years part time?
- Do you have the skills to do it? and if you don't, do you have a plan to develop those skills while you are doing the doctorate.”

Research Proposal

A good PhD proposal should:

- Define a research question clearly
- Describe your approach to answering it
- Highlight its originality and/or significance
- Explain how it relates to existing literature in the field
- Persuade potential supervisors and/or funders of the importance of the work
- Why you are the right person to undertake it

www.ucl.ac.uk/prospective-students/graduate/research/application

What are the most common errors and/or omissions that candidates make in their applications?

- No research into department
- No approach to possible supervisors
- Lack of motivation
- Failure in overseas applicants to address the EFL requirement
- Lack of detail re qualifications and/or not ‘translating’ them to UK equivalence
- Not aware of funding requirements
- No detail about previous research projects (e.g. objective, method, outcome)

Continued...

- Being too general ('I am interested in the brain')
- No indication as to why they are 'a suitable student', i.e. just focusing on qualifications
- Sending out a non-specific standard statement
- Vague research proposals
- Over-selling experience/skills
- Over-emphasis on goals / motivations / hopes

Advertised opportunities

- Findaphd.com - includes professional doctorates
- www.nature.com/naturejobs – search ‘studentships’ – UK & International
- www.postgraduatestudentships.co.uk/ - includes funders
- www.prospects.ac.uk - Postgrad. Section - type ‘PhD’ into keyword search
- Institution websites:
www.ucl.ac.uk/prospectivestudents/graduate/research/degrees



Online resources

- **Academia overview:** www.academiccareer.manchester.ac.uk
- **CV examples:**
www.vitae.ac.uk/researcher-careers/researcher-cv-examples/list-of-vitae-cv-examples
- **Research proposal advice:**
www.findaphd.com/advice/finding/writing-phd-research-proposal.aspx

UCL Careers 1 to 1 Support

- Applications advice (20 minutes)
- Short guidance (20 minutes)
- Practice interview (60 minutes, on condition of real employer interview)

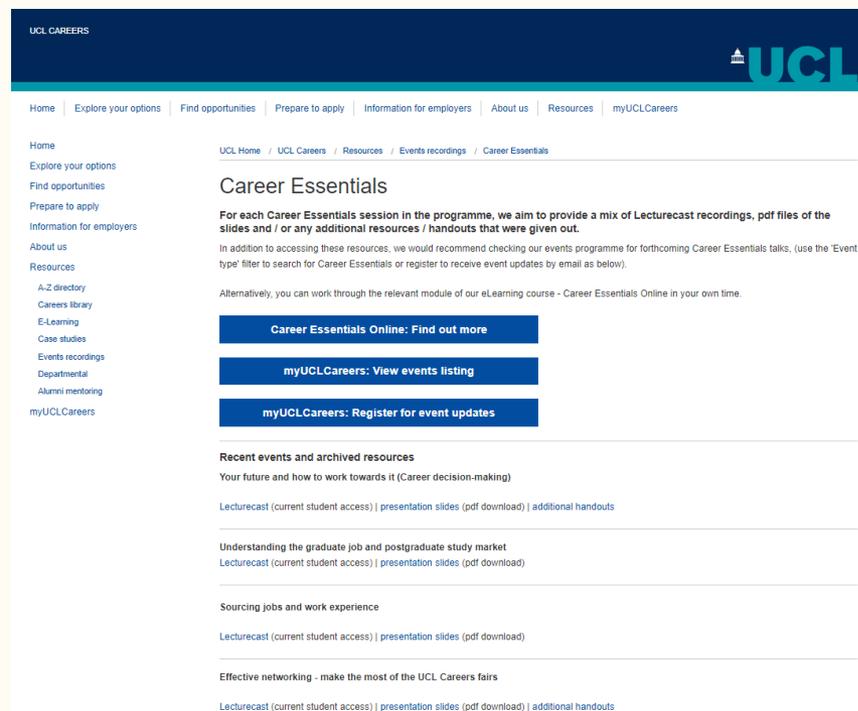
Career Essentials programme 2019 - 2020

- 12 title lunchtime talks.
- Small Group Work sessions (CV).
- 3 title workshops covering LinkedIn, Mock Assessment Centres and MBTI Personality Profiling.
- 6 module e-learning course.

Slides and recordings

<https://www.ucl.ac.uk/careers/resources/slides/career-essentials>

Search 'UCL Career Essentials'



The screenshot shows the UCL Careers website page for 'Career Essentials'. The page has a dark blue header with the UCL logo and navigation links: Home, Explore your options, Find opportunities, Prepare to apply, Information for employers, About us, Resources, and myUCLCareers. A left-hand navigation menu lists various categories including Home, Explore your options, Find opportunities, Prepare to apply, Information for employers, About us, Resources, A-Z directory, Careers library, E-Learning, Case studies, Events recordings, Departmental, Alumni mentoring, and myUCLCareers. The main content area is titled 'Career Essentials' and includes a sub-header 'Career Essentials' and a paragraph stating: 'For each Career Essentials session in the programme, we aim to provide a mix of Lecturecast recordings, pdf files of the slides and / or any additional resources / handouts that were given out.' Below this, there is a paragraph about accessing these resources and a link to 'Career Essentials Online: Find out more'. There are three prominent blue buttons: 'Career Essentials Online: Find out more', 'myUCLCareers: View events listing', and 'myUCLCareers: Register for event updates'. The page also features a 'Recent events and archived resources' section with links to 'Your future and how to work towards it (Career decision-making)', 'Understanding the graduate job and postgraduate study market', and 'Sourcing jobs and work experience'. Each link is followed by a brief description and a link to the resource.

Talks coming up Jan 2020

Cover letters & application forms	22 nd
Sourcing Jobs & Work Experience	23 rd
Improve your CV	24 th
Making the most of Panel & Alumni Events	27 th
Considering a Masters	28 th
Interview Success	30 th

Small group sessions

- Applying for Unadvertised Opportunities
 - January 27th, February 17th, March 9th
- Using STAR to showcase skills
 - January 20th, February 14th, March 2nd, March 23rd
- CVs
 - February 3rd, February 25th, March 16th
- 1.00 – 1.50pm, UCL Careers

Workshops Spring 2020

Mock Assessment Centre	Jan 29 th
Personality Profiling (MBTI)	Jan 30 th
	March 4 th
Linkedin	Feb 26 th
	March 18 th

Find us

4th Floor, Student Central Building, Malet Street

Mon-Thurs 9:30 - 17:00

Fri 11:00 -17:00

careers@ucl.ac.uk

020 7866 3600



Questions?

