

Institution: University College London

Unit of Assessment: 22 — Social Work and Social Policy

a. Overview

UCL's submission comes from its Department of Security and Crime Science (SCS). Established in 2009 our roots go back to 2001 and the UCL Jill Dando Institute of Crime Science. SCS is the first university department in the world devoted to reducing crime and other risks to personal and national security. We bring together scientists, designers and practitioners to examine crime patterns and find practical ways to disrupt them. Our location within the Faculty of Engineering Sciences has a profound impact on this interdisciplinary agenda. We offer four masters programmes, have a pioneering Centre for Doctoral Training (CDT) focused on crime and security, and contribute to UCL undergraduate teaching. There is a vibrant research and teaching environment, with activities arranged around five research groups described further below.

b. Research strategy

Since inception, our aim has been to produce interdisciplinary research that is academically rigorous and has direct policy value. As for RAE2008, most of our research involves end users directly. Our mission is to apply the scientific method to understanding and reducing crime and security problems. Staff are recruited from various scientific disciplines (e.g., forensic science, psychology, and engineering) and conduct research using methods including qualitative approaches, statistical analysis of ecological data, experiments, and computer simulation. Taught postgraduate courses help build capacity, allow staff to teach to their strengths, and to develop their research through teaching and dissertation supervision. Our RAE 2008 strategy is being delivered and we have now:

- expanded research capacity by widening our portfolio of funding sources, almost quadrupling peer-reviewed research funding obtained from RCUK, UK charity and EU funding sources (over £1.1M for REF2014 vs £0.3M for RAE2008). This excludes grants obtained from the ESRC and EU (over £6M) in 2013 (see Sections 3 and 4).
- increased our PhD cohort 7-fold (**35 PhD students supervised**, compared to 5 for RAE2008) and developed an interdisciplinary research ethos among our students.
- with Faculty support, embarked on a programme of managed growth, increasing from 5 FTE
 Category A staff in 2008 to 13. This additional capacity has enabled us to realise RAE2008
 aspirations and establish two new research groups (see below). Two senior appointments,
 Professors Nick Tilley (UK, 2008) and Richard Wortley (Australia, 2010), international leaders in
 psychology and crime, organized crime and policy evaluation, have developed and
 strengthened research in these areas.
- increased the volume, quality and reach of our research output. Since 2008, staff have published 150 journal articles, 10 books, 62 book chapters, 23 government reports, and 4 Problem Oriented Policing guides. We publish in crime and security journals and in the journals of contributing disciplines (e.g., mathematics, chemistry, engineering, geography). In 2008-13 more papers by SCS staff appeared in the three top rated criminology journals (*Criminology*, *Journal of Research in Crime and Delinquency*, and *Journal of Quantitative Criminology*) than any other single UK department (37% or 13 of 35).
- extended our work with police forces in the UK and internationally, having links in countries including India, Brazil, the UAE, China, Japan, Australia, and New Zealand.
- responded to the changing crime and security landscape. Research has examined contemporary international issues (e.g., Internet child pornography and piracy) as well as emerging domestic concerns (e.g., computer crime and internal sex trafficking).



Research groups are organized around 5 themes:

i) Geographical Analysis. Funding exceeding £0.8M from EPSRC, ESRC, the British Academy and elsewhere has built capacity in this group with new RAs including a mathematician and a complexity scientist, and 5 PhD students. The group develops novel methods of spatial analysis to advance understanding of crime, disorder and terrorism, and has a strong profile with active collaborations around the world (see Section 5).

Academic research focuses on theory development, analytic innovation, and the use of computer simulation models for theory testing. It includes work on spatial and space-time patterns of offender decision making during the 2011 London riots (**Johnson** with UCL political science); how space-time patterns of policing influence offending (**Bowers** with UCL civil engineering); crime around football stadia (**Johnson**, **Tilley**); and, on an international scale, maritime piracy (**Johnson**) and insurgency (**Johnson** with UCL political science). Applied research addresses innovative methods for improving the standard of crime mapping and examines the utility of spatial technologies for police forces, Community Safety Partnerships and other professionals (**Chainey**, **Johnson**).

Since RAE2008, the group has enhanced its publication profile, routinely publishing in top tier journals (e.g., Criminology), and authoring high profile applied publications. These include a National Police Improvement Agency (NPIA) report on the effects of Stop and Search, and the Association of Chief Police Officers (ACPO) NPIA Analysis of Geographic Information Workbook (**Chainey**). **Chainey** is academic adviser to ACPO's geographical analysis group.

- ii) Designing Out Crime. Our strategy has been to strengthen and broaden the scope of this group through the recruitment of two new lecturers (Sidebottom and Chetty) and two new professors (Tilley and Wortley), and with Faculty funding through the establishment in 2012 of the JDI Centre for Security Technology (CST), the mission of which is to foster collaborations among researchers across UCL working in the security field. The group conducts research on how the design of products, the environment, technology, management systems and legislation can reduce crime, antisocial behaviour and terrorism, or lessen their impacts. Research projects include a €3.3M FP7-funded research project on building and infrastructure resilience against bio-chemical, explosive and insider terrorist attacks (Borrion, Bouhana); the development of a passive radar technology prototype using WiFi signals to detect activity through walls, at long range (Chetty); AHRC funded collaborations with designers at the University of the Arts of London on preventing bicycle theft (Johnson) and crime in bars (Bowers); research funded by the Environment Agency on crime such as illegal fly tipping (Chainey); and projects on theft in supermarkets (Sidebottom), public attitudes to airport security (Bowers, Chetty), urban design and crime risk (Bowers, Johnson), and how commodity prices affect the risk of theft from national infrastructure (Sidebottom). International research has included examination of crime problems in Malawi (Sidebottom), Uganda (Johnson), and India (Belur, Tilley). Research has been published in top tier peer-reviewed criminology journals (e.g., Journal of Research in Crime and Delinquency) and IEEE engineering journals. Four Problem Oriented Policing guides funded and published by the US Department of Justice have extended the reach of the work. Laycock was Deputy Leader of the Home Office Design and Technology Alliance Against Crime (2007-2010), Wortley is the only criminologist on the Minister's Forum for Innovation in Crime Prevention, and **Sidebottom** is on the London Cycle Theft Partnership Executive Board.
- iii) Crime Policy & Evaluation. This group conducts research to influence crime reduction policy and evaluation methodology. Its reputation is signalled by the award of a £3.2M ESRC funded university consortium (Sept 2013-) formed and led by the group and directed by Laycock to construct an evidence base on what works in crime reduction. In addition Bowers, Johnson and Wortley act as expert reviewers (3 of 4 UK reviewers) for the US Office of Justice Programs "Crime Solutions" project; Tilley and Bouhana were commissioned by the ESRC to review the impact of the ESRC, FCO and AHRC-funded "New Security Challenges: Radicalisation and Violence" research programme, and Wortley is a member of the Home Office Academic Roundtable on Crime and the Advisory Group for Academic Involvement with the College of Policing.

Research projects include a competitively tendered Campbell systematic review of whether



geographically focused police initiatives displace crime (**Bowers**); a rapid evidence assessment of Al Qaeda-influenced radicalisation commissioned by the Home Office to inform their review of the Government's Prevent Strategy (**Bouhana**), and a National Institute for Health Research (NIHR) funded evaluation (with the London School of Hygeine and Tropical Medicine, LSHTM) to examine the impact of street lighting *changes* on crime and public safety (**Johnson**). **Wortley** works with colleagues at Griffith University on Australian Research Council (ARC) funded projects examining, for example, intimate partner homicide, situational prevention of child sexual abuse, and the management of occupational health risks for investigators of Internet child pornography. **Laycock** worked with colleagues in the UCL Mental Health Sciences Unit on an NIHR funded randomised controlled trial of treatment effects for the elderly following crime victimisation. **Belur and Tilley** are part of Project Oracle, an initiative funded by the ESRC, Greater London Authority and the Mayor's Office of Policing and Crime to foster evidence-based practice for dealing with youth-related crime in London.

- iv) Terrorism & Organised Crime. This group was established as one of our RAE2008 future objectives and has been strengthened by the appointment of three new staff (Borrion and Belur in 2008 and Gill in 2012). Its aim is to investigate how the transfer of knowledge and methods from crime prevention, detection and disruption can inform counter-terrorism and organised crime research and practice. Group members act as consultants for international, national and local government on projects that have included identifying crime databases to test social network analysis software, designing an executive guide for US Police Chiefs on terrorism prevention, and investigating the perceptions of Muslim communities in London boroughs. Research includes a Home Office funded examination of the causes of radicalisation cited in the Government's 2011 PREVENT strategy (Bouhana); an empirical study of incarcerated terrorists supported by the faculty career development fund and facilitated by the UK National Offender Management Service (Bouhana); a Leverhulme Trust funded project investigating Indian police perspectives on countering Naxal terrorism (Belur); an EPSRC funded examination of patterns of insurgency and counterinsurgency in Iraq (Johnson); and a new (not included in the HESA return) €3.6M EU FP7 project led by Bouhana (with Borrion and Gill) on lone-actor terrorism, which builds upon departmental research on radicalisation and building resilience, and research cited in the 2011 White House Countering Violent Extremism policy document funded by the Department of Homeland Security and UK Home Office (Gill). Other research has examined the nature of malevolent creativity and innovation within terrorist organizations (Gill, funded by the Defence Science and Technology Laboratory - DSTL); the unintended consequences of counter-terrorism measures on UK public transport (Bouhana, funded by UCL); and the development of an evaluation framework for online influence activities carried out by MOD (Bouhana, funded by DSTL). This group supervises four PhD students.
- v) Forensic Sciences. This is a recent venture involving one SCS Category A member of staff (Morgan) and two new SCS-funded research fellows appointed in October 2013. Additional capacity is also provided via the UCL JDI Centre for Forensic Sciences (CFS), founded and headed by Morgan in 2010 with funding from the Provost's strategic fund and from the faculties of Engineering Sciences, MAPs and Laws. Contributions include those from UCL computer science (Lewis Griffin), Electrical Engineering (Tony Kenyon), Geography (Jonathan Holmes), Psychology (David Lagnado, Adam Harris) and Chemistry (Chris Blackman). The aim of the CFS is to foster interdisciplinary research that addresses the most pressing forensic concerns in the detection and countering of crime and terrorism. Given the closure of the Forensic Sciences Service R&D in 2010, the CFS has sought to address a significant gap in the field. The CFS vision is unique in focusing on the necessity to develop empirical evidence bases for the interpretation of evidence rather than the development of new technologies. The CFS has the largest cohort of forensic science PhD students (currently 16) in the UK, and an MSc in Forensic Sciences, launched in 2012 is in strong demand. In the REF2014 period, Morgan published 22 peer-reviewed articles, attracted research and consultancy income from EPSRC, FP7 and the Atomic Weapons Establishment (AWE), and was a member of the Quality Assurance Agency group that developed the Benchmark for forensic science.

We aim to maintain the success of our research groups, to increase capacity in the Forensic



Sciences Group and to build expertise in the field of cybercrime via new posts and collaborative research, including existing work on cybercrime with ACPO (**Bouhana**).

c. People

1. Staffing strategy and staff development

Staff support and development is a key feature of the research environment. Since RAE2008, SCS has grown from 5 to 13 Category A staff, providing a more stable base for research. We have five professors (Wortley (HoD), Bowers, Johnson, Laycock and Tilley) (one in RAE 2008), one senior lecturer (Morgan), five lecturers (Borrion, Bouhana, Chetty, Gill, and Sidebottom), two senior researchers (Chainey, Belur), five RAs, two research fellows, and six visiting professors. New appointments, including three international, have strengthened the research groupings. The Department also has a dedicated business manager who coordinates CDT activities and pathways to impact. Key aspects of our strategy are:

- Sustainability: Wortley and Tilley excepted, recruitments have been of early career researchers (ECRs) with an appetite for cross-disciplinary research. To facilitate the teaching-research nexus and support sustainability, appointments have been associated with Masters programmes, with growth underpinned by healthy student enrolments. The Department's growth strategy has been developed with the full encouragement and tangible support of the Dean and Faculty. Academic staff share the teaching and supervision load and contribute to programme development and the departmental research strategy. We encourage the careers of non-HEFCE funded researchers who, where necessary, are supported between research projects.
- Recruitment and equal opportunities: To support the Department's multidisciplinary profile staff have been recruited from a variety of disciplines. We comply fully with UCL equal opportunities policies in the recruitment, training, appraisal, development and promotion of staff: 40% of our category A staff and our professoriate are female (the HESA national average is 20%), and 24% of departmental staff are from ethnic minorities (the HESA national average is 12%). Five staff have had maternity or paternity leave since RAE2008 and any requests for flexible part-time working have been accommodated, with workloads adjusted accordingly.
- Career progression and promotion procedures: These are designed to recognise and reward talent at all levels and are fully compliant with UCL policies. Staff are formally reviewed by the HoD (or his deputy) annually - informally more frequently. Since 2008, two members of staff have been promoted to Professor, and one to Senior Lecturer. Plans for career progression are always discussed during annual appraisals.
- ECRs, staff development and research: Senior staff routinely publish with ECRs, and provide guidance on career plans and knowledge transfer. A departmental conference fund enables staff to disseminate research and interact with academics and practitioners. New academic staff are allocated substantially lighter teaching loads and minor administrative roles for (at least) the first two years of their appointment to allow them to establish themselves as independent researchers. All new lecturing staff complete the PG Certificate in Teaching and Learning and ECR Borrion won the Provost's Teaching Award in 2012. Managed growth, and departmental investment have provided opportunities for sabbatical leave (two staff to date).
- **Ethics:** The Department has a formal ethics policy in line with UCL's research ethics framework, its own committee, and ethical issues are integral to taught programmes.
- Interdisciplinarity and collaborative research: Our cross-disciplinary research mission has
 recently been reinforced through the SECReT doctoral programme (see below), with each PhD
 student supervised by 2 academics from different UCL departments. This encourages crossdisciplinary doctoral research and stimulates regular inter-departmental interaction. As a result
 of SCS's international profile, we are regularly asked to accommodate visiting scholars (at all
 levels) and have done so for periods of up to two years. Eleven scholars have visited from
 countries including Australia, China, Japan, Korea, Poland, United States, Sweden and

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Switzerland.

2. Research students

A strategic departmental aim is to deliver a world leading doctoral training programme to produce future generations of scientists (physical and social) addressing crime and security research. Launched in 2008, the EPSRC-funded CDT in security science (UCL SECReT; funding from all sources £7M) has helped realise this ambitious goal. The first centre of its kind, it offers a comprehensive 4-year integrated MRes/PhD (1+3) programme for students wishing to pursue multidisciplinary security or crime-related research. Students are recruited from across the scientific community and enter through various funding routes (49 scholarships, 6 self-funded, 5 sponsored by industry). In addition to this programme, students can register for a three-year PhD. As a result, the Department's PhD programme has grown substantially. Sixty-five students have so far completed the Department's MRes in Security Science, and departmental staff supervise 26 SECReT PhD students and (co)supervise 9 additional PhD students.

Students are recruited via dedicated websites and annual open evenings, with prospective students invited to attend a two-day departmental Spring workshop. We receive around 200 PhD applications per year, of which approximately 55% are female. Applicants come from over 15 countries including Egypt, India and China, and some have prestigious scholarships from (for example) the El-Masry Foundation and Chilean government. Overseas scholarships totalling £400K (Faculty Dean's Award) support such talent. Students also include practitioners (e.g., British Transport and Malaysian police forces), adding real-world experience to the research environment. Since 2008, our intake has been around six new PhD students per year supervised within the Department.

Annual industry evenings bring together end-user, academic and public sector partners to stimulate exchange between students and external agencies, and to facilitate access to data, lab facilities, internships, practitioner expertise, research problems, and career pathways. Funding (£590K) and data have been provided by partners including DSTL and L3G, and the Serious and Organised Crime Agency (SOCA).

Students agree a programme of training with their supervisors, and those on the SECReT programme also complete a 3 month+ internship with an external organisation. We encourage students to focus on practical problems (e.g., research on internal child sex trafficking in the UK has informed government policy). All students complete wider skills courses offered as part of the UCL Graduate School Skills Development and Research training programme and attend weekly departmental seminars. A student intranet provides comprehensive guidance on PhD procedures and training opportunities. A departmental fund assists students to give presentations at international conferences, and SECReT students have a £2000 annual conference budget as part of their funding.

Students and supervisors meet regularly and complete the UCL Graduate School's research student log. Dedicated committees monitor the quality of the PhD and MRes programmes and elicit student feedback to help improve the student experience. Since RAE2008, 3 students on the standard PhD programme have graduated and gained employment as lecturers (2 in the UK, one in the US). The first cohort of 11 SECReT students complete in 2013. Some already have jobs with organisations such as SOCA, while another starts a £204K ESRC Future leaders award in the Department in 2014.

d. Income, infrastructure and facilities

To provide a sustainable research environment and to anticipate future needs, the departmental research infrastructure has grown considerably since 2008.

Research Funding: The Department has three main sources of income – HEFCE funding, competitive grants, and money earned through continuing professional development (CPD) courses, conferences and consultancies. A residual (some £400K) from the original fund used to set up the JDI supports strategic developments, and a number of activities maintain and expand research capacity. For example, the launch of the Faculty's integrated engineering programme in 2014 will offer new opportunities to expand undergraduate teaching and departmental income. Faculty funding also facilitated the launch of the CFS and CTS. Since 2008, the Department has



been involved in 30 competitive grants, equating to £2.2M in departmental funding (excluding the CDT), and new grants for 2013 (detailed in section 3) total £2.6M in *departmental income* (£1.4M RCUK funding). A further £1M has been raised through consultancies (supported by UCL Consultants) and CPD courses. We will continue to target these varied income streams.

Buildings and Facilities: As part of strategic Faculty investment, the Department moved in 2010 to a refurbished building on Tavistock Square. This accommodates all academic, research and administrative staff, all MRes students, and PhD students supervised within the Department. Colocation facilitates a high degree of cohesion among staff and students, and provides an environment within which collaboration flourishes. MRes students are located in an open plan room with 21 workstations. All full-time, Department-based research degree students (however funded) have their own computer, a networked printer, and telephone. The building also has a computer cluster room and a printer for student use and a seminar room (capacity around 25) with AV facilities, which is available for teaching, meetings, seminars and social events. In addition to the large centralized libraries, the Department maintains a small, specialist library on its premises. An exciting addition to the research infrastructure, built with funding secured from the Faculty, is the UCL Jill Dando Institute Research Laboratory (JDIRL) - a secure data lab located on the UCL campus. Only the second of its kind in the world, the lab facilitates access to rich crime (and other) data sets that would normally be unavailable to university researchers, and houses a high performance computing cluster. Costing over £1M to build, and completed in April 2013, the lab meets UK government standards for data security up to confidential level and provides for the analysis of data using computational methods previously beyond our reach. It has a separate visualisation suite and areas for secure working. An associated secure tutorial room can be used by staff for teaching, and departmental students have the opportunity to undertake research using restricted data. The potential of this facility to the future teaching and research activities of the Department and the academic community in the UK generally is substantial.

e. Collaboration or contribution to the discipline or research base

<u>Collaboration:</u> Strategic activity such as the organisation of annual conferences, the CDT, wide participation at conferences and RCUK sandpits, a strong web presence, and UCL funding for new initiatives help facilitate collaborations with other academics.

All staff are actively engaged in collaborative projects both within UCL, and with national and international partners. Since 2008 **staff have led or been Co-Investigators on over 36 funded collaborative projects** including those supported by EPSRC (4 projects − totalling £4.2M), ESRC (4 projects − totalling over £3M), AHRC (2 projects − totalling over £0.5M), EU (3 projects − totalling over €6M), and ARC (7 projects − totalling over AUS\$3.7M). Staff have collaborations with academics in more than 10 departments at UCL including Electrical Engineering, Mathematics, and Political Science. They have **collaborations with over 15 UK universities** such as Cardiff, Loughborough, and LSHTM, and over 15 internationally, including those in the United States (e.g., University of Maryland), Canada (e.g., Simon Fraser), Australia (e.g., Griffith) and China (Tshingua). Projects range from those that address national priorities in the UK (e.g., organized crime related homicide) or elsewhere (e.g., special needs of Aboriginal prisoners) and those that address global issues (e.g., building resilience to terrorist attack).

Staff have excellent collaborative links with government and other agencies. They have completed four ESRC-funded knowledge exchange projects (**Chainey**, **Johnson**), and projects with and for the Home Office (**Bouhana**, **Chainey**, **Chetty**, **Tilley**), Department of Homeland Security (**Gill**), Office for Naval Research (**Gill**), DSTL (**Bouhana**, **Chetty**, **Gill**), the National Police Improvement Agency (**Johnson**, **Tilley**), National Offender Management Service, the Prison Service (**Bouhana**), and the UK Football Policing Unit (**Tilley**). They have worked with more than 20 community safety partnerships and police forces in Australia, India, New Zealand, UAE, and the UK.

Collaborations with industry include those with Guidance Microwave Limited, TRL (**Chetty**), RKH (**Johnson**), and AWE (**Morgan**). **Belur** and **Tilley** collaborated with the NGO SNEHA in India. Staff have also completed research for ACPO (**Tilley**), and sat on their advisory boards (**Chainey**). **Laycock** left UCL on special leave (2010-2012) to establish a new Police Science Institute in the UAE. She also advised the UAE Government on the establishment of a new national research centre and provided advice and support to Abu Dhabi Police in establishing a



problem solving approach to their work.

Contribution: Staff make substantial contributions in terms of service to the discipline(s).

- Recognition: Tilley was elected to the Academy of the Social Sciences in 2009 and Laycock was awarded an OBE in 2008 for services to crime policy. Sidebottom won the Transparency International Anti-Corruption Research Network young researcher paper (2010). Laycock was a member of the EPSRC's Societal Issues panel (2006-2009) and on the Board of the UN Crime Prevention Centre Helsinki (2001-2012).
- Conferences: Staff organise and chair the annual International Crime Science (2008-), the National Environmental Crime (2008-), and International Crime and Intelligence Analysis conferences (2005-). They contribute to the organisation of other events and chair sessions at numerous meetings. The Department organised a conference on preventing organised crime and Tilley co-edited a book published as a result of this.
- Editorships: Staff have edited 4 books on topics including evaluation methodology (Tilley) and environmental criminology (Wortley). Laycock is editor of the journal Crime Science (2012-), Johnson is associate editor of the journal Legal and Criminological Psychology (2012-), Johnson guest edited a special issue of the European Journal of Mathematics (2010), and Chainey organised a special issue of the journal Policing (2012). Wortley is series editor of the Routledge Crime Science book series, Bowers, Johnson, Morgan and Wortley are area editors of the Springer Encyclopedia of Criminology and Criminal Justice (2013). Staff are editorial board members of the Journal of Research in Crime and Delinquency (Johnson), the Australian and New Zealand Journal of Criminology (Bowers), Security Journal (Wortley), Legal and Criminological Psychology (Bowers), Science and the Law (Morgan, Wortley), Journal of Investigative Psychology (Bowers, 2008-2011), Policing (Tilley) and Crime Prevention and Community Safety (Bowers, Tilley).
- Reviews: Staff have reviewed over 300 articles for interdisciplinary journals such as Science and the Proceedings of the National Academy of Sciences; key domain journals such as Criminology, Terrorism and Political Violence, Science and Justice; and, practitioner journals including Policing. Staff have reviewed over 20 research proposals for EPSRC, ESRC (including large scale programmes), European funding agencies including the Austrian Science Fund, and the Commonwealth Scholarship Commission, and international funders to include the ARC, the National Commission for Scientific and Technological Research (Chile), and the National Science Foundation (US). Staff (Bowers, Johnson, Morgan, Tilley, Wortley) have examined 3 PhDs as internal examiners, 20 as externals, and are members of PhD committees in the US (Johnson) and Holland (Bowers).
- High profile talks: Staff have delivered over 80 funded invited talks at meetings including keynote addresses at the 2013 Australian Applied Research in Crime and Criminal Justice Conference (Bowers), the 2012 Spanish Criminology Conference (Tilley), a NATO workshop on Maritime Piracy (Borrion), the US Problem Oriented Policing conference (Sidebottom and Tilley), and at meetings including those held in Canada (Chetty), Chile (Wortley), China (e.g., Chainey), Germany (Tilley), Holland (Wortley), Hong Kong (Tilley), Italy (Johnson), Japan (Wortley), New Zealand (Laycock), and the US (e.g. Bouhana).