

SCOTTISH GRADUATE SCHOOL OF SOCIAL SCIENCE (SGSSS)

ESRC STEERS SUPERVISOR-LED COMPETITION 2020/21

GUIDANCE FOR SUPERVISORS

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1. Overview

1.1 Background

The SGSSS is the UK's largest facilitator of funding, training and support for doctoral students in social science. By combining the expertise of sixteen universities across Scotland, the school facilitates world-class PhD research. The school is jointly funded by the ESRC and the Scottish Funding Council.

In line with the ESRC's core commitment to enhancing social science capability and building capacity in priority areas, the SGSSS is running a **two stage** Supervisor-led Competition awarding studentships in the following priority areas (steers):

- Datasets
- Interdisciplinary (research which straddles other research council remits)
- Advanced Quantitative Methods (AQM)

A maximum of four awards will be allocated per steer in this year's competition with students starting their projects in October 2021.

The key competition stages are outlined below:

1. Supervisors submit an Expression of Interest (Eoi).
2. The SGSSS Directorate review the Eois.
3. Successful supervisors are invited to submit a full application.
4. An expert review panel review the full applications.
5. Successful applicants are informed of the outcome and invited to start student recruitment.
6. Supervisor informs SGSSS of their preferred candidate, further to eligibility checks within their own University.
7. SGSSS approve the preferred candidate and specify the necessary training requirements for the student.

Project proposals can come from any pathway as long as the supervisor is aligned with a pathway for which their HEI has eligibility. There is no limit to the number of proposals that a pathway may submit.¹

¹ The list of HEI pathway eligibility can be found here: <https://www.sgsss.ac.uk/about-us/pathways/>

Please note that supervisors can only submit one application per competition – that is, a supervisor may apply to both a collaborative competition and the steers competition but cannot put more than one application to a single competition. Please note that the single application requirement applies to any position within a supervisory team – that is, an applicant cannot apply to a competition as first supervisor on one application and second or subsequent supervisor on another application to the same competition.

1.2 Funding Arrangements

SGSSS Funding

SGSSS-DTP funding is limited to the standard ESRC studentship package: fees, maintenance, Research Training Support Grant (RTSG), cohort development and overseas travel allowance.

The SGSSS funding model states that all steer studentships awarded will be co-funded by the host institution to the value of one third;

SGSSS: 67%; HEI: 33%

The exception to the one-third HEI contribution is where the award is for a collaborative studentship with a financial contribution from a non-academic partner. For these awards the contribution from the host institution is reduced as follows:

- 10% contribution from the non-academic partner: 25% contribution from host HEI and 65% from SGSSS
- 25% contribution from the non-academic partner: 25% contribution from host HEI and 50% from SGSSS
- 33% contribution from the non-academic partner: 17% contribution from host HEI and 50% from SGSSS
- 50% contribution from the non-academic partner: 0% contribution from host HEI and 50% from SGSSS

Please see [here](#) for full guidance on the different types of SGSSS funding arrangements available for each studentship competition/studentship type.

Cross-Institutional Supervision

We will continue to support cross-institutional supervision where the arrangements are in the best interest of the students. In these cases, the lead institution will be regarded as the host institution. The expectation is that the host institution will be responsible for covering the HEI

contribution. The second institution will not be responsible for any proportion of the contribution. Further, the fees due will be transferred to the host institution with no expectation of a proportion of the fees going to the second institution.

Exceptions will be made where the cross-institutional supervision partnership is with one of our four HEIs² that currently do not hold studentships. In these cases, the host institution will pay only 70% of the institutional cost with SGSSS contributing the remaining 30% of the institutional costs. For these studentships, we will support the transfer of 30% of fees going to the second institution.

² Abertay University; Robert Gordon University; University of the Highlands and Islands; University of the West of Scotland.

2. Application Process

2.1 Application Guidance

Applications can be submitted by prospective lead supervisors based within recognised SGSSS-DTP pathways. Supervisors must have undergone supervisor training within the last five years at their current institution. Liaison with the relevant Pathway Representative at your HEI is strongly encouraged.

2.1.1 Interdisciplinary

This competition aims to encourage conceptual and methodological creativity. Co-funding from another Doctoral Training Partnership is not required however applicants are advised to read the [ESRC Guidance on Steers and Targets](#) which details the requirements of an interdisciplinary award.

Stage 1

Supervisor pairs are invited to submit a co-produced Expression of Interest (EoI). This pairing should consist of a lead supervisor within the social sciences and a second supervisor outwith the social sciences who clearly works within the remit of another research council. The brevity of the EoI is to encourage rapid and creative responses from interested colleagues. It should articulate the primary conceptual idea and methodology of the proposal and demonstrate how it meets the interdisciplinary brief. The EoI application form can be found [here](#) and should be submitted via [GradHub](#) by 12pm on 9 October 2020.

Please Note: When assessing applications, equal weight will be given to the research proposal and the supervisory team/research environment; both must demonstrably fit the steer - see marking framework in Appendix A. The 12 highest scoring applicants will be asked to submit a full proposal as outlined in Stage 2.

Stage 2

Selected applicants will be invited to submit a full application via GradHub. The same weighting will be applied to the assessment of applications as at Stage 1. The top four proposals will then be funded and supervisors will be required to advertise studentships widely.

2.1.2 Datasets

This competition aims to encourage the development of data skills as applied to secondary data analysis. Applicants are advised to read the [ESRC Guidance on Steers and Targets](#) which provides the requirements of a datasets award. Please note that the criteria for datasets awards have recently been revised. In addition to the ESRC Guidance on Steers and Targets criteria, where applications involve the use of datasets created through their own research, you should evidence that:

- The primary project funding period has ended;
- At least one publication deriving from the funded project has appeared in a peer-reviewed journal; and,
- The project through which the dataset has been generated has been externally funded and awarded through a peer-review process.

Stage 1

Supervisor pairs (first and second supervisor) are invited to submit a co-produced Expression of Interest (EoI). The brevity of the EoI is to encourage rapid and creative responses from interested colleagues. It should articulate the primary conceptual idea and methodology of the proposal and demonstrate how it meets the datasets criteria. The EoI application form can be found [here](#) and should be submitted via [GradHub](#) by 12pm on 9 October 2020.

Please Note: When assessing applications, equal weight will be given to the research proposal and the supervisory team/research environment; both must demonstrably fit the steer – see marking framework in Appendix A. The 12 highest scoring applicants will be asked to submit a full proposal as outlined in Stage 2.

Stage 2

Selected applicants will be asked to submit a full application via GradHub. The same weighting will be applied to the assessment of applications as at Stage 1. The top four proposals will then be funded and supervisors will be required to advertise studentships widely.

If you are applying for a datasets award, please confirm the following within your Stage 2 application: you are confident that the necessary data outlined in the proposal will be available to the student in a timely fashion AND where there are costs associated with accessing the data (including required specialist subsets), how these costs will be met.

2.1.3 Advanced Quantitative Methods (AQM)

This competition aims to encourage the development of advanced quantitative methods skills in relation to the norms of the discipline. Applicants are advised to read the [ESRC Guidance on Steers and Targets](#) which provides the requirements of an AQM award.

Stage 1

Supervisor pairs (first and second supervisor) are invited to submit a co-produced Expression of Interest (EoI). The brevity of the EoI is to encourage rapid and creative responses from interested colleagues. It should articulate the primary conceptual idea and methodology of the proposal and demonstrate how it meets the AQM criteria. The EoI application form can be found [here](#) and should be submitted via [GradHub](#) by 12pm on 9 October 2020.

Please Note: When assessing applications, equal weight will be given to the research proposal and the supervisory team/research environment; both must demonstrably fit the steer – see marking framework in Appendix A. The 12 highest scoring applicants will be asked to submit a full proposal as outlined in Stage 2.

Stage 2

Selected applicants will be asked to submit a full application via GradHub. The same weighting will be applied to the assessment of applications as at Stage 1. The top 4 proposals will then be funded and supervisors will be required to advertise studentships widely.

2.2 Ethics Guidance

The ESRC Steers Studentships Competition full application form (stage 2) states that the case for support **MUST** include:

*Ethical issues associated with this proposal (including those that may impact on formal ethics committee approval **and** those requiring ongoing consideration in the field/during analysis) and proposed actions to mitigate these.*

We recognise that the 2250 word limit constrains the level of detail available to applicants but we expect to see consideration of ethical issues commensurate with the type of study being proposed. Where possible, applicants should indicate both the principles and practicalities of relevant ethical considerations and demonstrate how they are integral to all stages of the research. *All* research projects need to be considered in terms of ethics and integrity, even if they do not involve human participants.

Pointing to relevant experience of the supervisors and other sources of support will provide further reassurance that consideration has been given to the training needs of the research student, their personal safety and wellbeing, where relevant, and how emergent issues will be managed. Note that studies involving children or vulnerable populations, social media or involving overseas fieldwork may need particularly careful consideration. Proposals for the collaborative studentship competition and others involving elements of co-production may also require special consideration in terms of partners' roles and intellectual property. ESRC guidance on intellectual assets and property is available [here](#).

In addition to guidance from your professional discipline-based association (eg BERA, BPS, BSA) and your home institution, many useful resources are provided by ESRC [here](#). As their guidance notes, ethical considerations are “less about compliance and ‘getting through’ the ethics process, and more about mature, constructive and collaborative ethical deliberation, mutual learning and shared action aimed at maximising benefit and minimising harm.” Some proposals may also benefit from EPSRC resources on responsible innovation available [here](#).

Below, we include some examples taken from research proposals where we considered the approach to ethics to be inadequate. In all cases, more information was required to assure the reviewers that supervisors had a good understanding of the ethical implications of the study and of the student's likely training needs. The amount of detail required will depend to some extent on the type of project proposed, but reviewers will want to be confident that supervisors will promote good practice in the areas of ethics and integrity.

“All data are fully anonymised and will be kept securely.”

“Data collection will conform with strict protocols.”

“The work does not involve human participants or ethical data and therefore does not require ethical review.”

“There are no substantial ethical issues associated with this project.”

“The supervisory team will ensure that the data are ethically obtained.”

“We will apply for NHS ethical approval.”

“Ethical approval will be sought from the faculty of X’s ethics committee. We will follow the guidelines established by the British Association of X.”

“The student will be trained to deal with ethical considerations through the department and other training.”

Please note that there is no specific requirement to address ethics in the first-stage expression of interest. However, in most cases we would expect to see an indication of an awareness of the need for ethical considerations in the section on key strengths of the proposed supervisory team and/or the case for support.

2.3 Example Projects

Details of the following recently funded projects can be found in Appendix B.

Advanced Quantitative Methods (AQM)

- The Role of the News Media in Perpetuating Electoral Fraud Myths in the UK and US
- Intra-Party Division and Multi-level Politics
- Residential Context and Childbearing: Application of a Spatial Multilevel Multiprocess Hazard Model to Study Contextual Determinants of Fertility
- Gene-environment correlation and interaction in the development of reading ability and relation to life outcomes

Datasets

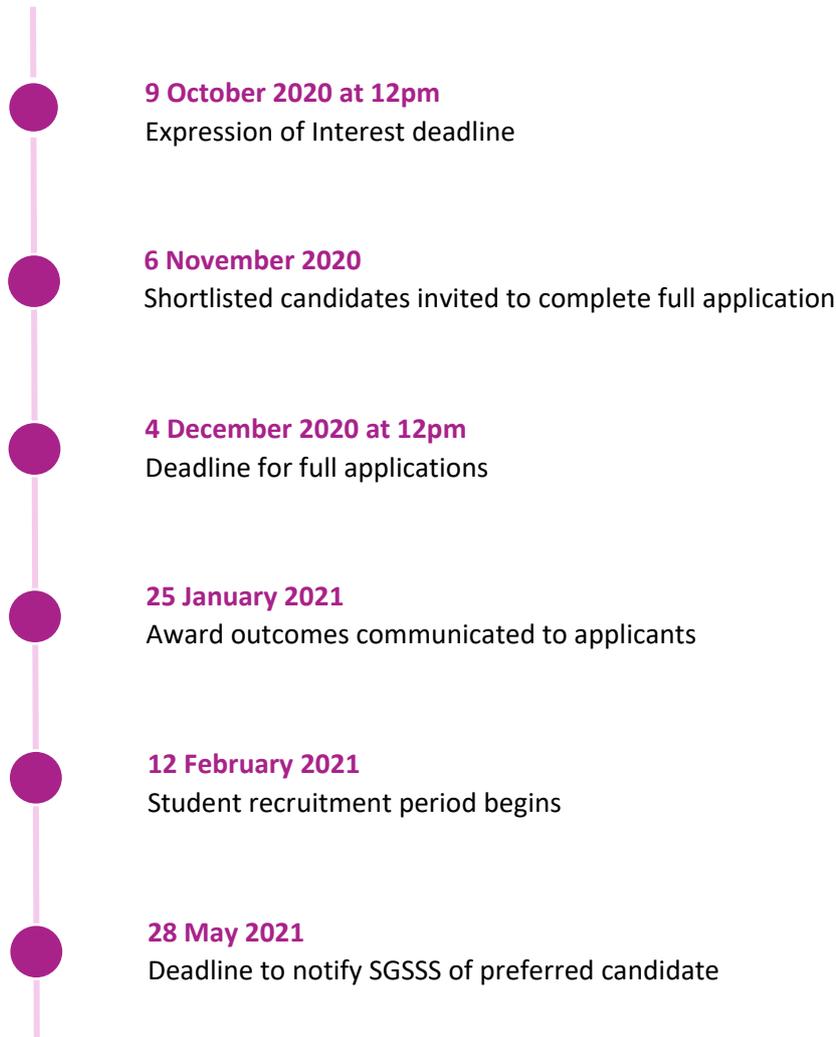
- The right to play – a comparison of rural and urban outdoor play opportunities, environments and experiences
- Investigating the impact of public interventions to reduce drinking water lead contamination on infant health in Scotland
- “A Life Lived for Others”: Volunteering Participation and Transitions in Older Age
- Young people’s lived experiences of welfare conditionality over time

Interdisciplinary

- Artificial Intelligence Approaches to Motor Assessment of Autism Spectrum Disorder: The motor contribution to early autism development
- Developing a Framework for Emotion Expression via Motion in Humanlike Artificial Agents
- Making Sense of Teachers’ Communities of Practice with Social and Epistemic Network Analysis
- A Realist evaluation of Paths for All’s Workplace Step Count Challenge

2.4 Competition Timeline

Please find below the ESRC Steers Supervisor-led Competition 2020/21 timeline. Please note that individual institutions may wish to deploy earlier internal deadlines for the Expression of Interest and full application stages.



2.5 Student Recruitment

The ESRC is committed to equality and diversity of opportunity. For widening participation reasons, all studentship opportunities should be offered as a 1+3 or +3 award and for full-time or part-time study. The 1+3 award should be designed to support students that do not have a Masters degree prior to appointment.

Supervisors should clearly identify how they plan to advertise and recruit a student to carry out the studentship as part of the full application (Stage 2). If successful in the application, supervisors will need to bear in mind the following guidance when recruiting a student for their studentship position.

Regulations on appointing students

- All studentship projects should be fairly advertised and abide by the recruitment processes within the supervisor's HEI. The expectation is that student recruitment would happen from mid-February as soon as possible once the award has been made.
- The SGSSS **must** approve all student appointments before they are confirmed. The ESRC continually monitors SGSSS processes and it is critical that students going directly onto doctoral programmes meet the required ESRC core training criteria.
- Some awards have been hard to fill. Please ensure you give attention to advertising as widely as possible to ensure the best choice of well-qualified candidates. The SGSSS will advertise all opportunities on the SGSSS website and FindAPhD.com – however, please consider in advance whether your HEI or funding partner would be willing to pay for further advertisements.
- The lead supervisor's HEI **must** ensure that the residency criteria are met in order for a student to receive the full studentship, including stipend. The lead supervisor's HEI is responsible for carrying out these checks. We strongly recommend that the eligibility checks take place after candidates have been shortlisted and before they are invited to interview.³

³ The ESRC residency criteria are available here: <https://esrc.ukri.org/files/skills-and-careers/studentships/postgraduate-funding-guide/>

3. Appendix A

SGSSS Supervisor-led Steers Competition Award Marking Framework 2020-21		
	<p>Research Proposal (OUT OF 10) <i>(Please note that the descriptors can be used with discretion where there is a good case to do so)</i></p> <p>PLEASE NOTE THAT YOU SHOULD CONSIDER FIT WITH STEER CRITERIA IN ASSESSING THE PROPOSAL</p>	<p>Supervision & Training (OUT OF 10)</p> <p>PLEASE NOTE THAT YOU SHOULD CONSIDER FIT WITH STEER CRITERIA IN ASSESSING THE CONSTITUTION OF THE SUPERVISORY TEAM AND PLANS FOR ADVANCED TRAINING DURING THE COURSE OF THE PHD</p>
Marking Criteria	<p>Candidate can demonstrate:</p> <p>An excellent proposal (MEETING THE STEER CRITERIA) and scoring well in terms of both cogency and originality. All components – overview, context, methodology, and impact – will be well thought out and clearly expressed.</p> <p>PLUS</p>	
10	<p>Proposal is exceptionally good in all of its components</p> <p>AND</p> <p>fulfils criteria 7-9 below</p>	<p>Supervision arrangements represent a perfect fit with the proposed research in relation to methods, substantive topic area and academic/policy networks. The supervisory team includes an experienced supervisor with recognised expertise in the field.</p>
9	<p>Proposal is highly original and innovative, at the cutting edge of developments substantively and methodologically</p> <p>AND</p> <p>fulfils criteria 7 and 8 below</p>	

8	<p>Proposal contains clear awareness of the potential impact of the research</p> <p style="text-align: center;">AND</p> <p>fulfils criterion 7 below</p>	<p>Supervision arrangements represent a very good fit with the proposed research in relation to methods, substantive topic area and academic/policy networks. The supervisory team includes an experienced supervisor with recognised expertise in the field.</p> <p>The supervision combination meets the student's potential training needs very well and has very good plans for advanced training. The destination HEI offers high-quality specialist training. The research fits well with the wider department/school/faculty.</p>
7	<p>A well-defined proposal with researchable questions, appropriately identified sources, an awareness of the theoretical and empirical background to the research and an appropriate methodology cognisant of ethical issues. The proposal should display an awareness of the research of the economic and societal relevance feasible within 3 years of a funded PhD including appropriate risk assessment.</p>	
<p>Candidate can demonstrate:</p> <p>A good and promising proposal but with identifiable weaknesses. Some, but not all, components of the proposal will be problematic, ill- expressed, or show a lack of knowledge.</p> <p>PLUS</p>		
6	<p>A good proposal with only minor but still identifiable weaknesses. The research questions will be clear, the methodology appropriate and clearly presented, and most of the appropriate literature identified.</p>	<p>Supervision arrangements represent a good fit with the proposed research in relation to methods, substantive topic area and academic/policy networks. The supervisory team includes an experienced supervisor with recognised expertise in the field. The supervision combination meets the student's potential training needs and has good plans for advanced training. The destination HEI offers high-quality specialist training. The research fits well with the wider department/school/faculty.</p>
5	<p>A promising proposal that suffers from several weaknesses. The methodology is appropriate but ill-expressed. The proposal is only weakly grounded in relevant literature.</p>	

4	A proposal with one serious weakness or several minor ones, which suggests gaps in knowledge and a weak grasp of the proposed methodology and its suitability.	Supervision arrangements represent an adequate fit with the proposed research in relation to methods, substantive topic area and academic/policy networks. The supervisory team includes an experienced supervisor with some expertise in the field.
3	A proposal with significant weaknesses in multiple components, little appreciation of possible methodologies, and/or awareness of relevant literature.	The supervision combination meets directly the student's potential training needs and has adequate plans for advanced training. The destination HEI offers good quality specialist training. The research fits with the wider department/school/faculty.
2	A problematic proposal that would need considerable additional work before being fundable. All components of the proposal will require further work and/or demonstrate little or no background or interest in their subject.	The supervision combination meets directly the student's potential training needs and has adequate plans for advanced training. The destination HEI offers good quality specialist training. The research fits with the wider department/school/faculty.
1	A problematic proposal that would need considerable additional work before being fundable. All components of the proposal will require further work and/or demonstrate little or no background or interest in their subject.	

4. Appendix B

Examples - Advanced Quantitative Methods (AQM)		
Professor Chris Carman	Politics and International Relations	University of Glasgow
<p><i>The Role of the News Media in Perpetuating Electoral Fraud Myths in the UK and US</i></p> <p>This project seeks to examine the British and American news media's role in perpetuating myths about voter and electoral fraud in UK and US elections. The central research questions include whether news coverage is based more on fact or elite rhetoric, the role of tabloids and the partisan press in the UK relative to the US, what policies are linked to fraud (e.g., immigration), and the particular frames used by the media. The project will involve extensive data collection of coverage of recent UK elections, the 2020 US presidential election, and the 2021 Scottish Parliament election. The analysis will be carried out mainly using Quantitative Text Analysis, in particular unsupervised topic modelling and structured topic modelling. The analysis will also involve advanced count data regression modelling to assess variations in news attention to fraud. The project will be linked to a large-scale, multi-strand research project involving information environments in the UK and US surrounding voter and electoral fraud. The outputs will contribute to the planned knowledge exchange, impact, and dissemination programmes involving government officials, journalists, policy stakeholders, and public interest pieces.</p>		
Dr Zachary Greene	Politics and International Relations	University of Strathclyde
<p><i>Intra-Party Division and Multi-level Politics</i></p> <p>Devolved powers for multiple levels of government cause tensions between groups with similar ideologies, but competing regional or national identities. Distinct regional priorities likely encourage disagreements between members of local and national party representatives, particularly in the face of strong independence movements. Independence referendums in Catalonia, Scotland or Quebec highlight how regional movements hold substantial consequences for politics at both regional and national levels. Despite the importance of devolved powers and the ways parties facilitate the growth of new issues and positions, scholars have yet to thoroughly explore the relationship between regional and national preferences within the same organizations. Do debates within regional parties mirror national debates? How do regional issues emerge? Do internal party rules and institutions resolve or exacerbate tensions between regional and national goals?</p> <p>Working with the Party Congress Research Group, this project will answer these questions with novel data from regional party conferences in Canada, Germany, Scotland and Spain to evaluate internal divisions and their consequences for regional competition. Party conferences offer distinct insight into internal debates as conferences often select leaders and vote for motions eventually included in election programmes. The content of these debates, therefore, offers rich information on regional divisions, which until recently was difficult to rigorously examine cross-nationally due to the resource and time constraints associated with content analysis. To analyse</p>		

the large amount of textual data from these meetings, the student will train in advanced tools recently introduced to political research for computer assisted content analysis using machine learning. These tools will enable the researcher to study internal party dynamics such as changes in internal preferences, emphasis on independence or other issues, and even internal factional groups. The results from such a study offer compelling answers to questions on how distinct regional issues and preferences influence policy development in representative democracies.

Professor Hill Kulu

Health, Families, Relationships and Demographic Change

University of St Andrews

Residential Context and Childbearing: Application of a Spatial Multilevel Multiprocess Hazard Model to Study Contextual Determinants of Fertility

Fertility levels are below replacement level in most industrialised countries and have further declined in recent years. However, they vary significantly within countries by residential context. Fertility is high in rural areas and small towns and low in large cities. The reasons for spatial variation in fertility remain unclear. Some studies argue that fertility levels vary between places because different people live in different settlements. Others emphasise the importance of factors related to immediate living environment. The role of selective migrations has also been discussed.

This PhD project will investigate childbearing patterns by residential context in Britain, a country with a significant spatial fertility variation. The objectives are: First, to determine the extent to which spatial variation in childbearing patterns is attributed to compositional characteristics and selective migrations, and what role contextual factors play. Second, to investigate how contextual factors influence individuals' childbearing behaviour. Third, to develop a spatial multilevel multiprocess hazard model to properly measure the effect of living environment on individuals' childbearing behaviour. An understanding of how residential context influences fertility is essential to improve our understanding of the causes of low fertility in industrialised countries.

The project will develop and apply a spatial multilevel multiprocess hazard model to data from the ONS Longitudinal Study, the Scottish Longitudinal Study and the British Household Panel Survey to determine how contextual factors shape individuals' childbearing behaviour. The performance of the proposed approach will be compared to that of conventional methods using maximum likelihood and Bayesian methods. The project will provide rich and reliable information on spatial fertility variation in Britain and will improve our understanding of the causes of high fertility in some areas and low fertility in others. The developed method could be applied to study contextual determinants of other domains of individuals' behaviour (e.g. health, employment, residential relocations).

Dr Michelle Luciano

Psychology

University of Edinburgh

Gene-environment correlation and interaction in the development of reading ability and relation to life outcomes.

Reading and language skills are essential cognitive skills which if not developed properly can have negative impacts for children that last through to adulthood. Twin and family studies show that genes and environment influence reading development, with several studies indicating a (total) genetic influence that varies according to environmental circumstance. This project will extend this research in a novel way by incorporating molecular data available in two ESRC Biosocial Sweep datasets (1958 National Child Development Study, Understanding Society). The first aim is to establish the pervasiveness of gene-environmental correlation and interaction using whole-genome data and specific environmental measures. The second aim is to construct sensitive prediction models of reading impairment risk by incorporating genetic and environmental predictors with potential moderating effects. Polygenic scores for educational attainment, reading ability and other cognitive and developmental traits will be used to develop these prediction models. This could lead to earlier identification of children at risk of reading difficulties and more successful intervention. The third aim is to quantify the effect of reading disadvantage (adjusting for general cognitive ability) in earlier life on later life socio-educational and health outcomes, including the indirect effects of genes and environmental factors. The fourth aim is to boost the power to identify novel genetic variants influencing reading skill by performing genome-wide analysis of reading ability in the ESCR datasets and meta-analysing the results with existing genome-wide studies of reading (including the Avon Longitudinal Study of Parents and Children). These results will feed back into improving the reliability of reading polygenic scores for use in future studies. Finally, Mendelian Randomization will be used to test for causal relations between reading ability and life outcomes. Findings from this study will be of international interest to researchers in psychology and biology, with special relevance to parents and educators.

Examples - Datasets

Dr Caroline Brown

Human Geography

Heriot Watt University

The right to play – a comparison of rural and urban outdoor play opportunities, environments and experiences

The UN Convention on the Rights of the Child (UNCRC) sets out a series of universal children’s rights, including Article 31, known as the right to play. Play is central to children’s health and development, and outdoor play in particular offers a range of benefits including enjoyment, socialisation, physical activity, learning and skills acquisition. There are, however, growing concerns that children’s lives are becoming ever more dominated by indoor, screen-based, sedentary activities at the expense of participation in active, outdoor pursuits. At the same time, it is not yet clear how the different types of environments available to children across the urban-rural gradient impact on outdoor play. The project will explore and compare urban and rural children’s outdoor play participation, environments, and experience using a mixed methods approach. This will consist of: 1) secondary analysis of existing social survey data on outdoor play and outdoor activity participation in childhood using both cross-sectional and longitudinal analytical techniques; and 2) qualitative case studies using visual methods to explore young people’s outdoor play environments and experiences in urban and rural contexts. The student

will benefit from access to an interdisciplinary supervisory team with considerable experience of supervising PhD students to timely completions and of supervision and research in this subject area. In addition, the inclusion of a nominated supervisor from the James Hutton Institute will offer the student insight into policy-focused academic research outside the university setting and direct experience of the science-policy interface, including opportunities for knowledge exchange with policymakers and practitioners working on promoting outdoor access.

Dr Mirko Moro

Economics

University of Stirling

Investigating the impact of public interventions to reduce drinking water lead contamination on infant health in Scotland

Labour and health economists appreciate that positive birth outcomes (such as higher birth weight) and infant health are strong predictors of successful academic and labour outcomes later in life. Lead is a very toxic element that can have adverse consequences on babies and children's health, even at low concentrations. There are different sources of lead exposure. Tap water and leaded-petrol were two of the most common in the UK until mid 1990s. Lead service pipes were widely used around the world to connect homes to street water mains. Lead is dissolved from the interior of the pipe and ingested when drinking from the tap. We propose to examine how specific interventions to reduce exposure to tap water lead in Scotland influenced pregnancy outcomes (e.g., live births, birth weight, stillbirths) and infant mortality. The approach to be taken combines historical and administrative health data with modern statistical techniques. The analysis we propose will study two water treatment programmes that successfully reduced lead content in tap water in Glasgow in 1978 and 1989. The aim is to develop causal estimates of lead removal on the universe of births and infant deaths in Glasgow by employing difference-in-differences and regression discontinuity design. Babies and young children worldwide are still routinely exposed to potentially hazardous levels of lead today, from multiple sources, both in developed (see Flint, Michigan, USA) and developing countries. Being able to identify the health effects of exposure to lead is thus very important. This project can be seen as the first building block towards a broader research programme about the short- and long run impacts of lead removal in Scotland that will be expanded to include further urban areas and acquisition of other administrative datasets, such as education and crime, will be investigated further by the team.

Dr Alastair Rutherford

Sociology

University of Stirling

"A Life Lived for Others": Volunteering Participation and Transitions in Older Age

Volunteering participation is bimodal in age, peaking both in the early 20s and in the years around retirement. Increases in life expectancies, leading to an ageing population in the UK, might be expected to be associated with increasing voluntary participation in retirement. However, changing retirement ages, more flexibility in retirement, policies to encourage longer working lives, and family caring responsibilities are increasing the competing pressures on the time of potential volunteers in older age. At the same time, overall volunteering participation

rates have been stable or falling despite significant policy and sector effort to encourage increased participation.

Volunteering in older age is more concentrated in social care activities and organisations (Price, 2007). Motivations for volunteering also differ by age: older volunteers are more likely to be motivated by altruistic or social motivations, and less by material or investment concerns (Fischer and Schaffer, 1993; IVR, 2007). While volunteering now plays a critical role in public service provision through a range of voluntary organisations, there are also significant benefits to older people themselves from voluntary participation. Several studies have shown that volunteering in older age is associated with reduced mortality and improved quality of life (Lum & Lightfoot, 2005; Piliavin & Siegl, 2007).

The most useful data for understanding patterns of volunteering is longitudinal because participation is a dynamic process: individuals transition into and out of volunteering; employment; and caring responsibilities. While volunteering participation at the population level is relatively steady, analysis of longitudinal data from the British Household Panel Study (BHPS) shows that there is significant turnover. Nearly 85% of adults volunteered at least once in a ten year period, with most starting and stopping at different points in their lives (Kamerade, 2014). Indeed, transitions in volunteering are particularly likely in older ages. For instance, retirement and other employment and family transitions associated with ageing might encourage new volunteering activities, but older age is also a time when participation might cease, particularly due to deteriorating health or challenges with mobility.

This PhD project will use longitudinal data drawn from the English Longitudinal Study of Ageing to explore the life events which predict changes in volunteering participation in older age. In particular, the interaction of retirement decisions and participation decisions will be explored, comparing how variations are related to different social circumstances such as occupations. The longitudinal data will allow us to examine whether falling voluntary participation is explained by changes in overall participation levels, or by displacement of volunteering participation to later life due to changes in patterns of retirement and caring.

Dr Sharon Wright & Dr Mark Wong

Social Work and Social Policy

University of Glasgow

Young people's lived experiences of welfare conditionality over time

This PhD is designed to re-analyse the 'Welfare Conditionality' Qualitative Longitudinal Research data set to establish original knowledge about how conditionality impacts on young people's lived experiences of claiming benefits and looking for work in Scotland and England. The candidate will learn and apply cutting-edge, advanced large-scale qualitative data analysis techniques, including QSR NVivo framework matrix analysis. Welfare conditionality has been at the heart of a fundamental and controversial transformation of the British welfare system. In contrast to traditional rights-based social security, conditionality aims to stimulate job entries by requiring intensive job-seeking behaviour, backed by one of the toughest sanctions regimes in the world, e.g. removing benefits for up to three years. The recent, on-going roll out of Universal Credit extends conditionality to in-work claimants, disabled people, lone parents with pre-school children, and claimants' partners. Young people aged 18-24 are disproportionately

affected by these reforms because they are at twice the risk of unemployment (compared with those aged 25-64) and face the highest risks of benefit sanctions. Young people are multiply disadvantaged, with reduced social security entitlements than older citizens; lower earnings potential (lower national living wages); and confronted with barriers to establish housing and financial independence due to increasingly precarious work conditions and housing insecurity. Growing numbers of young people have become economically marginalised within a context of growing precarity in an unequal labour market characterised by underemployment and in-work poverty, particularly for youth. However, little is currently known about how young people growing up in this context experience the policies that intensify conditionality and limit welfare support, which hold potentially harmful and long-lasting impacts. This doctoral project is designed to contribute new knowledge on how young people experience and are impacted by conditionality over time and whether conditionality is effective or ethical for them.

Examples - Interdisciplinary

Dr Jonathan Delafield-Butt

Education

University of Strathclyde

Artificial Intelligence Approaches to Motor Assessment of Autism Spectrum Disorder: The motor contribution to early autism development

Children move with their own agency to create experiences they enjoy and learn. Self-generated movement is a hallmark of 'sensorimotor intelligence', enabling learning the consequences of one's actions. It forms a bedrock of experience that expands in social collaboration to make sense of the world. We create stories in movement in what educational psychologist Jerome Bruner named 'narrative cognition'. However, evidence demonstrates children with autism spectrum disorder exhibit a subtle, but significant disruption to self-generated movement, thwarting its success, creating distress and isolation, and consequent social and emotional autistic symptomology. This project will advance novel technology to assess this disruption, and provide a possible new tool for the early detection of autism. This ESRC Interdisciplinary PhD will advance the state-of-the-art in child development and autism (Delafield-Butt) with precise human movement analysis (Rowe) to develop and deploy bespoke, lightweight wearable sensors

(Andonovic) for the ecological characterization of the autism motor signature in very young children and infants. The project will explore, develop and deploy a new, ecological serious game paradigm employing bespoke feather-weight wearables suitable for very young children. Data will be collected from children at-risk for autism, and typically developing, as well as through a whole-population birth cohort study in Madeira, with whom the project team is collaborating. We will produce new technological innovation to address gaps in theory in the aetiology of autism, and satisfy practical need in early years education and care to identify children with autism spectrum disorder before current methods allow. These data will inform our scientific and professional understanding of the role of the motor disruption in autism, and provide a possible new target for treatment.

Professor Emily Cross	Psychology	University of Glasgow
<p><i>Developing a Framework for Emotion Expression via Motion in Humanlike Artificial Agents</i></p> <p>The overarching aim of this PhD project is to develop a library of naturalistic emotional movements generated by expert dancers, and then implement and test the communicative value of these movements in artificial agents in naturalistic social settings. This studentship is richly interdisciplinary in nature, drawing from the social sciences, performing arts and engineering to tackle a major challenge that falls under the remit of the RCUK Digital Economy theme: namely, to improve artificial agents' social acceptance and usability by providing them with emotionally expressive behaviours that are instantly readable by human interaction partners. This project comprises three main studies, with the first two primarily involving social sciences research (with performing arts elements as well), and the third study combining knowledge generated from the social sciences and performing arts with computing science. For the first third of the project, the student will work closely with the Scottish National Ballet and motion tracking technology to create and validate a rich library of emotions expressed via bodily movement. Next, the student will develop expertise with quantitative and qualitative behavioural methods (including eye tracking, self-report measures of affective valence), as well as working with different participant samples (expert and naïve dancers) to further identify how emotion is expressed via bodily movements, and which elements of a body in motion convey the most meaningful information about a mover's emotion. The final third of the project applies insights gained from the first two parts to the computing science and robotics world, by implementing insights gained into the movements and behaviour of physically present robots and virtual representations of avatars. Together, the project provides an ideal and exciting opportunity to train a PhD student who is equipped with the theoretical and technical skills to work between the social sciences, arts, and technology.</p>		
Dr Natasa Pantic	Education	University of Edinburgh
<p><i>Making Sense of Teachers' Communities of Practice with Social and Epistemic Network Analysis</i></p> <p>The project will employ Social and Epistemic Network analysis to investigate how teachers form Communities of Practice (CoPs). CoPs – groups of actors who share a sense of purpose and support over time (Lave & Wenger, 1991) – can facilitate innovation and improved student outcomes, but the mechanisms through which teachers build such communities have been empirically under-investigated. The project will provide an original account of change mechanisms (e.g. how teachers influence each other's understanding of practice) in the formation of CoPs as social networks that shape, and are shaped by, actors' sense-making processes.</p> <p>Bringing together educational theories (teacher agency and CoPs), data analytic techniques recently developed in computer sciences (Epistemic Network Analysis) and Advanced Social Network Analysis, the student will develop a novel operationalisation of CoPs as social networks and conduct empirical analysis of change in both the structure and content of teachers' interactions over time. The student will collect data in four schools in Scotland, asking about 200 teachers to use a web-based log to report situations in which they approached colleagues or other people for support. The student will conduct content analysis of log data to construct</p>		

epistemic networks (based on code co-occurrences) in concert with quantitative analysis of social network structures. Used together, Social and Epistemic Network analysis will enable investigation of the patterned purposeful interactions to identify networks with high levels of alignment in purposes and mutual support that characterise CoPs.

In line with EPSRC's Working Together priority, the interdisciplinary approach uses data analytic techniques (previously predominantly applied to look for patterns in the Big Data generated in digital environments such as social media, games and simulations) for addressing important social-scientific challenges in real settings – examining interaction between human agency and social structures. Addressing the methodological research question will inform adaptations of these techniques for computing-with-meaning and automating network feedback to help people make sense of their community-building interactions and develop collaborative competence.

Dr Ailsa Niven

**Health, Families,
Relationships and
Demographic Change**

University of Edinburgh

A Realist evaluation of Paths for All's Workplace Step Count Challenge

Despite the established physical and mental health benefits of physical activity (PA), the prevalence of physical inactivity has been described as 'pandemic'. In 2014, the Scottish Government launched a National Walking Strategy that identified increased walking as a key mechanism through which the population's PA levels can improve. Paths for All are a key partner in delivering the walking strategy, and their annual 8-week Walk at Work Step Count Challenge (SCC) is a flagship activity. Building on previous collaborative work, the overall aim of this PhD is to work with Paths for All to undertake a realist evaluation of the SCC in order to understand for whom, under what conditions and how the programme is effective in changing PA behaviour.

In line with realist evaluation, the proposed project will address 3 objectives. Firstly, in order to develop a programme theory (Context-Mechanisms-Outcome) of how the SCC may lead to increased PA, the student will undertake a realist systematic review of existing literature on work-based interventions similar to SCC, and interview key stakeholders. Secondly, in order to test the programme theory the student will undertake a longitudinal qualitative study with SCC participants to gain a nuanced understanding of their experience. Thirdly, the programme theory will be revised based on the findings of the longitudinal study and stakeholder input.

The supervisors have a strong mix of experience and skills relevant to the project. The student will join thriving research centres focused on PA and public health research (PAHRC and SCPHRP) and benefit from the world-class training and infrastructure facilities at the University of Edinburgh. The project team will work with Paths for All to produce useful outputs that can inform practice, support funding applications, and influence policy. It is anticipated that the project will result in at least 3 high quality academic outputs.