

Program: Industrial and Applied Mathematics Bachelor of Science

Total Credits: 120

Catalog: Fall 2023 to Summer 2024



Four Year Graduation Planner

- This guide is intended to show a recommended four-year pathway to a degree if student is college ready and full-time.
- It is only a sample; there may be other pathways that lead to completion of the degree in four years.
- It is NOT intended to take the place of meetings with advisors or intended to take the place of the Degree Audit System (DARs).

Key to tables below. More details on final page.

Core: fulfills required course for major	Elective: student selected course credits for major	GELS: General Education Liberal Studies Goal Area	LS: Liberal Studies
		Pre/Premajor: Premajor foundation course	RIGR: Racial Issues Graduation Requirement

First Year

Course	Requirement Met	Semester Offered	Credits	Credit Hour Total
METR 101 Your Academic Journey	GELS elective	Fall, Spring	3	
MATH 210 Calculus I	Pre/GELS Goal 4	Fall, Spring, Summer	4	
STAT 201 Statistics I	Premajor	Fall, Spring, Summer	4	
General Education Communication	GELS Goal 1	Fall, Spring, Summer	3	
General Education Writing	GELS Goal 1	Fall, Spring, Summer	3	17
MATH 211 Calculus II	Core	Fall, Spring, Summer	4	
ICS 140 Computational Thinking & Programming	Premajor	Fall, Spring, Summer	4	
General Education Writing II	GELS Goal 1	Fall, Spring, Summer	3	
MATH 215 Discrete Mathematics	Premajor	Fall, Spring, Summer	4	15
First Year Total				32

Second Year

Course	Requirement Met	Semester Offered	Credits	Credit Hour Total
MATH 230 Intro to Mathematical Modeling	Core	Fall, Spring, Summer	2	

Continued

MATH 310 Multivariable Calculus	Core	Fall	4	
DATA 211 Introduction to Data Science	Core	Fall, Spring	4	
General Education	GELS Goal 3		3-4	13-14
MATH 315 Linear Algebra	Core	Fall	4	
MATH 320 Probability	Core	Fall	4	
STAT 311 Regression Analysis	Core	Fall, Spring	4	
General Education	GELS Goal 3	Fall, Spring, Summer	3-4	15-16
Second Year Total				28-30

Third Year

Course	Requirement Met	Semester Offered	Credits	Credit Hour Total
DATA 401 Applied Machine Learning (if odd year) OR MATH 390 Computational Mathematics (if even year)	Core	Fall, Spring, Summer	4	
MATH 355 Intro to Stochastic Processes	Core	Fall 1 st half	2	
MATH 330 Optimization	Core	Fall 2 nd half	2	
General Education	GELS Goal 5 and RIGR	Fall, Spring, Summer	3-4	
General Education	GELS Goal 6 and 7	Fall, Spring, Summer	3-4	14-16
MATH 430 Advanced Mathematical Modeling (see note below)	Core	Spring	4	
Non-Major Elective	Elective	Varies	3-4	
Select Major Elective	Elective	Varies	4	
General Education	GELS Goal 9 and LS	Fall, Spring, Summer	3-4	14-16
Third Year Total				28-32

Fourth Year

Course	Requirement Met	Semester Offered	Credits	Credit Hour Total
DATA 401 Applied Machine Learning (if odd year) OR	Core	Fall, Spring, Summer	4	

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MATH 390 Computational Mathematics (if even year)	Core	Fall (even years)	4	
Major Elective	Elective	Varies	4	
General Elective	GELS Goal 10	Fall, Spring, Summer	3-4	
General Education	GELS Goal 6 and 8	Fall, Spring, Summer	3-4	14-16
STAT 480 Statistical Consulting Or MATH 499 Senior Capstone	Core	Spring	4	
Select Major Elective	Elective	Varies	4	
Non-Major Elective	Elective	varies	3-4	
Non-Major Elective	Elective	varies	3-4	14-16
Fourth Year Total				28-32

Academic and graduation requirements

Course requirements

Credit requirements: 120 total credits

- 40 upper-division credits (courses at community colleges are all lower-division courses, so they do not count toward this requirement)
- 30 credits completed at Metropolitan State University
- 40 general education credits
- 8 upper-division liberal studies credits
- 3 [racial issues graduation requirement \(RIGR\)](#) credits
- All credit requirements for the major
- Elective credits (if you are short of the 120 total credits required for graduation)

GELS: General education/liberal studies requirements (48 credits)

- [Minnesota Transfer Curriculum](#): 40 credits. Goal areas 1–10 are met by Minnesota community college A.A. degree. They are *not* met by A.S. or A.A.S degrees or community colleges outside of Minnesota.
- [Liberal studies](#): 8 credits.

Continued

- These credits must be:
 - Upper-division general education courses (300 to 500 level)
 - Designated as a liberal studies (LS) course
- These credits are not:
 - completed by AA, AAS or AS degrees or the Minnesota Transfer Curriculum
 - met by any community college course (all community college courses are lower division, including courses that meet major requirements)

Racial Issues Graduation Requirement (RIGR) and transfer coursework

All new or readmitted undergraduate students admitted fall 2016 or later must complete an approved learning experience (at least 3 credits) with a significant focus on race and racism to graduate with a bachelor's degree from the university. Upon review, an approved prior learning, independent study, theory seminar or transfer course from other accredited institutions may also be used to meet this graduation requirement.

DARS: Your degree audit report

The Degree Audit report is a degree planning tool for students that includes both transfer and Metropolitan State coursework. You can access your Degree Audit report in [eServices](#) under “Academic Records.” The report includes:

- How your transfer credits have been accepted and applied to General Education and Liberal Studies, including the Minnesota Transfer Curriculum.
- All the requirements needed to complete a specific program.
- Courses that have already been completed, grades received and hours earned, both at Metropolitan State and in transfer.
- Transfer courses that have been made equivalent to Metropolitan State University courses.
- Exceptions to degree and program requirements that have been processed.
- What is still needed to complete a program, with a list of courses that will satisfy each requirement.



MINNESOTA STATE

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