The Scottish Institute for **Policing Research**

Directory of Expertise in the Forensic Sciences

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Additional material for inclusion should be sent to:

Tim Heilbronn t.d.Heilbronn@dundee.ac.uk

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Contacts

Abertay University
Dundee University (CAHID)
Dundee University (CFLM)
Edinburgh University
Glasgow University
Glasgow Uni. (Forensic Medicine)
Glasgow Caledonian University
James Hutton Institute
Robert Gordon University
Strathclyde University

Prof David H Bremner
Professor Sue Black
Professor Stewart Fleming
Professor Colin Aitken
Professor Gordon Cook
Dr Marjorie Turner
Professor Liz Gilchrist
Prof Lorna Dawson
Dr Catherine Inverarity
Professor Jim Fraser

d.bremner@abertay.ac.uk
s.m.black@dundee.ac.uk
s.fleming@dundee.ac.uk
c.g.g.aitken@ed.ac.uk
Gordon.cook@glasgow.ac.u
marjorie.turner@glasgow.ac.uk
liz.gilchrist@gcu.ac.uk
Lorna.dawson@hutton.ac.uk
c.inverarity1@rgu.ac.uk
jim.fraser@strath.ac.uk

Overview of forensic science activity* and specific areas of expertise (topic areas, methodological skills etc)

* this is interpreted to include a wide range of science and technology that may be used in police investigations or other aspects of criminal justice and includes operational use, developing applications as well evaluations of technologies

Abertay University

Analysis of street drugs

Assessing the quality of forensic interviews

Body fluids

Case assessment and Interpretation

Chemical enhancement techniques

Child abuse

Combustible materials

Crime scene science

Damage caused by air weapons

Detection, enhancement and analysis of trace evidence

Drug analysis and drug intelligence

Expert witness

Finger/footwear mark enhancement

Fingermarks on metals

Fire Investigation

Fires and explosions

Forensic biology and DNA

Forensic Interviewing of child witnesses

Integrated forensic approach

Joint Investigative Interviewing of child victims

Nanoforensics

Recovery of erased marks

Wildlife crime

Dundee University

Centre for Anatomy and Human Identification (CAHID)

Disaster Victim Identification (DVI)

Drug profiling

Explosive detection

Fingerprint enhancement

Fire investigation

Forensic anthropology

Human anatomy

Human identification

Review of fatalities in child and public protection work

Centre for Forensic and Legal Medicine (CFLM)

Clinical forensic medicine service

Forensic odontology

Forensic Pathology Investigations

Medical and legal aspects of certification of death and of organ donation

Victims of torture and other abuse in custody

Edinburgh University

Accessing expert cognition Interpretation and evaluation of evidence Professional judgement and decision making expertise Statistics

Glasgow University

Radiocarbon analysis of human remains and animal parts to determine whether of recent (post mid 1950s) origin.

Stable carbon and nitrogen analyses on human bone to determine diet. 87Sr/86Sr in human tooth enamel as a possible indicator of geographic origin

Forensic Pathology

Forensic Toxicology

Glasgow Caledonian University

Evaluation research (experimental, survey, observation, qualitative and quantitative data collection and analysis)

Forensic psychological assessment

Formulation of offending

Interventions with offenders and victims

Risk assessment

Scenario planning

James Hutton Institute

Expert Witnesses in Criminal and Civil law.

Geographical Information Systems.

Landscape, field, organism and micro scale investigations.

Mixed source animal DNA.

Morphological and molecular.

Nematodes, mites, diatoms, fungi, bacteria and virus communities.

Soil and plant analysis (chemical, physical and biological).

Soil, geology, water and plant identification.

Spectral imaging.

Statistics; Search and Evaluation.

VOCs and biomarkers as indications of Body Decomposition.

Wildlife Ecology.

Robert Gordon University

Development of electrode materials for the detection of Drugs.

Development of novel fluorescent taggants.

Profiling of Illicit Drugs

Stable isotope analysis of drugs, fibres and explosives for the purpose of establishing relationships or linkages

Stable isotope analysis of human tissue / remains to ascertain life history

and geographic origin

Stable Isotope Forensics

Trace DNA recovery and contamination, rate of DNA deposition, PPE assessment, optimal DNA extraction efficiencies, assessment of PCR artefacts, blood pattern.

Strathclyde University

DNA and RNA analysis

Electrochemical detection of chemicals and biomarkers in human blood, urine and other media.

Fingerprint policy and practice

Forensic biology (trace evidence, blood patterns, sexual offences etc)

Forensic science policy, practice and standards in the UK and Europe

Spectroscopic, chemical and electrochemical detection systems

Academic staff and specialisms

Academic Staff

Abertay University

- 1. David Bremner,
- 2. Isobel Stewart
- 3. Kevin Farrugia
- 4. Graham Wightman
- 5. Graham Jackson
- 6. Darren Phillips
- 7. Dennis Gentles
- 8. Keith Sturrock

- 9. Joanna Fraser
- 10. David La Rooy
- 11. Student projects

Specialism(s)

- 1. Drug analysis, Drug intelligence and Information
- 2. Drug analysis, Drug intelligence and Information. Trace evidence
- 3. Mark enhancement, drug profiling, integrated forensic approach
- Damage caused by air weapons, Recovery of erased marks, fingermarks on metals
- Efficient, effective use of resources. Logical interpretation of evidence. Nature of reliable expert opinion. Presentation of expert opinion in courts of law. Interaction between lawyers and experts
- 6. Forensic DNA 'analysis, body fluid analysis, hairs and fibres
- Crime Scene Investigation; Fire Investigation; Post Bomb Scene Investigation and Photography. Work ongoing with SASA and Scottish Wildlife Trust as well as Police Wildlife Liaison Officers
- 8. Detection, enhancement and analysis of trace evidence. Specifically, microscopic, chromatographic and spectroscopic techniques for the discrimination of ball point pen inks. Natural products (genepin, lawsone) as novel finger mark enhancement reagents and the application of spectroscopic and chromatographic to the analysis of food stuffs and natural products
- 9. Fingerprints on fabrics. HPLC analysis of biomolecules
- 10. Child forensic interviewing
- 11. Profiling of illicit diazepam tablets for drug intelligence purposes; The quality of forensic interviews in the UK; Enhancing training of child forensic interviewers

Dundee University

CAHID

- 1. Professor Sue Black
- 2. Professor Niamh NicDaeid
- 3. Dr Craig Cunningham
- 4. Dr Lucina Hackman
- 5. Dr Chris Rynn
- 6. Student projects

4. Age evaluation in the living, Forensic Anthropology

3. Identification of the juvenile,

Forensic Anthropology

 Human identification, Forensic Science, Human Anatomy and international deployment for DVI.

2. Controlled substances, fingerprint

chemometric and multivariate analysis of forensic science data, and evaluation of evidence.

analysis of explosives,

enhancement, fire investigation,

- 5. Facial analysis
- 6. Investigating the adhesion of explosives to different surfaces; The application of stable isotope analysis and tooth histology to investigate the survival of neonates; an evaluation of craniofacial reconstruction standards; Investigation into the influence of orbital morphology on eyeball position, with relevance to forensic facial reconstruction; assessment of adult facial identification techniques for application on juvenile face images

Centre for Forensic and Legal Medicine

- 1. Stewart Fleming
- 2. David Sadler
- 3. Helen Brownlow
- 4. Ronnie Lowe
- 5. Andrew Forgie
- 6. Leigh Evans

- 1. Forensic Pathology
- 2. Forensic Pathology
- 3. Forensic Pathology
- 4. Clinical Forensic Medicine
- 5. Forensic Odontology
- 6. Forensic Odontology

Edinburgh University

- 1. Professor Colin Aitken
- 2. Dr Amanda Martindale
- 3. Student projects

Glasgow University

- 1. Professor Gordon Cook
- 2. Dr Elaine Dunbar
- 3. Dr Brian Tripney
- 4. Dr Marjorie Turner/ Dr Julie McAdam
- Dr Calum Morrison/Dr Hazel Torrance/Dr Fiona Wylie/ Denise McKeown/Dr Hilary Hamnett

Glasgow Caledonian University

1. Liz Gilchrist

2. Prof Lesley McMillan

- 1. Statistics; interpretation and evaluation of evidence.
- Performance psychology; Human performance science; Professional judgement and decision making expertise; Accessing expert cognition
- Taphonomic and entomological aspects of non-suspicious deaths in Scotland and their implications for archaeological and forensic interpretation
- 1. Radiocarbon dating
- 2. Radiocarbon dating
- 3. Radiocarbon dating
- 4. Forensic Pathology
- Forensic Toxicology/Drug analysis/Hair Analysis/ Development and validation of (bio)analytical methodologies for application to the areas of forensic and clinical toxicology
- 1. Risk assessment, especially in domestic abuse cases, from perpetrator and victim/survivor perspective, parole decision making, forensic psychological assessment, interventions with offenders and victims, 'scan for risk' approaches to managing sex offenders, formulation of offending, scenario planning (domestic abuse), evaluation research, experimental, survey, observation, qualitative and quantitative data collection and analysis, criminal justice process issues and issues related to defensible decision making, parole processes and decision making
- Forensic medical intervention in rape and serious sexual assault cases; models of forensic medical provision; attitudes and practices of forensic medical examiners and nurses; police officers' understandings of

			orensic medical intervention and evidence
James I	Hutton Institute		
1.	Prof Lorna Dawson	1.	Head of soil Forensics Group.Soil science, organomineral soil characterisation. Microscopy. Spectral Colour. Expert witness, Criminal and Civil Law.
2.	Prof Steve Hillier	2.	Rock and soil mineralogy. Expert Witness.
3.	Dr Bob Mayes	3.	GC, GC MS, organic analysis, faecal analysis, bile acids.
4.	Mrs Jasmine Ross	4.	Forensic Lab Manager, QA, GC, GC-MS
5.	Dr Tom Shepherd	5.	GC, GC-MS. VOC analysis.
	Ms Claire Abel	6.	Diatom characterisation.
	Dr Barry Thornton	7.	Stable isotope characterisation (C, N, H, O).
8.	Mr Richard Hewison	8.	Plant identification; landscape and microscopy.
9.	Dr Joanne Russell	9.	DNA extraction and molecular genotyping.
10.	Ms Nadine Thomas	10.	Animal DNA (m TFRLP; mixtures).
11	Prof David Miller	11.	Mapping, GIS.
	Mrs Evelyne Delbos	12.	SEM-EDS.
13.	Dr Thomas Frietag/Ms Lucinda Robinson	13.	TFRLP and next Gen sequencing of soils, PLFA & MicroResp
14	Dr Andy Taylor	14.	Fungal identification.
	Dr Matt Aitkenhead	15.	Modelling of data, hyperspectral imaging (Neural network modelling) and Digital Soil Mapping.
16.	Dr Mark Brewer (BioSS)	16.	Forensic statistics and Bayesian inference.
17. (Gareth Newman	17.	Inorganic analysis, ICP and QA.
	Dr Roy Neilson	18.	Nematode DNA profiling.
	Postgraduate research	19.	Investigation of fatty acids in soil for forensic application. Application of geology and palynology in forensic

Robert Gordon University

- Prof Dr Wolfram Meier-Augenstein
- Dr Andrew Gibb (primarily employed by the Scottish Police Authority but 0.1FTE employment at Robert Gordon University.
- 3. Mrs W. Deegan
- 4. Dr Carlos Fernandez
- 5. Prof. P. Pollard
- 6. Dr C. Inverarity (Hunter)
- 7. Dr S. Officer
- 8. Dr A. Tough
- 9. Dr K. Matthews
- 10. Mr S. Waddell
- 11. Prof A. Morrisson
- 12. Dr Craig McKenzie
- 13. Mr Yeoman Smith
- 14. Recent postgraduate research

Strathclyde University

1. Professor Jim Fraser

- research. Plant isotopes and biomarkers.
- Stable Isotope Forensics; Stable isotope analysis of human tissue / remains to ascertain life history and geographic origin; stable isotope analysis of drugs, fibres and explosives for the purpose of establishing relationships or linkages
- Trace DNA recovery and contamination, rate of DNA deposition, PPE assessment, optimal DNA extraction efficiencies, assessment of PCR artefacts, blood pattern.
- 3. Trace DNA recovery
- Electro-analytical chemistry .
 Development of electrode materials
- 5. Fluorescent Taggants
- 6. Fluorescent Taggants
- 7. Fluorescents Taggants
- 8. Profiling of Illicit Drugs
- 9. Profiling of Illicit Drugs
- 10. Profiling of Illicit Drugs
- 11. Soil Profiling
- Development of analytical methodologies for the detection of illicit drugs and their metabolites.
- 13. Questioned Documents
- 14. The Development of a Novel Electrochemical Sensor for Controlled Drugs.
- Forensic biology (trace evidence, blood patterns, sexual offences etc); Investigative reviews; Use of forensic science in police investigations and criminal justice; Expert evidence; Organisational aspects of forensic science; DNA policy and practice; Fingerprint policy and practice
- Spectrometric and Spectroscopic Analysis;

2. Dr Matthew Baker

	Imaging; Multivariate Data Analysis
3. Dr Lynn Dennany	3. Electrochemical detection of chemicals and biomarkers in human blood, urine and other media [this covers general illicit substance detection as well as the detection of their metabolites through electrochemical means]; Detection of specific DNA sequences electrochemically.
4. Dr Penny Haddrill	4. Population genetics and statistical analysis of molecular genetic data, including STR data, RAD-sequencing data and next-generation sequencing data; Expression profiling and analysis of gene expression data, including TaqMan and RNA-sequencing data; Development of RNA and DNA degradation assays to determine the source, type and age of body fluid stains; Development and use of molecular genetic markers for identification, including multiplex STR genotyping panels for genetic analysis of population diversity and structure; Development of statistical models for the analysis of blood stain patterns.
5. Nicola McCallum	5. RNA analysis in forensic pathology, towards time and cause of death determination; RNA analysis for identification of body fluids or contact traces; RNA analysis for ageing of blood stains and other biological specimens; Comparison of DNA profiling methodologies; DNA profiling of contact traces, DNA transfer/persistence.
6. Recent postgraduate research	6. Interrogative suggestibility, obsessional relational intrusion, parenting needs of women offenders, domestic homicide and sexual offending, grooming from various perspectives, police response to male IPV victims (Eire), effectiveness of IPV interventions; Estimating human age from DNA methylation

Selected recent research publications

Abertay University

The interaction between clothing and air weapon pellets. G. Wightman, K. Wark, J. Thomson. (2014). *Forensic Science International*, http://dx.doi.org/10.1016/j.forsciint.2014.10.039 (available on line)

A contribution to the discussion on the safety of air weapons. G. Wightman, R. Cochrane, R.A. Gray, M. Linton. (2013). *Science & Justice* 53, 343-349 DOI information: 10.1016/j.scijus.2012.11.002

The Thermal Visualisation of Latent Fingermarks on Metallic Surfaces; G Wightman & D O'Connor (2014). *Forensic Science International*, 204(1-3), 88-96

An investigation into the behaviour of air rifle pellets in ballistic gel and their interaction with bone G. Wightman, J. Beard & R. Allison. (2010). *Forensic Science International* 200, 41–49.

Restoration of stamp marks on steel components, G Wightman & J Matthew. (2008). *Forensic Science International* 180, 54–57.

Development of an etching paste, G Wightman & J Matthew. (2008). *Forensic Science International* 180, 32–36.

The Use of CT Scanning to Investigate Damage Caused by Air Rifle Pellets Dr G Wightman, P Dello Sterpaio, R. Cochrane, R. Gray and M. Linton (2012). Time to Take Stock, 8 June, The Royal Armouries, Leeds.

The Effect of Mark Enhancement Techniques on the Subsequent Detection of Semen/Spermatozoa. Simmons, R.K., Deacon, P., Phillips, D.J., Farrugia, K.J. (2014). *Forensic Science International* 244, 231-246.

Chemical enhancement of soil-based marks on non-porous surfaces followed by gelatin lifting. Hammell, L., Deacon, P., Farrugia, K.J. (2014). *Journal of Forensic Identification*, , 64 (6), 583-608.

Pseudo-operational trials of Lumicyano SolutionTM and Lumicyano PowderTM for the detection of latent fingermarks on various substrates. Farrugia, K.J., Fraser, J., Calder, N., Deacon, P. (2014). *Journal of Forensic Identification*, 64 (6), 556-582.

A preliminary investigation into the use of alginates for the lifting and enhancement of fingermarks in blood. Munro, M., Deacon, P., Farrugia K.J. (2014). *Science & Justice* 54 (3), 185-191.

Evaluation of Lumicyano(TM) cyanoacrylate fuming process for the development of latent fingermarks on plastic carrier bags by means of a pseudo operational comparative trial. Farrugia, K.J., Deacon, P., Fraser, J. (2014). *Science & Justice* 54 (2), 126-132.

Water-Soaked Porous Evidence: A Comparison of Processing Methods. Simmons, R. K., Deacon, P., Farrugia, K.J. (2014). *Journal of Forensic Identification* 64 (2), 157-173.

Case Assessment and Interpretation of Expert Evidence: Guidance for Judges, Lawyers, Forensic Scientists and Expert Witnesses; G. Jackson, P. Roberts and C.G.G. Aitken. (2015). Royal Statistical Society. Available from www.rss.org.uk/statsandlaw

The impact of commercialisation on the evaluation of DNA evidence. G. Jackson. (2013). *Frontiers in Genetics* 4, Article 227, doi: 10.3389/fgene.2013.00227.

Use of data to inform expert evaluative opinion in the comparison of hand images — the importance of scars. G. Jackson and S. Black. (2013). *International Journal of Legal Medicine*. doi: 10.1007/s00414-013-0828-5.

The incidence and position of melanocytic nevi for the purposes of forensic image comparison. S. Black, B. MacDonald-McMillan, X. Mallett, C. Rynn and G. Jackson International Journal of Legal Medicine (2013). doi:

10.1007/s00414-013-0821-z.

Evidence evaluation: A response to the court of appeal judgment in R v T; C.E.H. Berger, J. Buckleton, C. Champod, I.W. Evett and G. Jackson. (2011). *Science & Justice* 51 43-49.

Forensic science evidence in question. M. Redmayne, P. Roberts, C.G.G. Aitken, and G. Jackson. (2011). *Criminal Law Review* Issue 5: 347-356

Fundamentals of Probability and Statistical Evidence in Criminal Proceedings: Guidance for Judges, Lawyers, Forensic Scientists and Expert Witnesses. C.G.G. Aitken, P. Roberts and G. Jackson G. (2010). Royal Statistical Society. Available from www.rss.org.uk/statsandlaw

Understanding forensic science opinions; G. Jackson. (2009). In: Fraser J and Williams R (eds). *Handbook of Forensic Science*. Willan Publishing, Cullompton, Devon, UK, 419-445.

Case Assessment and Interpretation. G. Jackson and P.J. Jones. (2009). In: Jamieson A and Moenssens A (eds). *Wiley Encyclopedia of Forensic Science*. John Wiley & Sons Ltd., Chichester, UK, 483-497.

An investigation into the enhancement of fingermarks in blood on fruit and vegetables. Rae, L., Gentles, D., Farrugia, K.J., (2013). *Science & Justice* 53 (3), 321-327.

A Preliminary Investigation into the Acquisition of Fingerprints on Food. Ferguson, S., Nicholson, L., Farrugia, K.J., Bremner, D., Gentles, D. (2013). *Science & Justice* 53 (1), 67-72.

A comparison of the use of vacuum metal deposition versus cyanoacrylate fuming for visualisation of fingermarks and grab impressions on fabrics. Joanna Fraser, Paul Deacon, Stephen Bleay and David H. Bremner. (2014). *Science and Justice* 54, 133-140.

Visualisation of fingermarks and grab impressions on dark fabrics using silver vacuum metal deposition. S. Knighting, J. Fraser, K. Sturrock, P. Deacon, S. Bleay, D.H. Bremner (2013). *Science and Justice* 53, 309–314.

Visualisation of Fingermarks and Grab Impressions on Fabrics. Joanna Fraser, Keith Sturrock, Paul Deacon, Stephen Bleay and David H. Bremner. (2011). *Forensic Science International* 208, 74-78. Part 1: Gold/Zinc Vacuum Metal Deposition.

Morphological changes in textile fibres exposed to environmental stresses: Atomic force microscopic examination. Elisabetta Canetta, Kimberley Montiel, Ashok K. Adva. (2009). *Forensic Science International* 191, 6–14.

Atomic force microscopic investigation of commercial pressure sensitive adhesives for forensic analysis. Elisabetta Canetta, Ashok K. Adya. (2011). *Forensic Science International* 210, 16–25.

Intoxicated eyewitnesses: The effects of alcohol on eyewitness recall across repeated interviews. La Rooy, D., Nicol, A. & Terry, P. (2013). *Open Journal of Medical Psychology* 2, 107-114.

Are two interviews better than one? Eyewitness memory across repeated cognitive interviews. Odinot, G., Memon, A., La Rooy, D., & Millen, A. (2013). *PLoS ONE* 8, 1-7.

Witness recall across repeated interviews in a case of repeated abuse. Brubacher, S. & La Rooy, D. (2014). *Child Abuse & Neglect* 38, 202-211.

Commonsense psychology' is a barrier to the implementation of best practice child interviewing guidelines: A qualitative analysis of police officers' beliefs in Scotland. Carson, L. & La Rooy, D. (2014). *Journal of Police and Criminal Psychology*.

What don't we know about don't know responding in forensic interviews with children? Earhart, R., La Rooy, D., Burbacher, S.& Lamb, M E (2014). *Behavioral Sciences & Law.* In Press.

The NICHD Protocol: A review of an internationally-used evidence-based tool for training child forensic interviewers. La Rooy, D., Brubacher, S. P., Aromäki-Stratos, A., Cyr, M., Hershkowitz, I., Korkman, J., Myklebust, T.,

Naka, M., Peixoto, C. E., Robertsj K. P., Stewart, H., & Lamb, M. E. (2015). *Journal of Criminological Research, Policy and Practice*. In Press.

Dundee University

CAHID

Influence of precursor solvent extraction on stable isotopic signatures of methamphetamine prepared from pseudo-ephedrine extracted from over-the-counter medicines using the Moscow and Hypophosporous routes. N. NicDaéid, S. Jayamana, W.J. Kerr, W. Meier-Augenstein and H.F. Kemp. (2013). *Anal. Bioanal. Chem.* 405 (9), 2931-2941.

Using isotopic fractionation to link precursor to product in the synthesis of (±)-mephedrone. A new tool for combating 'legal high' drugs. N. NicDaéid, W. Meier-Augenstein, H.F. Kemp and O.B. Sutcliffe (2012): *Anal. Chem.* 84, 8691-8696.

Organic Impurities, Stable Isotopes, or Both: A Comparison of Instrumental and Pattern Recognition Techniques for the Profiling of 3,4-Methylenedioxymethamphetamine. H. A. S. Buchanan, N. Nic Daéid, W. J. Kerr and W. Meier-Augenstein. (2011). *Anal. Methods*, 3, 2279-2288.

Disaster Victim Identification: The Practitioner's Guide. Black, S. M., Walker, G, Hackman, L. and Brooks, C. (2010). Dundee University Press, Dundee.

Age Estimation in the Living. Black, S. M., Aggrawal, A. and Payne-James, J. (2010). Wiley, Chichester.

Key practical elements for age estimation in the living. Black, S. M., Aggrawal, A. and Payne-James, J. (2010). In: Black, S. M., Aggrawal, A. and Payne-James, J. (eds.). *Age Estimation in the Living*. Wiley, London.

Principles of physical age estimation. Black, S. M. (2010). In: Black, S. M., Aggrawal, A. and Payne-James, J. (eds.). *Age Estimation in the Living*. Wiley, London.

The neonatal ileum - metaphyseal drivers and neurovascular passengers. Cunningham, C. A. &. Black, S.M. (2010). *Anatomical Record* 293, 1297-1309.

Age Evaluation in the Skeleton. Hackman, L., Buck and Black, S.M. (2010) In: Black, S. M., Aggrawal, A. and Payne-James, J. (eds.). *Age Estimation in the Living*. Wiley, London.

Applying virtual ID. Hackman, L. & Black., S.M. (2010 *Police Professional* 220, 16-18.

Forensic Anthropology. Randolph-Quinney, P. S., Mallett, X and Black S.M. (2010). In: Jamieson, A. (ed.). *Encyclopaedia of Forensic Sciences*. Wiley, London.

An instruction to the history of age estimation in the living. Schmeling, A. & Black, S.M. (2010). In: Black, S. M., Aggrawal, A. and Payne-James, J. (eds.). *Age Estimation in the Living*. Wiley, London.

Edinburgh University

Evidence evaluation for discrete data. Aitken, C.G.G and Gold, E. (2013). Forensic Science International 230, 147-155.

The evaluation of evidence relating to traces of cocaine on banknotes. Wilson, A., Aitken, C.G.G., Sleeman, R. and Carter, J. (2013). *Forensic Science International* 236, 67-76.

The Logic of Forensic Proof: inferential reasoning in criminal evidence and forensic science. Roberts,P. and Aitken,C.G.G. (2014). The Royal Statistical Society. Available from http://www.rss.org.uk/statsandlaw

Case assessment and interpretation of expert evidence. Jackson, G.,

Aitken, C.G.G. and Roberts, P. (2014). The Royal Statistical Society. Preprint available from http://www.maths.ed.ac.uk/~cgga

Liberties and constraints of the normative approach to evaluation and decision in forensic science: a discussion towards overcoming some common misconceptions. Biedermann,A., Taroni,F. and Aitken,C.G.G. (in press). Accepted for publication in *Law, Probability and Risk.*

The evaluation of evidence for autocorrelated data with an example relating to traces of cocaine on banknotes. Wilson, A., Aitken, C.G.G., Sleeman, R. and Carter, J. (2015). *Applied Statistics* 64, 275-298. Preprint available from http://www.maths.ed.ac.uk/~cgga

The illusion of competency versus the desirability of expertise: Seeking a common standard for support professions in sport.Collins, D., Burke, V., Martindale, A. and Cruickshank, A. (2015). *Sports* Med 45:1–7.

The development of professional judgment and decision making expertise in applied sport psychology. Martindale, A. & Collins, D. (2013). *The Sport Psychologist* 27, 390 – 398.

A professional judgment and decision making case study: Reflection-inaction research [Special issue].Martindale, A. & Collins, D. (2012). *The Sport Psychologist* 26, 500-518.

Glasgow

A Preliminary assessment of age at death determination using the nuclear weapons testing ¹⁴C activity of dentine and enamel. Cook, G.T., Dunbar, E., Black, S.M. and Xu, S. (2006). *Radiocarbon* 48, 305-313.

Radioactive Isotope Analyses of Skeletal Materials in Forensic Science: A Review of Uses and Potential Uses. Cook, G.T. and MacKenzie, A.B. (2014). *International Journal of Legal Medicine* 128, 685-698.

Glasgow Caledonian University

Roles of Alcohol in Intimate Partner Abuse. Gilchrist, E, Ireland, L, Forsyth, A, Laxton, T & Godwin, J (2014). Final Report for Alcohol Research UK. London: ARUK

http://alcoholresearchuk.org/downloads/finalReports/FinalReport_0117.p

Does providing a written version of the police caution improve comprehension in the general population? H ughes, M , Bain, S , Gilchrist, E & Boyle, J. (2012). *Psychology, Crime & Law* DOI:10.1080/1068316X.2011.644793

Implicit Theories in Intimate Partner Violent Offenders. Weldon, S & Gilchrist, E. (2012). *Journal of Family Violence* (2012) 27, 761–772.

Risk assessment with intimate partner sex offenders. Morgan, W & Gilchrist, E. (2010). *Journal of Sexual Aggression* 16(3), 361-372.

Applying the Good Lives Model to Male Perpetrators of Domestic Violence in Behavior Change. Langlands, R., Ward, T., & Gilchrist, E. (2009). vol. 26, no. 2, pp. 113-129, Australian Academic Press, Bowen Hills, Qld.

Implicit thinking about implicit theories in intimate partner violence. Gilchrist, E (2009). *Psychology, Crime & Law*. 15:2,131-145.

Change in Treatment Has No Relationship With Subsequent Re-Offending in U.K. Domestic Violence Sample A Preliminary Study. Bowen, E, Gilchrist, E & Beech, A.R. (2008). International Journal of Offender Therapy and Comparative Criminology 10.1177/0306624X08319419

Anger control and alcohol use: Appropriate interventions for perpetrators

of domestic violence? McMurran, M. And Gilchrist, E. (2007). Psychology, Crime & Law, September, 1-10.

Rape Victims' Experiences of Giving Evidence in English Courts. Kebbell, M, O'Kelly, C & Gilchrist, E. (2007). *Psychiatry, Psychology and Law*, 14

Current Responses to Sexual Grooming: Implication for Prevention. Craven, S., Brown, S.,& Gilchrist, E.(2007). *The Howard Journal of Criminal Justice*, 46 (1).

'Silly Girls' and 'Nice Young Lads': vilification and vindication in the perceptions of medico-legal practitioners in rape cases. McMillan, L. & White, D. (in press). *Feminist Criminology*.

James Hutton Institute

Investigation of sterols as potential biomarkers for the detection of pig (S. s. domesticus) fluid in soils. von der Lühe, B., Dawson, L. A., Mayes, R. W., Forbes, S., Fiedler, S. (2013). *Forensic Science International* 230, 68-73.

Predicting sample source location from soil analysis using neural networks. Aitkenhead, M.J., Coull, M.C., Dawson, L.A. (2014). *Environmental Forensics* 15, 281-292.

Criminal and Environmental Soil Forensics: Soil as Physical Evidence in Forensic Investigations. Dawson, L.A., Mayes, R.W. (2015). In: Murphy, B.L., Morrison, R.D. (Eds.). *Introduction to Environmental Forensics*. pp. 457–486.

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Selected recent	Dates (start/ finish)	Project title(s)	Funding source	PI / Co-I	
research and knowledge exchange funding	Abertay University				
	May-June 2013	Modified Physical Developer	Carnegie	Kevin Farrugia	
	Ongoing	Home Office Fingermark working group	Academia and private sector	Kevin Farrugia	
	Jan, 2014- Dec 2016	Drug intelligence	Abertay University R-LINCS	Isobel Stewart/Kevin Farrugia/David Bremner	
	November 2014	Witness to Scottish Parliament committee on air weapon licensing	None	Graham Wightman	
	Dundee				
	University	The paradigm shift for forensic science in the UK	Royal Society	Sue Black / Niamh NicDaeid	
		Innovation in forensic anatomical identification combating the sexual exploration of children	ISEC	Sue Black	
		Development of fire investigation standards in Europe	EU	Niamh NicDaeid	
	Edinburgh University	Accelerating professional judgement and decision making expertise: feedback and scenario-based training in crime scene examination	SIPR	Amanda Martindale/ Dave Collins (UCLAN)	
		Exploring professional judgement and decision making expertise in crime scene examination		Amanda Martindale	
	Glasgow Caledonian University	Understanding Attrition in Rape Cases	ESC	Lesley McMillan	
		Police Understanding of Medico-legal Intervention in the Processing of Rape and Sexual Assault Cases: A Comparative Analysis	SIPR	Lesley McMillan	

	<u> </u>	Т	I	T
	James Hutton Institute			
	2003-2008	SoilFit	EPSRC	Dawson, Hillier, Mayes
	2004-2008	SoilFUN	EPSRC	Dawson
	2004-2008	GIMI	EPSRC	Dawson & Miller
				Dawson, Freitag,
	2013-2015	MiSAFE	EU FW7	Miller and Brewer Dawson
	2008-2010	Soil organic biomarkers in peat	NERC	Dawson
	2015-2018	HUMANOR	ESR	
	2012-2016	Initiative on forensic Geology	IUGS	Dawson
	2012-2018	IMPROMALT	HGCA	Russell
	2012-2015	Regulation of (1,3:1,4)-beta- glucan synthesis in the	BBSRC Response	Russell
	2012-2015	grasses. The diversity and evolution of the gene component of barley peri-centromeric	Mode BBSRC Responsive Mode	Russell
	2012-2015	heterochromatin. EU FP7	EUROOT	Russell
	2010-2012	Genomic Library.	Genomic Library	Russell
	2009-2011	EXBARDIV	ERANET	Russell with U of Dundee
	2007-2010	CIMMYT	Generation Challenge Program	Russell
	2014-2019	WHEALBI	EU KBBE	Russell
	2011	Nematode genetics	Genomia	Neilson
	2011-2016	Strategies for quantifying and controlling free-living nematode populations	The Technology Strategy Board	Neilson
	2015-2018	Aquaspace	EU H2020	Miller
	2012-2016	ENVIEVAL	EU FW 7	Miller
	2013-2014	ECLIC	EU, KA3ICT MP_EE_E UPO_EUP OL	Miller
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Molecular and Analytical EPSRC Lynn Dennany / Markers of Blood Age Penny Haddrill	Strathclyde University	The attribution of flint samples to geographical source	UCLan	Matthew Baker
			EPSRC	

Relevant Masters Programmes

Title(s)

Dundee University

Masters in Forensic Custody Nursing

Masters in Forensic Anthropology

Masters in Anatomy and Advanced Forensic Anthropology

Masters in Forensic Art

Master of Forensic Medicine

Master of Forensic Odontology

Edinburgh University

MSc Performance Psychology

Edinburgh Napier

Applied Criminology and Forensic Psychology

Glasgow

MSc (Med Sci) Forensic Toxicology

Glasgow Caledonian University

MSc Forensic Psychology

MSc Forensic Mental Health

MSc Psychology in Forensic Settings

Strathclyde University

MSc/PgD Forensic Science

Relevant partners with whom institutions have worked

Abertay University

Army Bomb Disposal

CAST

Cellmark, LGC Forensics and FSNI

Home Office Fingermark working group

Police Scotland

Police Wildlife Liaison Officers

Royal Statistical Society

Scottish Police Authority Forensic Services

Scottish Wildlife Trust

Tayside Police SPSA

UK Forensic Science Regulator

Various forensic science providers in UK and Republic of Ireland

Dundee University

Amnesty International

Crown Office

NHS Tayside

Police Scotland

Scottish Government

Edinburgh University

Mass Spec Analytical Ltd

Scottish Police Authority Forensic Services

Glasgow

Alecto Forensic Services

Cellmark Forensic Services

COPFS

Glasgow Caledonian University

ASSIST

Canadian Police Forces, Ontario

Criminal Justice Social work Scotland

GEWA

Home Office

Police Scotland

SACRO

Women's Aid

James Hutton Institute

Alecto Forensics (provider of all their soil and related evidence)

BioSS

Cellmark

Fera

FSS

LGC

Police Scotland

R2S

SASA

Scottish Government

Scottish Police Authority

Scottish Water

SEPA

Robert Gordon University

Abertay University Grampian Police and Northern Constabulary (now Police Scotland) James Hutton Institute (Aberdeen) Scottish Police Authority

Strathclyde University

Centre for Applied Science and Technology

European Network of Forensic Science Institutes

Fera

Flinders University, Australia Forensic Science Regulator

Home Office

Justice Committee of the Scottish Parliament

Scottish Criminal Case Review Commission

Scottish Government

United Kingdom Accreditation Service

University of Muenster, Germany