

APST-MS Suggested Curriculum

Applied Statistics MS Course Curriculum:

Students in the Marquette University Applied Statistics Master's of Science (APST-MS) program must all complete the seven course 21 credit core.

MSSC 5710	Mathematical Statistics	3 credits
MSSC 5780	Regression Analysis	3 credits
MSSC 6010	Computational Probability	3 credits
MSSC 6020	Statistical Simulation	3 credits
MSSC 6040	Applied Linear Algebra	3 credits
MSSC 6240	Design and Analysis of Scientific Experiments	3 credits
MSSC 6250	Statistical Machine Learning	3 credits

There are two master's tracks, Plan B (the admitted default) involves a practicum and Plan A (a post admission request) is a thesis. Plan B is 30 credits including a 3 credit statistical practicum (MSSC 6975) while Plan A requires 30 credits including 6 credits of master's thesis (MSSC 6999). Within the Marquette University graduate school, 7 credits/semester (fall or spring) is considered full-time and the maximum number of credits that a student may enroll in is 14 credits/semester (fall or spring). Teaching or research assistants may register for a maximum of 10 credits/semester (fall or spring). Each lecture format course is generally 3 credits and graduate students generally take 3 lecture courses/semester. Marquette University graduate students generally take 9 credits/semester, sometimes 10 credits/semester, and sometimes 12 credits/semester (fall or spring).

Students pursuing Plan B (practicum) must complete 30 credits including the 21 credit core and the 3 credit practicum. Students pursuing Plan A (thesis) must complete 30 credits including the 21 credit core and 6 credits of master's thesis. The remaining 6 credits ($30=21+3+6$) for Plan B or the remaining 3 credits ($30=21+6+3$) for Plan A are composed of approved within department electives or approved outside department electives.

The following is the list of approved within department electives:

MSSC 5540	Numerical Analysis	3 credits
MSSC 5630	Mathematical Modeling and Analysis	3 credits
MSSC 5700	Theory of Probability	3 credits
MSSC 5750	Computational Statistics	3 credits
MSSC 5760	Time Series Analysis	3 credits
MSSC 5790	Bayesian Statistics	3 credits
MSSC 5931*	Topics in Mathematical or Statistical Sciences	1-3 credits
MSSC 6000	Scientific Computing	3 credits
MSSC 6030	Applied Mathematical Analysis	3 credits
MSSC 6210	Theory of Statistics	3 credits
MSSC 6230	Multivariate Statistical Analysis	3 credits
MSSC 6931*	Topics in Mathematical or Statistical Sciences	1-3 credits
MSSC 6960*	Seminar in Mathematical or Statistical Sciences	1-3 credits
MSSC 6995*	Independent Study in Mathematical or Statistical Sciences	1-5 credits

* Depending on the course topic and pre approval by program director. Topic to be of a statistical nature.

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Please consult with the APST-MS Director for the current list of outside department electives.

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Applied Statistics MS Course Offerings:

In MSSC courses are offered at varying levels of regularity dependent upon sufficient interest. Some courses are offered every fall semester or every spring semester, but select courses might be offered every semester or might be offered every other fall semester or every other spring semester.

The below are the general fall and spring within department course offerings each year.

Fall	Spring
MSSC 5540 Numerical Analysis#	MSSC 5630 Mathematical Modeling and Analysis#
MSSC 5630 Mathematical Modeling and Analysis#	MSSC 5710 Mathematical Statistics*
MSSC 5700 Theory of Probability#	MSSC 5750 Computational Statistics#
MSSC 5780 Regression Analysis*	MSSC 5760 Time Series Analysis#
MSSC 6010 Computational Probability*	MSSC 6020 Statistical Simulation*
MSSC 6040 Applied Linear Algebra*	MSSC 6030 Applied Mathematical Analysis#
MSSC 6240 Design & Analysis of Scientific Experiments*	MSSC 6250 Statistical Machine Learning*

* Required Course

Elective Course

Notes:

MSSC 5750 is tentatively planned for odd Spring terms (Spring 23, 25, 27, ...).

MSSC 5760 is tentatively offered in even Spring terms (Spring 22, 24, 26, ...).

MSSC 5931, MSSC 6931, MSSC 6960, and MSSC 6995 are offered a periodically by arrangement.

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Applied Statistics MS Courses of Study:

There is flexibility of course selection within the APST-MS program. Below are several potential courses of study that students might follow. Full-time students generally complete the program within two years with a summer practicum if non-thesis Plan B and no summer coursework if thesis Plan A. Well prepared students could complete the degree in 12 months.

Fall Semester Start

One	Year	Sample	Schedule		Plan A or B
Semester	Class 1	Class 2	Class 3	Class 4	Notes
Fall 1	MSSC6040	MSSC5780	MSSC6010	MSSC6240	12 Credits
Spring 1	MSSC5710	MSSC5760	MSSC6020	MSSC6250	12 Credits
Summer 1	MSSC6999	or	MSSC6975	MSSC6995	6 Credits

Two	Year	Sample	Schedule	Practicum	Plan B
Semester	Class 1	Class 2	Class 3	Class 4	Notes
Fall 1	MSSC5540	MSSC5700	MSSC5780		9 Credits
Spring 1	MSSC6000	MSSC5710	MSSC5760		9 Credits
Summer 1	MSSC6975				3 credits
Fall 2	MSSC6040	MSSC6010	MSSC6240		9 Credits
Spring 2	MSSC6931	MSSC6020	MSSC6250		9 Credits

Two	Year	Sample	Schedule	Thesis	Plan A
Semester	Class 1	Class 2	Class 3	Class 4	Notes
Fall 1	MSSC5540	MSSC5780	MSSC6040		6 Credits
Spring 1	MSSC6000	MSSC5710	MSSC5760		6 Credits
Summer 1					
Fall 2	MSSC6010	MSSC6240	MSSC6999		9 Credits
Spring 2	MSSC6020	MSSC6250	MSSC6999		9 Credits

One and Half	Year	Sample	Schedule	Thesis	Plan A
Semester	Class 1	Class 2	Class 3	Class 4	Notes
Fall 1	MSSC5780	MSSC6010	MSSC6040		9 Credits
Spring 1	MSSC5710	MSSC6020	MSSC6250		9 Credits
Summer 1	MSSC6999				3 credits
Fall 2	MSSC5540	MSSC6240	MSSC6999		9 Credits

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Spring Semester Start

Two	Year	Sample	Schedule	Practicum	Plan B
Semester	Class 1	Class 2	Class 3	Class 4	Notes
Fall 1					
Spring 1	MSSC6000	MSSC5710	MSSC6931		9 Credits
Summer 1					
Fall 2	MSSC5780	MSSC6010	MSSC6040		9 Credits
Spring 2	MSSC5760	MSSC6020	MSSC6250		9 Credits
Summer 2					
Fall 3	MSSC6240	MSSC6975			6 Credits
Spring 3					
Summer 3					

One and Half	Year	Sample	Schedule	Practicum	Plan B
Semester	Class 1	Class 2	Class 3	Class 4	Notes
Fall 1					
Spring 1	MSSC5710	MSSC5760	MSSC6040		9 Credits
Summer 1	MSSC6975	MSSC6995			6 Credits
Fall 2	MSSC5780	MSSC6010	MSSC6240		9 Credits
Spring 2	MSSC6931	MSSC6020	MSSC6250		9 Credits
Summer 2					

One	Year	Sample	Schedule		Plan A or B
Semester	Class 1	Class 2	Class 3	Class 4	Notes
Fall 1					
Spring 1	MSSC5710	MSSC5760	MSSC6020	MSSC6250	12 Credits
Summer 1	MSSC6999	or	MSSC6975	MSSC6995	6 Credits
Fall 2	MSSC6040	MSSC5780	MSSC6010	MSSC6240	12 Credits
Spring 2					

There are many options to complete preparatory courses at the beginning of the program.

Please contact the Applied Statistics Director for details about the program.

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The following are tentatively approved courses from outside MSSC:

BIIN 6000	Introduction to Bioinformatics	3 credits
BIEN 6200	Biomedical Signal Processing	3 credits
BIEN 6220	Multidimensional Biomedical Time Series Analysis	3 credits
BUAD 6112	Skills: SAS	1 credit
BUAD 6113	Skills: SPSS	1 credit
BUAD 6160	Business Analytics Using Spreadsheets	3 credits
CHEM 5230	Forensic Chemistry	3 credits
CHEM 6403	Statistical Thermodynamics	3 credits
COSC 5610	Data Mining	3 credits
COSC 5500	Visual Analytics	3 credits
COSC 6060	Parallel and Distributed Systems	3 credits
ECON 6560	Applied Econometrics	3 credits
ECON 6561	Applied Time-Series Econometrics and Forecasting	3 credits
EECE 6020	Probability and Random Processes in Engineering	3 credits
EECE 6340	Stochastic Systems Estimation and Control	3 credits
EECE 6510	Optimal and Adaptive Digital Signal Processing	3 credits
EECE 6540	Digital Image Processing	3 credits
EECE 6830	Pattern Recognition	3 credits
EECE 6840	Neural Network and Neural Computing	3 credits
MEEN 5360	Intermediate Thermodynamics	3 credits
MEEN 5410	Experimental Design	3 credits
MEEN 6330	Statistical Thermodynamics	3 credits
MEEN 6470	Statistical Methods in Engineering	3 credits
PHYS 5012	Quantum Mechanics	3 credits
PHYS 5062	Introduction to Thermodynamics	3 credits
PSYC 6135	Single Subject Research Methods	3 credits
PSYC 8101	Advanced Statistics and Design 1	3 credits
PSYC 8102	Advanced Statistics and Design 2	3 credits

Please consult with the applied statistics program director to ensure this list is current.