Graduate Student Handbook
Master of Science in Applied Data Science

Academic Year 2024-2025

The information contained in this graduate handbook focuses on the resources and locations available at the Carnegie Mellon Pittsburgh Campus.

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Welcome

On behalf of the Department of Statistics & Data Science, we welcome you to the Master of Science in Applied Data Science (MADS) program! MADS is a 9-month, two-semester professional master's degree to develop industry-valued competencies in our students by emphasizing data analysis, statistical computing, and professional skills.

This Graduate Student Handbook is specific to your academic experience as a student in the MADS program. To introduce you to our department and MADS program, we hold a mandatory two-day graduate student orientation one week before the start of the first day of classes. If you have additional questions related to the MADS program, please contact the **Special Faculty, Director, (Jamie McGovern),** or the **Academic Program Manager (Teraya White)**.

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:

- University-Wide Graduate Student Handbook (Office of Graduate & Postdoctoral Affairs)
- The Word Student Handbook

Department Vision, Mission, and Values

Carnegie Mellon University's Department of Statistics & Data Science is world-renowned for the significance of its contributions to statistical theory and practice and for its outstanding interdisciplinary applied research and will prepare you to innovate with data and tackle pressing local, national and global challenges.

Renowned for its undergraduate and graduate academic programs, we focus on providing an educational experience that supports and challenges students and offers collaborative experiences in both research and real-world applications. Our popular undergraduate program is known for its depth and breadth in both applied and methodological topics with excellent graduate school and job placement. We have cutting edge professional master's programs in applied data science and computational finance and a thriving Ph.D. program that attracts exceptional students from around the world.

Faculty are engaged in a wide range of theoretical, methodological, and interdisciplinary research, making fundamental advances in neuroscience, networks, finance, genetics, sports, public policy, high dimensional inference, and theory and methods at the intersection of statistics and machine learning.

Degrees Offered

Upon completion of the MADS program, students receive the Master of Science in Applied Data Science degree. This degree is awarded at the Department of Statistics & Data Science MADS/PhD diploma ceremony in May 2025.

Department Personnel

- Dean of Dietrich College: Richard Scheines, scheines@cmu.edu
- Statistics & Data Science Department Head: Rebecca Nugent, rnugent@andrew.cmu.edu
- Special Faculty, Director, MADS: Jamie McGovern, jspm@cmu.edu
- Academic Program Manager: Teraya White, terayaw@andrew.cmu.edu
- Business Manager: Laura Butler, lfbutler@cmu.edu
- Assistant Business Manager for Operations: Jess Paschke, jpaschke@andrew.cmu.edu
- Assistant Director, Research Infrastructure Services: Carl Skipper, skipper@andrew.cmu.edu (Direct all technical support requests to remarks@stat.cmu.edu)

- Faculty/Staff: http://www.stat.cmu.edu/people

Department Resources

The Department of Statistics & Data Science is housed in various suites: BH 132, BH 129, BH 232, BH 228, BH 229, PH 117, FMS, and the 3rd floor of Wean Hall. Faculty, student, and staff offices are interspersed throughout these areas. There is one conference room/library in BH 229A, and a lounge and small kitchen in BH 132.

MADS students have a lounge located at 318 FMS Building. The **MADS Lounge** is complete with a whiteboard, chairs, tables to study, and amenities such as a Keuring, microwave, and refrigerator. Access to the MADS Lounge is only by student ID (to get into the FMS Building) and key access is needed to enter the MADS Lounge space in 318 FMS. There is a $10.00 US cash deposit required to receive a key to the MADS Lounge. Your $10.00 deposit will be returned to you when your key is returned at the end of the spring semester.

Out of courtesy, all common areas should be kept in good condition. Dirty dishes and utensils should not be left in the kitchen; spills should be cleaned immediately. The refrigerator is for short-term storage only; all items should be removed after a few days before any spoilage occurs. Students should try to share these facilities as courteously as possible, and students should keep in mind that the offices are intended as a place for work. If there are any facility issues within FMS, please report them immediately to Jess Paschke.

Academic Calendar

The dates below reflect when students **are not** expected to report to work or report to class.

Labor Day	September 2, 2024
Fall Break	October 14, 2024 - October 18, 2024
Democracy Day	November 5, 2024
Thanksgiving Break	November 27, 2024 - November 29, 2024
Winter Break	December 19, 2024 - January 12, 2025
Martin Luther King, Jr. Day	January 20, 2025
Spring Break	March 3, 2025 - March 7, 2025

The 2024-2025 Academic Calendar can be found at:

https://www.cmu.edu/hub/calendar/index.html

Advising

Role of the Advisor

A major role of the Academic Program Manager is to ensure the academic and career progression of all MADS students. The Academic Program Manager shares student progress with the Director. At the beginning of the semester, there is a **required** individual advising meeting with the Academic Program Manager to discuss academic and career goals. Throughout the semester, the Academic Program Manager will meet with students as often as needed. Please note that if a MADS student receives a grade of a B- or lower on their mid-semester report, a meeting with the Academic Program Manager is **required**.

The Academic Program Manager connects students to campus resources, campus events, job fairs, job opportunities, and provides a weekly e-newsletter throughout the fall and spring semesters. Additionally, the Academic Program Manager completes the course registration for all MADS students.

If any personal or academic concerns impact a student's time at CMU, then the Academic Program Manager should be made aware.

Office of Disability Resources

http://www.cmu.edu/education-office/disability-resources/

The Office of Disability Resources at Carnegie Mellon University has a continued mission to provide physical, digital, and programmatic access to ensure that students with disabilities have equal access to their educational experience. We work to ensure that qualified individuals receive reasonable accommodations as guaranteed by the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973. Students who would like to receive accommodations can begin the process through Disability Resources' secure online portal: https://rainier.accessiblelearning.com/cmu/ or email access@andrew.cmu.edu to begin the interactive accommodation process.

Students with physical, sensory, cognitive, or emotional disabilities are encouraged to self-identify with the Office of Disability Resources and request needed accommodations. Any questions about the process can be directed to

or call (412) 268-6121.

Student Expectations

The MADS degree is earned as a full-time status degree. Any student who needs to be less than full-time due to an urgent extenuating circumstance should first contact the Director and receive approval or consider a Leave of Absence. Please note that if a student is on a Leave of Absence or is less than full-time status, the department's 100% full medical coverage insurance is not applicable. International students must be full-time for all semesters and need to consult the Office of International Education if they cannot be full-time.

All MADS students are expected to:

Attend classes and meetings
- Punctuality and attendance for all classes and meetings are required. If you cannot attend a class or a meeting with an instructor, your advisor, or anyone in the department, please send an email at least 24 hours in advance to share your absence. If it is an emergency, please send communication via email as soon as possible.

Maintain respect
- Maintaining respect for all cohort members and everyone in the CMU community is essential to fostering a positive and productive environment.

Establish communication
- Maintain open lines of communication, respond in a timely fashion, address conflicts respectfully and seek guidance when needed.

Master's Degree Requirements

Residency Requirements

MADS is a fully in-person program for ALL students. 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. Even though this immigration requirement is specifically for international students, residency requirements in a degree program must be consistent for both international and domestic students.

Registration Process

Because of the prescriptive nature of the MADS program, all course registration is handled by the Academic Program Manager. MADS students are not permitted to take courses outside of the prescribed MADS curriculum unless

permitted by the Director.

Required Units for Degree Attainment

To graduate from the MADS program, a student must earn a **minimum of a B- or better** in each class and successfully complete 93 - 99 units. There is no thesis requirement or qualifying exam needed for graduation. The final client report and presentation for 36-690 function in place of a thesis or qualifying exam. Students are expected to complete their degree within two consecutive semesters.

Electives

Each semester, MADS students will select electives (also known as Special Topics courses). The topics of the electives will rotate from year to year. MADS students are typically not permitted to take courses outside of the Department of Statistics & Data Science unless permitted by the Director. Electives are taken with students outside of the MADS program while the core courses are taken only with the MADS cohort.

Department Policy on Double Counting Courses

MADS students who were Carnegie Mellon undergraduates or students in a different CMU graduate program may have previously taken the undergraduate-level section or graduate-level section of a course that is part of the MADS curriculum. **The department does not permit the double counting of courses under any circumstance.**   As an example, a student who previously took 36-462/36-662, 36-460/36-660, and/or 36-471/36-671 before becoming a MADS student cannot retake this course as a current MADS student. In these instances, previously taken CMU courses that overlap with courses in the MADS curriculum **would not be counted** toward the MADS degree. In place of 36-462/36-662, students must take an elective AND 36-615 (6 units) Software for Large-Scale Data AND 36-627 (6 units) Experimental Design. If the previously taken course is a MADS elective, the MADS student would select another elective that has not been previously taken. All substitute courses are first approved by the Director and/or the Head of the Department of Statistics & Data Science.

Master of Science in Applied Data Science Curriculum

Fall Semester 2024

Core Courses

36-611 (6 units)   Professional Skills I

36-613 (6 units)   Data Visualization (this is a mini course taken in the 1st half of the fall semester)

36-614 (6 units)   Data Engineering and Distributed Environments (this is a mini course taken in the 2nd half of the fall semester)

36-617 (12 units)   Applied Linear Models

36-650 (9 units)   Statistical Computing

Electives (Select 1 course)

36-666 (9 units)   Statistical Methods in Finance **OR**

36-668 (9 units)   Text Analytics **OR**

36-680 (12 units) Quantitative Financial Analytics and Algorithmic Trading

Total units = **48 - 51 units for the fall**

Spring Semester 2025

Core Courses

36-612 (6 units)   Professional Skills II

36-671 (9 units)   Time Series

36-662 (9 units)   Statistical Machine Learning

36-690 (12 units)   Statistical Practice

Electives (electives are not yet finalized for Spring 2025)

36-660 (9 units)   Sports Analytics **OR**

36-6XX (9 units)   Computational Statistical Methods in Life Sciences

OR

Take 36-615 (6 units) Software for Large-Scale Data **AND** 36-627 (6 units) Experimental Design (36-615 and 36-627 are mini courses)

Total units = **45 – 48 units for the spring**

Department Policy for Courses Outside the Department/College

MADS students are typically not permitted to take courses outside of the Department of Statistics & Data Science unless permitted by the Director.

Course Exemptions

There are generally no course exemptions for the MADS program. Students are expected to fulfill the MADS curriculum requirements. All questions regarding course exemptions should be directed to the Director.

Grading Requirements

In order to graduate, all MADS students must earn a final grade of a B- or better in each course as mandated through the Dietrich College of Humanities & Social Sciences. Coursework with a final grade lower than a B- does not satisfy MADS degree requirements. Students who receive a final grade lower than a B- would not be eligible for graduation. Pass/fail grades for courses **do not qualify** for units used to satisfy MADS degree requirements.

Prior to students receiving a final grade, the Academic Program Manager reviews the mid-semester grades for all MADS students. If any student receives a mid-semester grade lower than a B-, there will be a mandatory meeting between the student and the Academic Program Manager. If a student has any academic issues or concerns that could impact the successful completion of the program, the student should immediately notify the Director and the Academic Program Manager.

Protocol for Evaluation of Transfer Credit

Due to the specialized curriculum of the MADS program, we do not permit courses to be taken at institutions outside of CMU to be counted towards the MADS degree granting units. Students can consult the Director regarding any questions about transfer credit.

Teaching Requirements/Opportunities

Subject to eligibility and qualification, MADS students are offered the opportunity to work in both the Fall 2024 and Spring 2025 semesters as a teaching assistant (TA) for approximately 10 hours per week. Contingent on attendance at the Department Orientation and continuing satisfactory job performance, MADS students would be paid roughly $666 semi-monthly

($1333 per month), up to a total of approximately $12,000 over the course of both semesters. Duties typically involve assisting faculty with grading of homework and holding office hours. These duties provide students the opportunity to strengthen their statistical knowledge and/or get practice explaining statistical ideas. TA training is provided during orientation. Students who elect to become TAs will sign the MADS teaching assistant expected conduct contract. MADS students opting out of the Fall 2024 Educational Assistant opportunity were asked to notify the program no later than July 26th, 2024. MADS students who would like to opt out of the Spring 2025 TA opportunity should notify the program no later than November 16th, 2024.

The department does not accommodate or recommend students pursue outside internships and/or jobs during program enrollment. International students should consult the Office of International Education (OIE) if there are questions related to employment.

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

Students may choose to take additional training through the Eberly Center for Teaching Excellence & Educational Innovation Teaching Excellence & Educational Innovation.