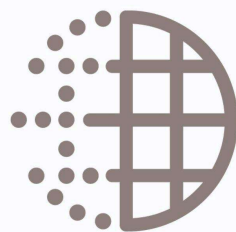School of Computer Science

Language Technologies Institute

Master's Student Handbook

Degree Programs Covered by This Handbook:

Master of Computational Data Science (MCDS)

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SECTION 1: Welcome & Introduction

Welcome to Carnegie Mellon University! Being in the CMU School of Computer Science (SCS) is a unique experience because of the size of the school (over 2000 students, staff, and faculty), the quality of its members, the variety of research being conducted, and unparalleled learning opportunities. We encourage you to take advantage of CMU offerings, both inside and outside SCS, and also to explore Pittsburgh and southwest Pennsylvania to the extent your schedule permits. What you will find is an environment that encourages and rewards hard work and accomplishment. Pittsburgh has long been an industrial area whose residents build things. In SCS we build things, and you will also.

While this handbook is specific to your academic experience in the department, it is just one element of the Graduate Student Handbook Suite. There are several other resources within the suite that you should consult when needed:
- Your College's Handbook [if your college has one]
- University-Wide Graduate Student Handbook (Office of Graduate & Postdoctoral Affairs)
- The Word Student Handbook

SECTION 2: Degrees Offered

The MCDS Degree
The Master of Computational Data Science (MCDS) degree is a professional Master of Science degree offered by the Language Technologies Institute (LTI), a department in the School of Computer Science at Carnegie Mellon University. The MCDS degree offers students with a Bachelor's degree the opportunity to improve their training with advanced study in Computer Science and Machine Learning. We cater to students with basic analytic skills and a strong aptitude for mathematics, programming, and logical reasoning. An undergraduate degree in Computer Science is not required. Most students will complete the program in three semesters; students coming from other disciplines and students focus on developing applied research skills in preparation for further graduate study or research-oriented employment may require an additional fourth semester.

The MCDS Program offers a core curriculum and several concentrations; students entering the program enroll in core courses in their first semester and select

further courses to satisfy at least one concentration (see Section 3.3.6). Students construct their own course of study, in consultation with their academic advisor, in order to satisfy broad guidelines. Thus, a student may tailor their coursework in a given concentration to follow a particular area of emphasis. The MCDS program is typically a 16-month program consisting of courses, seminars, a required Capstone Project and a required summer internship or practical training. While some MCDS graduates continue on to PhD programs in the LTI or other leading universities, most graduates go on to jobs in corporate research and development laboratories.

The program consists entirely of coursework and a Capstone Project, and no Master's Thesis is required. All Capstone projects are structured as research activities and may lead to a publication. There is no Doctoral program in Computational Data Science. Because of the highly selective nature of the MCDS program and quality of the MCDS curriculum, performing well in the program will give a boost to a PhD application. MS graduates are welcome to apply to CMU PhD programs but will not receive preferential treatment.

There are significant differences between CMU's different departments and degree programs in philosophical approach, procedures, policies and regulations. Each department issues a handbook that informs graduate students of their program requirements and procedures and ensures that students have written access to the standard information outlined below. This handbook describes the policies, procedures, and requirements for the Master of Computational Data Science (MCDS) degree.

All policies not explicitly described in this document conform to School of Computer Science (SCS) policies and university policies described in The Word, Carnegie Mellon University Student Handbook and at the University Policies website.

SECTION 3: Departmental Personnel

3.1: MCDS Contact Information

The people responsible for administering the MCDS degree are:

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Master of Computational Data Science
Language Technologies Institute
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Language Technologies Institute
School of Computer Science
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Gates-Hillman Center 5723
5000 Forbes Avenue, Pgh, PA 15213
Phone: (412) 268-36

The Language Technologies Institute is located primarily on the 5th and 6th floors of the Gates Hillman Complex (GHC) on Carnegie Mellon's Pittsburgh campus:

Language Technologies Institute
Carnegie Mellon University
5000 Forbes Avenue
Gates Hillman Complex 5402, LTI
Pittsburgh, PA 15241-3891
412-268-6591 (phone)
412-268-6298 (fax)
http://www.lti.cs.cmu.edu/

SECTION 4: Departmental Resources

Main Office
The Gates Hillman Complex: Mailboxes, printers, copiers, and other departmental resources are in GHC 5404.

Photocopies and Printers

The use of a printer/copier requires a CS user id (see the 'Computers' section). The School of Computer Science provides several black-and-white and color printers for use by students. SCS Computing Facilities maintains a list of printers: http://www.cs.cmu.edu/~help/printing/.

Office Space for MS Students

Full-time students in the LTI's MS degree programs on the Pittsburgh campus have access to a shared working space to create a sense of community and provide space for working when on campus.

Computers for MS Students

Students are expected to provide their own laptop computers that can be used to access university resources and complete course assignments. Laptops running Windows, MacOS, and Linux software are all acceptable.

MS students will be given a CS user id. A CS user id is required to use the LTI computer cluster, department printers, and other SCS services. The School of Computer Science has a Help Center located at 4203 GHC. They can be contacted at help@cs.cmu.edu, extension 8-4231 from a campus phone, or 412-268-4231 from an outside line.

MS students will be given access to the LTI's computer cluster on an as-needed basis, to be used for course assignments, directed study projects, and/or the capstone project. The LTI cluster provides storage and computation for projects involving large datasets and/or lengthy computation.

4.1: Full-time Status

All MCDS students are expected to enroll full-time (at present, there is no option to pursue the degree as a part-time student). To be considered a full-time student, a student must be registered for, and complete, a minimum of 36 units in every Fall and Spring semester. All international students are required by US Federal law to maintain full-time status. Students can have no more than one (1) remote course counting toward the 36 units used to satisfy full-time enrollment. Failure to maintain full-time status will result in loss of a student visa (and, therefore, "permit of stay"). All students having a Stafford Loan are required to maintain full-time status.

SECTION 5: Advising

Every MCDS student will be assigned an advisor, normally the Program Director. Before the course registration period each semester, students must meet with their advisor to discuss their course selection. New students will be given instructions to register for their classes during the summer prior to entrance.

5.1: Review/Redress of Academic Conflicts

Graduate students will find the Summary of Graduate Student Appeal and Grievance Procedures on the Graduate Education Resource webpage. This document summarizes processes available to graduate students who seek review of academic and non-academic issues. Generally, graduate students are expected to seek informal resolution of all concerns within the applicable department, unit or program before invoking formal processes. When an informal resolution cannot be reached, however, a graduate student who seeks further review of the matter is to follow the formal procedures outlined here. These appeal and grievance procedures shall apply to students in all graduate programs of the University. Students should refer to the department specific information in this handbook for department and college information about the administration and academic policies of the program.

You can review a summary of the university's graduate student's appeal and grievance procedures here:
https://www.cmu.edu/graduate/policies/appeal-grievance-procedures.html

SECTION 6: Master's Degree Requirements

6.1: Duration of the degree program

The MCDS degree must be completed within five (5) years from the time that the student matriculates into the program. MCDS students enrolled for full-time studies

are normally expected to complete the degree in three semesters (16 months). This includes a summer internship.

https://www.cmu.edu/policies/student-and-student-life/masters-students-statute-of-limitations.html

As outlined in the Master's Students Statute of Limitations (see link above), students will complete all requirements for the master's degree within a maximum of seven years from original matriculation as a master's student, or less if required by a more restrictive department, school or college policy. Once this time-to-degree limit has lapsed, the person may resume work towards a master's degree only if newly admitted to a currently offered master's degree program under criteria determined by that program.

Under extraordinary circumstances, such as leave of absence, military or public service, family or parental leave, or temporary disability, a school or college may, upon the relevant department's recommendation and with the written approval of the dean (or designate), defer the lapse for a period commensurate with the duration of that interruption. Students who are pursuing a master's degree as part-time students for all semesters of their program, as approved by their program, may also appeal to their program or department for extension of the time to degree limit.

6.2: Residency Requirements

Most courses in the program are taught on campus without an option for distance education. Students enrolled in in-person course sections are expected to attend all class meetings in person. U.S. government regulations require F-1 and J-1 international students to be enrolled in an in-person degree program, with in-person expectation coursework.

6.3: Registration Process

An MCDS FAQ has been provided for your convenience that outlines the registration process for the MCDS program. Please refer to this document for further information:

https://cdn-uploads.piazza.com/paste/lezuxvt5b291ic/5943d5a2b99893e3e8ac241c8452ccd0a5fabb087046a4bebbc68c27e7ae8132/2024_First_Year_FAQ_Registration_and_Wait-list_Apr_15,_2024.docx.pdf

6.4: Required Units for Degree Attainment

Degree Certification: Course requirements and related policies/protocols:
- In order to receive the MCDS degree, students must have a Quality Point Average (QPA) of 3.0. Completion of the degree is based on completing courses in the core curriculum, the MCDS seminar, electives and capstone project.
- The capstone project consists of students working at CMU on a research project, or on an industry-sponsored project.
- The student must complete 144 eligible units of study. This includes eight core and concentration courses, two 12-unit seminar courses and two 12-unit capstone courses. All students complete a common MCDS core in their first two semesters, consisting of five courses. All students must also complete at least one concentration, consisting of three courses in one of three areas: Analytics, Systems, or Human-Centered Data Science. The remaining elective course can be any course with number 600 or above chosen from the SCS course catalog. Any additional non-prerequisite units taken beyond the 144 units are also considered electives.
- To maintain full-time enrollment status, a student must enroll in a minimum of 36 course units per semester. A student may not take more than 60 units per semester, without permission from their academic advisor. Students must maintain full-time enrollment status (minimum of 36 units) in their final semester.

Prerequisite Core Course:

All MCDS students are expected to pass the 11-637 Foundations of Computational Data Science course by the end of their first semester. Each student must pass 11-637 with a grade of "B-" or better.

Plan of study:

The degree consists of two timing options based on the length of time the student spends working on the degree. The student chooses their timing at the start of the degree program (for visa requirements).

Changes in timing are possible with the approval of the Director of the degree program and successful visa extension application with CMU's Office of International Education.

Changes **MUST** be processed by or before the start of an academic term. Students on F-1 or J-1 documents must report program changes to OIE within 10 days of any changes.

20-month (Professional Preparation Track) students looking to switch to the 16-month program should reach out to their program manager or coordinator at least 10 days prior to a new semester starting in order to submit a Change of Program form. Students wishing to switch from the 16 month program to the 20 month program should reach out to MCDS coordinators at least 30 days prior to the end of their current semester for a Change of Program form to be submitted to the Registrar.

20-month (Research Preparation Track) students are not permitted to request a reduced course load in their final semester of study. 20-month students are to only be registered for 36-units each semester to spread the degree over the 4-semester study program

Note that all degree options consist of the same amount of coursework:

- **Professional Preparation Track** – a 16-month degree consisting of study for Fall and Spring semesters, a summer internship, and Fall semester of study. Each semester consists of a minimum of 48 units of study. This timing is typical for most students. The student graduates in December.
- **Research Preparation Track** – a 20-month degree consisting of study for Fall and Spring semesters, a summer internship, and a second year of Fall and Spring study. Each semester consists of a minimum of 36 units of study. This timing is designed for students interested in extending their time at CMU for developing applied research skills in preparation for further graduate study or research-oriented employment. Note that the per-semester course load is lower, but the total cost is higher since four semesters of tuition are paid. This timing is also recommended for students interested in pursuing a PhD after graduation. The student graduates in May.

Students in the Army program MUST select the 20 month Research Preparation Track in accordance with the agreement between CMU/MCDS and the Heinz U.S. Army program. Army cohort students are able to take the prerequisite courses 11-637 and 15-513 during the Summer session before their first Fall semester on campus.

<u>MCDS Curriculum</u>
All MCDS students must complete 144 units of graduate study which satisfy the following curriculum:
- 11-637 - Foundations of Computational Data Science
- Four (4) additional MCDS Core Courses (10-601 Introduction to Machine Learning; 05-839 Interactive Data Science; 15-619 Cloud Computing; 11-631 Data Science Seminar; 48 units)
- Three courses (3) from one area of concentration curriculum (36 units)
- Three (3) MCDS Capstone courses (11-634, 11-635 and 11-632) (36 units)
- One (1) Elective: any graduate level course 600 and above in the School of Computer Science (12 units)

6.5: Common MCDS Core Courses

All MCDS students are required to complete four common core courses in their first two semesters:
- 10-601 - Machine Learning
- 15-619 - Cloud Computing
- 05-839 - Interactive Data Science
- 11-631 - Data Science Seminar

6.6: Electives

Electives can be any graduate level course (numbered 600 or above) in the School of Computer Science. Students use their elective courses to enhance study in an area of interest or to explore new areas of interest.

6.7: Areas of Concentration

In addition to the common MCDS core, all students must complete at least one area of concentration, which consists of three courses in Analytics, Systems, or Human-Centered Data Science. Students consult with their academic advisor and

choose one or more areas of concentration during their first semester, in preparation for enrolling in Spring classes.

Analytics concentration:
One (1) Machine Learning course
One (1) Software Systems course
One (1) big data course

Systems concentration:
15-513 Introduction to Computer Systems (elective, prerequisite for many advanced Systems courses)
Three (3) systems project courses

Human-Centered Data Science concentration:
One (1) Methods course
Two (2) HCI courses

A detailed list of courses satisfying each concentration is contained in the MCDS Program FAQ.

6.8: MCDS Capstone Courses

All MCDS students complete three Capstone courses:

- 11-634 - Capstone Planning Seminar (12 units)
- 11-635 - Capstone Research (12 units)
- 11-632 - Data Science Capstone (12 units)

MCDS Program Learning Outcomes

- Design, implement and evaluate the use of analytic algorithms on sample datasets.
- Explain how a machine-learning model is developed for and evaluated on real world datasets.
- Design and execute experimental data collection and present resulting analyses using appropriate user experience (UX) techniques including interactive data visualizations.
- Apply and customize analytics, systems and human-centered data science techniques to application-specific data science requirements and objectives.

- Identify tradeoffs among data science techniques (analytics, systems and/or human-centered) and contrast design alternatives, within the context of specific data science application domains.
- Survey, interpret and comparatively criticize state of the art research talks and papers, with emphasis on constructive improvements.
- Organize, execute, report on, and present a real world data science project in collaboration with other researchers/programmers.

Depending on the concentration, additional learning outcomes are emphasized:

Analytics. Students electing to complete the Analytics concentration will also learn to:

- Design, implement and evaluate a software system and machine-learning model on real world datasets at real world scale.
- Analyze and document data science requirements in different application domains and survey as well as critique state of the art solutions for those requirements.

Systems. Students electing to complete the Systems concentration will also learn to:

- Implement and evaluate complex, scalable data science systems, with emphasis on providing experimental evidence for design decisions.
- Anticipate and avert structural and/or implementation problems with systems design, especially with scaling and tail distributions.

HCDS. Students electing to complete the Human-Centered Data Science (HCDS) concentration will also learn to:

- Design, implement and evaluate a user experience prototype to allow for clear understanding of data science solutions.
- Apply social and behavioral research methods to data science problems to understand the human aspects of data collection and analysis.

Throughout their coursework, students will take introductory courses on all those topics, practice them in advanced courses and seminars and demonstrate all learned skills in their Capstone project and internship. Students are encouraged to

choose elective courses in the curriculum according to their professional goals and mastery of the main subjects.

6.9: Undergraduate courses

Undergraduate courses are taken to address an area of weakness in the student's prior preparation. Undergraduate courses (numbered less than or equal to 599) may be taken pass/fail or for credit but do not count toward the 144 units of eligible study: The course and course grade *will* appear on the student's transcript, and the course grade *will* factor as part of the student's QPA.

6.10: Department Policy on Double Counting Courses

A Masters student who uses courses taken as part of another degree program (at Carnegie Mellon or elsewhere) toward their program requirements cannot use those same courses toward any other M.S. degree offered by the School of Computer Science without prior approval. No course may be used to complete two MCDS degree requirements, nor may a course satisfy requirements in two degree programs.

6.11: Department Policy for Courses Outside the Department/College

Elective courses in other Schools at Carnegie Mellon may be taken with prior permission of the Director.

6.12: Course Exemptions

<u>Definition of transfer credit versus course exemption</u>
- The LTI may grant transfer credit or issue an exemption for equivalent graduate courses previously completed at another institution. This decision rests with the Director of the particular program. If a student is exempt from a required course due to prior courses or experience, the student can replace that course with an open elective. The student does not receive credit for the external course but can take any course that could normally count toward the degree in its place. If a student receives credit for prior coursework completed at CMU or elsewhere, the student receives that many units of credit, and the total amount of required coursework is reduced by that amount.

6.12.1: Protocol for Evaluation of Transfer Credit

Transfer Credit
- An equivalent graduate course previously completed at Carnegie Mellon, or another institution, may be permitted to satisfy one of the MCDS course requirements, with permission from the Director. Students must petition for transfer credit by providing the Program Director with the prior course syllabus and other details that may be required by the Director in order to make a decision. See the section on "Definition of transfer credit versus course exemption". NOTE: In all cases, credit may only be transferred from another degree program for courses deemed "free electives" - i.e., courses which were not used to satisfy a core requirement or total units requirement in a prior degree program. All MS students are required to take a minimum of 96 units of coursework at CMU.

6.13: Research & Teaching Requirements/Opportunities

None required. However, students are encouraged to apply for teaching assistant positions in courses where they have excelled.

Graduate students are required to have a certain level of fluency in English before they can instruct in Pennsylvania, as required by the English Fluency in Higher Education Act of 1990. Through this Act, all institutions of higher education in the state are required to evaluate and certify the English fluency of all instructional personnel, including teaching assistants and interns. The full university policy can be reviewed at:
https://www.cmu.edu/policies/faculty/evaluation-certification-english-fluency-instructors.html

The fluency of all instructional personnel will be rated by Language Support in the Student Academic Success Center to determine at what level of responsibility the student can TA. In addition to administering the International Teaching Assistant (ITA) Test (a mandatory screening test for any non-native speaker of English), Language Support in the Student Academic Success Center helps teaching assistants who are non-native English speakers develop fluency and cultural understanding to teach successfully at Carnegie Mellon. Visit the Student Academic Success Center website for additional information: www.cmu.edu/student-success

6.14: Internship Requirements and Opportunities

An internship is required for the degree program. In very rare cases, when a student has prior work experience, the Director of the degree program may waive this requirement. Students start searching for internships generally in the Fall and Spring semesters. Once the student returns from an internship in the Fall, they should immediately begin the search for full time employment. Extensive resources are available at http://www.cmu.edu/career/ including a resume submission system, a list of employers, on campus interviews and mock interviews, and many other resources.

The Technical Opportunities Conference (TOC)
http://engineering.cmu.edu/companies/toc/ occurs every September. This conference is one of the main recruiting events each year.

All international students are required to apply for Curricular Practical Training (CPT). CPT is employment that is an integral part of an established curriculum and is directly related to the student's major area of study. Please visit the Office of International Education (OIE) link below to learn more about the CPT process:
http://www.cmu.edu/oie/forstu/jobs.html

International students are required to consult with the Office of International Education for eligibility for work authorization before starting or seeking an internship/co-op or consulting opportunity. International students will benefit from proactively reviewing OIE guidance regarding off-campus work authorization. Off-campus work authorization processing times can take several weeks or months, and international students will benefit from starting the off-campus work authorization process as early as possible.

Please Note: If a student misses classes because they are attending a conference, the individual student is FULLY responsible for completing missed assignments and communicating with the instructor of record.

Attending a conference during exams, poster sessions, scheduled talks, etc. is not a valid excuse. The student will need to coordinate with the instructor to make sure all work is completed satisfactorily.

External Internships and Job Interviewing

MCDS students are expected to attain an external internship during the summer. International students must coordinate carefully with the University, due to visa restrictions. International students are required to consult with the Office of International Education for eligibility before seeking an internship/co-op or signing an offer contract.

We caution all students to be aware of potential intellectual property (IP) implications with internships, and to review any IP agreements with their academic advisor before signing them. It is possible to lose ownership of your own inventions if they occur during an external internship.

While it is necessary for students to travel off-campus for job interviews, it is not acceptable for a student to miss a course requirement or a capstone project commitment due to interview travel. Students should work proactively with prospective employers to arrange interview travel in a way that minimizes the impact on their final semester course work.

6.15: Thesis Requirement

None Required.

SECTION 7: Department Policies & Protocols

7.1: Department Policy for Withdrawing from a Course

Students taking undergraduate and Master's level courses must follow the procedures and deadlines for adding, dropping, or withdrawing from courses as identified on the academic calendar. Information can be found at:
 https://www.cmu.edu/hub/registrar/course-changes/index.html.

Please Note: Students who have pending or documented academic disciplinary action may not drop or withdraw from the course in question (including the use of a voucher). In extremely rare circumstances, the course instructor may provide explicit approval to drop the course. Students who drop the course without the proper permission will be manually re-enrolled in the course and further outcomes may result.

7.2: New Policies / "Grandfather" Policy

A student can graduate under the policies in effect at the time that the student entered the program; or, at the student's choice, the student can graduate under policies that are adopted after the student entered the program. In unusual cases, the Director may approve exceptions to the program requirements.

7.3: Courses with restricted enrollment

MCDS students have priority for the program core courses. The MCDS program administrators cannot intercede with other departments to secure seats for its students in other courses as all departments reserve seats for their accepted students. Usually all remaining open seats are assigned on a first- come, first-served basis. Students can, on occasion, contact the assigned course instructor in order to plead his/her case for admission to the course. Admission may be granted at the discretion of the instructor. The policy of the department offering the course(s) is always followed.

7.4: Definition of transfer credit versus course exemption

The LTI may grant transfer credit or issue an exemption for equivalent graduate courses previously completed at another institution. This decision rests with the Director of the particular program. If a student is exempt from a required course due to prior courses or experience, the student can replace that course with an open elective. The student does not receive credit for the external course but can take any course that could normally count toward the degree in its place. If a student receives credit for prior coursework completed at CMU or elsewhere, the student receives that many units of credit, and the total amount of required coursework is reduced by that amount.

7.4.1: Transferring into the MCDS Program

Direct transfers into the MCDS program are not permitted. Students who are currently enrolled at Carnegie Mellon who wish to transfer into the MCDS program must do so by applying to the MCDS program via the normal admissions process. Some transfer credit and/or exemption from MCDS requirements may be possible on a case-by-case basis.

7.4.2: Transferring Out of the MCDS Program

The MCDS program does not prevent students from transferring to another degree program. Each degree program has its own rules about whether and when transfers into the program are permitted. A student that is interested in transferring out of the MCDS degree program should consult the handbook and Program Director of the desired degree program to learn whether transfers are permitted, and if so, how and when to request such a transfer.

7.5: Withdrawal from Program

Students may voluntarily withdraw from the MCDS program. If a student decides to withdraw, or is considering a withdrawal, she/he should contact the program administrator to schedule an advising meeting as soon as possible.

The university's general withdrawal policy can be found here:

https://www.cmu.edu/hub/registrar/leaves-and-withdrawals/

7.6: Winter and Summer Breaks

Students supported by research projects or working in an on-campus internship are expected to remain on campus working during breaks in classes. A two-week vacation is typically allowed in the summer for the students who are working on campus (not pursuing an external internship). Supported students should arrange their winter break time with their supervisor.

7.5: Time Away from Academic Responsibilities

Graduate students should not assume that their time off follows the academic calendar of courses. University Holidays are also student holidays, and students need to consult their faculty about coverage if they have challenges with taking time off during University Holidays. For example, if experiments are running that need to be monitored continuously, students should speak with their faculty about arrangements to take an equal number of days off at another time. Please note that this only pertains to students who are employed either as TA's or RA's.

7.6: Other Policies and Protocols / Inclusion of Any Variations to University Policies and Protocols

7.6.1: Intellectual property policy

The MCDS degree program adheres to Carnegie Mellon University policy on intellectual property: http://www.cmu.edu/policies/documents/IntellProp.html

7.6.2: Language proficiency requirements

None required. However, non-native English speakers are encouraged to take advantage of the various support functions provided by the Global Communication Center (GCC).

7.6.3: Qualifying examinations and procedures (or equivalent)

None required.

7.6.4: On transfer to another program

If the requirements for the MCDS degree have not been completed when a student leaves to pursue another academic program, the degree will not be awarded. Completion of the MCDS degree does not guarantee admission into any doctoral degree program at Carnegie Mellon University. The courses that will be completed as part of the MCDS may serve to enhance one's application to these programs but will in no way insure admittance.

7.6.5: University Policies and Expectations

Each member of the Carnegie Mellon community must be familiar with university policies and guidelines. In addition to this departmental graduate student handbook, the following resources are available to assist you in understanding community expectations:

The Word/Student Handbook:	http://www.cmu.edu/student-affairs/theword/index.html

Academic Integrity Website:	https://www.cmu.edu/policies/student-and-student-life/academic-integrity.html
University Policies Website:	http://www.cmu.edu/policies/
Office of Graduate and Post-Doc Affairs:	http://www.cmu.edu/graduate/policies/index.html

SECTION 8: Grading & Evaluation

8.1: Grading Scale/System

All courses offered by the SCS CMU are graded on the 4.3 grading standard http://www.cmu.edu/policies/documents/Grades.html. MCDS students must maintain a 3.0 overall average each semester to remain in good standing. A student must obtain a B- or better grade in all courses, which count towards core requirements. If a student receives a C- or better, that course may count as an elective towards the degree requirements. All courses must receive a letter grade; courses taken pass/fail do not count towards the MCDS degree.

Enrollment Services is the only University office that can provide an official letter of enrollment, official transcript and enrollment verification. Enrollment verification can be requested online through The HUB at: https://www.cmu.edu/hub/registrar/student-records/verifications/

Change of grades and missing grades

If a grade has been assigned in error, it can be changed to a different permanent grade. The procedure for changing a grade is as follows:
- Discuss the matter with the course instructor; provide evidence that the grade issued was not the grade earned.
- If the instructor agrees, the student should contact the program administrator to process a Change of Grade Form in order to correct the grade that was issued in error. Generally, the instructor is the final authority for a course grade.
- If a grade has not been assigned, please notify the course instructor for the completion of a Missing Grade Form.

8.2: Department Policy on Grades for Retaking a Course

If a student does not pass a required course, the student must register for the course again and pass it in order to complete all requirements of the MCDS program.

8.3: Department Policy on Pass/Fail, Satisfactory/Unsatisfactory

Pass/fail and audit grades are not permitted for courses used to satisfy a degree requirement. Graduate students who are required to take additional undergraduate courses to build up the core foundations of computer science may not elect the pass/fail or audit option for these courses.

8.4: Department Policy for Incompletes

Carnegie Mellon University students are expected to complete a course during the academic semester in which the course was taken. However, if the instructor agrees, a grade of "I" (incomplete) may be given when a student has been unable to complete the work of a course. However, the work completed up to that date must be of passing quality and the grade of incomplete provides no undue advantage to that student over other students.

By awarding an "I" grade, an instructor must specify the requirements for the completion of the work and designate a default letter grade in the event that the student fails to complete the remaining work.

Students must complete the required course work by no later than the end of the following academic semester or sooner if required by the instructor.

The instructor must record the permanent course grade by the last day of the examination period of the following semester, or the Registrar will automatically assign the default grade.

If further work has not been completed after one semester and a default grade is rendered, the default grade will become the grade of record.

8.5: Independent Study Course

Independent study courses allow students to cover study of a particular area of interest, and are used when no formal course is available in a given subject area. Students who are interested in continuing to a Ph.D. degree often enroll in Independent Study, since it offers the opportunity to perform research directly with a faculty member. Independent study courses are considered electives.

Each independent study course must be advised and approved by at least one faculty member. Agreement to supervise an independent study course is purely voluntary on the part of the faculty member. It is the duty of the student, therefore, to negotiate the terms and conditions of the independent study with the pertinent faculty members of CMU who will be supervising the study. These individuals are referred to as "independent study supervisors." Once the student finds someone who agrees to supervise such a course, he/she must:

1. Students wishing to take an independent study must request approval from their academic advisor and complete proposal before the first day of classes in a given semester:
2. Enter into an agreement with the independent study supervisor that includes course expectations, including deliverables.
3. Secure the "Independent Study Contract Form" from the MCDS administrator.
4. Complete the form, provide a brief description of the work to be done, including deliverables and how they will be graded.
5. Secure signatures of both the student and the supervisor. Return the form to the MCDS administrator in order to obtain approval for the independent study from the Director.

Independent study contracts must be submitted <u>no later than</u> on the last day of the first week of classes in a given semester.

8.6: Satisfactory Academic Standing

If a student does not make satisfactory progress each semester toward completing the degree, the LTI may remove the student from the program. See section on "End of Semester Evaluation". In particular, students in the three-semester program who

fail one of their first-semester MCDS core required courses are strongly encouraged to consider switching to the four-semester program.

Please reference the [Summary of Graduate Student Appeal and Grievance Procedures](#) for more information. Please note that students can appeal any/all of these decisions.

8.7: Regular Reviews and Evaluations by Department

Student Review, Academic Probation and Academic Actions

The MCDS program conducts an academic progress review at the conclusion of each semester in order to monitor individual student progress towards graduation regarding the fulfillment of curricular requirements, course grades, and academic integrity. Should a student's effort fall below the acceptable level of academic performance and/or fail to meet standards and policies established by Carnegie Mellon University, the student may be dismissed from the program.

Infractions

After each academic progress review, each student will receive a letter indicating the result of the review and their standing in the program. If applicable, the letter will also note the following *infractions* by the student in the given semester:
- Cumulative QPA is below 3.0, resulting in the student being put on *Academic Probation* (see below)
- Cumulative QPA is below 2.6, resulting in academic probation or possible dismissal (see below)
- Academic Integrity Violation (AIV) deemed an infraction by the MCDS committee

Minimum QPA and Academic Probation

Students must maintain a cumulative QPA of 3.0 to remain in good standing with the program. Should a student's overall QPA drop below 3.0 during any given semester, he/she will be placed on *academic probation* for the following semester. In probation cases, the student will be required to
- enroll in courses as advised by the academic advisor,
- improve his/her grades to no less than an overall 3.0 QPA in the following semester, and

- meet any other goal set by the advisor during that period (e.g., fulfilling a core course requirement).

If a student's cumulative QPA drops below 2.6, the student will be considered at risk of being unable to complete the program and will be considered for dismissal. He/she will be required to meet the program director to discuss his/her situation. Only if, after that meeting, the MCDS program committee ascertains that the student is likely to complete the remaining program requirements in the allotted time, the student will be allowed to continue his/her studies in MCDS, and dismissed otherwise. If the student is allowed to continue their studies, they will be placed on academic probation for the following semester and is subject to the requirements above.

Dismissal

The MCDS program strives to produce graduates with the highest standards of academic integrity. Academic Integrity Violations are taken very seriously and the MCDS program has a zero tolerance policy for multiple Academic Integrity Violations. A single violation is grounds for dismissal from the graduate program if deemed sufficiently egregious as determined by the MCDS program committee. If a student commits a second violation, the expected penalty is dismissal from the graduate program

A student may be dismissed from the program for any of the following cases:
- If the student has been put on academic probation and failed to meet the remedial requirements set by the advisor in the following semester, or committed an Academic Integrity Violation deemed an infraction by the MCDS committee while on academic probation
- If the student has a cumulative QPA of 2.6 or lower and the MCDS program committee does not ascertain that the student is likely to complete the remaining program requirements in the allotted time
- If the student has committed two Academic Integrity Violation deemed infractions by the MCDS committee
- If the student has committed an Academic Integrity Violation infraction where the violation is deemed to be sufficiently egregious as determined by the MCDS program committee
- If the student has been found to infringe a University Policy, where such infringement is deemed grounds for dismissal

Students who realize that one of these situations may apply to them are strongly encouraged to meet with the academic advisor to discuss a plan to mitigate the situation. Students who find they are struggling in the program will have the best chances of success if they communicate early and often with the academic advisor.

SECTION 9: Funding & Financial Support

9.1: Statement of Department Financial Support

The MCDS degree program does not provide financial aid to graduate students, nor does it provide tuition waivers or scholarships. For complete financial aid information see: https://www.cmu.edu/sfs/financial-aid/index.html .

The Financial Aid Office of Carnegie Mellon will provide assistance in completing the necessary paperwork to apply for Stafford loans.

Graduate students should consult the graduate student financial aid information found on The HUB website:

https://www.cmu.edu/sfs/financial-aid/graduate/index.html.

Students will find the Graduate Financial Aid Guide, information about funding options and how to apply for financial aid and other helpful links.

Graduate students who find themselves in need of immediate funds for emergency situations should contact the Office of the Dean of Student Affairs, www.cmu.edu/student-affairs/index.html, to inquire about an Emergency Student Loan.

U.S. citizens and permanent residents may complete the Free Application for Federal Student Aid (FAFSA) online at https://fafsa.ed.gov

Students may obtain information regarding their loans through the William D. Ford Direct Loan Program, including deferment forms and payment information at http://www.dlssonline.com/index.asp

Information about the federal student aid programs may be found at www.studentaid.ed.gov

9.2: Travel/Conference and Research Funding

Students funded by a research project may receive travel funding according to policies set by the individual projects. Students who have no project funding may be provided with partial funding, with a larger amount available for travel to present a refereed conference paper. There is an LTI form that must be filled out in advance.

An additional conference travel funding opportunity is provided by GSA and the Provost's Office for students, student work groups or groups to attend a conference, whether as a participant or as a presenter. The process is managed by the Graduate Education Office. Students can find more information about the application process and deadlines at:

https://www.cmu.edu/graduate/professional-development/index.html

9.3: Department Policy on Outside Employment

Since the MCDS program places heavy demands on student time, external employment and/or consulting are strongly discouraged. Exceptional students who wish to consult should discuss this with their advisor. International students must also have approval in advance from the Office of International Education (OIE) for any outside employment.

SECTION 10: ADDITIONAL DEPARTMENTAL INFORMATION

10.1: Leave of Absence

A student in good standing may be granted a LOA of at most 1 year, upon written request to the Program Director and with consent of the student's advisor. It is the responsibility of the student on LOA to contact the program administrator to apply for a return to the program

10.2: Expenses

The program will reimburse any expenses incurred on behalf of the MCDS program if approved by the Director. The student must apply for approval of expenses *before* they are incurred. Verification of purchase and/or expenses along with receipts is to be presented to the program administrator for reimbursement. Reimbursement requests must be filed within three months of the calendar date when it was incurred. If the reimbursement request concerns pre-approved conference or workshop travel expenses of an MCDS student, then it must be filed within three months of the calendar date of the event's last day. Reimbursement requests received after this period will not be processed. The University *does not* reimburse for taxes.

10.3: External fellowships

The MCDS program will accept students with external fellowships.

10.4: Grade Reports

Grade reports are mailed to individual students by the university at the conclusion of each semester. See the official calendar for mailing dates.

10.5: Late Graduation

On occasion, a student and/or his/her employer may request that the student attend Carnegie Mellon for an additional semester in order to complete a program that will be beneficial to both the student and the employer. Under such circumstances late graduation can be arranged. Student is to discuss his/ her situation with the Director.