



## OFFRE DE FORMATION ED211

### ÉCOLE DOCTORALE SCIENCES EXACTES ET LEURS APPLICATIONS - ED 211

Avenue de l'université BP 1155 64 013 PAU Cedex – France

#### Intitulé de la formation : Introduction to Scientific Research

- Période : January - June 2016
- Nb d'heures : 8 hours (one full day), at Pau, in French and/or English
- Responsable de l'enseignement : Vanea CHIPRIANOV, [vanea.chiprianov@univ-pau.fr](mailto:vanea.chiprianov@univ-pau.fr), 05.58.51.37.24

PRÉ-REQUIS : **IF YOU ASKED YOURSELF WHAT IS SCIENCE AND STARTING TO ASK WHAT ITS LIMITS MAY BE. IF YOU NEED TO FORMULATE A SCIENTIFIC RESEARCH QUESTION.**

#### CONTENU DE L'ENSEIGNEMENT :

What is science? What is not science? We examine a few definitions, examples, a short history of science. We brainstorm on and analyze several examples of scientific and pseudo-scientific domains.

What is engineering? We briefly examine the relation between science and engineering.

What is scientific research? We examine a few definitions.

Research question. What are the attributes of a good research question? We analyze examples of research questions in different domains. We write research questions.

#### References

- Peter Godfrey-Smith. *Theory and Reality: An Introduction to the Philosophy of Science*, University of Chicago Press, 2003.
- David C. Lindberg. *The Beginnings of Western Science: The European Scientific Tradition in Philosophical, Religious, and Institutional Context, Prehistory to A.D. 145*. University Of Chicago Press; 2 edition, 2008.

#### COMPÉTENCES VISÉES :

The European Qualifications Framework (EQF) defines 8 reference levels describing what a learner (should) know, understand and be able to do. The 8<sup>th</sup> level defines the PhD skills as 'the most advanced and specialised skills and techniques, [...] required to [...] extend and redefine existing knowledge', and requires a PhD to have the competences to 'demonstrate [...] innovation, autonomy, [...] to the development of new ideas or processes'. We will therefore start developing *critical thinking skills* to analyse existing scientific knowledge and the method(s) of obtaining it, their scope and limits, and *autonomous thinking skills* to be able to redefine the knowledge and the method(s) of obtaining it.

#### ORGANISATION PÉDAGOGIQUE :

Lecture presentation, brainstorming and workshop in groups of 2-4 persons.

APPROFONDISSEMENTS POSSIBLES : YOU MAY WANT TO HAVE A LOOK AT REFERENCES.