Centre for Early Mathematics Learning (CEML)

PhD Studentship Application Form – October 2024 Entry

# Guide to applicants

All applications should be made online to Loughborough University as follows: [http://www.lboro.ac.uk/study/apply/research/.](http://www.lboro.ac.uk/study/apply/research/)

**Please complete this form and upload as a supporting document to your online application by the advertised application deadline**.

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

## 1.Personal Details

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| **Forename** |  |
| **Surname** |  |
| **Email address** |  |

## 2.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).

## 3.Previous Research Methods and Skills Training

In order for the CEML Management Committee to determine the appropriate studentship award length, you must outline any previous Research Methods and Skills Training you have undertaken as part of a Masters.

As a general guide, the CEML Management Committee will be looking to make the following full time equivalent award length’s:

* **+3 Award -** if you have (or will have) completed a Masters course by the time you begin your PhD and have undertaken modules, which meet all our research methods and skills training requirements.
* **+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 partially meet our research methods and skills training requirements.
* **1+3 Award –** If you have not undertaken a Masters course, or you have completed a Masters course that does not meet our research methods and core skills training requirements. If you’re awarded a 1+3 you will be expected to complete and pass the Masters in Social Science Research (Education) at Loughborough University, before proceeding to PhD study.

A summary of each of the Research Methods and Skills Training areas is provided below:

**Philosophy of Social Science Research**

Student’s should be 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.

Fundamental philosophical debates about what counts as ‘knowledge’ across the social sciences. These include the debates around structure/agency, individualism/holism, and explanation/interpretation. 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. 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. Builds on these concerns by considering the impact of approaches such as social constructionism, critical realism and standpoint epistemology upon social science research today. A range of radical critiques of the social sciences as they have been traditionally conceived, involving 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**

Student’s should be 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 including; integrity; consent; assessment of harm to researchers and participants; the independence of research; confidentiality and compliance with the Data Protection Act. Introduction 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. Discussions of these implications, considering the kinds of conclusions that can reliably be drawn from the different kinds of evidence produced by different designs. Introduction to key design features such as groups, timing and measurement 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**

Student’s should be 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.

Focus 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**

Student’s should be 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.

Qualitative research 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.

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| **Please outline any previous Research Methods and Skills Training you have undertaken as part of a Masters, based on 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. |
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| **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 |
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| **Advanced /Specialist Skills,**  e.g. Interview skills, use of dataset and include the following information: Module title & short description; Grade (if available); Credits |
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## 4.Professional Experience that is relevant to this application

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| 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** |
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## 5.Other Experience and/or Awards

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| 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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## 6.Personal Statement

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| 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. |
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## 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,](http://www.lboro.ac.uk/study/apply/research/) 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 maximum, 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.
    - Completed ‘Centre for Early Mathematics Learning (CEML) PhD Studentship Application Form – October 2024 Entry’ (this form).

**Incomplete applications will not be considered.**