Research Methodology

Course level: Master ([M1])  Track(s): [MLDM, DSC (M2)]  
ECTS Credits: 2  
Course instructors: [Emilie Morvant and Ievgen Redko]  
Education period: [1st] semester  Language of instruction: English  
Expected prior-knowledge: [basics in machine learning and data mining]

Aim and learning outcomes: This course introduces the basic aspects of research in machine learning and data mining. It covers several topics including: how to present a contribution either in the form of a written article or at oral? how to apply for grants? how to review scientific papers?

Keywords: [Research, Scientific Communication, LaTeX, Beamer]  
Syllabus:
- What is research?  
  o How to become a researcher?  
  o How to do research?  
    • Steps in research process  
    • Evaluation of the research (the publication principle, etc.)  
    • Ethics in research  
- How to write a scientific paper?  
  o Organization of a paper  
  o Making use of LaTeX (and bibtex)  
- How to present a scientific contribution?  
  o From understanding a paper to its presentation  
- How to review a scientific paper?  
  o Organization of a reviewing process  
  o Hand-one guide in writing a review for a top-tier conference paper  
- How to apply for grants?  
  o Basics of writing grant proposals  
  o Real-world case-studies

Organisation and timetable: [Volume CM/TD/TP] 10h of lectures – 10h Practical Sessions to prepare a presentation of a scientific article (NB: can change depending on the number of students)  
Form(s) of Assessment: Preparation of a review (LaTeX) and presentation (beamer) of a scientific article
Literature and study materials:
- The researcher’s article: a three-part adventure: [https://www.youtube.com/watch?v=K4qY8WvgZ0w](https://www.youtube.com/watch?v=K4qY8WvgZ0w)
a movie directed by Charlotte Arene in collaboration with the “Physics Reimagined team of LPS (Université Paris Sud and CNRS)

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