

**Illinois State University
Department of Mathematics
Statistics Sequence**

This sequence of the major is designed to prepare students for statistical work in industry and government. In addition to learning the mathematical foundation of statistics, the students will get experience in at least one cognate area of application of statistics for Biometrics, Computer Science, Econometrics, and Psychometrics. This will allow the students to experience many fields of statistical applications and select a field of their choice for a career.

Major Requirements

A minimum of 45 hours in Mathematics is required

Required Courses

MAT 145 Calculus I (4 hours)	MAT 252 Introduction to Statistics with Applications (3 hours)
MAT 147 Calculus III (4 hours)	MAT 260 Discrete Mathematics (4 hours)
MAT 146 Calculus II (4 hours)	MAT 351 Statistics and Data Analysis (4 hours)
MAT 175 Elementary Linear Algebra (4 hours)	MAT 350 Applied Probability Models (4 hours)

At least three courses from the following:

MAT 353 The Analysis of Time Series (4 hours)	MAT 450 Finite Sampling (4 hours)
MAT 354 Nonparametric Statistics (3 hours)	MAT 453 Regression Analysis (4 hours)
MAT 355 Generalized Linear Models and Predictive Modeling (4 hours)	MAT 455 Applied Stochastic Processes (4 hours)
MAT 356 Statistical Computing (4 hours)	MAT 456 Multivariate Statistics (3-4 hours)
MAT 443 Statistical Learning and Data Mining (3 hours)	MAT 458 The Design of Experiments (3-4 hours)

(Note: Only seniors with good standing will be allowed to take a graduate-level course, those courses with numbers 400 or higher, provided the Graduate School gives approval.)

One computer programming course: IT 165 or IT 168 (does not count toward the 45 hours).

Take two courses from one of the following cognate areas:

Biological Sciences: BSC 201, BSC 203, BSC 219, BSC 297, BSC 321

Economics: ECO 225, ECO 235, ECO 238, ECO 239, ECO 240, ECO 241, ECO 320, ECO 331, ECO 339

Psychology: PSY 230, PSY 231, PSY 233, PSY 331, PSY331A01, PSY 334

Finance: FIL 220, FIL 240, FIL 241, FIL 242, FIL 250, FIL 341, FIL 342, FIL 345, FIL 350, FIL 371

Computer Science: IT 225, IT 226, IT 261, IT 244, IT 279, IT 327, IT 328, IT 340, IT 344

Hidden Prerequisites: Note that BSC 196, BSC 197, ECO 105, and PSY 110 are prerequisites for the upper-level courses from the respective cognate areas. IT 179 is required for IT 225, IT 226, and IT 327. ECO 138 is a prerequisite for most Economics courses. A mathematical Statistics course may be substituted for this requirement.

Note: It is to the advantage of the student to have a minor or double major in one of the above areas, but this is NOT a requirement of the sequence. Seniors in good standing are encouraged to take upper-level applied statistics courses from cognate areas.

Statistics Sequence—Sample Four-Year Plans

Cognate Area: Biometric	
YEAR 1	
Fall	Spring
MAT 145 Calculus I	MAT 146 Calculus II
COM 110 or ENG 101	ENG 101 or COM 110
GE Natural Science	GE Natural Science
GE Individual and Civic Life	GE Social Science
GE US Traditions	BSE 196
YEAR 2	
Fall	Spring
MAT 147 Calculus III	MAT 175
MAT 252	IT 165 or IT 168
BSC 197	MAT 350
GE Language in the Humanities	GE Fine Arts
	GE Humanities
YEAR 3	
Fall	Spring
MAT 260	BSC 353
MAT 351	MAT 354 or MAT 355 or MAT 356
BSC 201	MAT 3xx
LAN 112	Senior College University Elective
YEAR 4	
Fall	Spring
MAT 337	MAT-elc*
BSC 219	MAT-elc*
MAT 354 or MAT 355 or MAT 356	MAT 3xx
MAT 3xx	MAT 3xx or MAT 4xx or University Wide Elective if needed

Cognate Area: Econometrics	
YEAR 1	
Fall	Spring
MAT 145 Calculus I	MAT 146 Calculus II
COM 110 or ENG 101	ENG 101 or COM 110
GE Natural Science	GE Natural Science
GE Individual and Civic Life	GE Social Science
GE US Traditions	
YEAR 2	
Fall	Spring
MAT 147 Calculus III	MAT 175
MAT 252	MAT 350
IT 165 or IT 168	ECO 225
GE Language in the Humanities	GE Fine Arts
	GE Humanities
YEAR 3	
Fall	Spring
MAT 260	BSC 353
MAT 351	MAT 354 or MAT 355 or MAT 356
ECO 320	ECO 238
LAN 112	Senior College University Elective
YEAR 4	
Fall	Spring
MAT 337	MAT-elc*
MAT 354 or MAT 355 or MAT 356	MAT-elc*
MAT 3xx	MAT 3xx
University Wide Elective if needed	MAT 3xx or MAT 4xx or University Wide Elective if needed

MAT-elc*: MAT 443 or MAT 450 or MAT 453 or MAT 455 or MAT 456 or MAT 458 - cognate psychometrics elective

Cognate Area: Psychometrics	
YEAR 1	
Fall	Spring
MAT 145 Calculus I COM 110 or ENG 101	MAT 146 Calculus II ENG 101 or COM 110
GE Natural Science GE Individual and Civic Life GE US Traditions	GE Natural Science GE Social Science PSY 110
YEAR 2	
Fall	Spring
MAT 147 Calculus III MAT 252 IT 165 or IT 168 GE Language in the Humanities GE Humanities	MAT 175 MAT 350 PSY 230 GE Fine Arts
YEAR 3	
Fall	Spring
MAT 260	BSC 353
MAT 351 PSY 231 LAN 112	MAT 354 or MAT 355 or MAT 356 PSY 331A01 University Wide Elective if needed
YEAR 4	
Fall	Spring
MAT 337 MAT 354 or MAT 355 or MAT 356 MAT 354 or MAT 355 or MAT 356	MAT-elc* MAT-elc* MAT 3xx MAT 3xx or MAT 4xx or University Wide Elective if needed
MAT 3xx	

Cognate Area: Finance	
YEAR 1	
Fall	Spring
MAT 145 Calculus I COM 110 or ENG 101 ECO 105 (GE Social Science)	MAT 146 Calculus II ENG 101 or COM 110 GE Natural Science
GE Natural Science GE US Traditions	GE Social Science GE Fine Arts
YEAR 2	
Fall	Spring
MAT 147 Calculus III MAT 252 ACC 131 (sophomore standing reqd.) GE Language in the Humanities	MAT 175 MAT 350 IT 165 or IT 168 ACC 132 GE Humanities
YEAR 3	
Fall	Spring
MAT 260	BSC 353
MAT 351 FIL 240 LAN 112	MAT 354 or MAT 355 or MAT 356 FIL 250 MAT 3xx
YEAR 4	
Fall	Spring
MAT 337 MAT 354 or MAT 355 or MAT 356 MAT 3xx	MAT-elc* MAT-elc* MAT 3xx
University Wide Elective if needed	MAT 3xx or MAT 4xx or University Wide Elective if needed

MAT-elc*: MAT 443 or MAT 450 or MAT 453 or MAT 455 or MAT 456 or MAT 458 - cognate psychometrics elective

Students must satisfy a foreign language requirement that may be met by: 3 years of a single foreign language in high school or completion of the second semester or higher of college-level foreign language

(LAN 112 or articulated course) with a grade of "C" or better or equivalent proficiency as determined by examination. American Sign Language may be used to fulfill this requirement by transfer credit or by proficiency. If needed, foreign language classes should be added to the above schedule.

Graduation Requirements: Complete a minimum of 120 hours; complete the General Education requirements; complete at least 42 senior level hours; complete residency and language requirements; complete a global studies course; maintain a GPA of 2.0 in Mathematics; maintain a GPA of 2.0 overall, and complete a senior portfolio. **For complete, official information, consult your catalog.**

Contact Dr. Gaywalee Yamskulna, Interim Department Chair, for more information.

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