Artificial Intelligence Guidance notes for Midlands Graduate School ESRC DTP applicants

It is important that you allow yourself sufficient time to read these Guidance Notes before you complete your AI application form.

Artificial Intelligence Studentship Application Form

If you are interested in applying for the advertised Midlands Graduate School Artificial Intelligence Studentship you will need to complete the ‘Midlands Graduate School ESRC DTP Artificial Intelligence Studentship Application’. You will need to submit this alongside a covering letter and a CV as well as two references.

Do not attempt to complete the application form until you have read the guidance notes as outlined below.

Think about how to make the best case possible. Make sure that you proof read your application before submitting it. Try to avoid careless spelling or grammatical errors.

Question 1. Applicant Details

Please ensure that you include your email address and telephone number so that we are able to contact you should you be offered an interview.

Question 2. Project details and your intended programme of research

Question guidance on which scheme you are applying for:

1+3  □  +3  □  +3.5  □  +4  □

The ESRC expects all DTP researchers to be trained in the following areas:

- Philosophy of Social Science Research
- Research Design, Practice and Ethics
- Quantitative Research Methods
- Qualitative Research Methods

All six institutions in the Midlands Graduate School DTP offer a Masters in Social Science Research designed to meet the ESRC’s compulsory core training requirements for ESRC-funded students. Although students follow different, discipline-specific pathways through these Masters programmes, four core modules are common to all pathways. A summary of each of the areas is provided below:
Philosophy of Social Science Research

By the end of this module students are able to:

- analyse the relationship between epistemology, ontology and methodology;
- apply these to their own fields of enquiry;
- examine the spread of research paradigms and alternative theoretical positions;
- apply these to broaden the scope of debates within their disciplines and field of study.

The module considers fundamental philosophical debates about what counts as ‘knowledge’ across the social sciences. These include the debates around structure/agency, individualism/holism, and explanation/interpretation. The module considers (natural) science as a method of obtaining knowledge, and the strengths and critiques of science, as well as thinking about whether the natural sciences can (or should) be a model for the social sciences. As part of this undertaking, the module addresses the interpretative tradition in the social sciences, including hermeneutics and phenomenology, in order to consider the importance of causality and meaning in social science research. Related questions of value-freedom and objectivity are addressed in turn. The module builds on these concerns by considering the impact of approaches such as social constructionism, critical realism and standpoint epistemology upon social science research today. The final part of the module addresses a range of radical critiques of the social sciences as they have been traditionally conceived. This involves consideration of the relation between power and knowledge by examining for example the core ideas of feminism, critical theory, and post-colonial theory.

Research Design, Practice and Ethics

By the end of this module students are able to:

- identify and address the strategic choices made in the design of a research project, including the ethical issues which need to be considered;
- formulate research questions and hypotheses (where appropriate);
- discuss the relationship between theory and evidence and the potential biases in research findings;
- understand different forms of sampling and case selection;
- demonstrate an understanding of concepts of validity, reliability and replicability and the different perspectives on how these may be defined.

Training in ethics provided through this module includes: the ESRC Framework for Research Ethics; integrity; consent; assessment of harm to researchers and participants; the independence of research; confidentiality and compliance with the Data Protection Act. The module introduces students to the concepts and varieties of social science research designs. Research design consists of choices necessary to transform a research question into actual research. These choices relate to strategies and modes of case selection, data collection and modes of analysis, and they pertain equally to qualitative, quantitative and mixed-methods studies. Every research question can be elaborated in different ways; none of these will be ideal in all respects, so that design choices have implications in terms of costs and benefits. The module discusses these implications, considering the kinds of conclusions that can reliably be drawn from the different kinds of evidence produced by different designs. Key design features such as groups, timing and measurement are introduced and illustrated through a range of research designs including experimental and quasi experimental, case study design and longitudinal design. Design elements are linked into the full cycle of research activity, from knowledge synthesis through to policy or practice.

Fundamentals in Quantitative Research Methods

By the end of this module students are able to:

- make informed assessments of the design and construction of quantitative data sources and their implications for analyses;
- manipulate and analyse quantitative data using statistical software (SPSS);
• apply and interpret a range of forms of statistical analysis competently, including descriptive, inferential and multivariate techniques.

The module focuses on concepts, methods and skills central to quantitative social research, including data collection approaches and concept operationalization. Building on a grounding in ideas relating to probability sampling, sampling error and statistical inference, coverage of techniques extends from comparisons of means and simple cross-tabular analyses to a discussion of multivariate analysis approaches, focusing on linear and logistic regression, but also introducing other techniques relevant to specific analytical goals (e.g. principal components analysis, cluster analysis and hazard models).

Foundations in Qualitative Research

By the end of this module students are able to:

• critically evaluate the range and content of different qualitative methods as applied to textual, visual and aural data;
• explain their theoretical underpinnings and potential applications;
• demonstrate an understanding of how qualitative approaches can be used within mixed methods frameworks;
• understand the utility of appropriate software packages for analysing qualitative data;
• appreciate how qualitative methods might be used, both within their own discipline/research area and by other social science disciplines.

Given the range of approaches to be covered, this module is taught largely at the theoretical and conceptual level, exploring debates associated with the theory and practice of qualitative research. Qualitative research is examined across a range of topics, from different approaches and methods including ethnographic and observational research, discourse and conversation analysis, documentary and archival analysis, participatory research and the use of interviews. Ethics in qualitative research is specifically considered, as is the evaluation of qualitative research.

Choosing which scheme students should apply for:

If you have (or will have) completed a Masters course by the time you begin your PhD and you have undertaken modules which cover all these research skill areas you should apply for a +3 award. In question 5 you will be asked for details of modules undertaken during your Masters course in order for the DTP to determine whether your prior research methods training and core discipline skills match those required by the ESRC. It is essential that this section is fully completed if a student is applying for a +3 award.

If you have (or will have) completed a Masters course by the time you begin your PhD and you have undertaken modules which cover 2 of these research skill areas, then you should apply for a +3.5 award. In question 5 you will be asked for details of modules undertaken during your Masters course in order for the DTP to determine whether your prior research methods training and core discipline skills match those required by the ESRC. If you are awarded a +3.5 you will be expected to undertake 2 ESRC DTP core training modules during your first year of PhD study in order to cover the training areas which you have not previously undertaken.

If you have not undertaken a Masters course, or you have completed a Masters course that did not cover the ESRC’s core research skill areas then you should apply for a 1+3 award. If you are awarded a 1+3 you will be expected to complete the DTP Masters in Social Science Research at your chosen institution, including all four core modules before proceeding to PhD study.

+4 programmes are offered only on specific interdisciplinary pathways (Digital Society and Mental Health and Wellbeing at the University of Nottingham), where the subject specific training that is drawn on will not
be limited to one specific subject. +4 candidates are not expected to have previously covered the core training requirements at point of application.

Please indicate whether you intend to study full-time or part-time by ticking one of the boxes.

**Question 3: Residency**

This section must be completed fully because it will be used to confirm your residency eligibility for ESRC Funding.

The ESRC has agreed to relax the rules around international eligibility in strategic areas and the Midlands Graduate School DTP has relaxed the residential rules for international students for this Artificial Intelligence studentship. This may allow some students without prior residency in the UK to be eligible for a full fee and stipend award. International students (both EU and overseas students) are eligible to apply for this project.

**Question 4: Qualifications**

Please provide details of the institutions you have attended (or are attending), and the courses you have taken at undergraduate and postgraduate levels. You should enter **one** undergraduate and **one** Masters level degree, but there is also space on the form to add other qualifications at the same level or other relevant qualifications. If you have already started your PhD, please include the date on which your studies commenced and whether you have been studying part-time or full-time.

If your qualification was completed outside the UK, please tell us the name of your qualification in the **original language** (e.g. Maîtrise, and **not** the English equivalent).

**Question 5: Previous Research Methods and Core Skills Training**

If you are applying for a +3 or +3.5 programme you must hold, or have completed by the time you begin the programme, a Masters qualification with a high grade.

Please give details of the composition of your Masters course by listing modules you have (or will have) undertaken. You must provide sufficient information for us to assess whether the Masters course contained the requisite training in research methods and core discipline skills to prepare you for a research degree.

If you are applying for a 1+3 award but have previously completed a Masters course, please also outline the content of your Masters modules here.

If you are unsure as to which award length you should be applying for please see the guidance notes above for Question 2.

**Question 6: Professional Experience that is relevant to this application**

Please provide information about any employment, work or professional experience that is **relevant** to your proposed programme of study. This is of particular importance if your programme is practice-based, or if you have had no Masters level training but substantial professional experience relevant to the subject of your proposed research. You should use this space to give details of any professional experience that you wish the assessors to take into account.
Question 7: Other Experience and/or Awards

Please provide details of any other achievements or experience that are relevant to your application, including details of any academic prizes awarded; publications; and relevant voluntary or extracurricular activities.

Question 8: Personal Statement

In this section provide a personal statement that outlines your motivation for PhD research and how your education and experience to date has prepared you for this research project. This should be a maximum of 1,000 words.

Question 9: References and Referees

You are also required to provide two references in support of your AI Studentship application who can comment on your suitability for PhD study. You should select referees who have the detailed knowledge required to appraise your recent intellectual development and preparedness for the project to which you are applying.

Applicants who have not been in education for a period of time may choose to select a referee who is, for example, an employer.

10: Additional Documentation to be submitted

Transcripts

Please ensure you also include copies of the transcripts of your previous qualifications.

11: Equality and Diversity Data Form

The ESRC are seeking demographic statistics for the overall applicant pool for the purpose of equal opportunities monitoring. In order to comply with our ESRC reporting requirements as you apply for ESRC DTP funding from the Midlands Graduate School, you should also complete our ‘Equality and Diversity Data Form’ available online here: [www.mgsdtp.ac.uk/studentships/equaldiverdataform](http://www.mgsdtp.ac.uk/studentships/equaldiverdataform)

For each category you can select a ‘Prefer not to say’ option and the information collected in this form will only be used for the purpose of equal opportunities monitoring and will be shared with the ESRC in an anonymised manner to this end.

CHECKLIST

Please ensure that you:

| Complete all the sections of the ‘Midlands Graduate School ESRC DTP Artificial Intelligence Studentship Application’ form as fully as possible as a Word document | 
| Include transcripts of your previous qualifications (Question 10) | 
| Completed the Equality and Diversity Data Form (Question 11) | 
| Email all documentation to the address detailed in the advertisement for the project by the stated deadline. |