



## DATA SCIENCE M.S. PROGRAM

### PLAN OF STUDY – *In a nutshell*

1. Once accepted to the M.S. Data Science program, each student is assigned a Faculty Advisor which for all MS students is Prof. Mohamed Eltabakh, [meltabakh@wpi.edu](mailto:meltabakh@wpi.edu).
2. Every student prepares a **Plan of Study** form and together with Faculty Advisor, classes are reviewed to ensure they satisfy the M.S. degree requirements. Please use the [Graduate System](#) to create and fill in your **Plan of Study**, it will be automatically sent to your advisor.
3. At the start of the second year of the M.S. program, the Faculty Advisor and student decide whether G.Q.P. or Thesis option is the best choice for the student's career path.
4. Each student's **Plan of Study** must be approved by Data Science Program Review Board.
5. To earn an M.S. degree in Data Science, students must complete a *minimum* of 30 credits of *relevant* work at the graduate level.
6. These 30 credits must include the course work listed below *as well as* either:
  - a. The 3-credit Graduate Qualifying Project (G.Q.P.) or
  - b. The 9-credit M.S. Thesis
7. The M.S. degree requirements are for students pursuing an M.S. degree as well as students pursuing a combined B.S./M.S. degree.
8. A student's **Plan of Study** may be changed at any time. You can submit a new Plan of Study through the [Graduate System](#) at any time and will be reviewed by your academic advisor.
9. Any exceptions to the M.S. requirements and rules *must be petitioned* to the Data Science Graduate Program Committee for approval.
10. A student's **Plan of Study** may be changed at any time with the *written approval* of the Faculty Advisor, providing all of the degree requirements are met.
11. Any exceptions *must be petitioned* to the Data Science Graduate Program Committee for approval.

### DATA SCIENCE CORE COURSEWORK REQUIREMENT (15 CREDITS)

All students in the Data Science M.S. program are required to take DS 501 'Introduction to Data Science' as well as one (1) course from each core Data Science interdisciplinary category:

- ✓ Mathematical Analytics
- ✓ Data Access and Management
- ✓ Data Analytics and Mining
- ✓ Business Intelligence and Case Studies

*See charts.*

**DATA SCIENCE M.S. DEGREE – G.Q.P. PROJECT TRACK**

Graduate Qualifying Project (3 credits)			
Concentration and Electives (12 credits)			
Mathematical Analytics (3 credits)	Data Access & Management (3 credits)	Data Analytics & Mining (3 credits)	Business Intelligence & Case Studies (3 credits)
Introduction to Data Science (3 credits)			

**DATA SCIENCE M.S. DEGREE – M.S. THESIS BASED**

M.S. Thesis (9 credits)			
Concentration and Electives (6 credits)			
Mathematical Analytics (3 credits)	Data Access & Management (3 credits)	Data Analytics & Mining (3 credits)	Business Intelligence & Case Studies (3 studies)
Introduction to Data Science (3 credits)			

**G.Q.P.:**

1. The 3 credit G.Q.P. (DS598) is usually done in teams and provides a capstone experience in applying data science skills to real-world problems.
2. Each project is carried out in cooperation with a sponsor or industry partner who is approved and overseen by a Data Science Faculty member.
3. A student who follows this *practice-oriented project* must gain sufficient Data Science depth by selecting at least 2 courses beyond the required core Data Science courses from available electives.

**THESIS:**

1. The 9-credit Master’s Thesis (DS599) consists of a research or development project worth a minimum of nine (9) graduate credit hours.
2. Students interested in research and especially those considering pursuing a Ph.D. are encouraged to select the M.S. Thesis option.
3. Any tenure track affiliated Data Science faculty member may serve as the thesis advisor, otherwise, a Tenure Track Data Science faculty co-advisor is required.
4. A thesis proposal must be approved by the student’s Faculty Advisor and the Data Science Program Review Board *before* the student may register for more than three (3) thesis credits.
5. The student must complete a written thesis and successfully present the results to the Data Science faculty in a public presentation.

### ELECTIVES AND AREAS OF CONCENTRATION: (9-15 CREDITS)

1. Students must fill the remainder of their (30) credit requirements with Program Electives.
2. An Elective may be any graduate-level course, with the exception that *no more* than 16 of the 30 total Data Science credits are offered by the School of Business.
3. Core courses ensure adequate coverage in essential Data Science knowledge and skills, while the wide variety of electives allows students to customize their Data Science degree program to domain and technique areas of personal interest.
4. Students are encouraged to choose electives that produce a consistent program of study.
5. The core coursework provides the needed breadth in Data Science, but students can gain depth in one of several concentrations by choosing electives from the pre-approved Data Science courses.
6. Students may choose courses beyond the pre-approved Data Science electives, i.e., physics, engineering, or science, but only with *prior* approval from the Data Science Program Review Board.
7. Independent study and directed research courses also require *prior approval* by the Data Science Program Review Board.