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BETTER PHD APPLICATIONS

DR CALUM LECKIE
UCL CAREERS

UCL Careers

What we will cover today

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

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https://mediacentral.ucl.ac.uk/player/2638

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

- Q: **'What are the key things you look for in applications for a PhD place?'**

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

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 HEI's are Recruiting PhDs

2014 Survey by HECFE

surveyed senior academics across disciplines, 60 institutions

Top qualities looked for in applicants (in order):

1. Have ideas for research proposal or design (stated by nearly 80%)
2. Prior first degree grade attainment
3. Prior masters attainment
4. Evidence of research skills
5. Other research experience

KEY FINDINGS:

- A lot of emphasis is placed on **evidence of experience of research** rather than potential aptitude
- Excellent academic performance at masters level (esp. dissertation) may be used as key differentiator

PERSONAL STATEMENTS

- Explaining your motivation
- Highlighting your key selling points

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**

PHDAPPSTATEMENT.docx - Word

GN PAGE LAYOUT REFERENCES MAILINGS REVIEW VIEW

Samantha Singh - Statement of Purpose:

The Hook

[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.

Commitment to Programme

[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.

Relevant Academic Background

[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.

Research Experience

[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 National Health Service. 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 advances 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 workings 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.

Other Experience – Transferable skills

[P5] The culmination of all these experiences was my application to the Master of Science (MSc) Neuroscience course at Imperial College Lodnon, a leading contributor of neuroscience research. Currently I am in the process of studying for the taught part of the course while 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 component 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 and the option of a tailored third module will be particularly useful for a PhD project in the field.

Commitment to Programme

[P6] Taking these experiences 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 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 to make an informed decision about whether to pursue academia or industry upon completion of a PhD

Summary & The Future

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?

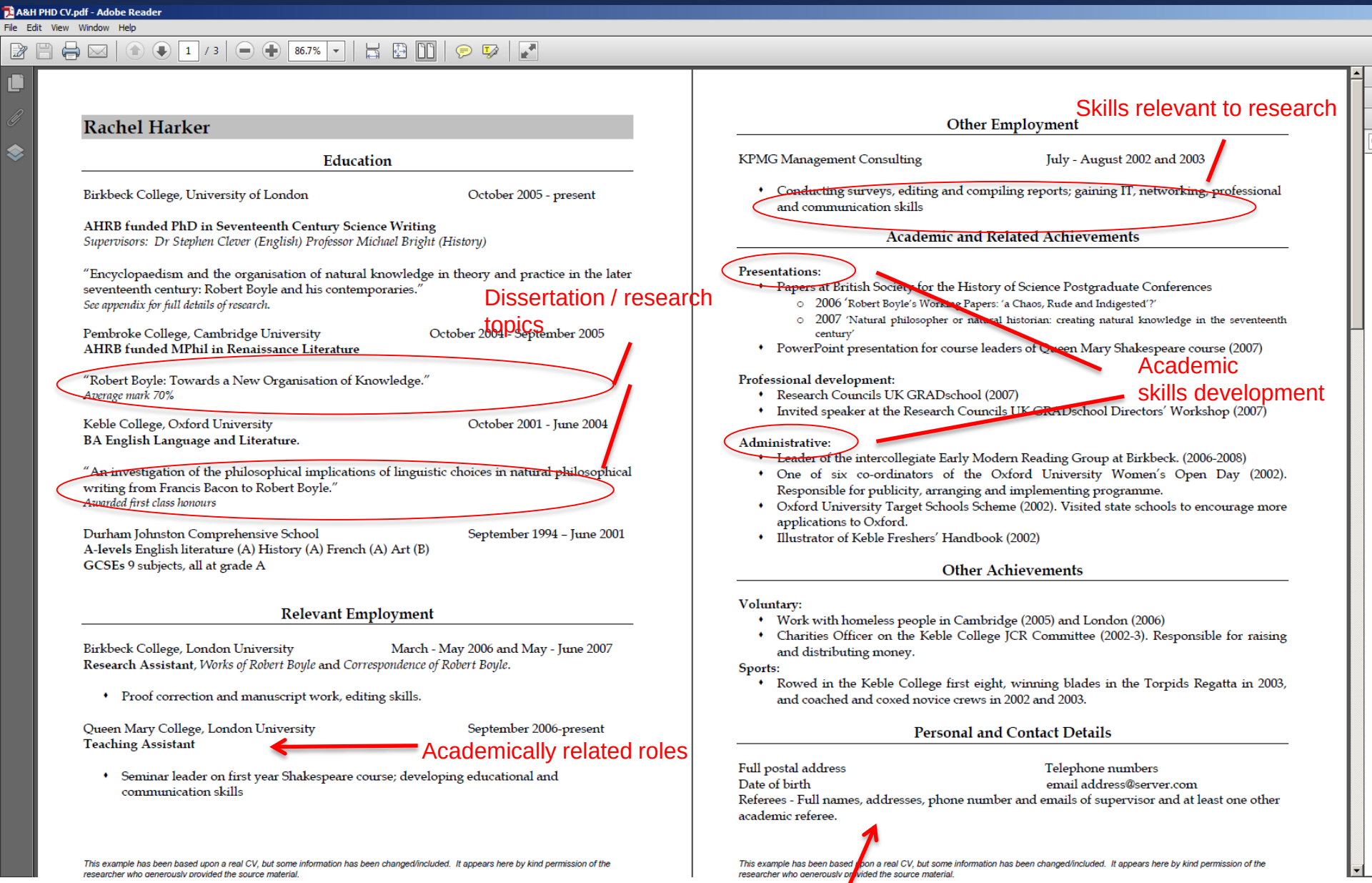
- What previous academic and practical experience have you got that shows your capability to do the job?
- Technical & methodological skills you have to offer
- Academic & Personal skills & qualities

- **THINK KEY SELLING POINTS (try not to cover every skill needed), key examples - evidence**
- **THINK ACHIEVMENTS**

THE ACADEMIC CV

Survey of UCL academics 2013

- **What key achievements and types of experience on the CV would make the applicant 'stand out from the crowd'?**
  - Publication, presentations / Public exhibition track record
  - High grades
  - Attended leading University / Course
  - Prizes / Awards
  - Relevant work experience
  - Outreach activity
  - Societies set up
  - Initiative / Pro-activity
  - Research project experience



CV example from **Vitae** (*note: no longer avail. Online*) www.vitae.ac.uk/researcher-careers

SAMANTHA A. SINGH

28 Oakfield Lane, Wembley, London,

Telephone: 020 858 740567 Mobile: 07956 234 28997 Email: s.a.singh93@yahoo.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.

- 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

Research CVs for Academia: Key Sections

- 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

https://mediacentral.ucl.ac.uk/Player/2719

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'

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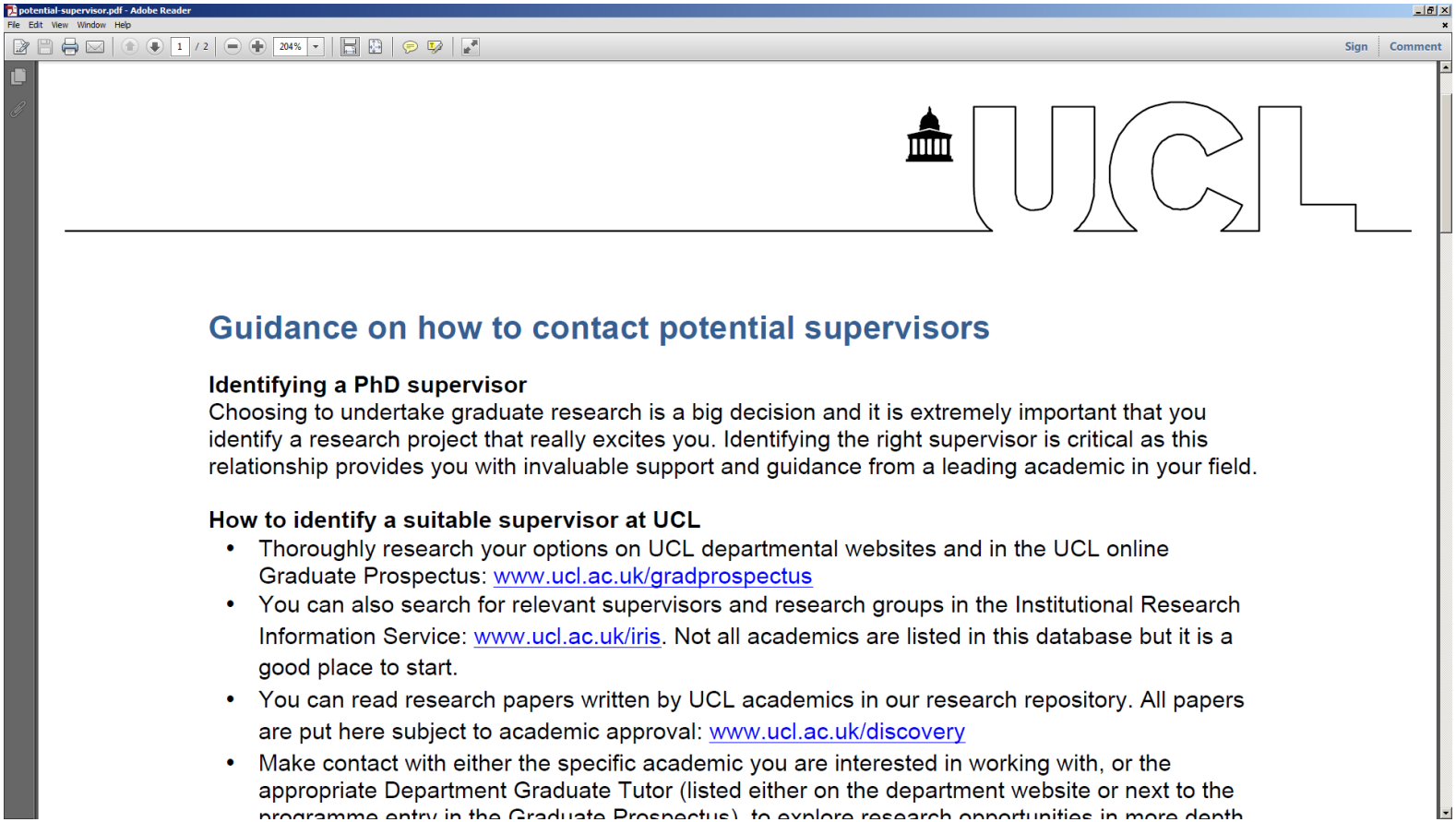
www.ucl.ac.uk/prospective-students/graduate/research/application

3. Making a Research Enquiry **UCL Guidance Document** PDF



potential-supervisor.pdf - Adobe Reader

File Edit View Window Help

Sign Comment

UCL

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

- **UCL Careers, survey of academics**
- **What advice would you give to a student thinking of contacting a potential supervisor with a research proposal?**

  - Have a clear idea of the problem you seek to study
  - Know the staff and their specific research interests – align your approach accordingly
  - Be flexible about other options for research
  - Research funding options*

* www.ucl.ac.uk/prospective-students/graduate/research/fees-funding

Research Proposals

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https://mediacentral.ucl.ac.uk/Player/2825

- **Dr Richard Freeman, Deputy Director of the Bloomsbury ESRC Doctoral Training Centre 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

Survey of UCL academics 2013

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)
- 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

jobs.ac.uk
Great jobs for bright people

- **www.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)

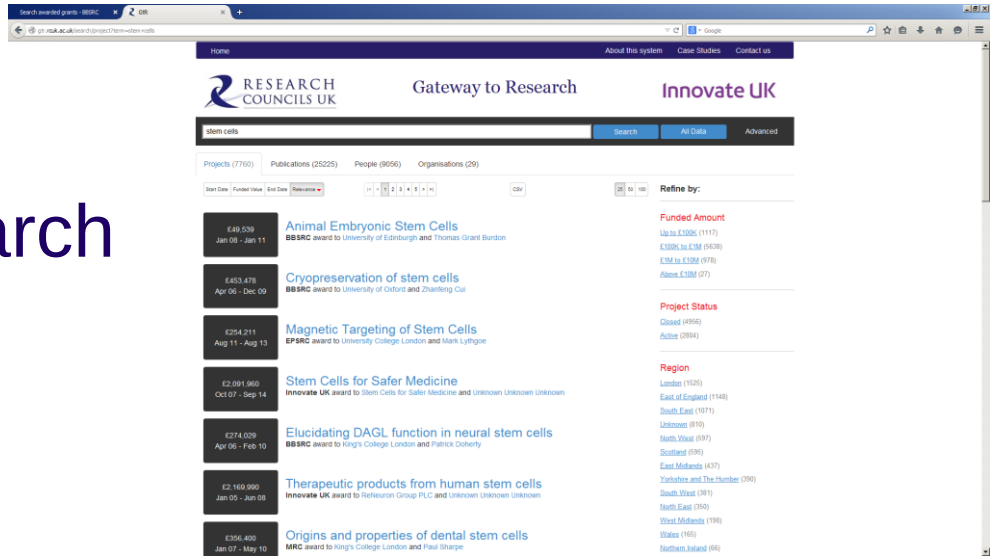
INSTITUTION WEBSITES:
E.g. UCL:
www.ucl.ac.uk/prospectivestudents/graduate/research/degrees

Identifying Research Groups & Opportunities

- **University Research Databases**
- UCL: http://iris.ucl.ac.uk/iris/
- Cambridge: www.cam.ac.uk/research

RCUK: Gateway to Research

http://gtr.rcuk.ac.uk



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

Careers Essentials 2017/18

Talks, workshops and eLearning

Search ‘UCL Careers Essentials’

10-title lunchtime talks including:

- Improve your CV
- Find and fund a PhD
- Interview success

5-title workshops including:

- Mock aptitude, etray and psychometric tests
- Using Linkedin in your job search
- Personality profiling

6-module ‘eLearning’ course

- An introduction to the grad job market
- Your future and how to work towards it
- Sourcing jobs and work experience

CAREER ESSENTIALS online

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UCL Careers Events across the next fortnight

FIND

UCL Careers Fairs

Exhibitors information: http://www.ucl.ac.uk/careers/events/fairs

	Date	Time
UCL Banking, Finance & Economics Fair Day 1	Tuesday 10th October	5:30pm
UCL Banking, Finance & Economics Fair Day 2	Wednesday 11th October	5:30pm
UCL IT & Technology Fair Day 1	Wednesday 18th October	5:30pm
UCL IT & Technology Fair Day 2	Thursday 19th October	5:30pm

Skills4Work

Booking information: www.ucl.ac.uk/careers/events/skills4work

Workshop: Leadership with Atos and Frontline	Monday 9th October	1:00pm
Panel: CV's and Covering Letters with CBRE and Freshminds	Thursday 12th October	5:00pm
Panel: Succeeding at Interviews with Linklaters, FDM & Wellcome	Monday 16th October	1:00pm
Workshop: Teamwork with L'Oreal and CBRE	Tuesday 17th October	5:00pm
1:1 Interview Coaching: with RPC	Friday 20th October	9:45am

Career Essentials – Talks and Workshops

For more information and how to book: www.ucl.ac.uk/careers/events/essentials

Make the Most of the UCL Careers Fairs - How to Connect with Employers	Monday 9th October Tuesday 17th October	1:00pm 1:00pm
Better Cover letters, Application Forms and Personal Statements	Tuesday 10th October	1:00pm
Find and Fund a PhD	Thursday 12th October	1:00pm
An Introduction to the Graduate Job Market	Friday 13th October	1:00pm
Your Future and How to Work Towards it	Monday 16th October	1:00pm
Mock Aptitude and Other Psychometric Tests	Tuesday 17th October	3:00pm
Improve Your CV	Thursday 19th October	1:00pm
Practice Aptitude and Other Psychometric Tests	Thursday 19th October	3:00pm
Better PhD Applications	Friday 20th October	1:00pm

Employer Presentations

Booking information: www.ucl.ac.uk/careers

An Evening with Shell ***Off campus***	Monday 9th October	5:30pm
Unilever	Tuesday 10th October	1:30pm
Citi	Thursday 12th October	1:00pm
RBB Economics: Career in Economic Consulting ***Off campus***	Thursday 12th October	6:00pm
BCG Kuala Lumpur Associate Virtual Connection Event ***Off campus***	Friday 13th October	10:00am

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- Today's slides, resources and lecturecast

Search: UCL Careers Essentials