

# Carnegie Mellon University Australia

Program Handbook

2019 - 2020

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**Master of Information Systems Management (Global) Program**

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## TABLE OF CONTENTS

1.	INTRODUCTION .....	3
2.	MISSION STATEMENT .....	3
3.	CURRICULUM.....	4
3.1	Required Courses .....	4
3.2	Analytic Elective Course .....	5
3.3	Sample General Elective Courses .....	5
4.	SPECIALIZATIONS.....	6
4.1	Specialization in Managing AI and Robotics.....	6
4.2	Specialization in Business Intelligence .....	7
4.3	Specialization in Digital Marketing and Commerce .....	8
4.4	Specialization in Healthcare Informatics.....	9
4.5	Specialization in IT Strategy and Management.....	10
5.	INTERNSHIP REQUIREMENT .....	11
6.	IS PROJECT .....	11
7.	ACADEMIC INTEGRITY .....	12
8.1	Additional requirement at Carnegie Mellon University Australia campus .....	14
8.2	Summary of practical actions .....	14
8.	STATEMENT OF ASSURANCE .....	14

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

## **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 required core courses
  - 66 units of elective courses (including one approved Analytic course)
- At least 300 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.

Semester	Course Code	Course Title	Units
Fall 2019 (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
	<b>Total</b>		<b>48 units</b>
Spring 2020 (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
	<b>Total</b>		<b>48 units</b>
Summer 2020	95-900	Internship (minimum 300 hours)	0
	<b>Total</b>		<b>0 units</b>
Fall 2020 and Spring 2021 (Pittsburgh campus)	95-702	Distributed Systems for ISM	12
	95-720	Information Systems Project	18
		Electives	66
	<b>Total core</b>		<b>126 units</b>
	<b>Electives</b>		<b>66 units</b>
	<b>TOTAL UNITS</b>		<b>192 units</b>

*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 the MISM 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 MISM Program Director (Sean Beggs) 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
94-881	Managing Analytics Projects	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
95-885	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 Lab	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 MISM Program Director (Sean Beggs) 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)

#### **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 hold a summer internship after completing two semesters of the MISM program in the Adelaide campus. The completion of an internship is a graduation requirement.

Minimally, the internship requires 300 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 commencing 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 the CMU-A 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.

At the end of your internship the CMU-A 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.

Please contact CMU-A Director of Programs (Pixie Yeap) if you have a query pertaining to internship requirement.

### Securing an Internship

Students are responsible for securing a suitable internship. Career Services team will provide assistance through counseling, workshops on resume preparation and interview skills, and listings of potential internships. Students can make an appointment 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 Object Oriented Analysis and Design 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 Object Oriented Analysis and Design (OOAD) and hence you can exempt OOAD by taking Design & Engineering of Intelligent Information Systems.

Please contact the MISM Program Director (Sean Beggs) if you have a query pertaining to IS project.

## 7. 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 (CMUQ) 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 (CMUQ), 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: <https://www.cmu.edu/policies/student-and-student-life/academic-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 a mandatory Academic Integrity session. 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, CMU-A Director of Programs at 08-8110 9953 or [pyeap@australia.cmu.edu](mailto:pyeap@australia.cmu.edu)  
Lourdes Almeda, Manager of Graduate Programs at 08-8110 9908 or [lalmeda@australia.cmu.edu](mailto: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.

## **8. STATEMENT OF ASSURANCE**

Carnegie Mellon University does not discriminate in admission, employment, or administration of its programs or activities on the basis of race, color, national origin, sex, handicap or disability, age, sexual orientation, gender identity, religion, creed, ancestry, belief, veteran status, or genetic information. Furthermore, Carnegie Mellon University does not discriminate and is required not to discriminate in violation of federal, state, or local laws or executive orders.

Inquiries concerning the application of and compliance with this statement should be directed to the Vice President for Campus Affairs, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213, telephone 412-268-2056.

Obtain general information about Carnegie Mellon University by calling 412-268-2000.

The Statement of Assurance can also be found online at:

<https://www.cmu.edu/policies/administrative-and-governance/statement-ofassurance.html>.