The Master of Science in Data Science and Engineering (MS-DSE) degree entails a minimum of 30 semester graduate credit hours. There are two formal options in the MS-DSE program: the Data Engineering Option administrated by the Department of Computer Science and Software Engineering; and the Data Science Option managed by the Department of Mathematics and Statistics. Fig. 1 above depicts the overall framework of the MS-DSE program with the Data Engineering and Data Science Options.

A unique strength of the proposed program lies in its parallel and cross-cutting curriculum model that offers students (1) a program that culminates with a capstone course on application of knowledge and skills to real-world data analysis problems, (2) two options to specialize in statistical or computational aspects through electives and separate capstone courses, to match their backgrounds and interests, (3) flexibility to switch between options, (4) a suite of six core courses in computation and statistics designed specifically for this program, and (5) a suite of six foundational courses for those who lack a complete undergraduate-level foundation.

Depending on the option, graduate students are required to take the following courses summarized in Table 1. Two formal options share the same list of six foundational courses. Among the three elective courses related to data science and engineering, Data Engineering-option students must choose at least two COMP6/7000-level graduate courses, whereas Data Science-option students are required to take at least two STAT6/7000-level graduate courses.

Both the Data Engineering and Data Science options offer a list of elective courses that are highly relevant to data science and engineering. We list all the elective courses in Table 2 below. The course selections are at the discretion of the students and major professors. In case a student has no major professor, the director of graduate programs (a.k.a., GPO) will serve as the major professor.

Students who have taken the 5000#level version of any 6000#level course cannot take the course in its 6000#level format. Those students must substitute other graduate courses as directed by the major professor or the GPO. All the courses including COMP7980 and STAT7940 in the degree must be taken for a grade.