Vienna PhD School of Informatics

www.informatik.tuwien.ac.at/phdschool

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Objectives and design

Some results

First summary

- 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)

- **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
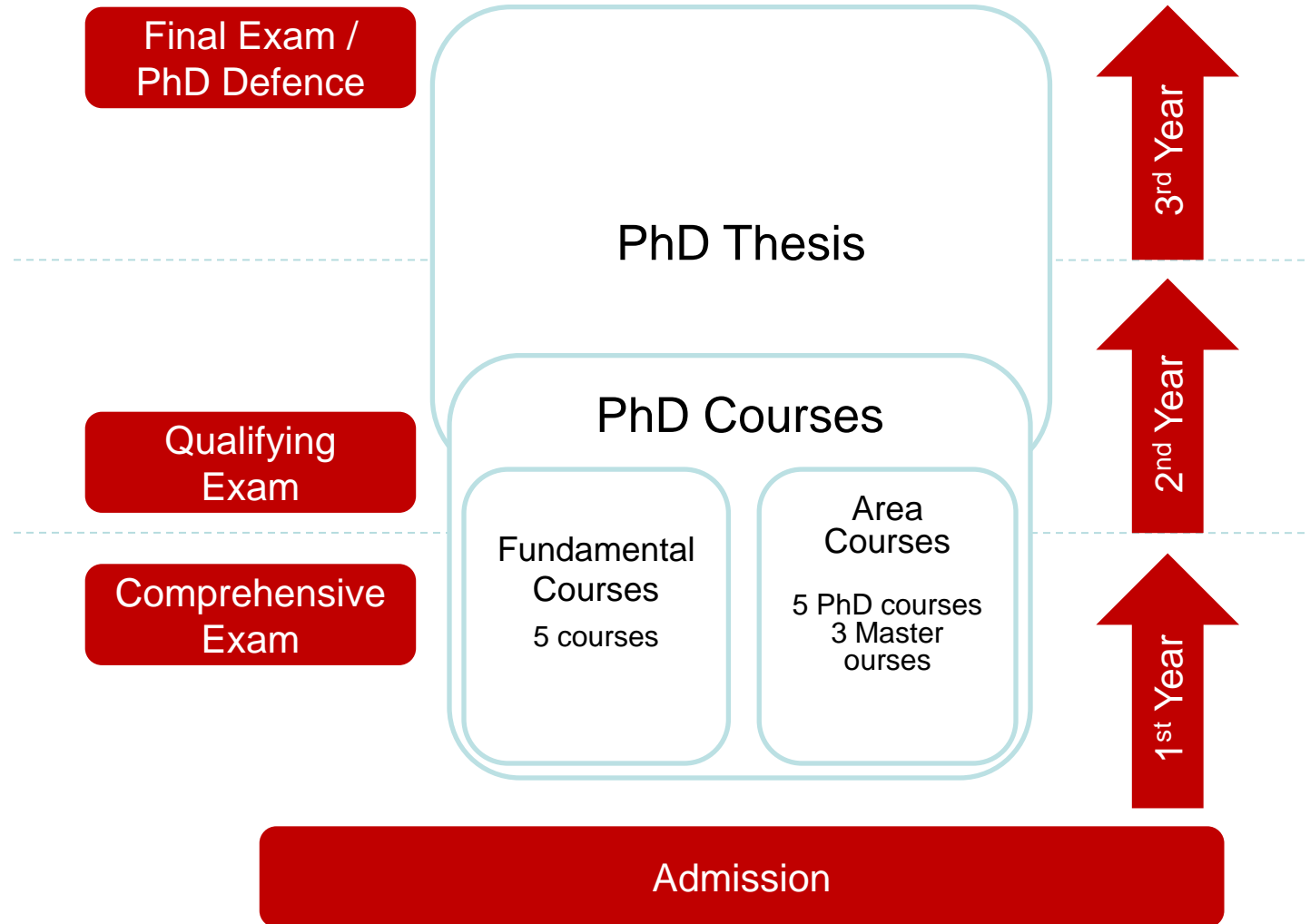
Courses

- **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)
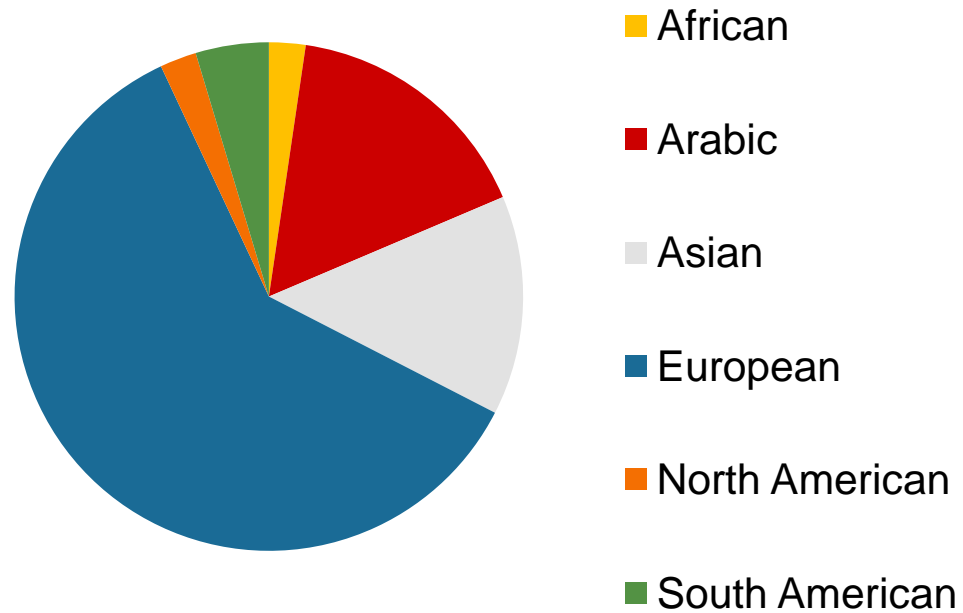- Final exam (two external and one internal reviewer)

Organization

- Students integrated into research groups within first year
- "Assigned" to advisor (complex process)

- 4. year of program
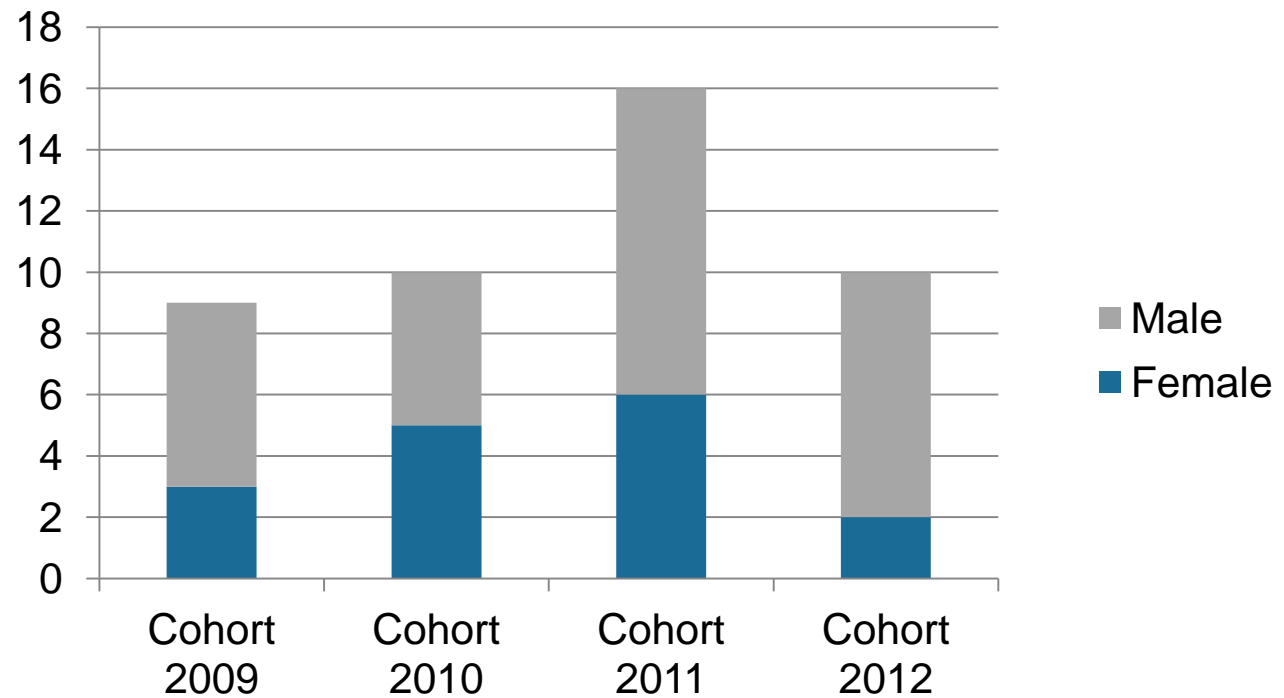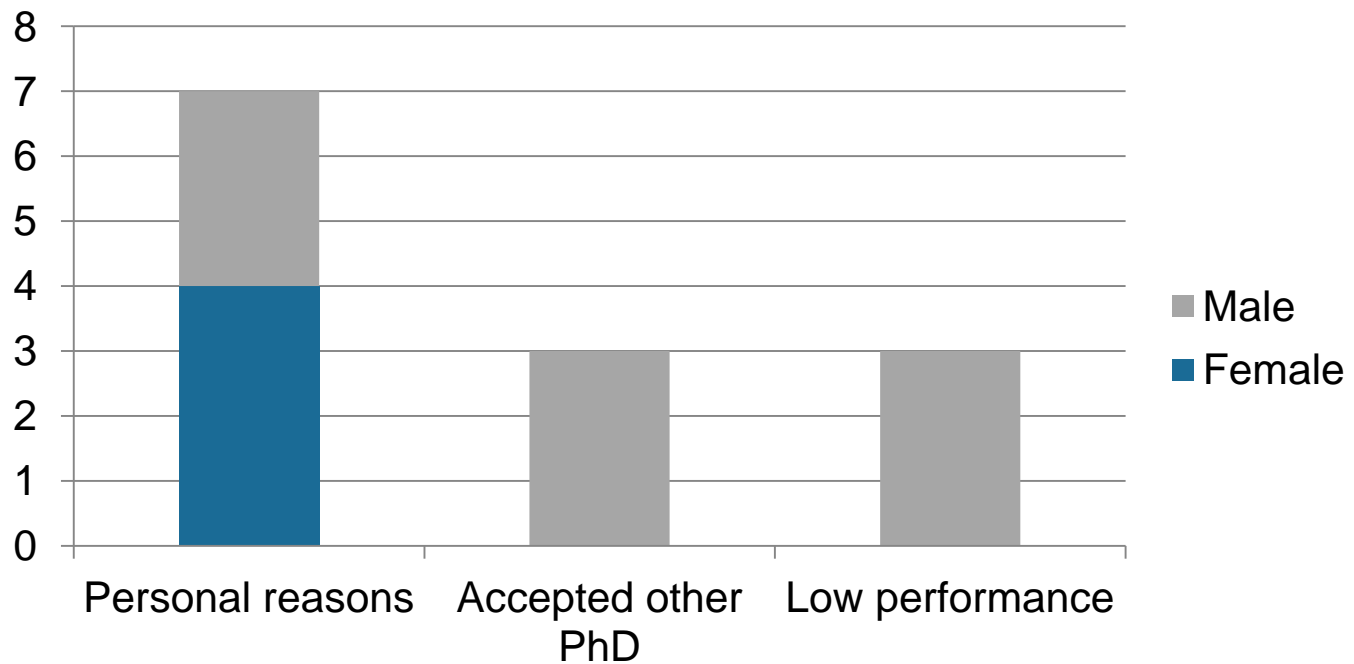- In total 43 students and 2 alumni

Applications received
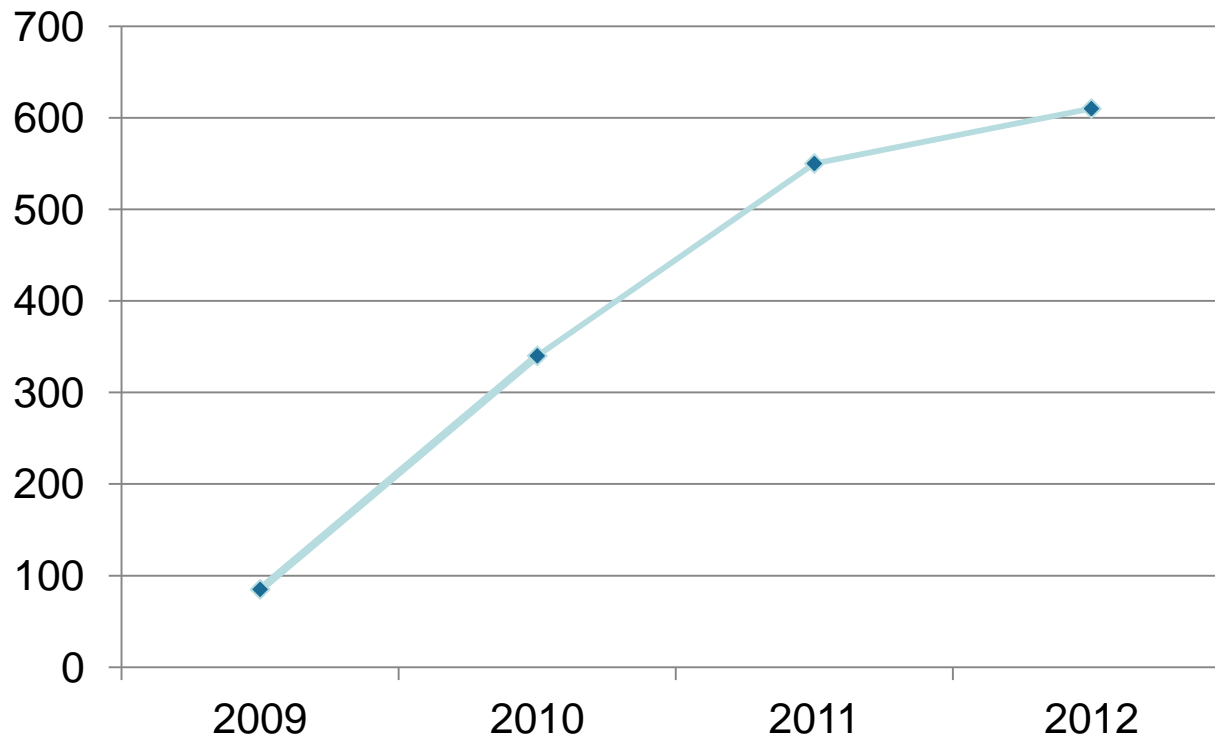
Students' nationalities per geographic area

- African
- Arabic
- Asian
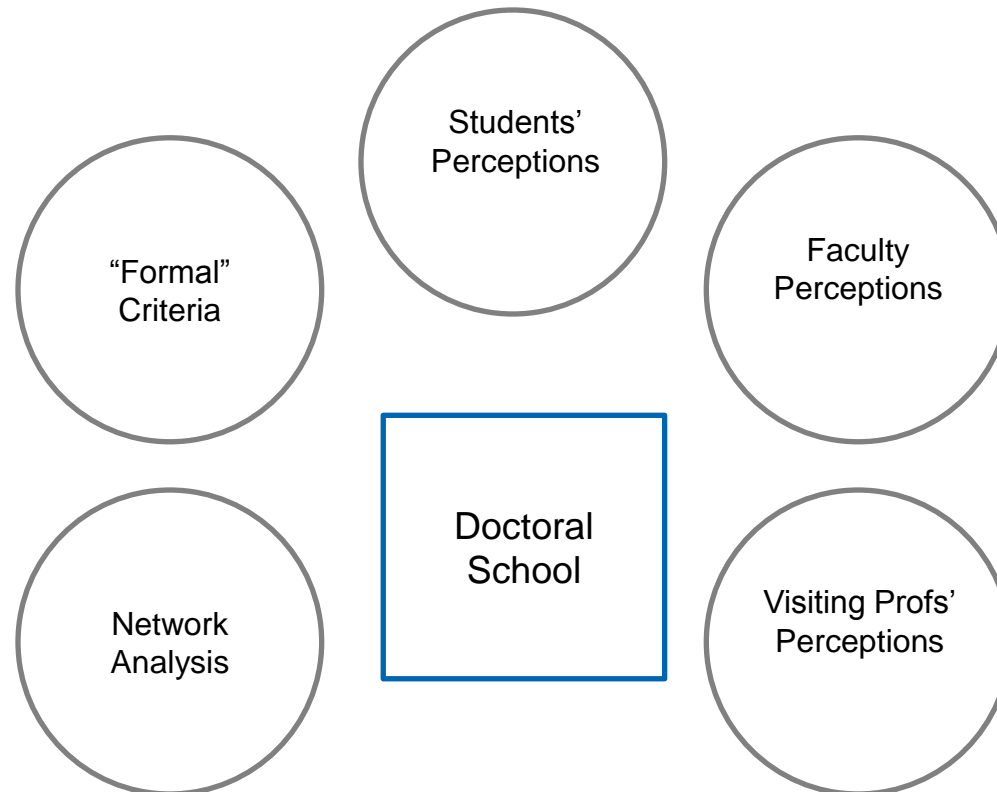- European
- North American
- South American

Gender of current students

Attrition reasons per gender

- **Multidimensional framework** to be applied on a regular basis to analyze achievements and to benchmark performance

- Different angles

- Qualitative and quantitative approaches

- **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

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