

Program Independence

We have created separate proposals, however the proposals share a significant amount of content. We ask reviewers to evaluate the proposals **together**, as a unit, from both a curricular and financial perspective. The curricula draw from a pool of courses put together differently to serve students in different disciplines.

Wherever possible, we describe curriculums in a stand-alone manner - identifying courses as electives in programs where the same course might be a required course in another. We've approached the marketing research independently - however also describe the benefit of having synergistic programs for students to explore. We have identified competing NJ and regional institutions for each program independently. Enrollment projections are individual to programs.

The sole area where we do not believe an independent evaluation is possible is profit and loss projections. While these programs are distinct, they easily share the same software / hardware resources (see below),

1. Course Catalog

This document summarizes all courses, their student learning outcomes, relationship to proposed MS programs, and describes when individual courses will be offered.

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DATA 620 - Ethics in Data Science [To be renamed to Ethics in Technology]	This course is focused on ethical concerns, case studies, and discussion revolving around the acquisition, storage, and usage of data in Data Science. The course will include, but not be limited to, privacy concerns, security techniques, data anonymization, and proper vs. misuse of collected data.
DATA 672 - Data Visualization	This course focuses on the tools to critique and improve visualizations of statistical data. Through readings and discussion of seminal work, students learn the principles of graphical perception and the visual encoding of quantitative information and learn how to use these principles to evaluate an effective visualization.
DATA 687 - Time Series Data	Students in this course will learn to leverage data sets that represent sequential information, such as stock prices, annual rainfall, sunspot activity, the price of agricultural products, etc. The course will cover several mathematical models used to describe the processes which generate these types of data. Students will use data visualization skills to present data effectively and machine learning to forecast and generate prediction on the sequential data.
MATH 654 - Applied Probability and Stochastic Processes	Topics covered include an overview of probability including random variables, expected values, random walks, probability densities, moment-generating functions, and normal variable theorems, Wiener process, Ornstein-Uhlenbeck processes, Langevin equations, Markov processes, Poisson process, and applications including survivability and reliability.
MATH 562 - Applied Linear Algebra	Topics covered include vector spaces and linear transformations, including inner product, matrix representations, binary and quadratic forms, eigenvectors, canonical forms, and functions of matrices. Applications include singular value decomposition, least squares approximation, and linear programming/optimization
MATH 570 - Applied Statistics	This course gives an introduction to the statistical methods used in data science with an emphasis on as Poisson atatrobauon rong arPuaEr d ihes d hes uoints

3. Student Learning Outcome

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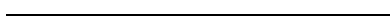
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for details.**
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Table 4. Enrollment Projection for MSAM

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