



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=K4qY8WvqZOw>
a movie directed by Charlotte Arene in collaboration with the "Physics Reimagined team of LPS (Université Paris Sud and CNRS)
- The data scientist's guide for writing papers by Nikolaj Tatti from Department of Computer Science, Aalto University (Finland):
<https://users.ics.aalto.fi/ntatti/howtowrite2016/>

Additional information/Contacts:

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