Universität Basel

Degree Profile Master of Science in Computer Science

Institutions	Faculty of Science, Department of Mathematics and Computer Science
Type of Degree	MSc in Computer Science
Range, Duration, Start	90 ECTS, 3 semesters (if full-time), spring or autumn semester
Teaching Language	English

Program Goals

Students acquire a specialized theoretical and practical knowledge of Computer Science. Within the Master's thesis the students get a deeper insight of a special research area in Computer Science in the field of Machine Intelligence or in the field of Distributed Systems.

Program Characteristics

Orientation	Scientific education
Field of Study	Computer Science
Majors	Distributed Systems, Machine Intelligence
Study Model	The degree programme consists of the following modules: *Major Distributed Systems*: Concepts of Distributed Systems (16 ECTS), Methods of Distributed Systems (18 ECTS), Applications of Distributed Systems (16 ECTS); *Major Machine Intelligence*: Concepts of Machine Intelligence (16 ECTS), Methods of Machine Intelligence (18 ECTS), Applications of Machine Intelligence (16 ECTS); For both Majors: preparation for Master thesis (6 ECTS), Master thesis (30 ECTS) and Master exam (4 ECTS).
Distinctive Features	The Master's degree is research-oriented with a Master's thesis worth 30 credit points in which current issues from Computer Science research are discussed.

Employment & Further Education

Employment	Research and development in industry and university, management and project leadership. banks and insurance companies, logistics companies, pharmaceutical industry, telecommunications, trading companies, management consultancies, IT consultant, hospitals, medical sector, media companies, research institutes
Further Studies	Doctorate

Education Style

Learning & Teaching Approaches	Problem-based learning, autonomous learning, research-oriented learning, teamwork, individual learning, interactive learning, cooperation in research projects, reflective learning, autonomous learning
Assessment Methods	Oral and written exams, active collaboration in lectures, presentations, solving exercices, written seminar- and project papers, written Master thesis, oral Master exam, oral Master presentation

Program Competences	
Generic	Students acquire the skills to …
Social & Practical Competences	… autonomous learning and teamwork … develop own scientific results based on relevant and current methods … write a scientific paper on their own, including a critical processing of relevant research literature … read English literature and write in English … discuss scientific results and hypotheses in a critical manner … work with scientific research literature in a critical manner … become quickly acquainted with new methodological approaches … test hypotheses, work and design research questions as well as prepare research drafts, autonomously as well as in teams from conception to implementation, choosing suitable approaches and methods … explain and communicate complex and systematic scientific relationships and communicate effectively and persuasively in written and oral form … defend their own insights from criticism while critically reflecting on own positions … apply their academic knowledge … oral and written presentation of scientific results and defend opinions for a scientific audience and the general public
Subject Specific	Students acquire the skills to …
Knowledge / Understanding **Application / Judgment** **Interdisciplinarity**	… know relevant theories of Computer Science and describe them in detail … bring together different sources of knowledge in the field of Computer Science and present them as a whole … develop, apply and enhance concepts, methods, practices and/or solutions in a research context … describe own scientific work and correctly present the conclusions and hypotheses … work autonomously on a small research project, interpret the results and present and defend the results within the scientific community … prepare and present Computer Science knowledge in a didactic way

Learning Outcomes

Graduates of the Master of Science in Computer Science…

… are able to analyse scientific problems systematically and to find solutions with current information and communication technologies

… know the current state of research in selected fields of Computer Science and are able to make cross inferences between different fields

… are able to carry out a complete research project under supervision and can develop concepts, methods, practices and/or solutions within this project

… are able to correctly describe their own scientific work, to reflect the conclusions in an understandable way and to interpret and defend the scientific results within the scientific community (for example in the Master's thesis or the Master's exam and Master presentation)