Language Technology: Research and Development

Introduction

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Course Content

Theory	**Practice**
Philosophy of science	Survey a research field
Research methods in LT	Plan and implement a project
Scientific writing	Write and review scientific papers

- Lectures covering theory (large group)
- Seminars devoted to practice (small groups)
- Individual projects on a common theme (small groups)

Research Themes

- Universal Dependencies [Sara]
  - Cross-linguistically consistent treebank annotation
  - Used for multilingual parsing research, linguistic typology, etc.
- Morphology [Harald]
  - Morphemes are the meaningful subunits of words
  - Both learning of morphology and treating it for NLP applications are relevant issues
- Historical texts [Eva]
  - Historical texts differ in many ways from modern language
  - Interesting challenges for many NLP applications

Course Structure

1. Background part:
   - Philosophy of science and research methods [lectures]
   - Survey of the state of the art in research theme [seminars]
   - Planning an R&D project [lecture, seminar]
2. Project part:
   - Implementing an R&D project [seminars]
   - Writing and presenting a scientific paper [lecture, seminar]
   - Reviewing scientific papers [lecture]

Reading List

- Textbooks:
  - Okasha, S. (2002) *Philosophy of Science: A Very Short Introduction*. Oxford University Press.
  - Zobel , J. (2004) *Writing for Computer Science*. Second Edition. Springer.
- Papers:
  - Available on line from the course home page http://stp.lingfil.uu.se/∼sara/kurser/fou17/

Assignments and Examination

1. Take home exam on philosophy of science (15%) [written]
2. Research paper presentation and discussion (15%) [oral]
3. Project proposal (15%) [written, oral]
4. Review of term papers (15%) [written]
5. Term paper (40%) [written, oral]

- Pass (G) = all assignments passed
- Distinction (VG) = at least 50% of 1, 3–5 with distinction

Deadlines

Choose your preferred topics	September 4
Hand in take home exam	September 29
Project proposal	October 13
Present project proposal	October 17–18
First version of project report	December 13
Reviews on peer's project papers	December 22
Final seminar	January 12
Final project report	January 12

Seminars

- All seminars are obligatory!
- Group seminars:
  - Research papers
  - Project proposal (presentations with slides)
  - Progress reports
- Final seminar in full group
  - Full day "mini workshop"
  - First year masters also invited
  - Social event

Going for the Real Thing

- The goal is to do real research resulting in real publications
- Guidelines for submission and reviews:
  - Transactions of the Association for Computational Linguistics
    http://www.transacl.org/submission/
- Term papers may be revised and submitted for publication
- Actual submission is not a course requirement

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- You are meant to function like a real research group
- Your projects are individual, but you are supposed to help and support each other within the groups

Publications from Last Year

- **Allison Adams** and Sara Stymne.
  Learning with learner corpora: Using the TLE for native language identification.
  The joint workshop on NLP for Computer Assisted Language Learning and NLP for Language Acquisition
- Joakim Nivre and **Chiao-Ting Fang**.
  Universal Dependency Evaluation.
  NoDaLiDa Workshop on Universal Dependencies
- **Rebeca Padilla López** and Fabienne Cap.
  Did you ever read about Frogs drinking Coffee? Investigating the Compositionality of Multi-Emoji Expressions.
  The 8th Workshop on Computational Approaches to Subjectivity, Sentiment & Social Media Analysis

Learning Outcomes

- Explain the basic principles of scientific work and research methodology in general and in relation to the current project,
- Make an overview of earlier research and the state of the art within the field that the project treats and identify its most urgent research issues,
- Show an ability to identify and formulate research questions in a critical, independent, and creative way,
- Plan and carry out research tasks based on sound methodological principles and within the given time limits,
- Evaluate results and partial results with current validation methods,
- Present the purpose of the project and its results in a professional manner, both for scientists and for the general public, orally and in writing, taking the target audience into consideration

Student Feedback

- 2016 students were very happy with the course: (4.1/5)
- Comments:
  - Seminars in small groups are very good
  - Practice in writing and reviewing papers is very useful
  - Would have liked more time for project (but probably not feasible)
- All students in 2016 passed the course on time!
- No major changes in 2017
- The research topics have varied throughout the years, this year we have two new topics!

Next steps

- Choose your preferred topics:
  - By email to Sara: deadline Monday, September 4
- Lecture on science and research: next Wednesday
- Research paper seminars:
  - Obligatory
  - Each student is responsible for introducing one article each
  - All students are supposed to have read and actively discuss all articles
  - The list of articles and presenters will be available on the web page next week

Questions?