PhD Program in Business Data Science

Course Mapping Forms

MTSM, NJIT

Student Name: **Date:**

Please fill in the tables below regarding to your background with respect to the bridge courses in Part 1 and core courses in Part 2. Please refer to the course information in Part 3. You may map one NJIT course to one or more courses that you have taken (in which case, you may insert additional lines in the tables below). It is anticipated that incoming students do not have background in all the courses in this interdisciplinary program.

Part 1: Mapping of Bridge Courses

	NJIT Course		Mapping courses		
Area	Course ID	NJIT Course Name	XXX University Similar Course Name	Grade	URL and/or Attachment of Course Description/Syllabus
data structure	CS 280	Programming Language Concepts	mapping course name		
	or CS 505[1]	Programming Data Structures and Algorithms	mapping course name		
Calculus	Math 211	Calculus III	mapping course name		
Probability and Statistics	MGMT 216	Business Statistics	mapping course name		
	or MATH 333[2]	Probability and Statistics	mapping course name		
Basic Business knowledge	MGMT 492	Business Policy	mapping course name		

[1] Option to map either CS 280 or CS 505
[2] Option to map either MGMT 216 or MATH333

Part 2: Mapping of Core Courses (this part is optional, and is only filled by students with MS/MBA degree before entering the program)

NJIT Course		Mapping courses		
Course ID	NJIT Course Name	XXX University Similar Course Name	Grade	URL and/or Attachment of Course Description/Syllabus
MGMT 682	Business Research Method (I)	mapping course name		
MGMT 782	Business Research Method (II)	mapping course name		
MGMT 635	Data Mining and Analysis for Managers	mapping course name		
or CS[3] 634	Data Mining	mapping course name		
CS 631	Database Management System Design	mapping course name		
or IS[4] 631	Enterprise Database Management	mapping course name		

[3] Option to map either MGMT 635 or CS 634
[4] Option to map either CS 631 or IS 631

Part 3. Course Description

Bridge Courses

Part A. Basic Business Knowledge

1. **MGMT 492 Business Policy. 3 credits, 3 contact hours.**
Prerequisite: senior standing.
Description: A capstone course in the area of business administration focusing on the integration of concepts taught in various functional courses such as marketing, finance, operations management, accounting, organizational behavior. Issues related to corporate responsibilities and ethical behavior are also incorporated in this course. Emphasis on application of concepts to real life situation is achieved through case discussion and projects.
http://catalog.njit.edu/undergraduate/management/management/business-bs/

Part B. Programming and Data Structure

2. CS 280 Programming Language Concepts. 3 credits, 3 contact hours.
Prerequisite: CS 114 OR CS 116 OR IT 114 OR IT 102
Description: Conceptual study of programming language syntax, semantics and implementation. Course covers language definition structure, data types and structures, control structures and data flow, run-time consideration, and interpretative languages.
http://catalog.njit.edu/undergraduate/computing-sciences/computer-science/bs/

3. CS 505 Programming Data Structures and Algorithms. 3 credits, 4 contact hours.
Prerequisite: knowledge of at least one procedure-oriented language such as PASCAL or C.
Description: Intensive introduction to computer science principles: a procedure-oriented language such as C++; program design techniques; introductory data structures (linked lists, stacks, sets, trees, graphs); and algorithms (sorting, searching, etc.) and their analysis. Programming assignments are included.
http://catalog.njit.edu/graduate/computing-sciences/computer-science/ms/

Part C. Advanced Calculus

4. Math 211 Calculus III. 3 credits.
Prerequisites: Math 112 with a grade of C or better or Math 133 with a grade of C or better
Description: Topics include vectors, curvature, partial derivatives, multiple integrals, line integrals, and Green's theorem. Students who are considering a major in Mathematical Sciences or who are undecided about their major should take Math 213.
https://catalog.njit.edu/undergraduate/science-liberal-arts/mathematical-sciences/#coursestext

Part D. Probability and Statistics

5. MGMT 216. Business Statistics. 3 credits, 3 contact hours
Prerequisite: MATH 105 or MATH 333

Description: Introduction to business data analysis for application in management decision-making processes. Productivity measures, employment trends, national income data, and consumer price changes. Methods for collection of business and economic data, presentation of data and computer applications, index numbers, historical analysis trend projections, survey sampling, and planning for business research.

http://catalog.njit.edu/undergraduate/management/management/business-bs/

6. MATH 333. Probability and Statistics. 3 credits, 3 contact hours
Prerequisite: MATH 112 with a grade of C or better or MATH 133 with a grade of C or better.
Description: Descriptive statistics and statistical inference. Topics include discrete and continuous distributions of random variables, statistical inference for the mean and variance of populations, and graphical analysis of data.

http://catalog.njit.edu/undergraduate/science-liberal-arts/mathematical-sciences/applied-mathematics/index.html

Core Courses

Part A. Business (MGMT682, MGMT782)

1. MGMT 682 Business Research Methods (I)
Business Research Methods (I) provides an overview of introductory quantitative and qualitative research methods used in the business research, including: preparing for research, data collection and analyzing, theory of measurement, types of measures, measurement validation, writing and presenting research.

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2. MGMT 782 Business Research Methods (II)
Business Research Methods (II) provides an overview of advanced quantitative research methods, including power analysis, experimental and survey designs and analysis of experimental data, structural equation modeling (SEM), longitudinal modeling, multi level modeling, causal modeling, polynomial regression models with response surface methodology, and emerging methods and tools.

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Part B. Technology (MGMT 635 or CS 634, CS 631 or IS 631)

3.1 MGMT 635 Data Mining and Analysis for Managers. 3 credits, 3 contact hours.
Prerequisite:
Description: This course provides an introduction to data mining with an emphasis on large scale databases as a source of knowledge generation and competitive advantage. Specific topics include: framing research questions; data modeling; inferential data mining techniques; and evaluation and deployment of data mining systems.

http://catalog.njit.edu/graduate/management/management/ms/

3.2 CS 634 Data Mining. 3 credits, 3 contact hours.

Prerequisite:

Description: This course covers the principles of data mining system design and implementation. It presents methods for association and dependency analysis as well as classification, prediction, and clustering. Optional topics may include time series and graph mining, current trends in data mining, and data mining for scientific, medical and engineering applications.
http://catalog.njit.edu/graduate/computing-sciences/computer-science/ms/

4.1 CS 631 Database Management System Design. 3 credits, 3 contact hours.

Prerequisite: knowledge of C and data structures.

Description: Acquaintance with fundamental notions of relational database technology. Mathematical properties and usage of database programming languages. Methods of database design and conceptual modeling. Methods of physical storage for database information. Fundamental notions of concurrency control and recovery in database systems.
http://catalog.njit.edu/graduate/computing-sciences/computer-science/ms/

4.2 IS 631 Enterprise Database Management. 3 credits.

Prerequisite:

Description: This course provides an understanding of the issues as well as hands-on experience in managing database systems as an essential organizational resource. Students will obtain a conceptual foundation of database design and explore the implications for organizational database usage. Students also will gain experience with enterprise database management systems, such as Oracle. This course introduces the design and management of enterprise-wide database systems. Topics include: (1) data modeling and database design; (2) database implementation with SQL; (3) database access standards for enterprise database systems; (4) multidimensional databases, online analytic processing (OLAP) and data warehousing, customer relationship management (CRM); and (5) web-based enterprise database systems.
https://catalog.njit.edu/graduate/computing-sciences/#coursestext

APPROVALS:
Student Signature: **Date:**
Program Academic Advisor: **Date:**

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