# Text  Description automatically generated **TRAINING OPPORTUNITY**

# **Online workshop**

# **An Introduction to Computational Research Methods**

## **When:** **4-6 February 2025 (sessions on 4 & 6 Feb (09:00 – 15:00) with ‘homework’ in between)**

## **Where: Online (Teams)**

## **What:**

This training will give an introduction to computational research methods (based on the facilitator’s chapter on this in *Research Methods & Methodology in Education*, edited by Coe, Waring, Hedges and Ashley, 2021). It will address different social science contexts and will contain a mix of teaching approaches, including interactive (online) lectures. Content includes an introduction to the nature and uses of computational research methods; automated social information extraction; social simulation modelling; and social networks and social complexity.

## **The facilitator: Professor Christian Bokhove**

Professor Christian Bokhove is a specialist on international comparisons in mathematics education, the use of technology, and innovative methodologies. He has been involved in several concrete using computational research methods, mainly using open source software (R, Gephi).

## **Who the training is for:**

This training is suitable for students across the Doctoral Training Partnership network. Where space is available it will be opened to other PGRs in the SCDTP universities.

## **The detail:**

Preparation: Course participants should install R, Rstudio and Gephi from:

<https://posit.co/download/rstudio-desktop/>

<https://gephi.org/>

The expectation is that students will attend the whole course, but there is an option to attend day 1 or 3 if preferred.

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**DAY 1: 4 February (09:00 – 15:00) PART 1 – Mining and simulation**

1. **Day 1 - Session 1 - 30 minutes**
An introduction to computational research methods: what are they and what they include. Some general examples of the types of research questions one could expect to answer with these methods, will be provided.
2. **Day 1 - Session 2 - 105 minutes**
An explanation of the nature of automated social information extraction. Three applications of the approach will be given, each accompanied by a hands-on practical in R and Rstudio. As these approaches can be quite computationally intensive, the examples will be relatively small-scale. At the end of the session, you will be able to perform extraction on your own datasets.
3. **Day 1 - Session 3 - 45 minutes**
An introduction to simulation modelling and a simple worked example of this within R and Rstudio.
4. **Day 1 - Session 4 - 30 minutes**
Questions and some sources for follow-up learning.

**DAY 2: 5 February - Homework**

**DAY 3: 6 February (09:00 – 15:00) PART 2 – Social networks and complexity**

1. **Day 3 - Session 1 - 30 minutes**
Further introduction to the types of research questions one could expect to answer with computational research methods.
2. **Day 3 - Session 2 - 165 minutes**
An explanation of what social networks are and what they can tell us followed by . some hands-on use of the open source Social Network Analysis (SNA) package Gephi. We explore several types of metrics in the evolution of networks and see how they can be used within Gephi. We then turn to several case examples of SNA use, including a practical with some packages in R and Rstudio.
3. **Day 3 - Session 3 - 30 minutes**
Questions and some sources for follow-up learning.

**How to join:**

**Complete the online form here:**

[**Intro to Computational Methods Sign Up Form**](https://forms.office.com/e/4AcCsNTVe8)

To register please complete the form by **Tuesday 28 January 2025**