



UNIVERSITÀ  
DEGLI STUDI  
DI BRESCIA

# Introduction to Research

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**Office room:** San Faustino building, E03.P2.16

**Office hours:** By email appointment only

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**Course duration:** 15 hours

**Class room:** Brixia building, room D3

**Assessment:** Class active participation, assignments, short oral presentation.

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## Short course description

The course aims at providing Ph.D. students with the basic philosophical and methodological concepts needed to pursue rigorous scientific research. The course will guide students through a critical learning of the various decision-making steps from the elaboration of research questions to the practical issues of conducting empirical research, with a special focus on the social sciences. Lectures will cover: i) a basic introduction to the contemporary conceptions of scientific explanation, ii) the link between theory-building, modelling, and empirical evidence, iii) the steps and possibilities of empirical research design, iv) some practical issues from literature review to publication. Throughout the lectures, particular attention will be devoted to applied research examples. Students will be required to actively participate to class discussions and engage in short assignments.

## Course objectives

The aim of the course is to provide students with the abilities of:

- critically analysing different perspectives on causality and the related consequences on empirical research

- linking theory and empirical evidence in a mutually beneficial process
- acknowledging the implications of decisions in research design in terms of reliability and explanatory power, with special emphasis on the differences between experimental and observational designs
- elaborating research strategies by anticipating practical implications of the research conduction.

## Prerequisites

No special prerequisites are needed to successfully attend this course but some working knowledge of basic concepts of the methodology of scientific research. The reading of the following is recommended before the course:

Psillos, Stathis (2007). *Philosophy of science A-Z*. Edinburgh: Edinburgh University Press. Entries: “Abstraction”, “Argument”, “Condition, necessary”, “Condition, sufficient”, “Conditional probability”, “Deductive arguments”, “Events”, and “Principle of induction”.

## Assessment

Students will be required to actively participate to classes by engaging in discussions and performing assignments. During the final meeting, students will be required to make a small-group short oral presentation in which they will critically analyse a previously selected empirical research article in light of the subjects discussed during the course.

## Materials

All course material (mandatory readings, lecture slides, final exam material, etc.) will be available on the course shared folder (see email communication). Lecture slides will be uploaded after each class meeting.

## Short programme

### Lecture 1, 17 September, 2.30–5.30 pm: Scientific explanations

- Introduction
- The positivist approach: Laws of nature, deduction and induction, verifying and falsifying hypotheses
- The crisis of positivism: Necessity, sufficiency, statistical relevance
- A realist approach: Causal mechanisms

**Lecture 2, 20 September, 9.30–12.30 am: Theory, models, and empirical evidence**

- Assignment discussion: Research questions
- Theory-building and individual explanations
- Models
- Hypotheses and empirical evidence

**Lecture 3, 24 September, 2.30–5.30 pm: Research design**

- Assignment discussion: Good theory for good data (and vice versa)
- The importance of research design
- Experimental design: *a priori* control, manipulation, replication
- Observational design: *a posteriori* control, comparison, measurement

**Lecture 4, 27 September, 9.30–12.30 am: Research steps**

- Literature review: Science as a cumulative effort
- Analysis of a case of empirical research
- Practicalities: Targeting journals, surviving peer review

**Final exam, 8 October, 2.30–5.30 pm**

Students' group oral presentations (see above).