Objectives and design

Some results

First summary
Objectives

- Structured full-time program with scientific focus
- Focus on knowledge creation
- "Broad"
  - Entire Faculty of Informatics, not only one single CS research topic
  - Provide broader disciplinary view on CS
  - Cover the different methodological views (mathematical / logic reasoning, engineering / design methodology, natural science / empirical approach)
- Increase quality (and quantity) of young scientist, they should
  - have scholarship (breadth)
  - contribute to the creation of knowledge (depth)
  - thus, gain the ability to solve complex scientific problems
- Reflect international developments
- Position the faculty as research institution (also in public discussion)
International Situation

- Europe (diverse landscape)
  - “European” Master-apprentice model as well structured models
  - Differences between and within countries and universities
    - Different entrance levels (even with Bologna process)
    - Curriculum (area and fundamental courses)
    - Process with preparatory / dissertation phase, and exams
    - Duration and payment / scholarships
    - Admission processes
  - European University Association (EAU) “Doctoral programs for the European knowledge society” questions classical model and emphasizes structural approaches

- United States
  - Structured curriculum and milestones process
  - PhD follows undergraduate / bachelor

- Asia
  - Follows mainly US American approach (not Japan)
Vienna PhD School …

- The curriculum covers computer science and business informatics
- It covers all research areas of the entire faculty
- Three years English full-time program with scholarship
- Area and fundamental courses
- Integration of visiting Profs
- Parallel to the traditional doctoral program and topic-specific doctoral colleges
  Higher number of ECTS (39 vs. 18 ETCS)

Since 2009 …

- International admission process selects approx. 15 students / year
- Students do not need a PhD topic or advisor
- Students are entitled a scholarship and travel budget
- Co-funded by City of Vienna
Courses

- **Fundamental** courses (15 credits, i.e., 5 courses): Philosophy of Science, Research Methods, Research & Career Planning, Innovation, PhD seminar

- **Area courses** (15 credits, 5 courses): covering research areas; one of these courses from another area. Research areas are:
  - Business informatics
  - Computational intelligence
  - Computer Engineering
  - Distributed / parallel systems
  - Media Informatics / Computer Graphics

- Two courses per area by visiting scientists

- **Master courses** (9 – 12 ECTS) to raise / balance level

- Also “outside” courses (e.g., Summer schools or at other Universities)
Milestones / Exams

- Comprehensive exam: evaluation of knowledge (state-of-the-art)
- Qualifying exam (written and oral): PhD proposal (after 1. year)
- Final exam (two external and one internal reviewer)

Organization

- Students integrated into research groups within first year
- “Assigned” to advisor (complex process)
First Results

- 4. year of program
- In total 43 students and 2 alumni
Students’ nationalities per geographic area

- African
- Arabic
- Asian
- European
- North American
- South American
Gender of current students

- Cohort 2009
- Cohort 2010
- Cohort 2011
- Cohort 2012

Male
Female
Attrition reasons per gender

- Personal reasons
- Accepted other PhD
- Low performance

- Male
- Female

First Results – 4
Evaluation Framework

- **Multidimensional framework** to be applied on a regular basis to analyze achievements and to benchmark performance
- Different angles
- Qualitative and quantitative approaches
Summary

- **What we achieved**
  - First positive indications on “quality” of students (breadth and depth) and their results
  - Program established
  - Increasing quality of procedures (content related and organisational)
  - Many excellent visiting Profs (up to now 17)
  - PhD School “identity”, also with special activities
  - Initiated evaluation process
  - PhD school may act as template / guideline for doctoral education at faculty

- **What we did not achieve**
  - Sustainable and external funding
  - “Missing” 4th (and further) years
  - Curriculum may need more flexibility
  - “Improvable” internal / external positioning
Thank you

Vienna Phd School of Informatics

http://www.informatik.tuwien.ac.at/phdschool