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 major international artists (such as DJ Jean, take a look at [www.cs.vu.nl/~gordijn/clip-mainmenu.htm](http://www.cs.vu.nl/~gordijn/clip-mainmenu.htm)) get e-paid via Web services, when their music is broadcast over Internet radiostations across the whole world?
- 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? (See for example VU's prize-winning FLINK application at [prauw.cs.vu.nl:8080/flink/](http://prauw.cs.vu.nl:8080/flink/) on social networks on the Web.)
- 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?

IS 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 programme. 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.

Both the Bachelor and Master programmes in IS are organized by VU's Faculty of Sciences. Information about the Bachelor programme IS or "Informatiekunde" can be found in a separate study guide. All VU studyguides are also available on the Web.
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History, philosophy & social aspects of science

The choice of one of these elective courses, has to be discussed and agreed upon with the master coordinator or a personal mentor and approved by the Examination Board.

Compulsory Optional Courses

Constrained choice of listed IS Master courses.

Master Coordinator:

Dr. P.G.M. De Leenheer
K room T-427
T +31 (0) 20 598 3755
E pgm.de.leenheer@few.vu.nl

Opleidingsdelen:

- Individuele vakken

Vakken:

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Individuele vakken

Compulsory Courses

Opleidingsdelen:

- IS vervallen vakken 1-9-2011

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<td>Periode 4</td>
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</table>
The course Online Information systems is limited to the study of traditional "closed" information systems intended for a specific organization. The functional requirements are known beforehand and the meaning of business terms and rules are sufficiently clear and uniformly valid within the organizational context. This course broadens the concept of information system to "open" information system where "semantic interoperability" with its environment is a pain point. The origin of the problem lies in the fact that it is not known in advance with which systems in its environment and according to what policies and rules an open system must be able to exchange information. To support semantic interoperability, system owners should govern (reconcile and apply) the meaning of their business terms and rules among participating systems.

Ontologies are dynamic models that capture the meaning of business terms and rules. Hence, they underpin solutions for semantic interoperability and many other semantic applications that are studied in the course Ontology Engineering.

The purpose of this course is to learn the Business Semantics Management methodology that empowers a business community to collaboratively define (read: govern) the meaning of their business vocabularies and rules (read: business semantics) in an ontology. Next, this ontology (formatted in ORM, RDF or UML) is validated in diverse information-technical contexts. By deriving ontologies from business semantics managed on a business level, the entropy in the numerous data translations between business and IT can be partly remedied.

**Inhoud vak**
Short recap of the Online Information Systems terminology. Introduction of the concept of "open information system" and the problem of "semantic interoperability ". Introduction of the relationship between "business semantics" and its derivative "ontology" to solve the problem of semantic interoperability on the technical level. Learning to handle the
OMG SBVR (http://www.omg.org/spec/SBVR/1.0/) standard and the Business Semantics Management methodology for building business vocabularies and rules in SBVR, and automatically deriving ontologies from them. Validate a variety of ontologies in diverse semantic applications.

Onderwijsvorm
The red thread is a role-playing game in which students form groups each representing a stakeholder organization in a business community. Using the web-based environment for Business Semantics Management, the community collaboratively defines an ontology that enables semantic interoperation between their information systems. This is done step by step by following the BSM methodology. First, a governance model that defined the roles and responsibilities for each of the stakeholders within the community is set. Next, the community determines which are the main terms for which a semantic agreement is necessary. This is followed by a reconciliation process resulting in a unified ontology that captures the meaning of these terms and their associated rules sets. This ontology is then validated by applying it in the community. Finally, we discuss possible extension points for the method and references to other courses such as ontology engineering. Every team conclude their findings in a written report.

Toetsvorm
team project

Literatuur
Lecture notes, exercises, and slides provided by the lecturer. A web-based software environment for BSM. Thematic papers that elaborate on selected topics.

Aanbevolen voorkennis
online informatiesystemen

Doelgroep
VU: mIS
UvA: master Information Studies - Human-Centered Multimedia

E-Business Innovation

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<td>Faculteit der Exacte Wetenschappen</td>
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<td>Coördinator</td>
<td>dr. J. Gordijn</td>
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<td>dr. J. Gordijn, dr. P.G.M. De Leenheer</td>
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Doel vak
To understand and systematically analyze a business model for an innovative e-business idea. To develop and present an e-business plan with the goal to attract venture capital.

Inhoud vak
We will introduce a methodology called e3value for understanding and analyzing business models for networked value constellations. Additionally, we discuss how to write a business plan for venture capitalists.

**Onderwijsvorm**
There is series of lectures, workshops and a project.

**Toetsvorm**
Exam, Project

**Literatuur**
Reader plus articles

**Vereiste voorkennis**
Business Modelling and Requirements Engineering and Software Engineering is recommended.

**Doelgroep**
mAI-KTIIA, mAI-TAI, mIS

**Intelligent Interactive Systems**

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<td>Coördinator</td>
<td>prof. dr. B.J. Wielinga</td>
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**Inhoud vak**
The course description is available on: http://studiegids.uva.nl/web/uva/sgs/en/c/8272.html

**Doelgroep**
mIS

**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

**Internet Information**

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Knowledge and Media

**Inhoud vak**
The course description is available on:

**Doelvak**
mIS

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

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.

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, very much based on the Paradigm of Constructivism

**Toetsvorm**
Portfolio

**Literatuur**
Articles distributed through Blackboard

**Doelgroep**
UvA students and optional course for mCS, mAI and mIS

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**Vakcode** | X.405065 (405065)
---|---
**Periode** | Periode 2
**Credits** | 6.0
**Voertaal** | Engels
**Faculteit** | Faculteit der Exacte Wetenschappen
**Coördinator** | prof. dr. B.J. Wielinga
**Docent(en)** | dr. M.G.J. van Erp, prof. dr. B.J. Wielinga
**Lesmethode(n)** | Werkcollege

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**Vakcode** | X.405083 ()
---|---
**Periode** | Periode 1+2+3, Periode 4+5+6
**Credits** | 18.0
Mobile Systems

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

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.

Research methods
Doel vak
This course helps students who want to embark on their Master research project and thesis.

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
Research project report, take-home written exam, active course participation (incl. self-report)

Literatuur
- Selection from Trochim's Social Research Methods Knowledge Base (http://www.socialresearchmethods.net/kb/)
- Natasha Mack et al.: Qualitative Research Methods - A Data Collector's Field Guide
- Andy Field: Discovering Statistics using SPSS
- Digital resource of articles and excerpts on specific topics

Vereiste voorkennis
Basic knowledge of qualitative and quantitative research methods

Doelgroep
mAI-CIS, mAI-CS, mAI-HA, mAI-KTIIA, mAI-TAI, mIS

Intekenprocedure
This course will be offered twice: in semester 1 at the FNWI and in semester 2 at the VU.

Registration for courses at the FNWI is mandatory, but will be done by the Education Service Centre for the 1st year MSc students for courses of the first semester. See also http://www.student.uva.nl and choose your master and then 'New procedure Registration for courses Faculty of Science'.

Registration for this course in semester 2 at the VU is mandatory and must be done at the VU (Free University)

The Social Web

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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
- working groups in which literature is discussed
- practical sessions in the VU Intertain Lab
- assignments including final paper

Toetsvorm
single grade 0-10: weighted average of assignments and final paper

Literatuur
selected articles

Doelgroep
VU: mIS
UvA: master Information Studies - Human-Centered Multimedia

Thesis Design

| Vakcode       | X_405087 () |
### Visual Analytics

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<td>O.W. Schrofer</td>
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**Inhoud vak**

The course description is available on:


**Doelgroep**

mIS

**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