

Accelerated Graduate Program in Data Science (BS) and Applied Statistics (MS)

Major requirements

(All catalogs, excluding teacher education programs)

34 credits (42 total credits including CS and STAT requirements)

The Accelerated Graduate Program in Data Science (B.S.) and Applied Statistics (M.S.) enables a UWL student to earn both a Bachelor of Science degree with a data science major and a Master of Science degree in applied statistics in five years.

Curriculum

Students in this accelerated graduate program should complete the following by the end of their junior year:

Required courses by end of junior year

Courses listed in more than one category may be counted only once unless otherwise stated.

Code	Title	Credits
Core		
DSC 210	Foundations of Data Science	3
DSC 271	Mathematics and Statistics Seminar (Mathematics & Statistics Seminar)	1
DSC 420	Supervised Learning	3
DSC 430	Unsupervised Learning	3
MTH 207	Calculus I	4
MTH 208	Calculus II	4
MTH 308	Linear Algebra with Differential Equations	4
STAT 305	Statistical Methods	3
STAT 345	Statistical Computing	3

Professional Communication

Select three credits of the following:		3
CST 260	Professional Communication	
CST 354	Health Communication	
CST 365	Communication in Teams	
ENG 307	Workplace Writing	
ENG 308	Technical Writing	
ENG 314	Grant Writing	

Electives

Select three credits not already taken from the following:		3
STAT 443	Categorical Data Analysis	
STAT 444	Environmental Statistics	
STAT 449	Applied Multivariate Statistics	
CS 364	Introduction to Database Management Systems	
CS 452	Artificial Intelligence	
CS 457	Machine Learning	
CST 260	Professional Communication	

CST 354	Health Communication	
CST 365	Communication in Teams	
ENG 307	Workplace Writing	
ENG 308	Technical Writing	
ENG 314	Grant Writing	
PHL 303	Ethics and Meta-Ethics: Theory, Justification, and Objectivity	
Total Credits		34

Required prerequisite courses (8 credits)

Code	Title	Credits
CS 120	Software Design I	4
STAT 145	Elementary Statistics	4
or STAT 245	Probability and Statistics	

Senior year & fifth year courses

During the senior year, students will complete the Group I courses and two courses from Group III. In the fifth year, students will complete the Group II courses and an additional two courses from Group III. At least 9 credits selected from Group III must be taken at the 700-level. Slash courses taken at the 400-level cannot be taken again at the 500-level. Undergraduates may take up to nine graduate credits total while still undergraduate students.

Code	Title	Credits
Group I		
STAT 541	Mathematical Statistics I	3
STAT 542	Mathematical Statistics II	3
Group II		
STAT 545	Correlation and Regression Analysis	3
STAT 546	Analysis of Variance and Design of Experiments	3
Group III		
Select 12 credits from the following:		12
STAT 543	Categorical Data Analysis	
STAT 544	Environmental Statistics	
STAT 547	Nonparametric Statistics	
STAT 549	Applied Multivariate Statistics	
STAT 762	Bayesian Statistics	
STAT 763	Survey of Modern Statistical Software	
STAT 764	Statistical Learning	
STAT 766	Biostatistics	
Total Credits		24

Graduate project portfolio (6 credits):

Students enrolling in STAT 543 Categorical Data Analysis (3 cr.), STAT 544 Environmental Statistics (3 cr.), STAT 545 Correlation and Regression Analysis (3 cr.), STAT 546 Analysis of Variance and Design of Experiments (3 cr.), STAT 547 Nonparametric Statistics (3 cr.), STAT 549 Applied Multivariate Statistics (3 cr.), STAT 762 Bayesian Statistics (3 cr.), STAT 763 Survey of Modern Statistical Software (3 cr.), STAT 764 Statistical Learning (3 cr.), or STAT 766 Biostatistics (3 cr.) must enroll at the same time in one credit of STAT 796 Graduate Project in Applied Statistics (1-6 cr.) per accompanying course. In STAT 796, students complete a project related to the content of the accompanying class. STAT 796 can be taken multiple times in the same term. A total of six credits of STAT 796 are required for completion of the program.

Code	Title	Credits
STAT 796	Graduate Project in Applied Statistics (one credit, repeated six times)	6

Students may be accepted into the accelerated graduate degree program at any time before they have completed 75 undergraduate credit hours. Applicants for undergraduate admission to UWL may request admission into the accelerated graduate degree program. To remain in the program, students must maintain a 2.75 GPA in all undergraduate major courses and 3.00 GPA in all graduate courses. Award of the Bachelor of Science degree will occur upon completion of 120 credits, the data science major requirements, any other declared major requirements, college core requirements, and general university requirements. Students interested in double majoring with this accelerated graduate degree program as an undergraduate must complete the college core of their primary major and select a Bachelor of Science program as their primary major.

Students are allowed to take up to nine graduate credits as undergraduate students but must have degree-seeking graduate student status before registering for additional graduate credits (normally in the second semester of the senior year). Award of the Master of Science degree in applied statistics will occur after the completion of the B.S. and the M.S. in applied statistics requirements.

Contact the M.S. in Applied Statistics Program Director (<https://www.uwlax.edu/academics/grad/statistics/>) for application information. See the online graduate catalog for more information about the Applied Statistics Master of Science Program.

Degree requirements

All students must complete the general education, college core, major/minor, and university degree requirements to qualify for a degree. All enrolled students have access to a degree audit to track all of these requirements.

- Core general education requirements (<https://catalog.uwlax.edu/undergraduate/generaleducation/>)
- College core (<https://catalog.uwlax.edu/undergraduate/mathematics/accelerated-graduate-statistics-bs-and-applied-statistics-ms/#core>)
- Baccalaureate degree requirements (<https://catalog.uwlax.edu/undergraduate/mathematics/accelerated-graduate-statistics-bs-and-applied-statistics-ms/#university-degree-requirements>)

College of Science and Health (CSH) Bachelor of Science core requirements

B.S. students graduating from the College of Science & Health are required to take:

1. Two MTH/STAT courses or one MTH/STAT course and one CS course

Code	Title	Credits
CS 101	Introduction to Computing ¹	
CS 115	Introduction to Python Programming ¹	
CS 120	Software Design I ¹	
CT 100	Introduction to Computational Thinking ¹	
MTH 115	Mathematics for Early Childhood and Elementary Teachers I ¹	
MTH 116	Mathematics for Early Childhood and Elementary Teachers II ¹	

MTH 123	Mathematics for Decision Making ¹
MTH 150	College Algebra ¹
MTH 151	Precalculus ¹
MTH 160	Mathematics for Business ¹
MTH 175	Applied Calculus ¹
MTH 207	Calculus I ¹
MTH 208	Calculus II ¹
MTH 215	Mathematics for Middle School Teachers I ¹
MTH 216	Mathematics for Middle School Teachers II ¹
MTH 265	Mathematical Models in Biology ¹
STAT 145	Elementary Statistics ¹

¹ Course may also satisfy a Core General Education Requirement.

2. Two laboratory science courses, one of the two courses must be from a department outside of the student's major department:

Code	Title	Credits
ANT 102	Introduction to Biological Anthropology ¹	
BIO 100	Biology for the Informed Citizen ¹	
BIO 105	General Biology ¹	
BIO 203	Organismal Biology	
BIO 210	Animal Biology	
BIO 304	Plant Biology	
CHM 103	General Chemistry I ¹	
CHM 104	General Chemistry II	
ESS 205	Human Anatomy and Physiology for Exercise and Sport Science I	
GEO 101	Earth Environments ¹	
GEO 221	Weather and Climate	
GEO 222	Earth Surface Processes and Landforms	
MIC 100	Microbes and Society ¹	
PHY 103	Fundamental Physics I ¹	
PHY 104	Fundamental Physics II	
PHY 106	Physical Science for Educators ¹	
PHY 155	Solar System Astronomy ¹	
PHY 160	Stars, Galaxies and the Universe ¹	
PHY 203	General Physics I ¹	
PHY 204	General Physics II	

Notes: Mathematics courses can be pairs, i.e. MTH 150 and MTH 151.

3. In addition to all other College of Science and Health core requirements, students from non-exempted programs ² must complete one of the following options. It is recommended that courses are selected in consultation with students' academic advisor.
 - a. Complete a second major; or
 - b. Complete a minor outside the major; or
 - c. Complete two certificates outside the major with at least 12 combined credits at the 300/400 level; or
 - d. Complete an individualized option, consisting of 18 credits
 - i. At least 12 credits must be earned at the 300/400 level outside the major department.
 - ii. The remaining six credits should come from
 - a. 100 level or higher courses outside the major (all courses used to meet these requirements must be in

addition to the minimum credits required in the Core General Education Requirements); or

- b. 300/400 level courses inside major not being used to fulfill major requirements.
- iii. Internship credits may not count toward the individualized option.

² The list of exempted CSH programs is on the CSH catalog page (<https://catalog.uwlax.edu/undergraduate/scienceandhealth/#exemptions>).

Baccalaureate degree requirements

Candidates for the Bachelor of Arts or the Bachelor of Science degrees must accomplish the following:

1. Fulfill the Core General Education Requirements (CGER) (<https://catalog.uwlax.edu/undergraduate/generaleducation/#generaleducationrequirements>).
2. Complete the courses prescribed by the Undergraduate Curriculum Committee for the degree desired in the respective school or college.
3. Earn a minimum of 120 semester credits with at least a 2.00 cumulative GPA.^{1,2}
4. At least 40 credits must be earned in 300/400 level courses. Transfer courses earned or transferred at the 300/400 level apply to this requirement.
5. Complete major and minor requirements with at least a 2.00 GPA^{1,2} in each major and minor (and concentration or emphasis, if selected).
6. A minimum of 30 semester credits in residence at UWL is required for graduation. (See undergraduate resident requirement (<https://catalog.uwlax.edu/undergraduate/academicpolicies/graduation/#undergraduate-residence-requirement>)).
7. Submit an application for graduation via the "Submit Intent to Graduate" link in the WINGS Student Center as soon as the student has registered for his or her final semester or summer term in residence. December and winter intersession graduates should apply by May 1. May and summer graduates should apply by December 1.

¹ Grade point average requirements for some programs will be considerably higher than 2.00. Re-entering students may be required to earn credits in excess of the 120 needed for graduation in any curriculum to replace credits earned in courses in which the content has changed substantially in recent years. Each case will be judged on its own merit.

² The grade point average recorded at the time the degree is awarded will not be affected by future enrollment.

No degree will be awarded unless all requirements are fulfilled and recorded within 30 days after the official ending date of each term.

Sample degree plan

Below is a sample degree plan that can be used as a guide to identify courses required to fulfill the major and other requirements needed for degree completion. A student's actual degree plan may differ depending on the course of study selected (second major, minor, etc.). Also, this sample plan assumes readiness for each course and/or major plan, and some courses may not be offered every term. Review the course

descriptions or the class timetable (<http://www.uwlax.edu/records/registration/>) for course offering information.

The sample degree plans represented in this catalog are intended for first-year students entering UWL in the fall term. Students should use their degree audit and work closely with their advisor(s) and college dean's office to ensure declaration and completion of all requirements in a timely manner.

Core General Education Program

The Core General Education Requirement (CGER) is the common educational experience for all undergraduates at UWL. Sample degree plans include CGER placeholders to ensure completion of the core general education requirements. The CGER category listed in parentheses indicated the recommended course to help complete CGER and the program requirements. Transferred courses may alter the plan. Courses may be rearranged to fit the needs or recommendations of the student's program of study. CGER courses may be taken during winter term (January between the semesters) and summer to reduce the course load during regular terms (fall and spring). Students should consult with their advisor and/or the college academic services director in their college/school for assistance with course and schedule planning. Refer to the Core General Education Requirements (<https://catalog.uwlax.edu/undergraduate/generaleducation/>) for more specific details.

At least 40 credits of the 120 credits required must be earned at the 300/400-level.

Note: New students and transfer students with less than 12 credits earned are required to take The Eagle Advantage for College Success (UWL 100, 2 cr.) or FYS 100 First-Year Seminar (3 cr.) during one of their first two semesters at UWL.

This sample degree plan does not establish a contractual agreement. It identifies the minimum requirements a student must successfully complete, to qualify for a degree, in a format intended to assist the student in planning their academic career. Actual degree plans may differ.

Year 1		
Fall	Credits Spring	Credits
MTH 207 (CGER MQR-QR Mathematics & Quantitative Reasoning: Quantitative Reasoning)	4 STAT 145 or 245	4
DSC 271	1 MTH 208 or 265	4
UWL 100 or FYS 100 (CGER SBS-FS Social & Behavioral Science: Social Foundation for Success)	2 CST 110 (CGER CL-SL Communication & Literacy: Spoken Literacy)	3
ENG 110 (CGER CL-WL Communication & Literacy: Written Literacy)	3 CGER NSWL-ES Natural Science & Wellness: Experiential Science	4
CS 120 (CSH Core)	4	
University Elective	3	
	17	15

Year 2		
Fall	Credits Spring	Credits
DSC 210	3 STAT 345	3
STAT 305	3 MTH 308	4
CGER CP-CU Civics & Perspective: Communities of the United States	3 CGER CL-SWT Communication & Literacy: Stories We Tell	3
CGER HA-AA Humanities & Arts: Arts & Aesthetics	3 CSH Core (300/400 not MTH) or Minor ¹	3

CSH Core (Lab Science)	4 University Elective	2
	16	15
Year 3		
Fall	Credits Spring	Credits
Professional Communication Elective	3 Data Science Elective	3
CGER HA-PDU Humanities & Arts: Pasts that Define Us	3 CGER NSW-MBP Natural Science & Wellness: Mind, Body, & Planet	3
CGER CP-CW Civics & Perspective: Cultures of Our World	3 CSH Core (300/400 not MTH) or Minor ¹	3
CGER SBS-BS Social & Behavioral Science: Social & Behavioral Studies	3 CSH Core (300/400 not MTH) or Minor ¹	3
CSH Core (300/400 not MTH) or Minor ¹	3 University Elective	3
Apply for "graduate special status" for fall semester		
	15	15
Year 4		
Fall	Credits Spring	Credits
DSC 420	3 DSC 430	3
STAT 541	3 STAT 542	3
Group III non thesis graduate course work (see catalog for course listing)	3 Group III non thesis graduate course work (see catalog for course listing)	3
CSH Core or Minor ¹	3 CSH Core or Minor ¹	3
University Elective	3 University Elective (300/400 level)	3
Apply for "full graduate status" for spring semester		
	15	15
Additional year		
Fall	Credits Spring	Credits
STAT 545	3 STAT 546	3
Group III non thesis graduate course work (see catalog for course listing)	3 Group III non thesis graduate course work (see catalog for course listing)	3
STAT 796	3 STAT 796	3
	9	9
Total Credits: 141		

¹ See CSH BS Core Requirements (<https://catalog.uwlax.edu/undergraduate/scienceandhealth/#bs-core>) for information on completing the individualized option. 300/400 requirement for graduation may be impacted.