Assessment report
Limited Programme Assessment

Master Information Studies

University of Amsterdam

Contents of the report

1. Executive summary

In this executive summary, the panel presents the main considerations with respect to the assessment of the quality of the Master Information Studies programme of University of Amsterdam, this programme having been assessed according to the Assessment Framework (22 November 2011) of NVAO (Dutch-Flemish Accreditation Organisation).

The panel has observed that the programme management has taken up the suggestions for improvement, made in the course of the previous accreditation procedure in 2007. The programme management has strengthened the programme's position within the Graduate School of the Faculty of Science and updated their control mechanisms. Apart from these recommendations, the programme management has implemented a number of improvements in the curriculum.

The programme is a joint-venture of University of Amsterdam and VU University Amsterdam, preceding the integration of the Faculties of Science of both institutions.

The panel considers the programme's objectives to be relevant for a master's programme in the field of information studies, both academically and from a domain-specific perspective. As these objectives meet the requirements of the international ACM-AIS model curriculum, the objectives reflect the international domain-specific requirements of the information studies field. In following the ACM-AIS model curriculum, the programme management ensures the objectives to be up-to-date. The objectives, also, incorporate components of the Web-Science curriculum. As this curriculum has not yet acquired the status of an internationally renowned and solidly structured framework, the panel advises the programme management to be cautious about implementing this curriculum and to avoid contradicting the ACM-AIS model curriculum, in particular not to exclude courses of the ACM-AIS model curriculum.

The intended learning outcomes specify the required domain-specific knowledge and skills of the graduates and ensure the graduates to be able to do academic research in this field. The learning outcomes, also, meet the requirements for the graduates' communications skills and their abilities to make judgements. The specific learning outcomes for the two specializations of the programme, Business Information Systems and Human Centered Multimedia, cover these specializations appropriately. The panel considers the learning outcomes to comply with the requirements of a master's level programme. The panel is positive about the profile of the programme, addressing all three information studies areas, technology, human factors and organizational aspects, and focusing on managing and accessing large data collections.

The panel considers the entry requirements for the programme to be relevant and the admission process to be well-organized, admitting students who have a fair chance of completing the programme. The pre-master programme is appropriate, being tailored to the academic or specialization-specific deficiencies the students may have. All the intended learning outcomes are covered in the programme and the contents of the courses and the literature prescribed are at an academic master's level, the full-time and part-time curricula being the same and only differing in scheduling and duration. The students are appropriately acquainted with the academic research in the field, although the research component in the Business Information Systems specialization could be strengthened. The students achieve the integration of the three main disciplines of the information studies field, technology, human factors and the organizational aspects and are offered a multidisciplinary perspective on information field problems.

Although the economic and business administration disciplines are adequately covered in the curriculum, the panel recommends the programme management to remain vigilant in this respect. Also, the panel advises to place more emphasis on project management skills and consultancy skills. Although the structure of the curriculum is satisfactory, the coherence of the curriculum could be strengthened. The panel regards the professional practice to be satisfactorily represented in the curriculum but advises to install an advisory board of representatives of the professional field. The programme management is adequately improving the curriculum and keeping the course contents up-to-date.

The lecturers in the programme are well positioned to convey relevant and in-depth knowledge and skills to the students, drawing upon their strong research background. The educational skills of the lecturers are up-to-standard, as may be deducted from the number of lecturers having a BKO-certificate. Guest lecturers enrich the courses, as they may cover specific topics in-depth and from a business perspective.

The educational model of the programme and the study methods derived from this model are appropriate, whereas the number of contact hours, information provision and study guidance are adequate as well. The students have expressed their contentment regarding these aspects. The panel regards the housing and the material facilities to be appropriate for the programme. Also, the panel is positive about the formal and informal evaluation mechanisms the programme management has put in place.

The panel regards the assessment policy of the programme to be appropriate, the regulations being in line with the University's and Faculty's policy. The board of examiners monitors the examinations and theses adequately, randomly studying these and attending master thesis defenses. The panel has assessed the examinations and finds the quality appropriate. The examination forms (written and oral examinations, assignments and written reports) in the programme are also of adequate quality. Adequate measures have been taken to assess the individual results of the students, if group work is a substantial part of the assessment. The peer-reviewed assessment schemata for the examinations ensure reliable assessments and the feedback on the examinations is adequate. Some of the assessment results, however, were not made available within the required 15 working days after the examination. The master thesis process is satisfactorily organized but could be organized even more strictly, limiting the project duration. The assessment process of the theses is appropriate, including relevant assessment criteria and two qualified examiners for the final assessment. The theses that have been assessed by the panel , range from satisfactory to good or very good. No thesis was identified to be unsatisfactory. Although the contents of the theses are relevant for the information studies field, the panel supports the policy of the programme management to select a number of research themes as subjects for the theses. The scientific structure and quality are up to standard and the level of complexity of the theses meets the requirements of a master's thesis. The professional positions of the graduates are in line with the programme's objectives and intentions.

The panel has assessed each of the standards of the NVAO Assessment Framework for the Master Information Studies programme (full-time and part-time) of University of Amsterdam to be satisfactory. Therefore, the panel advises the NVAO to prolong the accreditation the Master Information Studies programme of University of Amsterdam, assessing the programme to be satisfactory.

Rotterdam, 16 October 2013

Chair of the assessment panel   Secretary
Prof. E.W. Berghout Ph.D.   W.J.J.C. Vercouteren MSc, RC

2. Assessment process

Certiked VBI has received a request to conduct an assessment for the accreditation of the Bachelor Informatiekunde programme of University of Amsterdam.

Certiked has requested the approval by NVAO of the proposed panel of experts to conduct this assessment. NVAO have given their approval. The panel consisted of (for more detailed information please refer to Annex 4: Composition of the assessment panel):

- prof. E.W. Berghout Ph.D., panel chair, professor of Information Systems at University of Groningen;
- prof. W. Van Grembergen Ph.D., panel member, professor of Information Systems at University of Antwerp and executive professor at Antwerp Management School;
- prof. A. Nijholt Ph.D., panel member, professor of Human-Computer Interaction at University of Twente;
- Y. Oualhadj, student member, studying the master programme Dutch Language and Culture at Leiden University.

On behalf of Certiked, W. Vercouteren MSc, RC was responsible for the process co-ordination and for drafting the panel's report. The panel members and the secretary have signed a statement of independence and confidentiality.

The panel has conducted this assessment in accordance with the NVAO Assessment Framework (22 November 2011).

The following procedure has been adopted. The members of the panel studied the documents presented beforehand by the programme management, including a number of theses (please refer to Annex 2 and 3: Documents reviewed and Theses reviewed). As the programme is offered in a full-time as well as a part-time study mode and as the number of full-time students is noticeably larger than the number of part-time students, 15 theses of full-time students and 8 theses of part-time students have been selected. The theses were selected randomly in pre-specified strata of grades, to ensure a fair distribution of grades.

Prior to the site visit, every one of the panel members and the process co-ordinator/secretary discussed their preliminary findings concerning the quality of the programme and with respect to the quality and the level of the theses. The panel members presented a number of questions to be put to the programme representatives during the site visit. On the basis of this input, the secretary drew up a complete list of questions.

On 25 June 2013, the panel conducted a site visit at the premises of the programme on the campus of the Faculty of Science of University of Amsterdam. The site visit was conducted in accordance with the schedule drawn up beforehand (please refer to Annex 1: Schedule of site visit). The programme management communicated the open office hours to the lecturers, the students and other persons involved in the programme. No one presented themselves during the open office hours.

Immediately after the meetings of the site visit, the members of the panel shared their considerations for each of the standards of the NVAO Assessment Framework. These considerations were based on the findings during the site visit, building upon the evaluation of the documents submitted by the institution. At the end of the site visit, the chair of the panel presented a broad outline of the findings to the programme representatives.

A draft version of this report was finalised by the secretary, having taken into account the information presented as well as the findings and considerations of the panel. The draft report was, then, sent to the members of the panel. The panel members corrected and amended the draft report. Finally, the secretary drew up the final report. This report was sent to the programme management to correct for any errors. After having been corrected the errors, the report was sent to the programme management to accompany their request for re-accreditation.

3. Overview of the programme

3.1 Basic information about the programme

Administrative information about the programme:

Name programme as in CROHO:	M Information Studies
Orientation and level programme:	Academic Master
Grade:	Master of Science
Number of credits:	60 EC
Specializations:	Business Information Systems
	Human Centered Multimedia
Location:	Amsterdam
Mode of study:	Full-time and part-time
Registration in CROHO:	60229

Administrative information about the institution

Name of institution:	University of Amsterdam
Status of institution:	Publicly funded university
Institution's quality assurance test:	Positive

Quantitative data about the programme

Percentage of students who have completed the programme in two years for full-time students or three years for part-time students

Cohort	2008	2009	2010
Full-time students	70 %	80 %	77 %
Part-time students	71 %	25 %	n.a.
All students	70 %	75 %	n.a.

Percentage of lecturers with the following qualifications

Qualification	Master's degree	Ph.D.	BKO
Percentage of lecturers	100 %	79 %	82 %

The student-to-staff ratio is 25.

The number of contact hours is 15.4 hours per week for full-time students. The number of contact hours is 7.7 hours per course per week and the students take two courses per period (block).

3.2 Main facts about the institution

The Master Information Studies programme is one of the programmes of the Graduate School of Informatics of the Faculty of Science of University of Amsterdam. The Graduate School of Informatics offers six master programmes in total, namely Master in Artificial Intelligence, Master Computational Science, Master Information Studies, Master Software Engineering, Master System and Network Engineering and Master of Logic.

The Faculty of Science is one of the seven Faculties of University of Amsterdam. The Faculties are the Faculties of Humanities, Economics and Business, Social and Behavioural Sciences, Law, Science, Medecine and Dentistry. The University of Amsterdam was founded in 1632. It is one of the largest comprehensive universities in Europe, having 35,000 students, over 5,000 staff members, a yearly number of 400 doctorates and a budget of 600 million Euros (figures of 2011/2012).

University of Amsterdam seeks to offer an inspiring international academic environment in which both staff and students can develop their talents. Characterized by a critical, creative and international atmosphere, the University wants to maintain a tradition of open-mindedness and engagement with social issues, in keeping with the spirit of the city with which it is linked.

Within each of the Faculties, teaching and research take place in separate institutes. University of Amsterdam strives for international prominence as a research university, aiming to maintain and strengthen the University's reputation in both fundamental and socially relevant research. The University's doctoral programmes are meant to provide a foundation for engaging in high-quality teaching and research.

3.3 Intended learning outcomes

The intended learning outcomes of the Master Information Studies programme have been listed below (the letter A refers to learning outcomes applicable to both specializations, the letters AB refer to the learning outcomes of the specialization Business Information Systems; the letters AH refer to the learning outcomes of the specialization Human Centered Multimedia).

Knowledge and understanding. The graduate:
- Has a thorough knowledge about the theories in the domain of the Information Studies, masters theories of computer science, economics, and social science, and can master theories from other fields that are relevant for Information Studies (A1).
- Is able to describe reality as a complex adaptive system that functions in a dynamic context (A2).
- Has knowledge about the human, organizational, and social implications of the application of ICT and digital media (A3).
- Is able to describe the dynamics of organizations both from an intra- as well as inter-organization level and understands the impact on the use of ICT in organizations (AB1).
- Knows the concept ICT as a service in organizations and its impact on methods and tools that are relevant for Information Studies (AB2).
- Understands the influence of thinking in terms of architecture and infrastructure on the role of ICT within organizations and on the requirements arising therefrom ((AB3).
- Has insights into theories of the design, development, and evaluation of complex, interactive, and human-centered multimedia-systems (AH1).

- Has knowledge of the theory and practice of complex man-machine interaction and technology-mediated human-human communication (AH2).

Application of knowledge and understanding. The graduate:
- Can contribute to the design, building, implementation, and management of complex information-, knowledge-, or media systems and to the maintenance and renovation of these complex systems (A4).
- Has the ability and academic skills to integrate and apply his or her knowledge and insight in a scientific (applied) research project (A5).
- Is able to work autonomously and with others in multidisciplinary teams and is able to apply his or her problem solving abilities in unfamiliar environments (A6).
- Is able to analyze a realistic problem in the area of organizational information systems based on scientific methodology and aiming at, and consequently advising towards, concrete organizational action and/or co-ordination and supervision of development processes in organizations (AB4).
- Is able to contribute to the process of finding a balance between going concern/stability and innovation/renewal of information systems in an organizational context (AB5).
- Is able to integrate and apply state of the art knowledge from different disciplines, such as computer science (vision, audio processing, natural language processing, information retrieval, semantic web technology, data mining, knowledge representation, web technologies), communication science (information visualization and personalization, interaction design) and psychology (perception, cognition, and learning) (AH3).

Making judgement. The graduate:
- Has knowledge of and insight into the role of information studies in society and an awareness of the standards required for scientific research in order to function adequately and autonomously in his or her future profession and reflect ethical and social problems (A7).
- Is able to relate his or her knowledge to members or other scientific disciplines, based on a critical attitude towards scientific literature, policy documents, and his or her own position as a scientist, and to assess the relevance of knowledge for scientific and practical issues (A8).

Communication. The graduate:
- Is able to communicate findings and conclusions with solid argumentation to expert and non-expert audiences, making use of appropriate media (A9).
- Possesses organizational sensitivity in the sense that he or she knows about differences in goals and values between groups in an organization that use information and ICT and those that produce data or design, build and maintain ICT applications (A10).
- Is able to bridge the linguistic and cultural differences between experts and professionals from different backgrounds (A11).

Capacities to continue learning. The graduate:
- Is capable to reflect independently and with an open mind on his or her own performance and can continuously expand his or her academic level of working and thinking (A12).

3.4 Outline of the curriculum

The programme is a co-operation of University of Amsterdam and VU University Amsterdam, meaning the programme is legally offered by University of Amsterdam but a number of courses are organized by VU University Amsterdam and are lectured by VU University lecturers. This co-operation precedes the coming merger of the Science Faculties of these two Universities.

In the table below the curricula of the two specializations are presented.

Business Information Systems specialization	
Business IT Alignment	6.0 EC
Service-oriented Design (VU)	6.0 EC
Research Methods	6.0 EC
(Virtual) Organizations in Dynamic Context	6.0 EC
Integrating cases	6.0 EC
Elective course	6.0 EC
Elective course	6.0 EC
Thesis (including Thesis Design)	18.0 EC
Total credits for curriculum	60.0 EC
Human Centered Multimedia specialization	
Intelligent Interactive Systems	6.0 EC
E-Business Innovation (VU) or Serious Games (VU)	6.0 EC
Research Methods	6.0 EC
Multimedia Information Systems or Knowledge Engineering (VU) or Knowledge and Media (VU)	6.0 EC
Internet Information or Mobile Systems or The Social Web (VU)	6.0 EC
Visual Analytics or Business Semantics Management (VU)	6.0 EC
Thesis Design	6.0 EC
Thesis	18.0 EC
Total credits for curriculum	60.0 EC

For the elective courses, the Business Information Systems students may choose from the courses Internet Information, Perspectives on Information & Management, Mobile Systems, Rule Governance, The Social Web (VU), Software Configuration Management (VU).

The abbreviation VU means this course is organized by VU University Amsterdam.

4. Overview of the assessments

Standard	Assessment (part-time/full-time)
Standard 1. Intended learning outcomes	Satisfactory
Standard 2: Teaching-learning environment	Satisfactory
Standard 3: Assessment and achieved learning outcomes	Satisfactory
Programme as a whole	Satisfactory

5. Findings, considerations and assessments per standard

5.1 Standard 1: Intended learning outcomes

The intended learning outcomes of the programme have been concretised with regard to contents, level and orientation; they meet international requirements.

Findings

The graduates of the programme are to support the knowledge workers of the modern society and economy by examining the interaction between people, organizations and any existing information systems, with the aim of creating, replacing, improving, or understanding information systems in a changing context. The programme's objectives are to teach the graduates to contribute to the scientific body of knowledge in the information studies field, to apply this body of knowledge in organizational and societal contexts and to design information systems and digital media, using knowledge of complex adaptive systems in dynamic contexts, application domains and socio-technical design. The programme is directed towards the analysis, collection, classification, sense-making, manipulation, storage, retrieval and dissemination of information.

The programme's objectives comprise three main areas, namely technology, human factors and organizational aspects. Each of these three areas uses concepts and notions of a number of disciplines like computer science, systems theory, communication and interaction theory, cognitive science, social sciences, and business studies. Since these disciplines are covered in the objectives of the programme, the programme may be characterized as an interdisciplinary programme.

The programme's objectives have been derived from both the Croho-identification of the information studies field and the domain-specific framework for this field the programme management has drafted. This domain-specific framework applies to both the Master Information Studies and the Bachelor Informatiekunde of University of Amsterdam. In the Croho-description, the information studies field has been specified as being the study of effectively organizing, processing and distributing information and of the role of ICT in this respect. The information processes are not only studied from a technical angle but also from a cognitive, social and economic perspective. The domain-specific framework is predominantly based upon the international model for information systems curricula, designed by Association for Computing Machinery (ACM) and Association for Information Systems (AIS). This model requires information studies programmes to include a number of objectives, such as understanding and addressing information requirements, designing and managing enterprise architecture, identifying and evaluating solution and sourcing alternatives, understanding, managing and controlling IT risks and exploiting opportunities created by technology innovations. On top of the international ACM-AIS model curriculum, the programme's objectives encompass a number of ICT-specific goals, like explaining and applying appropriate information technologies to assist individuals or organizations in achieving their goals, managing the information technology resources, anticipating the changing direction of information technology and communicating the use of new technologies to individuals and organizations. As the importance of the internet for the information studies field has substantially increased, the programme management has incorporated components of the Web-Science curriculum, as designed by Massachusetts Institute of Technology and University of Southampton. Whereas the ACM-AIS model curriculum stresses the importance of knowledge about organizations, the Web Science curriculum includes additional disciplines, like artificial intelligence, psychology and media studies.

The intended learning outcomes which the programme management has drafted and which have been listed in paragraph 3.3 of this report reflect the objectives of the programme. The programme includes two specializations or tracks, namely Business Information Systems and Human Centered Multimedia. The learning outcomes have been subdivided into general learning outcomes for both specializations, and learning outcomes for either one of these specializations. As may be gathered from the list in paragraph 3.3, the general learning outcomes address the information studies domain and the disciplines which contribute to this domain. For the Business Information Systems specialization, the focus is on the knowledge and understanding of organizational aspects and information processes in organizations. The Human Centered Multimedia specialization emphasizes complex man-machine interaction and technology-mediated human-human communication, using knowledge from disciplines like computer science, communication science and psychology. The programme management intends to offer a third specialization, Game Studies, from the year 2013/2014 onwards.

The general intended learning outcomes specify the graduates to know the standards required for scientific research, to be able to conduct scientific research projects, to critically assess scientific literature and policy documents and to critically assess their own position as scientists vis-à-vis other scientific disciplines.

The programme management has drafted a table comparing the intended learning outcomes to the Dublin-descriptors. From this table can be derived that the learning outcomes meet the Dublin-descriptors and, therefore, meet the master's level. Each of the Dublin-descriptors is addressed by more than one of the learning outcomes.

The programme management has compared the programme to a number of other master degree programmes, in the Netherlands as well as abroad. A number of universities in the Netherlands and abroad offer information studies or information systems programmes. This University of Amsterdam programme distinguishes itself in presenting a rather broad perspective on the information studies field and in covering all three information studies areas, namely technology, human factors and organizational aspects.

Another distinguishing feature of the programme is the focus on large data collections. As the size of the data collections increases, the need to manage these data and to make them accessible and usable in specific contexts becomes ever more important. The programme's objective is to teach the graduates to address the corresponding issues.

Considerations
The panel considers the programme's objectives to be relevant for a master's programme in the field of information studies. The programme's objectives address the academic as well as the domain-specific knowledge and skills the graduates of a master's programme in information studies ought to have acquired.

The panel has verified the programme's objectives to meet the requirements of the international ACM-AIS model curriculum and is very content that this is the case. Meeting these international requirements ensures the programme to have objectives which are internationally state-of-the-art and which reflect the international domain-specific requirements of the information studies field. Moreover, in following the ACM-AIS model curriculum so closely, the programme management ensures the objectives to be up-to-date. The panel does not regard the Web-Science curriculum to have acquired the status of an internationally renowned and solidly structured framework. Therefore, the panel would advise the programme management to be cautious about implementing this curriculum and to prevent components of the Web-Science curriculum to be contradictory to or to overrule the ACM-AIS model curriculum.

The panel regards the intended learning outcomes of the programme to be appropriate representations of the programme's objectives. The learning outcomes specify the required domain-specific knowledge and skills of the graduates, for the programme as a whole as well addressing the specific elements of the two specializations of the programme. The learning outcomes ensure the graduates to have gained appropriate knowledge, insight and skills to do academic research in this field. The learning outcomes, also, meet the requirements for the communications skills on a master's level of the graduates and their abilities to make judgements. The panel regards the learning outcomes, specifically directed towards the specializations, to cover these specializations appropriately. The panel has not studied the third specialization, since this has not been implemented yet.

From the comparison of the intended learning outcomes to the Dublin-descriptors the panel has been able to deduce that all of the Dublin-descriptors are represented in the learning outcomes. From this comparison as well as from their own inspection, the panel considers the learning outcomes to comply fully with the requirements of a master's level programme.

The panel considers the comparison made to other programmes in the Netherlands and abroad, to be valid and to illustrate well the programme's profile. The panel is positive about the profile of the programme, addressing all three information studies areas, technology, human factors and organizational aspects, and focusing on managing and accessing large data collections

For the relation between the programme to the professional field, please refer to standard 2, below.

Assessment of this standard
These considerations have led the assessment panel to rate the standard 1 *Intended learning outcomes* to be satisfactory.

5.2 Standard 2: Teaching-learning environment

The curriculum, staff and programme-specific services and facilities enable the incoming students to achieve the intended learning outcomes.

Findings
The number of full-time students enrolled in the programme was 40 students in 2009, 62 students in 2010 and 72 students in 2011. So, the number of full-time students is increasing over the years. This is a trend since 2005. The number of part-time students enrolling is much smaller, being 4 students in 2009 and 11 students in 2010 and in 2011. The number of part-time students tends to increase as well. Since 2011, the classes are in English and a number of foreign students have enrolled. The percentage of students coming from abroad was 35% in 2011 and is expected to grow in the coming years. Students do not all have an academic bachelor's background but also come from Dutch HBO-institutions (institutions for vocational higher education). About 70% of the students admitted to the programme come from the University of Amsterdam's own bachelor Informatiekunde programme. About 1/3 of the students choose the specialization Human Centered Multimedia, whereas about 2/3 of the students choose the Business Information Systems track. From the year 2013/2014 onwards, the February enrolment for the Human Centered Multimedia track will be terminated.

The programme management presents the programme on the University of Amsterdam website as well as on the Master Market event twice per year. Students who are interested may attend a number of classes for their orientation. The programme management has adopted a fairly strict admission procedure. The candidates are to submit an application file, including an application form, their curriculum vitae, their bachelor's diploma, the courses they have taken, the grades for these courses and a letter of motivation. In addition, for the Human Centered Multimedia track a face-to-face interview is conducted as a standard procedure, whereas for the Business Information Systems track this interview is only conducted in non-standard cases. The board of examiners decides on the admission, being advised by the track co-ordinator. Students with a bachelor's diploma Informatiekunde are directly admitted. For other students, the co-ordinator may advise a pre-master programme, meant to remedy academic deficiencies and specialization-specific deficiencies. The pre-master programme includes a number of modules to be taken via the internet. The board of examiners checks whether the students have passed the modules they were required to take. Students may apply for exemptions. For the pre-masterprogramme, exemptions will not be granted.

The programme management has drafted a table in which they have presented the relations between the intended learning outcomes and the curriculum. In this table, the learning outcomes have been matched to the courses, specifying the learning goals of the courses, the course contents and the literature the students are to study.

The curriculum begins with the courses Business IT Alignment (for the Business Information Systems specializations) or Intelligent Interactive Systems (for the Human Centered Multimedia track). These courses are meant to give the students an overview of the field they have chosen and to introduce them to the research topics in these fields. Moreover, these courses are meant to bring the all of the students at the same level, allowing them to productively work together in the remainder of the programme. In the Business Information Systems specialization the students, in the first semester, take courses meant to deepen their knowledge of the business and the technology domains. The students who have chosen the Human Centered Multimedia specialization are offered in-depth knowledge of the human aspects and technology domain, in the first semester.

The students not only acquire domain-specific knowledge but research skills as well. Additionally, they are taught to solve problems from the professional practice. Moreover, the students are to integrate the domains they have been taught, learning to address problems from a multidisciplinary perspective. At the end of the first semester, the students apply the knowledge they have acquired in a integrating case or in an extended thesis design, depending on the specialization. The second semester consists of a number of electives and is also meant for the students to write their thesis. From the year 2013/2014 onwards, the programme management intends to, substantially, upgrade the Research Methods course. The quality of this course, which is offered for students of other programmes as well, was not up to standard and will be upgraded to become more challenging.

The programme management intends to keep the curriculum up-to-date, by keeping track of the changes in the ACM-AIS curriculum and by introducing elements of the Web-Science curriculum,. As has been indicated in standard 1 above, the programme management intends to offer from the year 2013/2014 onwards a third specialization, Game Studies. Also, the programme management will strengthen the Research Methods course.

Previously, the programme was a joint venture of the Faculty of Economics and Business and the Faculty of Science. Due to organizational changes in the Faculty of Economics and Business, this Faculty discontinued the collaboration from the year 2012/2013 onwards. A number of lecturers from this Faculty has, however, remained in the programme, covering the economic and business perspectives of the information studies field. The lecturers in the programme either come from University of Amsterdam or from VU University Amsterdam. The lecturers are experienced researchers in their field of expertise. All of them have a master's degree and 79% of them hold a Ph.D. degree. A number of lecturers has practical business experience. Lecturers have to complete a Basic Teaching Qualification-trajectory (in Dutch: BKO). The number of lecturers having a BKO is 82% at present. The results of the lecturers in the student evaluations range from 3.1 to 4.6 on a five-point scale, leading to an average of 3.7. The programme management intends to improve these ratings, by conducting interviews with each of the lecturers. Besides the core staff lecturers, guest lecturers from the professional practice highlight specific topics. Ph.D.-students may supervise practical sessions.

As the main educational principle the programme management has adopted the principle of active learning, meaning the students are taught to actively engage in the learning processes. In the first part of the programme, the lecturers guide the students and teach them how to apply active learning. In the second part of the programme, the students are expected to demonstrate active learning themselves and to, increasingly, organize the learning processes themselves. The study methods which are offered, include lectures, tutorials, supervised practical sessions, working groups, debates in class, presentations and self-tuition. The students not only learn individually but also, frequently, engage in group work, working together on a project or solving together a real-world case and presenting the results in class.

The programme is offered in a full-time as well as a part-time study mode. The full-time and part-time curricula are the same and only differ in scheduling and duration. The full-time students have a one-year schedule, whereas the part-time students study for two years. The schedules are as follows:
- The full-time students have a schedule of 12 months which has been divided in two semesters. The semesters are made up of three blocks each, the first two blocks of eight weeks per block and the third block taking four weeks. The full-time students take two courses of 6 EC each in the first two blocks and one 6 EC course in the last block. In the second semester, the students take courses but work on their master's thesis (18 EC) as well. The number of hours the full-time students spend, is about 40 hours per week.

- The part-time students have a schedule of two years. These students take one course of 6 EC per 8-week block instead of two courses. These students are supposed to attend classes on two half days in the week. A schedule with classes only one day per week proved to be too demanding.

The students are informed about the programme by means of e-mail and blackboard. Extra information may be obtained by the students at the Education Service Center of the Faculty. The lecturers guide the students through the courses and counsel them on difficult topics in the courses. The number of contact hours is 15.4 hours per week, being divided in about 25% hours of lectures and about 75% hours of tutorials. The track co-ordinators provide the students with advice about their study. During their thesis writing process, the students are entitled to thesis supervision (please refer to standard 3 for more details). The students may, also, turn to the student advisor for advice on the study programme and in case of any study problems. The students with whom the panel has spoken, were content about the information provision and the study guidance.

The programme is located at the Science Park campus where all of the Faculty of Science teaching and learning activities are located. The campus has classrooms, larger lecture rooms, computer rooms, rooms for self-study and a library.

The programme management takes care of evaluating the courses by means of formal, written surveys and by means of informal meetings between the students and the programme co-ordinator. With the exception of the year 2011/2012 the evaluation results are satisfactory, in average being about 3.7 on a five-point scale.

Considerations
The panel finds the students are well-informed about the programme. The study modes (full-time and part-time), which are offered, enable different student groups of students to complete this programme. The panel considers the entry requirements for the programme to be relevant. The admission process is organized in a well-structured way, admitting students who may be considered to have a fair chance of completing the programme. The pre-master programme is fit-for-purpose, being tailored to the specific deficiencies the students may have, either academic or specialization-specific deficiencies.

The panel has verified that all the intended learning outcomes have been covered in the programme, for each of the specializations. The courses of the curriculum address the knowledge and skills which are required to achieve these learning outcomes. The panel regards the contents of the courses and the literature prescribed to be at an academic master's level. The panel finds the students to be appropriately acquainted with the academic research in the field, although the research component in the Business Information Systems specialization could be strengthened. The panel considers the students to achieve the integration of the three main disciplines of the information studies field, technology, human factors and the business aspects. The students are offered a multidisciplinary perspective on information field subjects and problems. Although the economic and business administration disciplines are adequately covered in the curriculum, the panel recommends the programme management to remain vigilant in this respect. The panel recommends to place more emphasis on project management and consultancy skills. Although the structure of the curriculum is satisfactory, the panel advises the programme management to strengthen the coherence of the curriculum.

The programme management takes steps to intensify the relations with the professional field. The panel endorses this policy. The panel regards the professional practice to be satisfactorily represented in the curriculum but advises to install an advisory board of representatives of the professional field. This board may inform the programme management about current developments in the professional field.

The panel feels the programme management adequately improves the curriculum and keeps the course contents up-to-date. The panel has seen a number of examples thereof.

The panel regards the lecturers in the programme to be well positioned to transfer relevant and in-depth knowledge and skills to the students, drawing upon their strong research background. Nearly all of the lecturers have a Ph.D. and are active researchers in their fields. The educational skills of the lecturers are up-to-standard, as may be deducted from the substantial number of lecturers having a BKO-certificate. The panel feels the guest lecturers enrich the courses, as they may cover specific topics in-depth and from a business perspective.

The panel is positive about the educational model of the programme and the study methods derived from this model. The panel feels the students are trained to actively engage in the learning processes.

The panel finds the information provision and the study guidance to be adequate and the number of contact hours in the programme to be satisfactory. The lecturers, track co-ordinators and the student advisor all contribute to accomplish a good system of study guidance. The role of the student advisor is important, especially in case of study problems. The students have expressed their contentment regarding these aspects.

The panel regards the housing and the material facilities to be appropriate for the programme.

Also, the panel is positive about the formal and informal evaluation mechanisms the programme management has put in place.

Assessment of this standard
These considerations have led the assessment panel to assess the standard 2 *Teaching-learning environment* to be satisfactory.

5.3 Standard 3: Assessment and achieved learning outcomes

> *The programme has an adequate assessment system in place and demonstrates that the intended learning outcomes are achieved.*

Findings
The University of Amsterdam has drafted an assessment policy document for all of the university's programmes and courses. The Faculty of Science has drawn up a number of examinations guidelines. The programme management is committed to comply with the university's and faculty's examination policies. The programme's teaching and examination regulations (OER) include these regulations. Apart from monitoring the entry levels of the students, the programme's board of examiners is responsible for the quality and the level of the examinations and for the graduates having achieved the intended learning outcomes of the programme. To accomplish this, members of the board of examiners, randomly, check examinations as well as master's theses and attend theses' defenses.

A number of different forms of examination have been adopted, namely written examinations, oral examinations, assignments and written reports. For a number of courses the examination form is a group assignment or a group report. In these cases, the students may be given a different grade, if the work load has been unbalanced. In case of group work, either the students have to send in an individual report as well or they have to complete an individual written and/or oral examination. The examinations of the courses are strictly derived from the courses' learning goals. The assessment of the examinations, assignments and reports are based upon pre-specified schemata in order to ensure reliable and inter-subjective assessments. These schemata are peer-reviewed by another lecturer in the programme. The programme management has adopted a plagiarism policy, including penalties in case of violation.

Before the students may embark upon their master thesis project, they have to complete the thesis design. This means the students are to have written their thesis outline, including the problem description, the research question, the methodology and the thesis schedule. For the Human Centered Multimedia, the students are to give an oral presentation of the thesis design as well. The thesis design is graded. During the thesis writing process, the students have a supervisor, being a member of the programme's core staff. In addition, the students may have an external supervisor, in case the thesis project is done in an external organization. A mid-term evaluation of the thesis process is conducted, the students either giving a presentation or presenting a written report, specifying the progress and the deviations of the original design. The assessment of the final thesis is performed by two examiners, being the supervisor and an independent member of the core staff. Their assessment is based upon the written report, the presentation and the defense by the student, using an assessment form with standardized criteria.

The programme management regards the number of full-time students (80%) completing the programme after two years to be satisfactory. The number of full-time students completing the programme after one year (40%) is, however, considered to be too low. The programme management intends to raise this number by organizing the master's thesis process more strictly. The number of theses leading to a scientific publication, currently, is about 6%. The programme management wants to increase this number.

Having completed the programme, the majority of the graduates obtain a position as an advisor or a manager in private enterprises or (non-)governmental organizations. The graduates of the Business Information Systems specialization, mainly, find a position as a business consultant, information business analist or system analist. The graduates of the Human Centered Multimedia specialization may obtain a position as a technical consultants, a software engineer, a web content management consultant or a IT specialist. A number of graduates choose to become self-employed. Only a few of the graduates opt for a career in research, aiming to obtain their Ph.D. These graduates have completed the Human Centered Multimedia specialization. In recent years, no graduates from the Business Information Systems specialization have embarked upon a Ph.D.-trajectory. The graduates tend to find a job fairly easily, 77% of the graduates having a position within the first three months after their graduation.

Considerations
The panel regards the assessment policy of the programme to be appropriate, the regulations being in line with the University's and Faculty's policy. The panel finds that the programme's board of examiners monitors appropriately the quality of the examinations as well as the quality and the level of the master theses. Not only does the board of examiners study examinations and master theses but also a member of the board attends master thesis defenses.

For the panel, the examination forms (written and oral examinations, assignments and written reports) the programme management has chosen are valid methods to test the students' results. Also, the panel finds the programme management has taken adequate measures to assess the individual results of the students, in case group work is a substantial part of the assessment. The panel has studied the examinations and has found the quality and level appropriate, meeting the learning objectives of the courses. The peer-reviewed assessment schemata for the examinations ensure a reliable assessment. The feedback on the examinations is adequate. The panel has noticed some of the assessment results were not available within 15 working days after the examination, as required.

The panel regards the master thesis project process to be satisfactorily organized, specifying three milestones on the date of which the students have to demonstrate their progress and results. During the thesis process meetings between the student and their supervisor are scheduled. Still, in the eyes of the panel this process could be organized even more strictly, limiting the project duration. The panel is in favour of measures the programme management intends to take. The assessment of the theses is appropriate. The assessment criteria are relevant and the assessment process with two qualified examiners is up-to-standard.

The panel has studied a number of master's theses. The quality of the theses and the level the graduates have reached, range from satisfactory to good or very good. No thesis was found to be unsatisfactory. The contents of the theses are relevant for the information studies field, covering a wide range of subjects. The panel supports the policy of the programme management to select a number of research themes as subjects for the theses. The scientific structure and quality, including the research problem statements and the methodology, are, definitely, up to standard. The level of complexity of the theses meets the requirements of a master's thesis.

The panel regards the positions the graduates obtain to be in line with the programme's objectives and intentions.

Assessment of this standard
The considerations have led the assessment panel to assess standard 3 *Assessment and achieved learning outcomes* to be satisfactory.

Annex 1: Schedule of site visit

Amsterdam, 25 June 2013

08.30 h. – 09.30 h.	Arrival and deliberations panel (closed session)
09.30 h. – 10.00 h.	Dean and senior management Prof. C.J.M. Schoutens Ph.D. (dean Faculty of Science), J. Meerburg LL.M. (director Education, Faculty of Science), J.B. Goedkoop Ph.D. (director College of Science), A.D. Pimentel Ph.D. (director Graduate School of Informatics), A. Haker Ph.D. (programme director master Information Studies), J.A.C. Sandberg Ph.D. (programme director bachelor Informatiekunde)
10.00 h. – 11.20 h.	Programme management and core team A. Haker Ph.D. (programme director Master Information Studies), J.A.C. Sandberg Ph.D. (programme director Bachelor Informatiekunde), F.M. Nack Ph.D. (co-ordinator master track HCM), prof. T.M. van Engers Ph.D. (co-ordinator master track BIS)
11.30 h. – 12.15 h.	Board of examiners Prof. H. Afsarmanesh Ph.D. (chair), C. Monz Ph.D. (member), M. Worring Ph.D. (member), R. Kellermann Deibel MSc (student advisor)
12.15 h. – 13.30 h.	Lunch, deliberations panel and documents review (closed session), including open office hours 12.15 h. – 12.45 h.
13.30 h. – 14.30 h.	Lecturers, including member of educational committee M.J. Marx Ph.D. (lecturer Informatiekunde, member educational committee), A.J. Bouwer Ph.D. (lecturer Informatiekunde, Information Studies), A. Vreeken MSc (lecturer Informatiekunde, Information Studies), prof. T.M. van Engers Ph.D. (lecturer Information Studies), F.M. Nack Ph.D. (lecturer Informatiekunde, Information Studies, member educational committee), A.W. Abcouwer MSc (lecturer Informatiekunde, Information Studies), prof. J.M. Akkermans Ph.D. (Vrije Universiteit, lecturer Information Studies)
14.30 h. – 15.30 h.	Students and alumni, including member of educational committee J.M. Sijs (bachelor student), P. Schrijver (bachelor student), Th. Kloosterman BSc (master student, track HCM), F. Peresadilo (bachelor student), T. el Masri MSc (master alumnus, track BIS), M. Wolbert BSc (master student, member educational committee)
15.30 h. – 17.15 h.	Deliberations panel and documents review (closed session)
17.15 h. – 17.45 h.	Presentation of main findings by panel's chair to programme management

Annex 2: Documents reviewed

The assessment panel has studied the following documents, presented prior to the site visit:

- Critical reflection of master's programme Information Studies
- Description Information Studies in Croho 60229
- Domeinspecifiek kader Informatiekunde Opleidingen Universiteit van Amsterdam (in Dutch)
- Relations between Dublin-descriptors, master qualifications, final attainment levels and master programme elements
- Relations between master course elements, exit levels, learning goals and contents, study credits, work and assessment types, literature and lecturers
- Educational formats applied in the curriculum
- MSc Information Studies curriculum 2013/2014
- Outline of the organizational position of the programme within the institution
- Education and Examination Regulations 2012/2013
- Quality control and assessment course (students)
- Quality report
- Quality control and assessment course (lecturers)
- Quality control and assessment programme
- Description of thesis evaluation process
- Description of course set up track Business Information Systems
- Description of course set up track Human Centered Multimedia
- Overview of contacts with work field
- List of graduates and MSc theses 2009/2012
- Alumni survey 2013

On the day of the site visit, the programme management presented the following documents:

- Course descriptions
- Course material
- Literature
- Assignments
- Examinations
- Student files concerning their admission
- Course contents of pre-master courses
- Curricula vitae of lecturers
- Course evaluations
- Board of examiners documentation
- Educational committee documentation
- University of Amsterdam and Faculty of Science Policy documents

Annex 3: Theses reviewed

The theses of the following full-time students have been selected for review by the panel:

- 0216054
- 0340820
- 0469785
- 0604895
- 10164251
- 5623103
- 5819016
- 5836379
- 5886899
- 5979226
- 6022316
- 6152805
- 6162215
- 6172180
- 6211577

The theses of the following part-time students have been selected for review by the panel:

- 0008133
- 0288454
- 0635561
- 10018867
- 5612055
- 5698332
- 5820812
- 6021042

Annex 4: Composition of the assessment panel

The assessment panel had the following composition:

- prof. E.W. Berghout Ph.D., panel chair, professor of Information Systems at University of Groningen;
- prof. W. Van Grembergen Ph.D., panel member, professor of Information Systems at University of Antwerp and executive professor at Antwerp Management School;
- prof. A. Nijholt Ph.D., panel member, professor of Human-Computer Interaction at University of Twente;
- Y. Oualhadj, student member, studying the master programme Dutch Language and Culture at Leiden University.

Prof. E.W. Berghout Ph.D., panel chair
Professor Berghout, currently, is full professor of Information Systems at the Faculty of Economics and Business of University of Groningen as well as an independent advisor and auditor. He obtained his Ph.D. from Delft University of Technology. He also lectures at Tilburg University and Erasmus University Rotterdam. In the past, he was employed at Philips Electronics and held was visiting professor at the London School of Economics and Political Sciences. Professor Berghout is president of the Benelux Chapter of the Association for Information Systems. His main research interests are IT economics, IT strategy, IT efficiency and effectiveness, IT governance, IT control and IT auditing.

Prof. W. Van Grembergen Ph.D., panel member
Professor Van Grembergen, currently, is a full professor of Information Systems at the Economics and Management Faculty of University of Antwerp and an executive professor at Antwerp Management School. He teaches information systems at a master and executive level. Within the IT Alignment and Governance Research Institute, he conducts research on IT governance and supports the continuous development of COBIT and VAL IT. He is involved in the development of COBIT 5. His main research interests are IT governance, IT strategy, IT performance management and IT balanced scorecard.

Prof. A. Nijholt Ph.D., panel member
Professor Nijholt started his professional life as a programmer at TNO-Delft. He studied civil engineering, mathematics and computer science at Delft University of Technology and did his Ph.D. in theoretical computer science at Vrije Universiteit Amsterdam. He held positions at, among other, University of Nijmegen, McMaster University (Canada), Vrije Universiteit Brussels and NIAS in Wassenaar. Presently, he is a member of the Human Interaction Group of University of Twente. His main research interests are multi-party interaction, multimodal interaction, brain-computer interfacing and entertainment computing.

Y. Oualhadj, student member
Mr Oualhadj is studying the master programme Dutch Language and Culture at Leiden University since 2011. Previously, he studied Public Administration/Public Management at Haagse Hogeschool. He was the founder and chairman of the Student Union of The Hague. Also, he was a policy advisor and a member of the board of the Landelijke Studenten Vakbond. Mr Oualhadj is a trainer and discussion leader on a free-lance basis.

Annex 5: Declarations of independence