

Doctoral Program in Complexity Sciences 2015-1016

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**Research Methods for  
Phd in Complexity Sciences I**

Goal

Students will develop competencies in essential research methodologies and tools dedicated to Complex Systems Sciences.

Program

1. Introduction
  - 1.1. Critical and scientific thinking
    - 1.1.1. Empiricism: the use of empirical evidence
    - 1.1.2. Rationalism: the practice of logical reasoning
    - 1.1.3. Scepticism: sceptical attitude
  - 1.2. Types of research - empirical vs. non-empirical, Social and Human Sciences vs. "Hard" Sciences
  - 1.3. Interdisciplinary research
2. Reviewing of literature
3. Defining the problem

- 3.1. Formulating the problem
- 3.2. Identifying variables
4. Examples of research
5. Writing
  - 5.1. a research article
  - 5.2. a doctoral thesis
6. 6. Research project
  - 6.1. Funding projects in complex systems research
  - 6.2. Contents of a proposal
  - 6.3. Case study
7. 7. Literature and conferences
  - 7.1. Main sources of literature
  - 7.2. Main conferences
  - 7.3. Organization of workshops and activities developed by the doctoral programme students

### Assessment

#### Continuous Assessment:

- Project (90%)
- Research project describing the doctoral research work.
- Participation in class (10%).