

Master of Science in Materials Science and Technology

Study Plan

A minimum of 32 credit hours are required to complete the Master of Science in Materials Science and Technology for any of the two options offered by the program including the following:

- A minimum of 12 credit hours in Major Core Requirements
- A minimum of 20 credit hours as detailed below in either the Thesis Option or the Project Option

- Thesis Option:

- A minimum of 9 credit hours in the Thesis Option Requirements
- A minimum of 11 credit hours in the Major Elective Requirements.

- Project Option:

- A minimum of 6 credit hours in the Project Option Requirements
- A minimum of 14 credit hours in in the Major Elective Requirements.

Students holding a bachelor degree in a discipline other than Chemistry, Physics, and Mechanical, Industrial or Chemical Engineering may have to complete one or more bridge courses prior to taking the program courses based on the program admission committee's decision. Thus, the following additional requirements apply:

- Students must complete 0 to 9 credit hours in the Bridge Course Requirements based on the program admission committee decision.

Major Core Requirements (12 CH)

The following courses must be completed by all Master of Science in Materials Science and Technology students:

- MATS 511 Materials Principles and Characterization
- MATS 512 Thermodynamics and Kinetics of Materials
- MATS 513 Functional Properties of Materials
- MATS 514 Research Methodology

- MATS 580 Graduate Seminar

Thesis Option Requirements (9 CH)

Students who choose the Thesis option must complete the following course:

- MATS 695 Thesis

Project Option Requirements (6 CH)

Students who choose the Project option must complete the following course:

- MATS 690 Applied Materials Project

Major Elective Requirements (11 or 14 CH)

Students selecting the Thesis Option must complete a minimum of 11 credit hours in major elective courses while students selecting the Project option must complete a minimum of 14 credit hours in major elective courses including:

- MATS 520 Mechanics of Materials
- MATS 525 Sustainable Materials
- MATS 530 Radiation Technology for Materials
- MATS 535 Physical Metallurgy
- MATS 540 Advanced Materials and Composites
- MATS 545 Polymers Science and Analysis
- MATS 550 Polymer Processing
- MATS 555 Metals and Minerals Processing
- MATS 560 Materials Science Modeling
- MATS 565 Surface Science and Corrosion
- MATS 570 Nanotechnology and Advanced Characterization Methods
- MATS 675 Special Topics

Bridge Course Requirements Package (0 - 9 CH)

Students holding a bachelor degree in disciplines other than Chemistry, Physics, and Mechanical, Industrial or Chemical Engineering must complete 0 to 9 credit hours in Bridge Course Requirements prior to taking the program courses. The credit hours allocated to bridge courses are not counted towards satisfying the 32 credit hours required by the program.

Based on the program admission committee decision, students may be required to complete one or more of the following bridge courses:

- MATS 500 Modern Physics
- MATS 501 Physical Chemistry
- MATS 502 Materials Science

Study Plan Tables

Thesis option

FIRST YEAR (18 credit hours)			
Term	Course #	Course Title	CHs
Fall	MATS 511	Materials Principles and Characterization	3
	MATS 513	Functional Properties of Materials	3
	MATS 514	Research Methodology	3
Total			9
Spring	MATS 512	Thermodynamics and Kinetics of Materials	3
	MATS XXX	Elective Course 1	3
	MATS XXX	Elective Course 2	3
	MATS 580	Graduate Seminar	0
Total			9

SECOND YEAR (14 or 15 credit hours)			
Term	Course #	Course Title	CHs
Fall	MATS XXX	Elective Course 3	3
	MATS XXX	Elective Course 4	2 or 3
	MATS 695	Research	3
Total			8 or 9
Spring	MATS 599	Research	6
Total			6

Non-Thesis option

FIRST YEAR (18 credit hours)			
Term	Course #	Course Title	CHs
Fall	MATS 511	Materials Principles and Characterization	3
	MATS 513	Functional Properties of Materials	3
	MATS 514	Research Methodology	3
Total			9
Spring	MATS 512	Thermodynamics and Kinetics of Materials	3
	MATS XXX	Elective Course 1	3
	MATS XXX	Elective Course 2	3
	MATS 580	Graduate Seminar	0
Total			9

SECOND YEAR (14 or 15 credit hours)			
Term	Course #	Course Title	CHs
Fall	MATS XXX	Elective Course 3	3
	MATS XXX	Elective Course 4	3
	MATS 690	Applied Materials Project	3
Total			9
Spring	MATS 690	Applied Materials Project	3
	MATS XXX	Elective Course 5	2 or 3
Total			5 or 6