Data Analytics Curriculum 2015-2016

MSPPM Core:

**Year 1**

**Fall**

90-710 Applied Economic Analysis 12 Units
90-711 Empirical Methods for Public Policy & Management or 12 Units
90-786 Intermediate Empirical Methods for Public Policy and Management 6 Units
(90-786 is recommended)

95-703 Database Management or 12 Units
95-736 Advanced Relational Database Management 6 Units

**Spring**

90-722 Management Science I 6 Units
90-760 Management Science II 6 Units
94-701 Business English or 6 Units
94-702 Professional Writing

90-718 Strategic Presentation Skills 6 Units

**Year 1 or 2**

**Fall**

94-700 Organizational Design & Implementation 6 Units

**Spring**

90-724 Financial Analysis 12 Units
90-713 Policy & Politics: An International Perspective or 12 Units
90-714 Policy & Politics in American Political Institutions
Analytics

24 Units of Data Mining/Machine Learning from the following

*Required:*
90-866 Large Scale Data Analysis for Public Policy, 6 units or
95-791 Data Mining I, 6 units (R is a prerequisite) or
94-832 Business Intelligence & Data Mining SAS

Recommendation: 95-791 is the recommended course, but you can take any or all three courses.

*Additional:*
95-852 Applied Data Science, 6 units (R is a prerequisite)
95-865 Text Analytics, 6 units
95-866 Advanced Business Analytics, 6 units (95-866 is a prerequisite)
95-868 Exploring and Visualizing Data, 6 units
90-904 Research Seminar in Machine Learning and Policy, 6 units
90-921 Special Topics in Machine Learning and Policy, 6 units (topics change each year; can be repeated for credit)

18 Units of Probability & Statistics from the following

*Required:*
94-834 Applied Econometrics I, 6 units
94-835 Applied Econometrics II, 6 units

*Additional:*
94-827 SAS for Public Policy, 6 units
94-830 Analysis of Survey Data, 6 units
95-866 Advanced Business Analytics
90-905 Statistical Theory for Social and Policy Analysis
90-906 Introduction to Econometric Theory
90-907 Econometric Theory and Methods (90-905 and 90-906 are prerequisites)
18 Units of Computer Programming and Information Systems

Required:

94-842 Programming R for Analytics, mini 2, 6 units (take this course in the first year)

Additional:

90-812 Introduction to Python, 6 units
95-877 Python for Data Analytics, 6 units (knowing a programming language is a prerequisite)
95-797 Data Warehousing, 6 units
94-706 Healthcare Information Systems, 12 units
94-802 Geographic Information Systems, 12 units
90-834 Health Care Geographic Information Systems, 12 units
94-838 Introduction to Raster GIS, 6 units
95-737 NoSQL Database Management, 6 units
95-869 Hadoop and MapReduce, 6.0 units

Note: 94-802 and 90-834 are substitutes. Only one of the two should be taken.

24 Units of Decision Frameworks and Methods or Policy Methods

90-772 Operations Research, 6 units
90-822 Immigration Research: Interpretation & Critique, 6 units
94-833 Decision Analysis and Multicriteria Decision Making, 6 units
90-730 Methods of Policy Analysis, 12 units
90-736 Public Finance, 12 units
90-774 Public Expenditure Analysis, 12 units
90-747 Cost Benefit Analysis, 6 units
90-754 Engineering Public Policy Change
90-805 Risk Analysis, 12 units
94-810 Introduction to Supply Chain Management and Systems, 6 units
94-813 Project Management, 6 units
94-814 Evidence-Based Management, 6 units
90-823 Program Evaluation, 12 units
94-808 Management Consulting, 12 units
94-823 Measurement & Analysis Social Media Initiatives, 12 units
95-774 Business Process Modeling, 6 units
95-808 IT Project Management, 6 units
95-872 The Art and Science of Business Analytics, 6 units
95-873 Digital Marketing Analytics, 6 units

12 Units Free Elective, Year 2

12 Units Systems Synthesis Course, Year 2

Total Units required, 198