

MASTER OF SCIENCE IN HEALTH SYSTEMS

The focus of the Health Systems is to develop, apply, and disseminate new knowledge with respect to the analysis, planning, implementation, demonstration, and evaluation of operational and managerial systems for the delivery of healthcare services to the public.

MS Health Systems Information

Program Requirements

Code	Title	Credit Hours
Core		
HS 6000	Introduction to Healthcare Delivery	3
Core Practice (Choose 1):		3
HS 6400	Health Systems Practice	
ISYE 6320	Public Impact Applications of Operations Research and Management Science	
Core Practice (Choose 1):		3
HS 6200	Healthcare Financial Management	
ISYE 6225	Advanced Engineering Economy	
ISYE 6227	Introduction to Financial Engineering	
MGT 6000	Financial and Managerial Accounting I	
MGT 6060	Financial Management	
Core Methodology (Choose 3):		9
ISYE 6414	Statistical Modeling and Regression Analysis	
ISYE 6421	Biostatistics or BMED Biostatistics	
ISYE 6644	Simulation	
ISYE 6650	Probabilistic Models and Their Applications	
ISYE 6669	Deterministic Optimization	
ISYE 6679	Computational Methods in Optimization	
Technical Electives (Choose 3):		9
ARCH 6243	Evidence-Based Design	
ARCH 6271	Healthcare Design of the Future	
BIOL 6150	Genomics and Applied Bioinformatics	
BMED 6507	Medical Device Regulatory Requirements	
CS 6150	Computing For Good	
CS 6440	Information to Health Informatics	
CSE 6242	Data and Visual Analytics	
CSE 6730	Modeling and Simulation: Foundations and Implementation	
ECON 6150	Cost-Benefit Analysis	
ECON 6510	Economics of Health and Health Care	
HP 6601	Industrial Hygiene	
HTS 6122	History of Medicine	
ISYE 6202	Warehousing Systems	
ISYE 6405	Statistical Methods for Manufacturing Design and Improvement	
ISYE 6402	Time Series Analysis	
ISYE 6404	Nonparametric Data Analysis	
ISYE 6413	Design and Analysis of Experiments	

or ISYE 7 Advanced Design of Experiments		
ISYE 6416	Computational Statistics	
ISYE 6420	Introduction to Theory and Practice of Bayesian Statistics	
ISYE 6740	Computational Data Analysis: Learning, Mining, and Computation	
ISYE 6805	Reliability Engineering	
ISYE 7406	Data Mining and Statistical Learning	
PUBP 6001	Introduction to Public Policy	
Free Elective ¹		3
Total Credit Hours		30

Up to six (6) credits of 4000-level courses may be used towards the degree, subject to the approval of the ISyE Director of Master's Programs.

¹ ISYE 6739 cannot be used toward Free Elective

Predictive Health Track Requirements

Code	Title	Credit Hours
Core		
Select 6 courses		18
HS 6000	Introduction to Healthcare Delivery	
ISYE 6669	Deterministic Optimization	
ISYE 6650	Probabilistic Models and Their Applications	
ISYE 6644	Simulation	
ISYE 6414	Statistical Modeling and Regression Analysis	
ISYE 7406	Data Mining and Statistical Learning	
Select one course		3
HS 6400	Health Systems Practice	
ISYE 6320	Public Impact Applications of Operations Research and Management Science	
Select one course		3
MGT 6000	Financial and Managerial Accounting I	
MGT 6060	Financial Management	
ISYE 6225	Advanced Engineering Economy	
ISYE 6227	Introduction to Financial Engineering	
HS 6200	Healthcare Financial Management	
Health Systems Elective		3
ARCH 6243	Evidence-Based Design	
ARCH 6271	Healthcare Design of the Future	
BIOL 6150	Genomics and Applied Bioinformatics	
BIOL 7023	Bioinformatics	
BMED 6507	Medical Device Regulatory Requirements	
ISYE 6421	Biostatistics or BMED Biostatistics	
BMED 6789	Technology Ventures	
BMED 7411	Mathematical Models in Biology & Medicine	
CS 6150	Computing For Good	
CS 6440	Information to Health Informatics	
ECON 6510	Economics of Health and Health Care	
HP 6601	Industrial Hygiene	
HTS 6122	History of Medicine	

Free Elective ¹	3
Total Credit Hours	30

¹ ISYE 6739 cannot be used toward Free Elective

Practicum Track Requirements

Code	Title	Credit Hours
Core		
HS 6000	Introduction to Healthcare Delivery	3
Core Practice (Choose 1):		3
HS 6400	Health Systems Practice	
ISYE 6320	Public Impact Applications of Operations Research and Management Science	
Core Practice (Choose 1):		3
HS 6200	Healthcare Financial Management	
ISYE 6225	Advanced Engineering Economy	
ISYE 6227	Introduction to Financial Engineering	
MGT 6000	Financial and Managerial Accounting I	
MGT 6060	Financial Management	
Core Methodology (Choose 3):		9
ISYE 6414	Statistical Modeling and Regression Analysis	
ISYE 6421	Biostatistics or BMED Biostatistics	
ISYE 6644	Simulation	
ISYE 6650	Probabilistic Models and Their Applications	
ISYE 6669	Deterministic Optimization	
ISYE 6679	Computational Methods in Optimization	
Technical Electives (Choose 3):		9
ARCH 6243	Evidence-Based Design	
ARCH 6271	Healthcare Design of the Future	
BIOL 6150	Genomics and Applied Bioinformatics	
BMED 6507	Medical Device Regulatory Requirements	
CS 6150	Computing For Good	
CS 6440	Information to Health Informatics	
CSE 6242	Data and Visual Analytics	
CSE 6730	Modeling and Simulation: Foundations and Implementation	
ECON 6150	Cost-Benefit Analysis	
ECON 6510	Economics of Health and Health Care	
HP 6601	Industrial Hygiene	
HTS 6122	History of Medicine	
ISYE 6202	Warehousing Systems	
ISYE 6405	Statistical Methods for Manufacturing Design and Improvement	
ISYE 6402	Time Series Analysis	
ISYE 6404	Nonparametric Data Analysis	
ISYE 6413	Design and Analysis of Experiments or ISYE 7 Advanced Design of Experiments	
ISYE 6416	Computational Statistics	
ISYE 6420	Introduction to Theory and Practice of Bayesian Statistics	

ISYE 6740 Computational Data Analysis: Learning, Mining, and Computation

ISYE 6805 Reliability Engineering

ISYE 7406 Data Mining and Statistical Learning

PUBP 6001 Introduction to Public Policy

Internship Preparation Elective¹ **3**

ISYE 6320 Public Impact Applications of Operations Research and Management Science

Practicum

COOP/INTN/ISYE Practicum

Total Credit Hours **30**

Up to six (6) credits of 4000-level courses may be used towards the degree, subject to the approval of the ISyE Director of Master's Programs.

¹ ISYE Special Topics courses, as appropriate

BS/MS OPTION

The BSMS Option allows eligible students to double count a maximum of 6 credit hours toward undergraduate and graduate requirements while still completing all other program requirements to earn both degrees.

BS in Industrial Engineering students with a GPA of 3.5 or higher who have taken ISYE 3133 and ISYE 3232 are eligible to apply to utilize the BSMS Option. BSIE students must also graduate with a GPA of 3.5 or higher in order to utilize the BSMS Option.

It is typical for students to use 6 hours from the BSIE concentration electives to count as Core Courses or Technical Electives for the MS in Health Systems degree. Students will need to consult with an advisor to indicate which courses are sharing with the graduate degree in DegreeWorks.