

SPS Graduate Program Curricula  
2019-20

The following program requirements apply to SPS graduate students that begin their program in the 2019-20 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 degree program.

[Creative Writing \(MA\)](#)

[Creative Writing \(MFA\)](#)

[MA in Writing \(MA\)](#)

[MA in Writing \(MA\) cont.](#)

[MFA in Prose and Poetry \(MFA\)](#)

[MFA in Prose and Poetry \(MFA\) cont.](#)

[MFA in Prose and Poetry \(MFA\) cont.](#)

[Data Science- Distance Learning](#)

[Global Health - Distance Learning](#)

[Health Analytics - Distance Learning](#)

[Health Informatics- Distance Learning](#)

[Information Design and Strategy - Distance Learning](#)

[Information Systems](#)

[Accelerated Master of Science in Information Systems Degree Requirements](#)

[Liberal Studies](#)

[Literature](#)

[Public Policy and Administration – On Campus and Distance Learning](#)

[Regulatory Compliance](#)

[Sports Administration](#)

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

[Writing Certificates of Advanced Graduate Study](#)

[Advanced Data Science](#)

[Information Systems](#)

[Liberal Studies](#)

[Literature](#)

[Health Informatics](#)

[Public Policy and Administration](#)

[Regulatory Compliance](#)

[Sports Analytics](#)

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

**Creative Writing (MA)  
Master of Arts Degree Requirements**

<b>Courses</b>	<b>Units</b>
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. <sup>1</sup>	2
Three graduate-level course electives. May not include more than 2 MCW 499 Independent Study courses. <sup>1</sup>	3
MCW 590 Capstone Writing and Revision <i>(see the SPS Graduate Handbook for guidelines)</i>	1
<b><i>Total required units</i></b>	<b>10</b>

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<sup>1</sup> 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.

**Creative Writing (MFA)  
Master of Fine Arts Degree Requirements**

<b>Courses</b>	<b>Units</b>
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. <sup>1</sup>	3
Three graduate-level course electives. May not include more than 2 independent study courses. <sup>2</sup>	3
MCW 589 Capstone Preparation and Writing <i>(see the SPS Graduate Handbook for guidelines)</i>	1
MCW 590 Capstone Writing and Revision <i>(see the SPS Graduate Handbook for guidelines)</i>	1
<b>Total required units</b>	<b>18</b>

<sup>1</sup> 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.

<sup>2</sup> 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.

**MA in Writing (MA)**  
**MASTER OF ARTS DEGREE REQUIREMENTS**

Courses	Units
<b><i>Specialization: Fiction</i></b>	
Four Units of MCW 413 Fiction Writing Workshops	4
Two graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.	2
Three graduate-level course electives. May include independent study (not to exceed one unit of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 570 Seminar on Teaching Creative Writing, MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	3
MCW 590 Capstone Writing and Revision	1
<b><i>Total required units</i></b>	<b>10</b>

Courses	Units
<b><i>Specialization: Nonfiction</i></b>	
Four Units of MCW 461 Nonfiction Writing Workshops	4
Two graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.	2
Three graduate-level course electives. May include independent study (not to exceed one unit of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 570 Seminar on Teaching Creative Writing, MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	3
MCW 590 Capstone Writing and Revision	1
<b><i>Total required units</i></b>	<b>10</b>

Courses	Units
<b><i>Specialization: Poetry</i></b>	
Four Units of MCW 411 Poetry Writing Workshops	4
Two graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.	2
Three graduate-level course electives. May include independent study (not to exceed one unit of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 570 Seminar on Teaching Creative Writing, MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	3
MCW 590 Capstone Writing and Revision	1

<b>Total required units</b>	<b>10</b>
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**MA in Writing (MA) cont.  
MASTER OF ARTS DEGREE REQUIREMENTS**

<b>Courses</b>	<b>Units</b>
<b><i>Specialization: Popular Fiction</i></b>	
Four Units of MCW Popular Fiction Writing Workshops (one workshop may include an MCW 413 Fiction Writing Workshop).	4
Two graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.	2
Three graduate-level course electives. May include independent study (not to exceed one unit of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 570 Seminar on Teaching Creative Writing, MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	3
MCW 590 Capstone Writing and Revision	1
<b>Total required units</b>	<b>10</b>

<b>Courses</b>	<b>Units</b>
<b><i>Specialization: Dual-Genre</i></b>	
Four Units of Workshops (two workshops in each genre)	4
Two graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.	2
Three graduate-level course electives. May include independent study (not to exceed one unit of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 570 Seminar on Teaching Creative Writing, MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	3
MCW 590 Capstone Writing and Revision	1
<b>Total required units</b>	<b>10</b>

<b>Courses</b>	<b>Units</b>
<b><i>Specialization: Publishing and Professional Development</i></b>	
Three Units of Writing Workshops (any genre)	3
Three Publishing and Professional Development courses. May include MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing or any other related courses identified by the SPS Graduate Office.	3
Two graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.	2
One graduate-level course elective. May include independent study (not to exceed one), any Publishing and Professional Development course, any graduate literature course, or any MCW 490 elective course.	1

MCW 590 Capstone Writing and Revision	1
<b>Total required units</b>	<b>10</b>

**MFA in Prose and Poetry (MFA)  
MASTER OF FINE ARTS DEGREE REQUIREMENTS**

Courses	Units
<b>Specialization: Fiction</b>	
Seven Units of MCW 413 Fiction Writing Workshops	7
MCW 570 Seminar on Teaching Creative Writing	1
Three graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.	3
Two graduate-level course electives. May include independent study (not to exceed two units of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	2
MCW 589 Capstone Preparation and Writing	1
MCW 590 Capstone Writing and Revision	1
<b>Total required units</b>	<b>15</b>

Courses	Units
<b>Specialization: Nonfiction</b>	
Seven Units of MCW 461 Nonfiction Writing Workshops	7
MCW 570 Seminar on Teaching Creative Writing	1
Three graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.	3
Two graduate-level course electives. May include independent study (not to exceed two units of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	2
MCW 589 Capstone Preparation and Writing	1
MCW 590 Capstone Writing and Revision	1
<b>Total required units</b>	<b>15</b>

**MFA in Prose and Poetry (MFA) cont.**  
**MASTER OF FINE ARTS DEGREE REQUIREMENTS**

<b>Courses</b>	<b>Units</b>
<b><i>Specialization: Poetry</i></b>	
Seven Units of MCW 411 Poetry Writing Workshops	7
MCW 570 Seminar on Teaching Creative Writing	1
Three graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.	3
Two graduate-level course electives. May include independent study (not to exceed two units of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	2
MCW 589 Capstone Preparation and Writing	1
MCW 590 Capstone Writing and Revision	1
<b><i>Total required units</i></b>	<b>15</b>

<b>Courses</b>	<b>Units</b>
<b><i>Specialization: Popular Fiction</i></b>	
Four Units of MCW Popular Fiction Writing Workshops	4
Three Units of MCW 413 Fiction Writing Workshops	3
MCW 570 Seminar on Teaching Creative Writing	1
Three graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.	3
Two graduate-level course electives. May include independent study (not to exceed two units of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	2
MCW 589 Capstone Preparation and Writing	1
MCW 590 Capstone Writing and Revision	1
<b><i>Total required units</i></b>	<b>15</b>

**MFA in Prose and Poetry (MFA) cont.**  
**MASTER OF FINE ARTS DEGREE REQUIREMENTS**

Courses	Units
<b><i>Specialization: Dual-Genre</i></b>	
Eight Units of Workshops (four workshops in each genre)	8
MCW 570 Seminar on Teaching Creative Writing	1
Three graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.	3
One graduate-level course elective. May include an independent study, a cross-genre workshop, MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	1
MCW 589 Capstone Preparation and Writing	1
MCW 590 Capstone Writing and Revision	1
<b><i>Total required units</i></b>	<b>15</b>

Courses	Units
<b><i>Specialization: Publishing and Professional Development</i></b>	
Five Units of Writing Workshops (any genre)	5
Four Publishing and Professional Development courses. May include MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing or any other related courses identified by the SPS Graduate Office.	4
MCW 570 Seminar on Teaching Creative Writing	1
Two graduate-level literature courses. These literature courses may be taken from LIT, ENGLISH, COMP_LIT, or other departments of literary study.	2
One graduate-level course elective. May include an independent study, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	1
MCW 589 Capstone Preparation and Writing	1
MCW 590 Capstone Writing and Revision	1
<b><i>Total required units</i></b>	<b>15</b>



WRITING CERTIFICATES OF ADVANCED GRADUATE STUDY  
Degree Requirements

<b>Courses for COAGS in Fiction</b>	<b>Units</b>
Three Units of MCW 413 Fiction Writing Workshops	3
One graduate-level course elective. May include independent study (not to exceed one unit of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 570 Seminar on Teaching Creative Writing, MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	1
<b><i>Total required units</i></b>	<b>4</b>

<b>Courses for COAGS in Nonfiction</b>	<b>Units</b>
Three Units of MCW 461 Nonfiction Writing Workshops	3
One graduate-level course elective. May include independent study (not to exceed one unit of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 570 Seminar on Teaching Creative Writing, MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	1
<b><i>Total required units</i></b>	<b>4</b>

<b>Courses for COAGS in Poetry</b>	<b>Units</b>
Three Units of MCW 411 Poetry Writing Workshops	3
One graduate-level course elective. May include independent study (not to exceed one unit of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 570 Seminar on Teaching Creative Writing, MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	1
<b><i>Total required units</i></b>	<b>4</b>

<b>Courses for COAGS in Popular Fiction</b>	<b>Units</b>
Three Units of MCW Popular Fiction Writing Workshops (one workshop may include an MCW 413 Fiction Writing Workshop).	3
One graduate-level course elective. May include independent study (not to exceed one unit of independent study), a cross-genre course (not to exceed one unit of cross-genre), MCW 570 Seminar on Teaching Creative Writing, MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any Publishing and Professional Development course, any graduate-level literature course, or any MCW 490 elective course.	1
<b><i>Total required units</i></b>	<b>4</b>

WRITING CERTIFICATES OF ADVANCED GRADUATE STUDY (CONT.)  
Degree Requirements

Courses for COAGS in Dual-Genre	Units
Four Units of Workshops (two workshops in each genre)	4
<b><i>Total required units</i></b>	<b>4</b>

Courses for COAGS in Publishing and Professional Development	Units
<b><i>Specialization: Publishing and Professional Development</i></b>	
Three Publishing and Professional Development courses. May include MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing or any other related courses identified by the SPS Graduate Office.	3
One writing workshop or one graduate-level course elective. May include independent study (not to exceed one), any Publishing and Professional Development course, any graduate literature course, or any MCW 490 elective course.	1
<b><i>Total required units</i></b>	<b>4</b>

Courses for COAGS in Interdisciplinary Studies in Writing	Units
Four Units of any Writing Courses. May include Writing Workshops, an independent study (not to exceed one), Publishing and Professional Development courses, MCW 575 The Publishing Industry: Literary Presses and Journals, MCW 579 Practicum in Teaching Creative Writing, MCW 580 Practicum in Publishing, any graduate literature course, any MCW 490 elective course, or any other related courses identified by the SPS Graduate Office.	4
<b><i>Total required units</i></b>	<b>4</b>

**Data Science- Distance Learning  
Master of Science Degree Requirements**

<b>Courses</b>	<b>Units</b>
<b>Core/Required courses</b>	<b>8</b>
MSDS 400 Math for Data Scientists	1
MSDS 401 Applied Statistics with R	1
MSDS 402 Introduction to Data Science	1
MSDS 420 Database Systems and Data Preparation	1
MSDS 422 Practical Machine Learning	1
MSDS 460 Decision Analytics	1
One of the following:	
MSDS 475 Project Management - <b>OR</b> - MSDS 480 Business Leadership and Communications	1
One of the following:	
MSDS 498 Capstone - <b>OR</b> -MSDS 590 Thesis (see the SPS Graduate Handbook for guidelines)	1
<b>Areas of specialization</b> (Choose 1 of the following 4 specializations, or the “generalist” category to take any four electives from the MSDS curriculum)	
<b><i>Artificial Intelligence</i></b> MSDS 453 Natural Language Processing MSDS 458 Artificial Intelligence and Deep Learning <i>Plus</i> Any two electives from the MSDS curriculum	<b>4</b>
<b><i>Analytics and Modeling</i></b> MSDS 410 Regression and Multivariate Analysis MSDS 411 Generalized Linear Models <i>Plus</i> Any two electives from the MSDS curriculum	<b>4</b>
<b><i>Data Engineering</i></b> MSDS 432 Foundations of Data Engineering MSDS 434 Analytics Application Development <i>Plus</i> Any two electives from the MSDS curriculum	<b>4</b>
<b><i>Analytics Management</i></b> Whichever of the following classes was not taken to fulfill the core requirement above: MSDS 475 Project Management – <b>or</b> – MSDS 480 Business Leadership and Communications MSDS 474 Accounting and Finance for Analytics Managers <i>Plus</i> Any two electives from the MSDS curriculum	<b>4</b>
<b><i>Total required units</i></b>	<b>12</b>

Advanced Data Science  
 Certificate of Advanced Graduate Study Requirements

Advanced Data Science	Units
<b>Courses</b>	
Any four MSDS electives, including select CIS courses	4
<b><i>Total required units</i></b>	<b>4</b>

Global Health - Distance Learning  
Master of Science Degree Requirements

Courses	Units
<b>Core and required courses</b>	<b>9</b>
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 <sup>1</sup>	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
<b>Elective courses</b> (choose any three MSGH electives)	<b>3</b>
<b><i>Total required units</i></b>	<b>12</b>

<sup>1</sup> Course formerly titled MSGH 419 Bioethics and Human Rights  
SPS Graduate Programs Curriculum Requirements 2019-20

Health Analytics - Distance Learning  
Master of Science Degree Requirements

Courses	Units
Core Courses	12
<i>One of the following:</i>	
MSHA 401 Programming for Health Analytics	1
OR	
MHI 402 Introduction to Clinical Thinking	
MSHA 403 Introduction to American Healthcare, Digital Health and Analytics	1
MSHA 405 Data Literacy and Analytics in Healthcare	1
MSHA 407 Data Security, Ethics and Governance	1
MSHA 409 Statistical Analysis	1
MSHA 410 Regression and Multivariate Analysis	1
MSHA 411 Generalized Linear Models	1
MSHA 412 Feature Engineering and Text Mining	1
MSHA 422 Practical Machine Learning and Artificial Intelligence	1
MSHA 455 Data Visualization and Storytelling	1
MSHA 480 Health Analytics Leadership	1
MSHA 498 Capstone	1
<b>Total required units</b>	<b>12</b>

**Health Informatics- Distance Learning  
Master of Science Degree Requirements**

<b>Courses</b>	<b>Units</b>
<b>Core</b>	<b>5</b>
MHI 401 American Health Care System	1
MHI 403 Fundamentals of Health Informatics	1
MHI 407 Legal, Ethical & Social Issues in Informatics	1
LEADERS 481 Foundations of Leadership <b>or</b> MSHA 480 <sup>1</sup> Health Analytics Leadership	1
<i>One of the following:</i>	
MHI 498 Capstone Project <b>–OR–</b>	1
MHI 590 Thesis Research (see the SPS Graduate Handbook for guidelines)	1
<b>Specialization (choose one specialization of 4 required courses)</b>	<b>4</b>
<b><i>Clinical Informatics Specialization Required Courses</i></b>	
MHI 405 HIT Standards and Interoperability	1
MHI 406 Decision Support Systems	1
CIS 413 Telecommunications Networks	1
IDS 452 Introduction to Data and Analytics	1
<b><i>Health Technology Specialization Required Courses</i></b>	
MHI 402 Introduction to Clinical Thinking	1
MHI 404 Health Care Organization Operations	1
MHI 405 HIT Standards and Interoperability	1
MHI 406 Decision Support Systems	1
<b><i>Health Administration Specialization Required Courses</i></b>	
MHI 402 Introduction to Clinical Thinking	1
MHI 404 Health Care Organization Operations	1
MHI 408 Information System Acquisition & Lifecycle	1
MHI 413 Consumer eHealth	1
<b>Elective courses</b> (choose any three electives corresponding to the declared specialization –see SPS website for approved course listing )	<b>3</b>
<b><i>Total required units</i></b>	<b>12</b>

<sup>1</sup> Course formerly titled MHI 480 Health Analytics Leadership

**Health Informatics Distance Learning  
Certificate of Advanced Graduate Study Requirements**

<b>Fundamentals of Health Informatics</b>	<b>Units</b>
<b>Courses</b>	<b>4</b>
CIS 413 Telecommunications and Computer Networks	1
CIS 417 Database Systems Design and Implementation	1
MHI 401 American Health Care System	1
MHI 402 Introduction to Clinical Thinking	1
and any two of the following:	<b>2</b>
MHI 403 Fundamentals of Health Informatics	1
MHI 404 Health Care Organization Operations	1
MHI 405 HIT Standards and Interoperability	1
MHI 406 Decision Support Systems & Health Care	1
MHI 407 Legal, Ethical & Social Issues in Informatics	1
MHI 408 Information System Acquisition & Lifecycle	1
MSHA 409 Statistical Analysis	1
<b><i>Total required units:</i></b>	<b>6</b>

<b>Health Informatics for Clinicians</b>	<b>Units</b>
<b>Courses</b>	<b>2</b>
CIS 413 Telecommunications and Computer Networks	1
CIS 417 Database Systems Design and Implementation	1
and any two of the following:	<b>2</b>
MHI 403 Fundamentals of Health Informatics	1
MHI 404 Health Care Organization Operations	1
MHI 405 HIT Standards and Interoperability	1
MHI 406 Decision Support Systems & Health Care	1
MHI 407 Legal, Ethical & Social Issues in Informatics	1
MHI 408 Information System Acquisition & Lifecycle	1
MSHA 409 Statistical Analysis	1
<b><i>Total required units:</i></b>	<b>4</b>



<b>Health Informatics for IT Professionals</b>	<b>Units</b>
<b>Courses</b>	<b>2</b>
MHI 401 American Health Care System	1
MHI 402 Introduction to Clinical Thinking	1
and any two of the following:	<b>2</b>
MHI 403 Fundamentals of Health Informatics	1
MHI 404 Health Care Organization Operations	1
MHI 405 HIT Standards and Interoperability	1
MHI 406 Decision Support Systems & Health Care	1
MHI 407 Legal, Ethical & Social Issues in Informatics	1
MHI 408 Information System Acquisition & Lifecycle	1
MSHA 409 Statistical Analysis	1
<b><i>Total required units:</i></b>	<b>4</b>

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

Courses	Units
<b>Core</b>	<b>9</b>
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
<i>One of the following:</i>	
MS_IDS 498 Capstone Project – or -	1
MS_IDS 590 Thesis Research (see the SPS Graduate Handbook for guidelines)	1
<b>Area of specialization</b> (Choose 1 of the following 4 specializations)	
<b><i>Data Science and Analytics</i></b>	
MS_IDS 452 Introduction to Data Collection and Analytics	3
MS_IDS 453 Introduction to Techniques of Predictive Analytics	
MS_IDS 455 Data and Text Visualization	
<b><i>Learning Design</i></b>	
MS_IDS 422 Introduction to Learning Theory	3
MS_IDS 423 Instructional Design	
MS_IDS 425 Learning Environment Design	
<b><i>Content Strategy</i></b>	
MS_IDS 432 Advanced Writing Workshop	3
MS_IDS 433 Social Media and Content Curation	
MS_IDS 435 Persuasion	
<b><i>Interdisciplinary Studies</i></b>	
Select any three elective courses from the IDS specializations	3
<b>Total Required Units</b>	<b>12</b>

Certificate of Advanced Graduate Study Requirements

Data and Analytics Post Graduate Certificate	Units
<b>Courses</b>	
MS_IDS 432 Introduction to Data and Analytics	1
MS_IDS 453 Techniques of Analytics	1
MS_IDS 455 Data and Text Visualization	1
MS_IDS 409 Data Management Principles	1
<b>Total required units:</b>	<b>4</b>

Learning Design Post Graduate Certificate	Units
<b>Courses</b>	
MS_IDS 422 Introduction to Learning Theory	1
MS_IDS 423 Instructional Design	1
MS_IDS 425 Learning Environment Design	1
One IDS core course	1
<b>Total required units:</b>	<b>4</b>

Content Strategy Post Graduate Certificate	Units
<b>Courses</b>	
MS_IDS 432 Advanced Writing Workshop	1
MS_IDS 433 Social Media and Content Curation	1
MS_IDS 435 Persuasion	1
MS_IDS 407 Information and Content Strategy	1
<b>Total required units:</b>	<b>4</b>

Information Systems  
Master of Science Degree Requirements

Courses	Units
<b>Core/Required courses</b>	<b>4</b>
CIS 413 Telecommunications and Computer Networks <sup>1</sup>	1
CIS 414 Object-Oriented Programming – <b>or</b> – MSDS 430 Python for Data Science <sup>2</sup>	1
CIS 417 Database Systems Design and Implementation	1
CIS 498 Computer Information Systems Project - <b>or</b> - CIS 590 Capstone Research (see the SPS Graduate Handbook for guidelines)	1
<b>Area of specialization</b> (Choose 1 of the following 9 specializations)	
<b><i>Analytics and Business Intelligence (NO NEW ADMITS AFTER F18)</i></b> CIS 435 Practical Data Science Using Machine Learning CIS 436 Big Data Management and Analytics MSDS 400 Math for Modelers MSDS 401 Introduction to Statistical Analysis Plus four electives from the MSIS curriculum (which could include LEADERS 481) <i>(Note: CIS 414 is required for this specialization; MSDS 430 is not. Neither is CIS 413.)</i>	<b>8</b> (CIS 413 is not required)
<b><i>Artificial Intelligence (New!)</i></b> CIS 435 Practical Data Science Using Machine Learning MSDS 453 Natural Language Processing MSDS 464 Software Robotics MSDS 462 Computer Vision MSDS 458 Artificial Intelligence and Deep learning Plus two electives from the MSIS curriculum (which could include LEADERS 481) <i>(Note: MSDS 430 is required for this specialization; CIS 414 is not.)</i>	<b>7</b>
<b><i>Database and Internet Technologies</i></b> CIS 419 Web Application Development CIS 431 Database Administration CIS 435 Practical Data Science Using Machine Learning Plus three electives from the MSIS curriculum (which could include LEADERS 481) <i>(Note: Students in this specialization must take CIS 414 and MSDS 430)</i>	<b>6</b> (must take CIS 414 and MSDS 430)
<b><i>Data Science (New!)</i></b> Required: CIS 435 Practical Data Science Using Machine Learning MSDS 400 Math for Modelers MSDS 401 Introduction to Statistical Analysis Any two of the following: MSDS 455 Data Visualization MSDS 458 Artificial Intelligence and Deep Learning MSDS 459 Information Retrieval and Real-Time Analytics MSDS 460 Decision Analytics Plus three electives from the MSIS curriculum (which could include LEADERS 481)	<b>8</b> (CIS 413 is not required)

<sup>1</sup> CIS 413 is not required for the Analytics and Business Intelligence nor Data Science specialization.

<sup>2</sup> See specialization for whether you need to take CIS 414 or MSDS 430, or both (as is the case with Database and Internet Technologies).

<i>(Note: MSDS 430 is required for this specialization; CIS 414 is not. Neither is CIS 413.)</i>	
<b><i>Health Informatics (online only)</i></b> 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 three electives from the MSIS curriculum (which could include LEADERS 481)	7
<b><i>Information Systems</i></b> CIS 494 Project Management Concepts Plus any six electives from the MSIS curriculum (which could include LEADERS 481)	7
<b><i>Information Systems Management</i></b> CIS 494 Project Management Concepts CIS 457 Management of Information Security CIS 460 Information Technology Management CIS 465 Information Technology Strategy Plus three electives from the MSIS curriculum (which could include LEADERS 481)	7
<b><i>Information Systems Security</i></b> 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 three electives from the MSIS curriculum (which could include LEADERS 481)	7
<b><i>Project Management</i></b> CIS 494 Project Management Concepts CIS 495 IT Project Management CIS 496 Information Technology Finance and Communication Plus four electives from the MSIS curriculum (which could include LEADERS 481)	7
<b><i>Total required units</i></b>	<b>11</b>

Accelerated Master of Science in Information Systems Degree Requirements <sup>1</sup>

Courses	Units
<b>Core/Required courses</b>	<b>2</b>
CIS 414 Object-Oriented Programming – <b>or</b> – MSDS 430 Python for Data Science <sup>1</sup>	1
CIS 498 Computer Information Systems Project - <b>or</b> - CIS 590 Capstone Research (see the SPS Graduate Handbook for guidelines)	1
<b>Area of specialization</b> (Choose 1 of the following 8 specializations)	
<b><i>Analytics and Business Intelligence (NO NEW ADMITS AFTER F18)</i></b> CIS 435 Practical Data Science Using Machine Learning CIS 436 Big Data Management and Analytics MSDS 400 Math for Modelers MSDS 401 Introduction to Statistical Analysis Plus three electives from the MSIS curriculum (which could include LEADERS 481) <i>(Note: CIS 414 is required for this specialization; MSDS 430 is not. Neither is CIS 413.)</i>	7
<b><i>Artificial Intelligence (New!)</i></b> CIS 435 Practical Data Science Using Machine Learning MSDS 453 Natural Language Processing MSDS 464 Software Robotics MSDS 462 Computer Vision MSDS 458 Artificial Intelligence and Deep learning Plus two elective from the MSIS curriculum (which could include LEADERS 481) <i>(Note: MSDS 430 is required for this specialization; CIS 414 is not.)</i>	7
<b><i>Database and Internet Technologies</i></b> CIS 419 Web Application Development CIS 431 Database Administration CIS 435 Practical Data Science Using Machine Learning Plus three electives from the MSIS curriculum (which could include LEADERS 481) <i>(Note: Students in this specialization must take CIS 414 and MSDS 430)</i>	6 (must take CIS 414 and MSDS 430)
<b><i>Data Science (New!)</i></b> Required: CIS 435 Practical Data Science Using Machine Learning MSDS 400 Math for Modelers MSDS 401 Introduction to Statistical Analysis Any two of the following: MSDS 455 Data Visualization MSDS 458 Artificial Intelligence and Deep Learning MSDS 459 Information Retrieval and Real-Time Analytics MSDS 460 Decision Analytics Plus two electives from the MSIS curriculum (which could include LEADERS 481) <i>(Note: MSDS 430 is required for this specialization; CIS 414 is not. Neither is CIS 413.)</i>	7

<sup>1</sup> See specialization for whether you need to take CIS 414 or MSDS 430, or both (as is the case with Database and Internet Technologies).

<p><b><i>Health Informatics (online only)</i></b>  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 three electives from the MSIS curriculum (which could include LEADERS 481)</p>	7
<p><b><i>Information Systems</i></b>  CIS 494 Project Management Concepts  Plus any six electives from the MSIS curriculum (which could include LEADERS 481)</p>	7
<p><b><i>Information Systems Management</i></b>  CIS 494 Project Management Concepts  CIS 457 Management of Information Security  CIS 460 Information Technology Management  CIS 465 Information Technology Strategy  Plus three electives from the MSIS curriculum (which could include LEADERS 481)</p>	7
<p><b><i>Information Systems Security</i></b>  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 three electives from the MSIS curriculum (which could include LEADERS 481)</p>	7
<p><b><i>Project Management</i></b>  CIS 494 Project Management Concepts  CIS 495 IT Project Management  CIS 496 Information Technology Finance and Communication  Plus four electives from the MSIS curriculum (which could include LEADERS 481)</p>	7
<p><b><i>Total required units</i></b></p>	9

Certificate of Advanced Graduate Study Requirements

<b>Analytics and Business Intelligence for IT Professionals (NO NEW ADMITS AFTER F18)</b>	<b>Units</b>
<b>Courses</b>	
MSDS 400 Math for Modelers	1
MSDS 401 Introduction to Statistical Analysis	1
CIS 435 Practical Data Science Using Machine Learning	1
CIS 436 Big Data Management and Analytics	1
<b>Total required units:</b>	<b>4</b>

<b>Database and Internet Technologies</b>	<b>Units</b>
<b>Courses</b>	
CIS 414 Object-Oriented Programming	1
CIS 419 Web Application Development	1
CIS 435 Practical Data Science Using Machine Learning	1
MSDS 430 Python for Data Science	1
<b>Total required units:</b>	<b>4</b>

<b>Information Systems Management</b>	<b>Units</b>
<b>Courses</b>	
CIS 494 Project Management Concepts	1
CIS 455 Business Continuity and Disaster Recovery	1
CIS 460 Information Technology Management	1
CIS 465 Information Technology Strategy	1
<b>Total required units:</b>	<b>4</b>

<b>Information Systems Security</b>	<b>Units</b>
<b>Courses</b>	
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
<b>Total required units:</b>	<b>4</b>



**Liberal Studies  
Master of Arts Degree Requirements**

<b>Courses</b>	<b>Units</b>
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, Digital Studies, <sup>1</sup> History, Religious and Ethical Studies, or an individualized specialization. No more than three of these courses may be at the 300-level. <sup>2</sup> 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
<b><i>Total required units</i></b>	<b>9</b>

**Certificate of Advanced Graduate Study Requirements**

Specializations: American Studies, Chicago Studies, Digital Studies, History, Religious and Ethical Studies, and Interdisciplinary Studies	<b>Units</b>
<b>Courses</b>	
Any four courses in the area of specialization. <sup>3</sup>	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
<b><i>Total required units:</i></b>	<b>4</b>

<sup>1</sup> Required for Digital Studies specialization is IPLS 420 Introduction to Digital Studies.

<sup>2</sup> 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.

<sup>3</sup> 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). Required for Digital Studies specialization is IPLS 420 Introduction to Digital Studies.

Literature  
Master of Arts Degree Requirements

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. <sup>1</sup> 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
<b>Total required units</b>	<b>9</b>

Certificate of Advanced Graduate Study Requirements

Specializations: American Literature, British Literature, Comparative and World Literature, Film, Literature and Visual Culture, and Interdisciplinary Studies	Units
<b>Courses</b>	
Any four literature-based courses in the area of specialization <sup>2</sup>	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
<b>Total required units:</b>	<b>4</b>

<sup>1</sup> 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.

<sup>2</sup> 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).

Public Policy and Administration – On Campus and Distance Learning  
Master of Arts Degree Requirements

Courses	Units
<b>Core and required courses</b>	<b>10</b>
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	1
MPPA 418 Ethics and Leadership <sup>1</sup>	1
<i>One of the following:</i>	
MPPA 498 Capstone Project – or -	1
MPPA 590 Thesis Research (see the SPS Graduate Handbook for guidelines)	
<b>Specialization courses</b> choose three electives in one of these specialization areas, or the “generalist” category to take electives not in the same track	<b>3</b>
<i>Public Policy</i>	
<i>Public Administration</i>	
<i>Global Policy</i>	
<i>Global Health</i>	
<i>Data Analytics for Public Policy</i>	
<b>Total required units</b>	<b>13</b>

<sup>1</sup> Counts as an elective if the student has also taken MPPA 409 Writing  
SPS Graduate Programs Curriculum Requirements 2019-20

Certificate of Advanced Graduate Study Requirements

<b>Global Policy</b>	<b>Units</b>
<b>Courses</b>	
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
<b><i>Total required units</i></b>	<b>4</b>

<b>Public Administration</b>	<b>Units</b>
<b>Courses</b>	
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
<b><i>Total required units</i></b>	<b>4</b>

<b>Policy Analysis</b>	<b>Units</b>
<b>Courses</b>	
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
<b><i>Total required units</i></b>	<b>4</b>

<b>Public Policy</b>	<b>Units</b>
<b>Courses</b>	
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
<b><i>Total required units</i></b>	<b>4</b>

**Regulatory Compliance  
Master of Science Degree Requirements**

<b>Courses</b>	<b>Units</b>
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<b>Core and required courses</b>	<b>6</b>
MSRC 401 Quality Systems for Regulatory Compliance	1
MSRC 405 Applied Research and Writing	1
MSRC 409 or MHI or MHA 409-DL Biostatistics	1
MSRC 435 Risk and Decision Management	1
LEADERS 481 Foundations of Leadership	1
MSRC 590 Thesis Research - <b>or</b> -	1
MSRC 498 Capstone Project	
<b>Concentration area courses</b> (choose one specialization of 4 courses)	<b>4</b>
<b><i>Healthcare Compliance Track</i></b>	
HC_COM 410 Healthcare Regulatory Environment	1
HC_COM 411 HC Programs & Enforcement	1
HC_COM 413 Healthcare Billing Models and Systems	1
HC_COM 415 IT Systems Compliance <sup>1</sup>	1
<b><i>Clinical Research Track</i></b>	
CLIN RES 400 Essentials of Initiating Clinical Research	1
CLIN RES 401 Responsible Conduct of Research	1
QARS 450 Medical Device Regulations <b>or</b> QARS 460 Drug and Biologics Regulations	1
CLIN RES 403 Clinical Research Design and Methodology	1
<b><i>Quality Systems Track</i></b>	
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 <b>or</b> QARS 460 Drug and Biologics Regulations	1
<b>Cross-track course</b> (Any course in a track outside the student's home track)	<b>1</b>
<b><i>Total required units</i></b>	<b>11</b>

<sup>1</sup> Prior to Fall 19, MHI 404 Health Care Enterprise Operation is a substitute SPS Graduate Programs Curriculum Requirements 2019-20

Certificate of Advanced Graduate Study Requirements

Clinical Research	Units
<b>Courses</b>	
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
<b>Total required units</b>	<b>4</b>

Healthcare Compliance	Units
<b>Courses</b>	
HC_COM 410 Healthcare Regulatory Environment	1
HC_COM 411 HC Programs & Enforcement (previously titled Healthcare Compliance Programs)	1
HC_COM 413 Healthcare Billing Models and Systems	1
HC_COM 415 IT Systems Compliance <sup>1</sup>	1
<b>Total required units:</b>	<b>4</b>

Quality Systems	Units
<b>Courses</b>	
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
<b>Total required units:</b>	<b>4</b>

<sup>1</sup> Prior to fall 19, MHI 404 Health Care Enterprise Operation is a substitute SPS Graduate Programs Curriculum Requirements 2019-20

**Sports Administration  
Master of Arts Degree Requirements**

<b>Courses</b>	<b>Units</b>
<b>Core and required courses</b>	<b>8</b>
MSA 401 Sports Research Methods & Quantitative Analysis <sup>1</sup> <i>(not required for the Sports Analytics Concentration)</i>	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
<b>MSA 406 Sports Public Relations and Crisis Management<sup>2</sup></b>	<b>1</b>
MSA 451 The Technology of Sports	1
<i>One of the following:</i>	
MSA 590 Thesis Research (see the SPS Graduate Handbook for guidelines) <i>–or–</i>	1
MSA 498 Capstone Class	
<b>Electives Courses</b> (choose any three MSA electives)	<b>3</b>
<b>Sports Analytics Concentration<sup>3</sup></b> MSDS 400-DL Math for Modelers MSDS 401-DL Introduction to Statistical Analysis MSDS 456-DL Sports Performance Analytics MSDS 457-DL Sports Management Analytics	<b>4</b>
<b>Global Sports Communication</b> MSA 475-DL Global Sports Communication MSA 476-DL Principles and Practice of Strategic Communication and Public Relations MSA 477-DL Media Literacy in Sports MSA 479-DL Practical Experience in Global Sports Communication	<b>4</b>
<b><i>Total required units</i></b>	<b>11</b>

<sup>1</sup> Students enrolled in the Sports Analytics Concentration are required to take MSDS 401-DL Introduction to Statistical Analysis in lieu of MSA 401 Sports Research Methods & Quantitative Analysis.

<sup>2</sup> Students enrolled in the Global Sports Communication Specialization are required to take MSA 476-DL Principles and Practice of Strategic Communication and Public Relations in lieu of MSA 406 Sports Public Relations and Crisis Management.

<sup>3</sup> Students enrolled in the Sports Analytics Concentration are required to take the four course MSDS sequence to fulfill both core and concentration requirements. MSA electives do not qualify for this concentration.

**Certificate of Advanced Graduate Study Requirements**

Global Sports Communication Graduate Certificate	Units
<b>Courses</b>	
MSA 475-DL Global Sports Communication	1
MSA 476-DL Principles and Practice of Strategic Communication and Public Relations	1
MSA 477-DL Media Literacy in Sports	1
MSA 479-DL Practical Experience in Global Sports Communication	1
<b><i>Total required units:</i></b>	<b>4</b>

Sports Analytics	Units
<b>Courses</b>	
MSDS 400 Math for Modelers	1
MSDS 401 Introduction to Statistical Analysis	1
MSDS 456 Sports Performance Analytics	1
MSDS 457 Sports Management Analytics	1
<b><i>Total required units:</i></b>	<b>4</b>