Northwestern | SCHOOL OF PROFESSIONAL STUDIES

SPS Graduate Program Curricula
2016-17

The following program requirements apply to SPS graduate students that begin their program in the 2016-17 academic year. Please note that you are bound to the curriculum requirements in effect in the quarter you start taking courses, not the quarter you are admitted. While we will make every reasonable effort to accommodate students whose programs change, this is not always possible. Northwestern University reserves the right to modify or discontinue any program without notice.

Click on the links below to review the curriculum for your <u>degree program</u>.

Click on the links below to review the curriculum for your <u>certificate of advanced graduate study</u>.

Creative Writing (MA)
Master of Arts Degree Requirements

Courses	Units

Three workshops in one genre:
    Fiction: MCW 413 Fiction Workshop
    Creative Nonfiction: MCW 461 Creative Nonfiction Workshop
    Poetry: MCW 411 Poetry Workshop
	3

One cross-genre course:
    Fiction: MCW 479 Poetry for Prose Writers
    Creative Nonfiction: MCW 479 Poetry for Prose Writers
    Poetry: MCW 480 Prose Genres for Poets
	1

Two graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.[1]	2
Three graduate-level course electives. May not include more than 2 MCW 499 Independent Study courses.[1]	3
MCW 590 Capstone Writing and Revision *(see the SPS Graduate Handbook for guidelines)*	1
Total required units	**10**

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[1] Prior approval from the student adviser is required for registration in any courses offered by The Graduate School and IPLS courses. No approval is necessary for enrollment in MCW electives or LIT courses.

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Creative Writing (MFA)
Master of Fine Arts Degree Requirements

Courses	Units

Seven workshops in one genre:
    Fiction: MCW 413 Fiction Workshop
    Creative Nonfiction: MCW 461 Creative Nonfiction Workshop
    Poetry: MCW 411 Poetry Workshop
	7

One cross-genre course:
    Fiction: Poetry for Prose Writers
    Nonfiction: MCW 479 Poetry for Prose Writers
    Poetry: MCW 480 Prose Genres for Poets
	1

MCW 570 Seminar on Teaching Creative Writing	1

One of the following teaching or publishing courses:
    MCW 579 Practicum in Teaching Creative Writing
    MCW 575 Journal Publishing: TriQuarterly Online
    MCW 576 The Publishing Industry
	1

Three graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.[1]	3
Three graduate-level course electives. May not include more than 2 independent study courses. [2]	3
MCW 589 Capstone Preparation and Writing *(see the SPS Graduate Handbook for guidelines)*	1
MCW 590 Capstone Writing and Revision *(see the SPS Graduate Handbook for guidelines)*	1
Total required units	**18**

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[1] Prior approval from the student adviser is required for registration in any courses offered by The Graduate School and IPLS courses. No approval is necessary for enrollment in MCW electives or LIT courses. Students are limited to three 300-level course registrations.

[2] Prior approval from the student adviser is required for registration in any courses offered by The Graduate School and IPLS courses. No approval is necessary for enrollment in MCW electives or LIT courses. Students are limited to three 300-level course registrations.

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Global Health - Distance Learning
Master of Science Degree Requirements

Courses	Units
Core and required courses	**9**
MSGH 405 Foundations of Global Health and Global Burden of Disease	1
MSGH 408 Biostatistics and Epidemiology	1
MSGH 410 Research Methods	1
MSGH 417 Global Health Systems	1
MSGH 419 Global Bioethics[1]	1
MSGH 421 Global Health, Globalization, and Public Policy	1
MSGH 427 Grant Writing, Development, and Fundraising	1
LEADERS 481 Foundations of Leadership	1
MSGH 580 Practicum Course (see the SPS Graduate Handbook for guidelines)	1
Elective courses (choose any three MSGH electives)	**3**
Total required units	12

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[1] Course formerly titled MSGH 419 Bioethics and Human Rights

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Health Informatics- Distance Learning

Master of Science Degree Requirements

Please note: Courses completed in the degree program cannot be transferred to a corresponding certificate of advanced graduate study.

Courses	Units
Core	**5**
MHI 401 American Health Care System	1
MHI 403 Introduction to Health Informatics	1
MHI 407 Legal, Ethical & Social Issues in Informatics	1
LEADERS 481 Foundations of Leadership	1
One of the following:	
MED INF 498 or MHI 498 Capstone Project **– or -**	1
MHI 590 Thesis Research (see the SPS Graduate Handbook for guidelines)	1
Specialization (choose one specialization of 4 required courses)	**4**
Clinical Informatics Specialization Required Courses	
CIS 413 Telecommunications and Computer Networks	1
IDS 452 Introduction to Data and Analytics	1
MHI 405 HIT Standards and Interoperability	1
MHI 406 Decision Support Systems	1
Health Technology Specialization Required Courses	
MED INF 402 or MHI 402 Introduction to Clinical Thinking	1
MED INF 404 Health Care Enterprise Operations or MHI 404 Health Care Organization Operations	1
MHI 405 HIT Standards and Interoperability	1
MHI 406 Decision Support Systems	1
Health Administration Specialization Required Courses	
MED INF 402 or MHI 402 Introduction to Clinical Thinking	1
MED INF 404 Health Care Enterprise Operations or MHI 404 Health Care Organization Operations	1
MHI 408 Information System Acquisition & Lifecycle	1
MHI 413 Consumer eHealth	1
Elective courses (choose any three electives corresponding to the declared specialization –see SPS website for approved course listing)	**3**
Total required units	**12**

Certificate of Advanced Graduate Study Requirements

Please note: Courses completed in the certificate program cannot be transferred to the corresponding graduate degree.

Fundamentals of-Health Informatics	Units
Courses	
CIS 413 Telecommunications and Computer Networks	1
CIS 417 Database Systems Design and Implementation	1
MHI 401 American Health Care System	1
MED INF or MHI 402 Introduction to Clinical Thinking	1
and any two of the following:	
MHI 403 Introduction to Medical Informatics	1
MED INF 404 Health Care Enterprise Operations or MHI 404 Health Care Organization Operations	1
MHI 405 Health Care Information Tech Integration & Standards	1
MHI 406 Decision Support Systems & Health Care	1
MHI 407 Legal, Ethical & Social Issues in Informatics	1
MHI 408 Medical Technology Acquisition & Assessment	1
MHI 409 Introduction to Biostatistics	1
Total required units:	**6**

Health Informatics for Clinicians	Units
Courses	
CIS 413 Telecommunications and Computer Networks	1
CIS 417 Database Systems Design and Implementation	1
and any two of the following:	
MHI 403 Introduction to Medical Informatics	1
MED INF 404 Health Care Enterprise Operations or MHI 404 Health Care Organization Operations	1
MHI 405 Health Care Information Tech Integration & Standards	1
MHI 406 Decision Support Systems & Health Care	1
MHI 407 Legal, Ethical & Social Issues in Informatics	1
MHI 408 Medical Technology Acquisition & Assessment	1
MHI 409 Introduction to Biostatistics	1
Total required units:	**4**

Health Informatics for IT Professionals	Units
Courses	
MHI 401 American Health Care System	1
MED INF or MHI 402 Introduction to Clinical Thinking	1
and any two of the following:	
MHI 403 Introduction to Medical Informatics	1
MED INF 404 Health Care Enterprise Operations or MHI 404 Health Care Organization Operations	1
MHI 405 Health Care Information Tech Integration & Standards	1
MHI 406 Decision Support Systems & Health Care	1
MHI 407 Legal, Ethical & Social Issues in Informatics	1
MHI 408 Medical Technology Acquisition & Assessment	1
MHI 409 Introduction to Biostatistics	1
Total required units:	**4**

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Information Design and Strategy - Distance Learning
Master of Science Degree Requirements

Courses	Units
Core	**9**
MS_IDS 401 Models and Theories of User-Centered Design	1
MS_IDS 403 Effective Communication	1
MS_IDS 405 User Research	1
MS_IDS 407 Information and Content Strategy	1
MS_IDS 409 Data Management Principles	1
MS_IDS 411 Information Design and Architecture	1
MS_IDS 413 Visual Communication	1
LEADERS 481 Foundations of Leadership	1
One of the following:	
MS_IDS 498 Capstone Project **– or -**	1
MS_IDS 590 Thesis Research (see the SPS Graduate Handbook for guidelines)	1
Area of specialization (Choose 1 of the following 4 specializations)	
Data Science and Analytics MS_IDS 452 Introduction to Data Collection and Analytics MS_IDS 453 Introduction to Techniques of Predictive Analytics MS_IDS 455 Data and Text Visualization	3
Learning Design MS_IDS 422 Introduction to Learning Theory MS_IDS 423 Instructional Design MS_IDS 425 Learning Environment Design	3
Content Strategy MS_IDS 432 Advanced Writing Workshop MS_IDS 433 Social Media and Content Curation MS_IDS 435 Persuasion	3
Interdisciplinary Studies Select any three elective courses from the IDS specializations	3
Total Required Units	**12**

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Information Systems – On Campus and Distance Learning
Master of Science Degree Requirements

Please note: Courses completed in the degree program cannot be transferred to a corresponding certificate of advanced graduate study.

Courses	Units
Core/Required courses	**5** (4 for ABI)
CIS 413 Telecommunications and Computer Networks *(not required for the Analytics and Business Intelligence specialization)*	1
CIS 414 Object-Oriented Programming	1
CIS 417 Database Systems Design and Implementation	1
LEADERS 481 Foundations of Leadership	1
One of the following:	
CIS 498 Computer Information Systems Project **- or -**	1
CIS 590 Capstone Research (see the SPS Graduate Handbook for guidelines)	
Area of specialization (Choose 1 of the following 7 specializations)	
Analytics and Business Intelligence CIS 494 Project Management Concepts CIS 435 Practical Data Science Using Machine Learning CIS 436 Big Data Management and Analytics PREDICT 400 Math for Modelers PREDICT 401 Introduction to Statistical Analysis *Plus* Any two other electives from the MSIS curriculum	**7**
Database and Internet Technologies CIS 494 Project Management Concepts CIS 419 Web Application Development CIS 431 Database Administration CIS 435 Practical Data Science Using Machine Learning *Plus* Any two other electives from the MSIS curriculum	**6**
Information Systems Security CIS 494 Project Management Concepts CIS 452 Fundamentals of Network Security CIS 455 Business Continuity and Disaster Recovery CIS 457 Management of Information Security *Plus* Any two other electives from the MSIS curriculum	**6**
Project Management CIS 494 Project Management Concepts CIS 495 IT Project Management	**6**

CIS 496 Information Technology Finance and Communication *Plus* Any three other electives from the MSIS curriculum	
Information Systems Management CIS 494 Project Management Concepts CIS 457 Management of Information Security CIS 460 Information Technology Management CIS 465 Information Technology Strategy *Plus* Any two other electives from the MSIS curriculum	**6**
Health Informatics (online only) MED_INF 402 or MHI 402 Introduction to Clinical Thinking MHI 403 Introduction to Medical/Health Informatics MHI 405 HIT Integration, Interoperability and Standards MHI 406 Decision Support Systems and Health Care *Plus* Any two elective courses from the MSIS curriculum	**6**
Information Systems CIS 494 Project Management Concepts *Plus* Any five elective courses from the MSIS curriculum	**6**
Total required units	**11**

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**Accelerated Master of Science in Information Systems Degree Requirements
For On Campus and Online Students**

Please note: Courses completed in the degree program cannot be transferred to a corresponding certificate of advanced graduate study.

Courses	Units
Core/Required courses	**3**
CIS 414 Object-Oriented Programming	1
LEADERS 481 Foundations of Leadership	1
One of the following:	
CIS 498 Computer Information Systems Project **- or -**	1
CIS 590 Capstone Research (see the SPS Graduate Handbook for guidelines)	
Area of specialization (Choose 1 of the following 8 specializations)	
Analytics and Business Intelligence CIS 494 Project Management Concepts CIS 435 Practical Data Science Using Machine Learning CIS 436 Big Data Management and Analytics PREDICT 400 Math for Modelers PREDICT 401 Introduction to Statistical Analysis *Plus* One other elective from the MSIS curriculum	**6**
Database and Internet Technologies CIS 494 Project Management Concepts CIS 419 Web Application Development CIS 431 Database Administration CIS 435 Practical Data Science Using Machine Learning *Plus* Any two other electives from the MSIS curriculum	**6**
Information Systems Security CIS 494 Project Management Concepts CIS 452 Fundamentals of Network Security CIS 455 Business Continuity and Disaster Recovery CIS 457 Management of Information Security *Plus* Any two other electives from the MSIS curriculum	**6**
Project Management CIS 494 Project Management Concepts CIS 495 IT Project Management CIS 496 Information Technology Finance and Communication *Plus* Any three other electives from the MSIS curriculum	**6**

Information Systems Management CIS 494 Project Management Concepts CIS 457 Management of Information Security CIS 460 Information Technology Management CIS 465 Information Technology Strategy *Plus* Any two other electives from the MSIS curriculum	**6**
Health Informatics (online only) MED_INF 402 or MHI 402 Introduction to Clinical Thinking MHI 403 Introduction to Medical/Health Informatics MHI 405 HIT Integration, Interoperability and Standards MHI 406 Decision Support Systems and Health Care *Plus* Any two elective courses from the MSIS curriculum	**6**
Information Systems CIS 494 Project Management Concepts *Plus* Any five elective courses from the MSIS curriculum	**6**
Total required units	**9**

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Certificate of Advanced Graduate Study Requirements

Please note: Courses completed in the certificate program cannot be transferred to the corresponding graduate degree.

Analytics and Business Intelligence for IT Professionals	Units
Courses	
PREDICT 400 Math for Modelers	1
PREDICT 401 Introduction to Statistical Analysis	1
CIS 435 Practical Data Science Using Machine Learning	1
CIS 436 Big Data Management and Analytics	1
Total required units:	**4**

Database and Internet Technologies	Units
Courses	
CIS 414 Object-Oriented Programming	1
CIS 419 Web Application Development	1
CIS 435 Practical Data Science Using Machine Learning	1
and one of the following:	
CIS 431 Database Administration	1
CIS 436 Big Data Management and Analytics	1
Total required units:	**4**

Information Systems Management	Units
Courses	
CIS 494 Project Management Concepts	1
CIS 457 Management of Information Security	1
CIS 460 Information Technology Management	1
CIS 465 Information Technology Strategy	1
Total required units:	**4**

Information Systems Security	Units
Courses	
CIS 413 Telecommunications and Computer Networks	1
CIS 452 Fundamentals of Network Security	1
CIS 455 Business Continuity and Disaster Recovery	1
CIS 457 Management of Information Security	1
Total required units:	**4**

Liberal Studies

Master of Arts Degree Requirements

Please note: Courses completed in the degree program cannot be transferred to a corresponding certificate of advanced graduate study.

Courses	Units
IPLS 410 Introduction to Cultural Analysis	1
IPLS 401 Seminar in Liberal Studies I	1
Six graduate-level courses in liberal studies, humanities and related social sciences; may be applied toward a specialization (four courses) in any of the following: American Studies, Chicago Studies, History, Religious and Ethical Studies, or an individualized specialization. - No more than three of these courses may be at the 300-level. [1] At least four of these courses must be 400-level SPS courses (excluding IPLS 499).	6
IPLS 590 Thesis Research (see the SPS Graduate Handbook for guidelines)	1
Total required units	**9**

Certificate of Advanced Graduate Study Requirements

Please note: Courses completed in the certificate program cannot be transferred to the corresponding graduate degree.

Specializations: American Studies, Chicago Studies, History, Religious and Ethical Studies, and Interdisciplinary Studies	Units
Courses	
Any four courses in the area of specialization.[2]	4
The following may also count towards the total required units:	
Independent Study (IPLS 499)	1
IPLS 590 Thesis Research (see the SPS Graduate Handbook for guidelines)	1
Total required units:	**4**

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[1] Prior approval from the student adviser is required for registration in any courses offered by The Graduate School. No approval is necessary for enrollment in LIT or IPLS courses. Students are limited to three 300-level course registrations.

[2] No more than two of these courses may be at the 300-level. A minimum of two 400-level SPS courses must be taken (excluding IPLS 499).

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Literature

Master of Arts Degree Requirements

Please note: Courses completed in the degree program cannot be transferred to a corresponding certificate of advanced graduate study.

Courses	Units
LIT 410 Introduction to Graduate Study	1
Seven graduate-level literature courses; may be applied toward a specialization (four courses) in any of the following: American Literature, British Literature, Comparative and World Literature, Film, Literature and Visual Culture, and Interdisciplinary Studies. No more than three of these courses may be at the 300-level. [1] At least four of these courses must be 400-level SPS courses (excluding LIT 499).	7
LIT 590 Thesis Research (see the SPS Graduate Handbook for guidelines)	1
Total required units	**9**

Certificate of Advanced Graduate Study Requirements

Please note: Courses completed in the certificate program cannot be transferred to the corresponding graduate degree.

Specializations: American Literature, British Literature, Comparative and World Literature, Film, Literature and Visual Culture, and Interdisciplinary Studies	Units
Courses	
Any four literature-based courses in the area of specialization[2]	4
The following may also count towards the total required units:	
Independent Study (499)	1
IPLS 590 Thesis Research (see the SPS Graduate Handbook for guidelines)	1
Total required units:	**4**

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[1] Prior approval from the student adviser is required for registration in any courses offered by The Graduate School. No approval is necessary for enrollment in LIT or IPLS courses. Students are limited to three 300-level course registrations.

[2] No more than two of these courses may be at the 300-level. A minimum of two 400-level SPS courses must be taken (excluding IPLS 499).

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Predictive Analytics- Distance Learning

Master of Science Degree Requirements

Please note: Courses completed in the degree program cannot be transferred to a corresponding certificate of advanced graduate study.

Courses	Units
Core and required courses	**10**
PREDICT 400 Math for Modelers	1
PREDICT 401 Introduction to Statistical Analysis	1
PREDICT 402 Introduction to Predictive Analytics	1
PREDICT 410 Regression and Multivariate Analysis	1
PREDICT 411 Generalized Linear Models	1
PREDICT 413 Applied Time Series and Forecasting	1
PREDICT 420 Database Systems and Data Preparation	1
PREDICT 422 Practical Machine Learning	1
One of the following:	
PREDICT 475 Project Management **- or -**	1
PREDICT 480 Business Leadership and Communications	
One of the following:	
PREDICT 590 Thesis (see the SPS Graduate Handbook for guidelines) **- or -**	1
PREDICT 498 Capstone Project	
Elective courses (choose any two PREDICT electives, including select CIS courses)	**2**
Total required units	12

Certificate of Advanced Graduate Study Requirements

Please note: Courses completed in the certificate program cannot be transferred to the corresponding graduate degree.

Advanced Data Science	Units
Courses:	
Any four PREDICT electives, including select CIS courses	4
Total required units:	4

Public Policy and Administration – On Campus and Distance Learning
Master of Arts Degree Requirements
Please note: Courses completed in the degree program cannot be transferred to a corresponding certificate of advanced graduate study.

Courses	Units
Core and required courses	**11**
MPPA 401 Research Methods	1
MPPA 402 Elements of Public Finance & Budgeting	1
MPPA 403 Fundamentals of Public Administration	1
MPPA 404 Microeconomics for Public Policy and Administration	1
MPPA 405 Elementary Statistics for Research	1
MPPA 406 Analytic Methods for Public Policy Analysis	1
MPPA 407 Scope and Theory of Public Policy	1
MPPA 408 Public Organization Theory & Management (formerly Organizational Theory)	1
MPPA 409 Strategies for Effective Writing and Communication	1
One of the following:	
MPPA 498 Capstone Project **– or -**	1
MPPA 590 Thesis Research (see the SPS Graduate Handbook for guidelines)	
Specialization courses choose three electives[1] in one of these specialization areas, or the "generalist" category to take electives not in the same track	**3**
Public Policy	
Public Administration	
Global Policy	
Total required units	**13**

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[1] Leaders 481 counts as an elective for students who wish to take it

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Certificate of Advanced Graduate Study Requirements
Please note: Courses completed in the certificate program cannot be transferred to the corresponding graduate degree.

Global Policy	Units
Courses	
MPPA 407 Scope and Theory of Public Policy	1
MPPA 440 International Institutions	1
MPPA 450 International Macroeconomics	1
MPPA 452 The Global City	1
Total required units:	**4**

Public Administration	Units
Courses	
MPPA 403 Fundamentals of Public Administration	1
MPPA 411 The Legislative Process	1
MPPA 413 The Nonprofit/NGO Sector	1
MPPA 417 Public Human Resources	1
Total required units:	**4**

Policy Analysis	Units
Courses	
MPPA 404 Microeconomics for Public Policy and Administration	1
MPPA 405 Elementary Statistics for Research	1
MPPA 406 Analytic Methods for Public Policy Analysis	1
MPPA 407 Scope and Theory of Public Policy	1
Total required units:	**4**

Public Policy	Units
Courses	
MPPA 407 Scope and Theory of Public Policy	1
MPPA 419 Strategic Policy Environment	1
MPPA 432 Intergovernmental Relations	1
MPPA 435 Regulatory Policy	1
Total required units:	**4**

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Regulatory Compliance
Master of Science Degree Requirements
Please note: Courses completed in the degree program cannot be transferred to a corresponding certificate of advanced graduate study.

Courses	Units
Core and required courses	**6**
MSRC 401 Quality Systems for Regulatory Compliance	1
MSRC 405 Applied Research and Writing	1
MSRC 409 or MHI 409-DL Biostatistics	1
MSRC 435 Risk and Decision Management	1
LEADERS 481 Foundations of Leadership	1
MSRC 590 Thesis Research **- or -**	1
MPPA 498 Capstone Project	
Concentration area courses (choose one specialization of 4 courses)	**4**
Healthcare Compliance Track	
HC_COM 410 Healthcare Regulatory Environment	1
HC_COM 411 Healthcare Compliance Programs	1
HC_COM 412 Healthcare Regulatory Enforcement	1
HC_COM 413 Healthcare Billing Models and Systems	1
Clinical Research Track	
CLIN RES 400 Essentials of Initiating Clinical Research	1
CLIN RES 401 Responsible Conduct of Research	1
QARS 450 Medical Device Regulations **or** QARS 460 Drug and Biologics Regulations	1
CLIN RES 403 Clinical Research Design and Methodology	1
Quality Systems Track	
QARS 420 Practical Quality Management	1
QARS 421 Applied Quality and Regulatory Practices	1
QARS 425 Quality Assurance Project Management	1
QARS 450 Medical Device Regulations or QARS 460 Drug and Biologics Regulations	1
Cross-track course (Any course in a track outside the student's home track)	**1**
Total required units	**11**

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Certificate of Advanced Graduate Study Requirements

Please note: Courses completed in the certificate program cannot be transferred to the corresponding graduate degree.

Clinical Research	Units
Courses	
CLIN RES 400 Essentials of Initiating Clinical Research	1
CLIN RES 401 Responsible Conduct of Research	1
CLIN RES 403 Clinical Research Design and Methodology	1
and any one of the following:	
QARS 450 Medical Device Regulations	1
QARS 460 Drug and Biologics Regulations	1
Total required units:	4

Healthcare Compliance	Units
Courses	
HC_COM 410 Healthcare Regulatory Environment	1
HC_COM 411 Healthcare Compliance Programs	1
HC_COM 412 Healthcare Regulatory Enforcement	1
HC_COM 413 Healthcare Billing Models and Systems	1
Total required units:	4

Quality Systems	Units
Courses	
QARS 420 Practical Quality Management	1
QARS 421 Applied Quality and Regulatory Practices	1
QARS 425 Quality Assurance Project Management	1
and any one of the following:	
QARS 450 Medical Device Regulations	1
QARS 460 Drug and Biologics Regulations	1
Total required units:	4

Sports Administration

Master of Arts Degree Requirements

Please note: Courses completed in the degree program cannot be transferred to a corresponding certificate of advanced graduate study.

Courses	Units
Core and required courses	**8**
MSA 401 Sports Research Methods & Quantitative Analysis[1] (*not required for the Sports Analytics Concentration*)	0-1
MSA 402 Fundamentals of Sports Marketing	1
MSA 403 Management and Organization of Sports	1
MSA 404 Sports Business: Finance, Accounting and Economics	1
MSA 405 Legal & Ethical Issues in Sports Management	1
MSA 406 Sports Public Relations and Crisis Management	1
LEADERS 481 Foundations of Leadership	1
One of the following:	
MSA 590 Thesis Research (see the SPS Graduate Handbook for guidelines) **–or-**	1
MSA 498 Capstone Class	
Electives Courses (choose any three MSA electives)	**3**
Sports Analytics Concentration[2] PREDICT 400-DL Math for Modelers PREDICT 401-DL Introduction to Statistical Analysis PREDICT 456-DL Sports Performance Analytics PREDICT 457-DL Sports Management Analytics	**4**
Total required units	**11**

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[1] Students enrolled in the Sports Analytics Concentration are required to take Predict 401-DL Introduction to Statistical Analysis in lieu of MSA 401 Sports Research Methods & Quantitative Analysis.

[2] Students enrolled in the Sports Analytics Concentration are required to take the four course PREDICT sequence to fulfill both core and concentration requirements. MSA electives do not qualify for this concentration.

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Certificate of Advanced Graduate Study Requirements
Please note: Courses completed in the certificate program cannot be transferred to the corresponding graduate degree.

Sports Analytics	Units
Courses	
PREDICT 400 Math for Modelers	1
PREDICT 401 Introduction to Statistical Analysis	1
PREDICT 456 Sports Performance Analytics	1
PREDICT 457 Sports Management Analytics	1
Total required units:	**4**