

Centre for Early Mathematics Learning (CEML) PhD Studentship Application Guidance Notes – October 2023 Entry

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

If you wish to apply to multiple CEML projects, you will need to complete a separate online application for each one.

Loughborough University Application Form

All applications should be made online at: <http://www.lboro.ac.uk/study/apply/research/>.

Please complete Section A and Section B in the following pages and upload as a supporting document to your online application.

SECTION A

1. Residency

This section must be completed in full because it will be used to establish whether you will be classed as a home or international fee student for the purposes of funding.

To be classed as a home student, applicants must meet the following criteria:

- Be a UK national (meeting residency requirements), or
- Have settled status, or
- Have pre-settled status (meeting residency requirements), or
- Have indefinite leave to remain or enter

If an applicant does not satisfy any of the criteria above, they will be classed as an international student. Please note that we can award up to 30% of studentships to international students per cohort. This guidance is correct at the time of writing for international students beginning in October 2023.

Loughborough University Application ID:	
Nationality	
Country of birth	
Country of permanent residence	
On what date did you take up residence? If since birth, please state.	
Current address:	
Have you lived at this address since October 2019?	Yes No

If you answered 'No' above please list your previous address(es) from October 2019.

I confirm that I have read the guidance on residential eligibility above and I am applying as:

A home applicant

An international applicant

If you are an EU, EEA or Swiss citizen, do you have settled status or pre-settled status in the United Kingdom, or indefinite leave to enter or remain in the United Kingdom?

Settled Status

Pre-settled Status

Indefinite leave to enter or remain

None of the above

Not applicable

Section B

1. Qualifications

When completing your online application – please ensure that you provide details of the institutions you have attended (or are attending). You should enter **one** undergraduate and **one** Masters level degree, but you can add other qualifications at the same level or other relevant qualifications. Please ensure you provide copies of academic transcripts, in order to detail the modules/courses you have taken.

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**).

2. Previous Research Methods and Core Skills Training

Guidance on Award Length: Choosing which scheme to apply for

+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 **all of the research skill areas outlined below**, you should apply for a **+3 award**. The information you provide in question 2 on details of modules undertaken during your Masters course will be used by the CEML Management Committee 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 you are applying for a +3 award.

+3.5 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 the research skill areas outlined below**, you should apply for a **+3.5 award**. The information you provide in question 2 on details of modules undertaken during your Masters course will be used by the CEML Management Committee 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 and pass 2 MGS DTP core training modules during your first year of PhD study in order to cover the training areas which you have not previously studied.

1+3 award

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 outlined below, you should apply for a **1+3 award**. If you are awarded a 1+3 you will be expected to complete and pass the Masters in Social Science Research (Education) at Loughborough University, including all four core modules, before proceeding to PhD study.

Guidance on Award Length: Core Training Requirements

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

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

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.

Please outline any previous Research Methods and Core Skills Training you have undertaken as part of a Masters.

You should 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 this funded research degree.

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

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

Please include the following information for each module listed: Module title & short description; Grade (if available); Credits.

Based upon your previous Research Methods training outlined above, please indicate which scheme you are applying for:

1+3

+3

+3.5

Discipline Specific Skills:

Please outline any Discipline Specific Skills undertaken as part of a masters and include the following information for each module listed: Module title & short description; Grade (if available); Credits

Advanced /Specialist Skills,

e.g. Interview skills, use of dataset and include the following information: Module title & short description; Grade (if available); Credits

3. 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.

Dates (mm/yy)		Full or part-time?	Employer/Organisation (including location)	Status and responsibilities
From	To			

4. Other Experience and/or Awards

Please provide details of any other relevant achievements or experience, such as: academic prizes awarded; publications; and relevant voluntary or extracurricular activities.

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5. Personal Statement

Please provide a personal statement to support your application, commenting on your motivation for PhD research and how your education and experience to date has prepared you for this research project. Please do not include your name or any other identifying details in your personal statement.

6. References and Referees

When completing your online application – you will be asked to provide contact details of two referees 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 are applying.

One academic referee must be from your highest academic qualification to date. Applicants who have not been in education for a period of time may choose to select a referee who is, for example, an employer.

CHECKLIST

Before submitting your [online application](#), please ensure that you upload the following supporting documents as attachments:

- Academic transcript(s) of the institutions you have attended (or are attending) showing the modules studied and achieved.
- A copy of your degree certificate(s), if you have already graduated.
- Research proposal – 1,000 words max, that identifies the area of research you are interested in studying, the key questions you will address and an indication of the research methods you will use.
- ‘CEML PhD Studentship Application Guidance Notes’ (this form) with Section and A and B complete as fully as possible.

Incomplete applications will not be considered.