

Carnegie Mellon University Australia

Program Handbook

2018 - 2019

Master of Information Systems Management (Global) Program

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**CARNEGIE MELLON UNIVERSITY IN AUSTRALIA
MASTER OF INFORMATION SYSTEMS MANAGEMENT (GLOBAL)**

POLICIES AND GUIDELINES

1. INTRODUCTION

This handbook provides specific information on the curriculum and program requirements for the Master of Information Systems Management (MISM) Global track. CMU-A also publishes a separate handbook which details campus-wide policies and procedures pertaining to educational planning, program committee, teaching, scheduling and course credit, performance standards, academic standing, ethics and discipline, student privacy rights and major forms and deadlines. Students should familiarize themselves with both handbooks as they include information that is critical for your success. Both handbooks are available on the CMU-A website.

2. MISSION STATEMENT

The Global MISM 21-month curriculum, comprised of business and technology courses, is designed to propel students along a more successful career path in information systems management. Created by a world-class faculty, the program is a five-semester, intensive, on-campus master's program developed to meet the needs of those desiring to gain the required skills while spending a minimum amount of time outside the workforce. The curriculum emphasizes the importance of the interrelationships across technology, management and strategy.

Students in the Global MISM program should be able to:

- Combine management and technology skills gained in the classroom that can be directly applied in a professional IT environment; and
- Create organizational value through the effective deployment of IT.

3. CURRICULUM

3.1 Required Courses

The Global MISM curriculum is structured with required Information Systems (IS) courses, required Management courses, and elective courses. Full-time students complete the program over five study periods.

For successful completion of the MISM program, you must complete:

- A total of 192 units, comprising
 - 126 units of core requirements
 - 66 units of electives
- 280 hours of full time internship
- all other standards for graduation, including meeting the minimum cumulative grade point average of 3.0, and meeting the minimum total number of units taken over four semesters.
- Attendance of at least five convocations during your studies at CMU-A.

| Semester | Course Code | Course Title | Units |
|--|--------------------|--|------------------|
| Fall 2018 (Australia campus) | 94-700 | Organizational Design & Implementation | 6 |
| | 94-702 | Professional Writing | 6 |
| | 94-718 | Strategic Presentation Skills | 6 |
| | 94-866 | Design Thinking | 6 |
| | 95-705 | Telecommunications Management | 12 |
| | 95-712 | Object Oriented Programming in Java | 12 |
| | Total | | 48 units |
| Spring 2019 (Australia campus) | 95-703 | Database Management | 12 |
| | 95-710 | Economic Analysis | 6 |
| | 95-715 | Financial Accounting | 6 |
| | 95-716 | Principles of Finance | 6 |
| | 95-722 | Digital Transformation | 6 |
| | 95-760 | Decision Making Under Uncertainty | 6 |
| | 95-796 | Statistics for IT Managers | 6 |
| | Total | | 48 units |
| Summer 2019 | 95-900 | Internship (280 hours) | 0 |
| | Total | | 0 units |
| Fall 2019 and Spring 2020 (Pittsburgh campus) | 95-702 | Distributed Systems for ISM | 12 |
| | 95-720 | Information Systems Project | 18 |
| | | Electives | 66 |
| | Total core | | 126 units |
| | Electives | | 66 units |
| | TOTAL UNITS | | 192 units |

Note: students must ensure all required pre-requisites are met prior to enrolment.

3.2 Analytic Elective Course

MISM students are required to take one approved Analytic elective course from the following list. A number of courses offered by Heinz College and the MISM program will satisfy this requirement. In addition, the School of Computer Science, and other Carnegie Mellon departments offer graduate-level courses that may satisfy this requirement. Check with your Program Director (Sean Beggs) before registering for a course from another academic department if you wish to count it as your Analytic elective course. Official approval from the Program Director is required for any course not listed here.

| | | |
|--------|---|----------|
| 94-832 | Business Intelligence & Data Mining SAS | 6 units |
| 94-834 | Applied Econometrics I | 6 units |
| 94-870 | Telling Stories with Data | 6 units |
| 95-736 | Advanced Relational Database Management | 6 units |
| 95-737 | NoSQL Database Management | 6 units |
| 95-771 | Data Structures & Algorithms | 12 units |
| 95-791 | Data Mining | 6 units |
| 95-797 | Data Warehousing | 6 units |
| 95-819 | A/B Testing, Design and Analysis | 6 units |
| 95-832 | Marketing Analytics | 6 units |
| 95-845 | Analytics Practicum: Machine Learning for Health Care | 12 units |
| 95-851 | Making Products Count: Data Science for Project Mangers | 6 units |
| 95-865 | Unstructured Data Analytics | 6 units |
| 95-866 | Advanced Business Analytics | 6 units |
| 95-868 | Exploring and Visualizing Data | 6 units |
| 95-869 | Big Data and Large-scale Computing | 6 units |
| 95-870 | Managing Analytics Projects | 6 units |
| 95-885 | Data Science and Big Data | 12 units |

3.3 Sample General Elective Courses

The following is a sample of general electives offered by Heinz College and the MISM program. Please review the Heinz College Course Catalog for a more exhaustive search.

| | | |
|--------|---|----------|
| 95-729 | E-Commerce Tech, Machine Learning, Analytics & Bots | 6 units |
| 95-732 | Marketing Digital Media | 6 units |
| 95-733 | Internet of Things | 6 units |
| 95-775 | IT Business Leadership | 6 units |
| 95-794 | Tech Startup: Market Discovery | 6 units |
| 95-798 | Tech Startup: Build Your Company | 6 units |
| 95-799 | Linux and Open Source | 6 units |
| 95-808 | IT Project Management | 6 units |
| 95-881 | Web Application Development | 6 units |
| 95-888 | Data Focused Python | 6 units |
| 94-706 | Healthcare Information Systems | 12 units |
| 94-800 | Negotiation | 6 units |
| 94-802 | Geographic Information Systems | 12 units |
| 94-803 | Consulting Communications | 6 units |
| 94-823 | Measuring Social | 12 units |
| 94-840 | Lean Entrepreneurship | 6 units |
| 94-842 | Programming R for Analytics | 6 units |
| 11-791 | Design & Engineering of Intelligent Information Systems | 12 units |
| 11-792 | Intelligent Information Systems Project | 12 units |

4. SPECIALIZATIONS

MISM students who wish to complete a specialization are NOT required to take elective courses in addition to the courses required for a specialization. Thus, students will be able to complete both the degree and the specialization requirements without exceeding the minimum total units for their track. However, you should consult your advisor and plan your course selection very carefully in order to make this possible since the maximum units taken each semester may not exceed 54 for any track.

Please note, declaring a specialization is NOT required. Students can complete the MISM program without a specialization.

4.1 Specialization in Managing AI and Robotics

Advancements in software and hardware-based agents have transformed the workplace and society by harnessing the power of artificial intelligence and robotic automation. Industry leaders must understand how the interaction of these forces will transform their organizations into the future. The Managing AI and Robotics specialization will help students identify, develop, and manage the policies and processes associated with these advancements.

Course Requirements for Specialization in Managing AI and Robotics

MISM Students wishing to complete a specialization in Managing AI and Robotics while pursuing their degree must complete the following 42 units of course work:

- Introduction to Artificial Intelligence (12 units)
- Robotic Process Automation (6 units)
- Deep Learning for Information Systems Management (6 units)
- AI, Society, and Humanity (12 units)
- E-commerce Tech, Machine Learning, Analytics, and Bots (6 units)

Students may substitute up to 12 units using coursework from other departments. Contact the program director for more information.

4.2 Specialization in Business Intelligence

As Information Technology has become more widely deployed in organizations, opportunities arise for collecting and storing data contributed by human users (e.g., blogs, knowledge management systems, wikis) as well as the data produced as a side effect of the use of systems (e.g., transactional data, click stream data, system logs) by customers, suppliers and internal staff. Taking advantage of these opportunities requires paying attention to organizational issues (e.g., incentives for contribution to knowledge management systems) as well as a number of technical issues (e.g., data quality, middleware and systems integration, data and text mining).

Business Intelligence is about addressing these challenges and using analytics to address a range of strategic, tactical and operational planning problems. This specialization in BI prepares you to address the technical, strategic and managerial issues associated with the extraction, transformation, representation, and analysis of data.

Course Requirements for Specialization in Business Intelligence

MISM Students wishing to complete a specialization in Business Intelligence while pursuing their degree must complete the following 42 units of course work:

- Data Structures and Algorithms (12 units)
- Data Mining (6 units)

AND

- At least 24 units from the following:
 - Geographic Information Systems (12 units)
 - Advanced Relational Database Management (6 units)
 - NoSQL Database Management (6 units)
 - Data Warehousing (6 units)
 - Business Process Modeling (6 units)
 - Marketing Analytics (6 units)

4.3 Specialization in Digital Marketing and Commerce

The Internet has given rise to new organizational forms (e.g., virtual organizations) and markets which feature electronic transaction models in new categories of products and services which include consumer-business, business-business and intra-organizational commerce in physical as well as digital products. With the increased popularity and significance of the Internet, most organizations will need to carefully study this technology in order to develop strategies best suited to their context.

Successful Digital Marketing and Commerce involves blending technological, marketing and management practices in ways that are fundamentally new considering issues (e.g., copyright, privacy, content selection and rating, and intellectual property) that can have potentially profound implications for society.

Course Requirements for Specialization in Digital Marketing and Commerce

MISM Students wishing to complete a specialization in Digital Marketing and Commerce while pursuing their degree must complete the following 42 units of course work:

- Measuring Social (12 units)
- Marketing Digital Media (6 units)
- E-Commerce Tech, Machine Learning, Analytics, and Bots (6 units)

AND

- At least 18 units from following list:
 - Data Mining (6 units)
 - Network & Internet Security (12 units)
 - Lean Entrepreneurship (6 units)
 - Business Process Modeling (6 units)
 - Tech Startup: Market Discovery (6 units)

4.4 Specialization in Healthcare Informatics

As hospitals, insurers, governments, and consumers press for more effective treatments, more efficient providers, and cheaper healthcare, the importance of effectively collecting, managing, and analyzing information grows. The challenges associated with combining biological, medical and healthcare knowledge, organizational management, strategic analysis, and technological innovation into effective systems is the subject of healthcare informatics. In recent years, there has been an explosion in person-specific data. Having so much data available has allowed knowledge discovery in data (or data mining) to take a central stage.

Many other and diverse new areas are simultaneously emerging. As a result, healthcare informatics is simultaneously promoting diverse areas such as:

- a. Decision making and decision support
- b. Healthcare information technology adoption and diffusion
- c. Public health informatics
- d. Social and digital analytics in healthcare.

Course Requirements for Specialization in Healthcare Informatics

MISM Students wishing to complete a specialization in Healthcare Informatics while pursuing their degree must complete the following 42 units of course work:

- Health Economics (12 units)
- Healthcare Information Systems (12 units)

AND

- At least 18 units from the following list:
 - Introduction to Information Security Management (12 units)
 - Data Mining (6 units)
 - Advanced Relational Database Management (6 units)
 - NoSQL Database Management (6 units)
 - Privacy in the Digital Age (6 units)
 - Data Warehousing (6 units)
 - Business Process Modeling (6 units)
 - Measuring Social (12 units)

* Health Economics takes the place of Economic Analysis (95-710) requirement

4.5 Specialization in IT Strategy and Management

The IT Strategy & Management specialization is geared for students with CIO aspirations. Students take a combination of leadership, process, and IT management classes to prepare them to lead organization in today's complex, digital world. The focus of this concentration is on understanding and leveraging the connectivity across people, processes, and technology.

IT-enabled relationships and services are redefining organizational boundaries. This redefinition calls for a blended set of business, technology, and interpersonal skills.

Course Requirements for Specialization in IT Strategy and Management

MISM Students wishing to complete a specialization in IT Strategy and Management while pursuing their degree must complete 42 units of the following course work:

At least 24 units from the following list:

- Business Process Modeling (6 units)
- Negotiation (6 units)
- IT Project Management (6 units)
- Strategy Development (6 units)
- Marketing Analytics (6 units)
- IT Business Leadership (6 units)
- Introduction to Supply Chain Management and Systems (6 units)
- Product Management for Information Technology (6 units)

AND

- AT Kearney Tepper & MISM project alternative (18 units)

5. INTERNSHIP REQUIREMENT

Global MISM students are required to do a summer internship after completing two semesters of the MISM program. The completion of an internship is a graduation requirement.

Minimally, the internship requires 280 hours of full-time employment that has formal supervision, is professional in nature, includes work that is of importance to the organization, and has significant educational value.

Before beginning the internship, students must complete the online Career Services Internship Reporting Form for approval.

The internship will be verified with the students' supervisors and then approved. Students must notify their Career Advisor of any significant changes in their internships, such as length, location, hours of work, etc.

Once the internship has been approved, students will be registered for the zero-unit internship course. Students will not receive academic credit for the internship, but it will be reflected on their transcript as a course with P/F grade. If a student plans to exempt the internship, they will need to complete the Petition for Course Exemption.

At the end of your internship your Career Services Advisor will request that your supervisor complete an evaluation form about your internship performance. You are also required to complete an evaluation survey as well as a self-reflection statement describing how your internship fulfilled the educational goals of the program. If you do not successfully complete an eligible internship along with your survey and self-evaluation, you will not fulfill your internship requirement necessary for graduation.

Securing an Internship

Students are responsible for securing a suitable internship. Career Services will provide assistance through counseling, workshops on resume preparation and interview skills, and listings of potential internships. Students can make an appointment with Career Services staff to discuss internship opportunities and are encouraged to attend workshops that cover the essential skills for finding the right internship.

Students are reminded to adhere to the [Students Code of Ethics](#)

6. IS PROJECT

Project courses are organized around significant management problems, the solution of which requires a mix of technological, organizational, and social skills. As opposed to the traditional classroom setting, project courses are organized as a group exercise in problem solving. Students are divided into teams guided by university department faculty.

Students may satisfy the Information Systems Project together with the Design Thinking requirement by the following three courses: Data Structures and Algorithms, Design & Engineering of Intelligent Information Systems, and Intelligent Information Systems Project.

Data Structures and Algorithms is a pre-requisite or co-requisite for the Software Engineering sequence. Content of Design & Engineering of Intelligent Information Systems overlaps significantly with the content of Design Thinking and hence you can exempt Design Thinking by taking Design & Engineering of Intelligent Information Systems.

7. CONVOCATIONS

Convocation is a regular forum in which students have an opportunity to discuss and learn about a variety of issues. The purpose of CMU-A convocation program is to inspire, motivate and open student's thoughts to new ideas and areas. While topics are concentrated in the areas IT and PPM, the university actively seeks leaders that are leaders in their fields and have something to contribute to all-around education for our students from convocations. Sessions feature guest speakers, including those who lead organizations, analyze and develop policy as well as those who innovate in non-traditional ways.

This is a zero-credit course, with no assignments, but required attendance. Global MISM students should attend at least five convocations during their studies at CMU-A.

8. ACADEMIC INTEGRITY

Students at Carnegie Mellon are engaged in intellectual activity consistent with the highest standards of the academy. The relationship between students and instructors and their shared commitment to overarching standards of respect, honor and transparency determine the integrity of our community of scholars. The actions of our students, faculty and staff are a representation of our university community and of the professional and personal communities that we lead. Therefore, a deep and abiding commitment to academic integrity is fundamental to a Carnegie Mellon education. Honesty and good faith, clarity in the communication of core values, professional conduct of work, mutual trust and respect, and fairness and exemplary behavior represent the expectations for ethical behavior for all members of the Carnegie Mellon community.

Policy Statement

In any manner of presentation, it is the responsibility of each student to produce her/his own original academic work. Collaboration or assistance on academic work to be graded is not permitted unless explicitly authorized by the course instructor(s). Students may utilize the assistance provided by Academic Development, the Global Communication Center, and the Academic Resource Center (CMU-Q) unless specifically prohibited by the course instructor(s). Any other sources of collaboration or assistance must be specifically authorized by the course instructor(s).

In all academic work to be graded, the citation of all sources is required. When collaboration or assistance is permitted by the course instructor(s) or when a student utilizes the services provided by Academic Development, the Global Communication Center, and the Academic Resource Center (CMU-Q), the acknowledgement of any collaboration or assistance is likewise required. This citation and acknowledgement must be incorporated into the work submitted and not separately or at a later point in time. Failure to do so is dishonest and is subject to disciplinary action.

Instructors have a duty to communicate their expectations including those specific to collaboration, assistance, citation and acknowledgement within each course. Students likewise have a duty to ensure that they understand and abide by the standards that apply in any course or academic activity. In the absence of such understanding, it is the student's responsibility to seek additional information and clarification.

Policy Violations

Cheating occurs when a student avails her/himself of an unfair or disallowed advantage which includes but is not limited to:

- Theft of or unauthorized access to an exam, answer key or other graded work from previous course offerings.
- Use of an alternate, stand-in or proxy during an examination.
- Copying from the examination or work of another person or source.
- Submission or use of falsified data.
- Using false statements to obtain additional time or other accommodation.
- Falsification of academic credentials.

Plagiarism is defined as the use of work or concepts contributed by other individuals without proper attribution or citation. Unique ideas or materials taken from another source for either written or oral use must be fully acknowledged in academic work to be graded. Examples of sources expected to be referenced include but are not limited to:

- Text, either written or spoken, quoted directly or paraphrased.
- Graphic elements.
- Passages of music, existing either as sound or as notation.
- Mathematical proofs.
- Scientific data.
- Concepts or material derived from the work, published or unpublished, of another person.

Unauthorized assistance refers to the use of sources of support that have not been specifically authorized in this policy statement or by the course instructor(s) in the completion of academic work to be graded. Such sources of support may include but are not limited to advice or help provided by another individual, published or unpublished written sources, and electronic sources. Examples of unauthorized assistance include but are not limited to:

- Collaboration on any assignment beyond the standards authorized by this policy statement and the course instructor(s).
- Submission of work completed or edited in whole or in part by another person.
- Supplying or communicating unauthorized information or materials, including graded work and answer keys from previous course offerings, in any way to another student.
- Use of unauthorized information or materials, including graded work and answer keys from previous course offerings.
- Use of unauthorized devices.

Submission for credit of previously completed graded work in a second course without first obtaining permission from the instructor(s) of the second course. In the case of concurrent courses, permission to submit the same work for credit in two courses must be obtained from the instructors of both courses.

Procedures for dealing with allegations of these policy violations are detailed in the university's Academic Disciplinary Action Procedures for Undergraduate Students and the Academic Disciplinary Action Procedures for Graduate Students, which are published in The WORD student handbook. Periodic review of these procedures will be overseen by the Dean of Student Affairs or her/his designee in consultation with Faculty Senate and the relevant student governing bodies. Any amendments to these procedures are subject to the approval of Faculty Senate. Additional guidelines and procedures for graduate students may exist at the college/department/program level, in which case they are communicated in the college/department/program graduate student handbook.

If a student fails a course because of an academic integrity violation and then retakes the course, both the failing grade and the new grade will be used in evaluations of academic standing and the calculation of the student's QPA.

Any student who violates the academic integrity policy may not be a Student Representative, Teaching Assistant, Research Assistant, Officer of a student club/organization and cannot graduate from the college with highest distinction or distinction or serve as commencement speaker. All academic integrity violations will be reported to the Heinz College Associate Dean and Carnegie Mellon's Dean of Student Affairs or designee, as well as the Heinz College Office of Academic Services.

Cases of academic integrity violations will be reviewed by the Dean or designee, who may impose additional penalties. Students should understand clearly that such offenses are not tolerated at Carnegie Mellon. A first offense could result in being dropped from your program. In the event of a second offense, you will be dropped from your program.

Students who want to appeal an academic disciplinary action must state in writing to the College Dean their intention to do so within one week of the penalty date in question, and then must present their appeal to the College Dean no later than two weeks after said penalty date. Appeals must be in writing, with appropriate documentation. In cases where an appeal is filed, disciplinary actions will be held until the 2-week moratorium is complete.

If you dispute that your actions violated the University Policy on Academic Integrity or believe that your department did not follow the proper procedure for investigating or reporting a violation, the university has a formal appeal process in place that provides you with the ability to have your case heard before an Academic Review Board. The initial step of that process is writing a letter to the Provost requesting an appeal and you can find more information in the Student Appeals section of the Graduate Academic Disciplinary Actions Overview. Please note that requests for appeal are not granted automatically and the Provost will determine whether the appeal will move forward to a second-level review.

The University policy on Cheating and Plagiarism is posted on Carnegie Mellon's website at: http://www.cmu.edu/student-affairs/theword/acad_standards/integrity.html.

8.1 Additional requirement at Carnegie Mellon University Australia campus

All students enrolling for programs at the campus in Adelaide are required to attend an Academic Integrity session during their Orientation Week. At the end of that session, students will be asked to sign two documents. The first is an acknowledgement that they have attended the session. The second is an acknowledgement that they have understood the information presented on both the definitions of violations of academic integrity and the consequences of those violations.

Questions regarding the graduate policies and/or procedures pertaining to Academic Integrity violations should be directed to the following staff:

Pixie Yeap, Director of Programs at 08-8110 9953 or pyeap@australia.cmu.edu

Lourdes Almeda, Manager of Graduate Programs at 08-8110 9908 or lalmeda@australia.cmu.edu

8.2 Summary of practical actions

The actions students should take are:

- Make sure you understand the definitions of cheating, plagiarism and unauthorized assistance as set out in this document
- Study carefully the specific requirements of each course instructor as set out in the outline for each course. If in any doubt, raise queries with the instructor at the earliest opportunity
- Familiarize yourself with the consequences of breaches of academic integrity
- Refer any questions of the general policies referred to in this document to staff member from the Programs team.