



Information Sciences MSc

Vrije Universiteit Amsterdam - Faculteit der Exacte Wetenschappen - M Information Sciences - 2013-2014

The Master's in Information Sciences trains you to become an outstanding professional who is capable of independent and team problem solving with regard to the design, application and practical use of complex information systems in organizations.

The program is given in collaboration with the UvA program "Information Studies". This UvA master program admits students with a similar bachelor as the VU IMM bachelor.

The program is set up in such a way that you can still follow the majority of the courses at the VU, if you prefer. VU and UvA courses are scheduled on different weekdays, to prevent travel overhead.

Information Sciences is the multidisciplinary area bridging Information and Communication Technology (ICT) and its practical use in society. Are you interested in how information is created and processed in companies and institutions? Are you more interested in the application of technology than technology for its own sake? Do you believe it's important not to lose sight of the role people, organizations and cultures play in designing, modelling, communicating and sharing information? Are you fascinated by knowledge and innovation? If so, then the Master's programme in Information Sciences at VU Amsterdam is an excellent choice for you.

Information Sciences (IS, in other countries also called Information Systems) focus on theory development and best practices of effective creation, structuring, processing, communication and sharing of information and knowledge using ICT. Information processes and contexts of organizations and individuals are studied, not just from a technological perspective but also from the social, economic, cognitive and organizational perspectives.

At VU we pay special attention to the latest innovative developments and applications of ICT, related to Internet, World Wide Web, multimedia, intelligent systems, and electronic business. Here are some of the advanced topics that IS researchers at VU currently investigate:

- How can you make the World Wide Web intelligent so that it becomes much more easy to represent, process and share electronic information and knowledge across companies and communities of interest?
- How do you design multimedia databases for broad user groups on the Internet on, say, some pop music style or museum art collection, including videoclips, sound samples, explanatory notes, and an easily searchable discography or collection overview?
- What are successful networked business models for small and medium-sized enterprises to offer e-services over the Web, for example for sustainable and cost-effective energy management in smart buildings, or electronic support for medical and elderly care at home? Information Sciences at the Vrije Universiteit strikes a healthy balance by combining technology and information with the study of people, culture and organizations. It builds on a solid computer science foundation, but does so in an inherently multidisciplinary approach that continuously crosses and challenges the boundaries between exact and social sciences. Our research is at the international forefront, an achievement directly reflected in the Master's program. Social, communicative and managerial skills are important in IS. So, during your study you will regularly work in project teams and collaborate with others to solve practical problems regarding complex information systems in real-life settings.

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Business Information Systems

Opleidingsdelen:

- [Constrained Choice \(12 EC\)](#)
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Constrained Choice (12 EC)

Vakken:

Naam	Periode	Credits	Code
Perspectives on Information & Management	Periode 4	6.0	X_418128
Rule Governance	Periode 4	6.0	X_418127
The Social Web	Periode 4	6.0	X_405086

Constrained Choice (6 EC)

Vakken:

Naam	Periode	Credits	Code
(Virtual) Organizations in a Dynamic Context	Periode 2	6.0	X_418129
Software Architectuur	Periode 2	6.0	X_400170

Compulsory Courses

Vakken:

Naam	Periode	Credits	Code
Business IT Alignment	Periode 1	6.0	X_418126
Master Project Information Sciences	Ac. Jaar (september)	18.0	X_405083
Research Methods	Periode 2	6.0	X_405085
Service Oriented Design	Periode 1	6.0	X_405061
Thesis Design	Periode 3	6.0	X_405087

Web & Media

Opleidingsdelen:

- Constrained Choice (12 EC)
- Constrained Choice (6 EC)
- Compulsory courses

Constrained Choice (12 EC)

Vakken:

Naam	Periode	Credits	Code
Mobile Systems	Periode 4	6.0	X_418068
The Social Web	Periode 4	6.0	X_405086
Web Search	Periode 4	6.0	X_418130

Constrained Choice (6 EC)

Vakken:

Naam	Periode	Credits	Code
Knowledge Engineering	Periode 2+3	6.0	X_405099
Multimedia Information Systems	Periode 2	6.0	X_418070

Compulsory courses

Vakken:

Naam	Periode	Credits	Code
Intelligent Interactive Systems	Periode 1	6.0	X_418023
Knowledge and Media	Periode 1	6.0	X_405065
Master Project Information Sciences	Ac. Jaar (september)	18.0	X_405083
Research Methods	Periode 2	6.0	X_405085
Thesis Design	Periode 3	6.0	X_405087

(Virtual) Organizations in a Dynamic Context

Vakcode	X_418129 ()
Periode	Periode 2
Credits	6.0
Voertaal	Engels

Faculteit	Faculteit der Exacte Wetenschappen
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Inhoud vak

<http://studiegids.uva.nl/web/uva/sgs/nl/c/12901.html>

Overige informatie

Course registration at the UVA is compulsory at least 4 weeks before the start of the semester via <https://www.sis.uva.nl>

Business IT Alignment

Vakcode	X_418126 ()
Periode	Periode 1
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen

Inhoud vak

<http://studiegids.uva.nl/web/uva/sgs/nl/c/12902.html>

Overige informatie

Opgave via <https://www.sis.uva.nl> tot 4 weken voor aanvang van het semester is verplicht

Course registration at the UVA is compulsory at least 4 weeks before the start of the semester via <https://www.sis.uva.nl>

Intelligent Interactive Systems

Vakcode	X_418023 (418023)
Periode	Periode 1
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen
Coördinator	O.W. Schrofer
Niveau	400

Inhoud vak

The course description is available on:

<http://studiegids.uva.nl/web/uva/sgs/en/c/8272.html>

Doelgroep

mIS

Overige informatie

Course registration at the UVA is compulsory at least 4 weeks before the start of the semester via <https://www.sis.uva.nl>

Knowledge and Media

Vakcode	X_405065 (405065)
Periode	Periode 1

Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen
Coördinator	P.T. Groth
Docent(en)	prof. dr. A.T. Schreiber
Lesmethode(n)	Werkcollege
Niveau	500

Doel vak

The goal of the course is to provide insight in the concepts of knowledge, ontologies and knowledge processes in relation to various ICT-based media.

Inhoud vak

This course treats the principles and theories that form the foundation of knowledge-intensive processes in relation to various multi-media applications. Knowledge processes are those processes that use knowledge (reasoning), document knowledge (representation), acquire knowledge or transfer knowledge (teaching). The relation between knowledge processes and (interactive) media will be explored. Various types of applications will be discussed, such as special purpose search engines, educational systems, serious gaming and mind tools.

Onderwijsvorm

Working lectures

Toetsvorm

Portfolio

Literatuur

Articles distributed through Blackboard

Doelgroep

UvA students and optional course for mCS, mAI and mIS

Knowledge Engineering

Vakcode	X_405099 ()
Periode	Periode 2+3
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen
Coördinator	dr. A.C.M. ten Teije
Docent(en)	dr. A.C.M. ten Teije
Lesmethode(n)	Hoorcollege
Niveau	400

Doel vak

goals:

- 1) to be able to elicitate knowledge from experts by using several elicitation techniques
- 2) to be able to build all CommonKads models that play a role in the development of a knowledge based system, this includes the context of

the KBS and the expertise model based

3) to be able to implement the expertise model as a prototype

4) to be able to reflect on your own process of modelling and building a knowledge based system, and to reflect on your product (=which are the models and the implementation)

Inhoud vak

Knowledge Engineering is a discipline that involves integrating knowledge into a program for solving a complex problem, which requires human expertise. Typical tasks are classification, diagnosis, planning etc. In the course we use CommonKADS as the methodology for the process of modeling the organisation, the context and the knowledge intensive tasks.

This methodology give clear guidelines and concrete templates for modeling the organisational aspects and the expertise model, which is the core model of knowledge based system. The notion of pattern-based knowledge modeling is a key issue in the knowledge modelling process.

The goal of the final project is to perform the entire knowledge technology process for a knowledge intensive problem of your own choosing, starting with context analysis, up to a (partial) implementation of the knowledge based system.

Onderwijsvorm

Lectures, assignments, group project

Toetsvorm

Assignment, project reports.

Literatuur

Schreiber, Akkermans, Anjewierden, de Hoog, Shadbolt, van de Velde, Wielinga: Knowledge Engineering & Management. The MIT Press, Cambridge MA, 2000, ISBN 0-262-19300-0.

Doelgroep

mAI, mIS, mCS-TAI

Master Project Information Sciences

Vakcode	X_405083 ()
Periode	Ac. Jaar (september)
Credits	18.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen
Coördinator	dr. P.G.M. De Leenheer
Niveau	400

Mobile Systems

Vakcode	X_418068 ()
Periode	Periode 4
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen

Coördinator	O.W. Schrofer
Niveau	400

Inhoud vak

The course description is available on:

<http://studiegids.uva.nl/web/uva/sgs/en/c/8034.html>

Doelgroep

mIS

Overige informatie

Registration is required via <https://www.sis.uva.nl> until four weeks before the start of the semester.

Multimedia Information Systems

Vakcode	X_418070 ()
Periode	Periode 2
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen
Coördinator	O.W. Schrofer
Niveau	400

Inhoud vak

The course description is available on:

<http://studiegids.uva.nl/web/uva/sgs/en/c/11381.html>

Doelgroep

mIS

Overige informatie

Registration is required via <https://www.sis.uva.nl> until four weeks before the start of the semester.

Perspectives on Information & Management

Vakcode	X_418128 ()
Periode	Periode 4
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen

Inhoud vak

<http://studiegids.uva.nl/web/uva/sgs/en/c/14226.html>

Overige informatie

Opgave via <https://www.sis.uva.nl> tot 4 weken voor aanvang van het semester is verplicht

Course registration at the UVA is compulsory at least 4 weeks before the start of the semester via <https://www.sis.uva.nl>

Research Methods

Vakcode	X_405085 ()
Periode	Periode 2
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen
Coördinator	prof. dr. J.M. Akkermans
Docent(en)	prof. dr. J.M. Akkermans
Lesmethode(n)	Hoorcollege
Niveau	500

Doel vak

This course helps prepare students for scientific research and particularly their Master research project and thesis.

After completion of the course the student:

- is able to conceptualize the problem space at hand and formulate a clear research question in the field of information studies, information sciences or AI
- is able to find, analyse and critically reflect on and use scientific literature relevant to the research context
- is able to design a research plan containing applicable research methods, covering qualitative, quantitative and constructive elements typical to the field
- is able to defend his research design with solid argumentation explaining the underlying assumptions, pros and cons etc. of the chosen methods.
- is able to collect and process the research data and to critically judge the obtained results in relation to the research questions
- is able to describe and critically discuss the above activities in a written report, in which the methodology is accounted for and the original phrasing is substantiated
- is able to present and discuss the results to a scientific audience

Inhoud vak

The course provides an interdisciplinary overview of and hands-on work with different scientific research methods, with an emphasis on ICT/information systems and technologies in interaction with their human, social and organizational contexts.

Topics are:

- scientific research and its goals, the idea of scientific method;
- developing and framing the research questions you want to answer;
- making a research design and planning your research;
- conceptualization, theory formation and validation/triangulation;
- research methods and their assumptions, pros and cons (e.g. interview, observation, case study, field and action research, modelling and simulation, experiment, survey, statistical analysis);
- how do you (and others) know that your research results are valid?

- scientific argument, communication and research report writing.

Onderwijsvorm

In addition to lectures on various aspects of and issues in research methodology, students will get hands-on experience with different research methods. The setting of the practical work is that of a continuing research case investigation that emulates the different stages of a scientific research project. The research case question to be investigated is: What is it for systems to be considered "smart" or intelligent"?

Toetsvorm

Group assignments (research project report), individual assignments, take-home written exam, active course participation (incl. self-report).

Literatuur

Textbook: Colin Robson: Real World Research, 3rd Ed., Wiley, 2011 [Note: this book is available in hardcover, paperback and a digital edition]. Other sources will be announced via Blackboard.

Vereiste voorkennis

Basic knowledge of qualitative and quantitative research methods.

Doelgroep

mAI, mIS

Rule Governance

Vakcode	X_418127 ()
Periode	Periode 4
Credits	6.0
Faculteit	Faculteit der Exacte Wetenschappen

Inhoud vak

<http://studiegids.uva.nl/web/uva/sgs/en/c/14025.html>

Overige informatie

Opgave via <https://www.sis.uva.nl> tot 4 weken voor aanvang van het semester is verplicht

Course registration at the UVA is compulsory at least 4 weeks before the start of the semester via <https://www.sis.uva.nl>

Service Oriented Design

Vakcode	X_405061 (405061)
Periode	Periode 1
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen
Coördinator	dr. P. Lago
Docent(en)	dr. P. Lago
Lesmethode(n)	Hoorcollege, Werkcollege
Niveau	400

Doel vak

Learn advanced design techniques applicable to large service-oriented software systems. Be able to select among them and apply them for a specific system. Be able to reason about and assess the design decisions.

Inhoud vak

The lectures explain the concepts related to the Service Orientation software paradigm and Service Oriented Architecture (SOA). The lectures provide the students with knowledge about how to identify the requirements for a service-oriented software system, how to map them on business services and transform them into complex networks of software services. Special emphasis is given to the design reasoning techniques for crucial decision making, service identification, SOA design and migration. Each year experts from academia and industry are invited to give guest lectures.

The students participate in small teams to piecemeal develop understanding of various service-oriented aspects, and work on an assigned SOA design project.

Onderwijsvorm

Lectures and group work.

Toetsvorm

Written reports of the assignments. Teamwork.

Literatuur

Material handed out by the lecturer and on Blackboard.

Aanbevolen voorkennis

Software modeling experience (knowledge of UML and SoaML preferred). Programming.

Doelgroep

mAI, mCS

Overige informatie

Registration for this course is compulsory four weeks prior to the start. Further information on this module will be made available on the Blackboard system <http://bb.vu.nl>.

Software Architectuur

Vakcode	X_400170 (400170)
Periode	Periode 2
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen
Coördinator	prof. dr. J.C. van Vliet
Docent(en)	prof. dr. J.C. van Vliet
Lesmethode(n)	Hoorcollege
Niveau	400

Doel vak

Get acquainted with the field of software and information architecture. Understand the drivers behind architectural decisions. Be able to develop and reason about an architecture of a non-trivial system.

Inhoud vak

Students work in groups to develop an architecture for a fictitious system. They have to develop different representations (called views) of the architecture. These different representations emphasize different concerns of people that have a stake in the system. Each group will also be asked to assess ("test") the architecture of another group for certain quality attributes.

Onderwijsvorm

Group work with a number of assignments

Literatuur

Len Bass et al, Software Architecture in Practice, 3rd Edition, 2012

Doelgroep

mCS, mIS

The Social Web

Vakcode	X_405086 ()
Periode	Periode 4
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen
Coördinator	dr. L.M. Aroyo
Docent(en)	dr. L.M. Aroyo, V. Maccatrozzo MSc, C.R. Dijkshoorn MSc
Lesmethode(n)	Hoorcollege
Niveau	400

Doel vak

In this course the students will learn theory and methods concerning communication and interaction in a Web context. The focus is on distributed user data and devices in the context of the Social Web.

Inhoud vak

This course will cover theory, methods and techniques for:

- personalization for Web applications
- Web user & context modelling
- user-generated content and metadata
- multi-device interaction
- usage of social-web data

Onderwijsvorm

- lectures
- practical sessions
- assignments including final paper

Toetsvorm

Weighted average of assignments and final paper

Literatuur

- course lecture slides
- selected articles, videos and Web links for each lecture

Doelgroep

VU: mIS

UvA: master Information Studies - Human-Centered Multimedia

mCS

mAI

Thesis Design

Vakcode	X_405087 ()
Periode	Periode 3
Credits	6.0
Voertaal	Engels
Faculteit	Faculteit der Exacte Wetenschappen
Coördinator	dr. L.M. Aroyo
Lesmethode(n)	Hoorcollege
Niveau	400

Doel vak

Students will write a Thesis Design document, in which they will formulate a clear research question in the field of information sciences. To answer this research questions, they will identify a design a methodology and formulate a plan so that the research project can be performed in time.

Inhoud vak

The Thesis Design is performed by the student as individual work under regular supervision by a pre- supervisor. Students may propose a supervisor, or ask the master-thesis coordinator for assistance in finding one.

Students have to write, by the end of period 3, a Thesis Design document (written in English) of max. 6 pages all inclusive, in which he or she has to describe:

- the problem to be addressed in the thesis project,
- the relevance of the problem, based on a literature survey,
- the resulting research question,
- the methodological approach to answer the research question and potential sub questions
- the plan of the thesis work to realize the thesis within the given time frame (end of period 3)

The course will be concluded with a public presentation of the final Thesis Design paper, in a joint presentation session at the end of period 3.

The final electronic version of Thesis Design should be uploaded by the end of the course at <http://wiki.cs.vu.nl/mp>

Onderwijsvorm

Self study with individual guidance by Thesis Design supervisor.
Final presentation in a joint presentation session.

Toetsvorm

The grade is based on the grade for the Thesis Design report and the grade for the final presentation of the report.

Aanbevolen voorkennis

Prior to the start of the course, students need to register with the Master Coordinator (via Mrs. Ilse Thomson).

To start the course students need to have an approved supervisor for their thesis, latest by December 1, 2013.

Doelgroep

mIS

Web Search

Vakcode	X_418130 ()
Periode	Periode 4
Credits	6.0
Faculteit	Faculteit der Exacte Wetenschappen
Niveau	400

Inhoud vak

The course description is available on:

<http://studiegids.uva.nl/web/uva/sgs/nl/c/740090.html>

Overige informatie

Registration is required via <https://www.sis.uva.nl> until four weeks before the start of the semester.