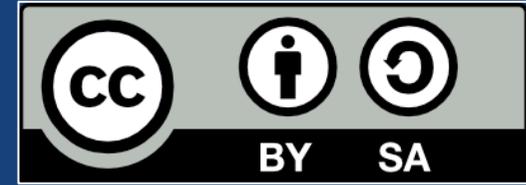# Methodology and Tools for Research:
Introduction

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Master DMKM, 2015-2016

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So, who am I?

Yannick Prié

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Four general objectives for this course

1. Understand the world of research

2. Know how to search, read and evaluate scientific material

3. Know how to write scientific documents

4. Know how research is practiced

1- Understand the world of research

- What does it mean to produce knowledge?
- Validation of research
- Experimentation
- Peer evaluation
- Ethics in research
- [Pluri- | inter- | trans-] disciplinarity

- Publications, conferences, journals, open access
- Evaluation of researchers, impact factor and h-index
- What is the job about? How does it differ from engineer?
- Careers in research
- Public and private research organisations
- Research laboratories, teams
- Research project and funding

2- Know how to search, read and evaluate scientific material

- Searching scientific material in classical or digital libraries
- Scientific and technology watch
- Management of references with dedicated tools
- Critical reading of papers
- Annotation and active reading tools
- Redaction of reading notes

3- Know how to write scientific documents

- Articles, posters, presentation, bibliographical surveys
- Canonical ways of writing
- What to do and not to do
- Content and form
- Argumentation and proof
- Tools for writing

4- Know how research is practiced

- Networking
- Reflexivity
- Scientific project
- Work organisation
- Travelling
- Getting funds
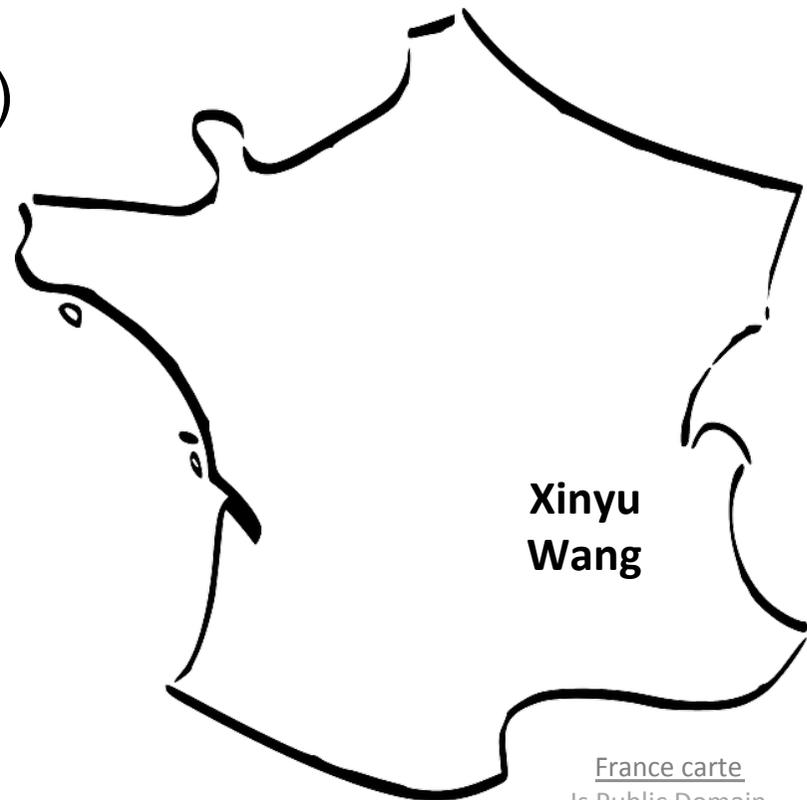- Evolutions of the job
- Research and teaching

Course units

1. Knowledge production
2. Scientific publishing
3. Paper reading
4. Searching for scientific material
5. Paper writing

6. Research landscape
7. *Patents and Information Retrieval*

Barrou Dialo

8. Future of science
9. Being a researcher

Tutoring units

- Searching for scientific documents (2h)
- Using Latex to write scientific articles (4h)
- Managing references (2x1h)
- Designing presentations (2h)

- Help for the
  « program committee » (2h)

Xinyu Wang

Evaluation

- Program committee (1/3)
  - review several papers
  - participate to a PC meeting
- Scientific publication (1/3)
  - collaboratively write a short paper on the future of science and research
  - prepare two presentations for this paper, present one
- Final exam (1/3)
  - open question(s)

General program

	Morning	Afternoon
January 27	**Knowledge Production / Scientific publishing / Paper reading / PC launch (YP)**	
February 9		**Searching for scientific material (YP)**
February 10		*Searching for scientific documents + Managing references (3h)*
March 16		*Help for the Program committee (2h)*
March 29	**Program committee (YP)**	**Research landscape / Future of science / Being a researcher (YP)**
March 30	**Paper writing + assignment launch (YP)**	*Using Latex to write scientific articles (3h)*
April 1	**Patents and Information Retrieval (BD)**	
April 2	**Patents and Information Retrieval (BD)**	
April 12		*Help on paper writing (2h)*
April 15	*(Paper writing assignment due)*	

Resources for this course

- Public (Nantes University moodle)

    http://madoc.univ-nantes.fr/course/view.php?id=29100

- Scoop.it

    http://www.scoop.it/t/toolsandmethodologyforresearch

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- …