

B.S. In Materials Science and NanoEngineering

Specializations: Students select electives to suit their academic interests and career plans.

Engineering and

Sciences Electives: At least four electives for a total of 12 hours of credit approved by a department academic advisor:
One basic science elective at the 200 level or higher, one engineering elective (not MSNE), and two technical electives in science, engineering (including MSNE) or math at the 200 level or higher.

Sample Degree Plan

THIS IS ONE EXAMPLE OF MANY POSSIBLE SCHEDULES.

CONSULT A DIVISIONAL OR DEPARTMENTAL ADVISOR TO CUSTOMIZE YOUR DEGREE PLAN.

FALL			SPRING		
FRESHMAN 18 credits			FRESHMAN 17 credits		
MATH 101	Single Variable Calculus I	3	MATH 102	Single Variable Calculus II	3
CHEM 121	General Chem I w/Lab	4*	CHEM 122	General Chem II w/Lab	4*
PHYS 101	Mechanics w/Lab	4*	PHYS 102	Electr & Magnetism w/Lab	4*
	or 111			or 112	
MSNE 201	Introduction to NanoEngineering	3	OPEN	Open elective	3
FWIS	Freshman Writing	3	DIST	Distribution elective	3
LPAP	Lifetime Phys Activity elective	1			
SOPHOMORE 15 credits			SOPHOMORE 18 credits		
MATH 211	Ord Diff Eqs & Linear Algebra	3	MATH 212	Multivariable Calculus	3
PHYS 201	Waves & Optics	3	CAAM 210	Intro to Eng Computation	3
	or CHEM 211/311		DIST	Distribution elective	3
SPEC	MSNE Technical elective	3	DIST	Distribution elective	3
MSNE 301	Materials Science	3	OPEN	Open elective	3
DIST	Distribution elective	3	OPEN	Open elective	3
JUNIOR 17 credits			JUNIOR 14 credits		
CAAM 335	Matrix Analysis	3	MSNE 303	Materials Science Junior Lab	1
MSNE 401	Transport Phenomena in Mat Sci	4	MSNE 311	Materials Selection and Design	4
MSNE 406	Physical Properties of Solids	3	MSNE 411	Mtlography & Phase Relations	3
MSNE 415	Ceramics and Glasses	3	SPEC	MSNE Engineering elective	3
MSNE 451	Materials Science Seminar	1	OPEN	Open elective	3
DIST	Distribution elective	3			
SENIOR 16 credits			SENIOR 16 credits		
MSNE 402	Mechanical Properties of Materials	3	MSNE 408	Capstone Design II	3
MSNE 407	Capstone Design I	4	MSNE 435	Crystallography and Diffraction	3
MSNE 450	Materials Science Seminar	0	MSNE 437	Materials Science Senior Lab	1
SPEC	MSNE Technical elective	3	DIST	Distribution elective	3
SPEC	MSNE Science elective	3	OPEN	Open elective	3
DIST	Distribution elective	3	OPEN	Open elective	3

* In addition to class hours, these courses have a regularly scheduled lab and/or discussion session that must fit into your schedule.

• When registering for PHYS 101, you must also register for PHYS 103, the discussion section for 101.

•• When registering for PHYS 102, you must also register for PHYS 104, the discussion section for 102.

§ When registering for CHEM 211, you must also register for CHEM 213, the discussion section for 211.

BASIC REQUIREMENTS	General Math & Science Courses	37
	Core Courses in Major	39
ELECTIVE REQUIREMENTS	Specialization Electives	12
	Open Electives and LPAP	19
	FWIS and Distribution Courses	24
Minimum credit required for the B.S.		131

Of the 131 total credits, the BS in Materials Science and NanoEngineering requires 76 credits in general math and science courses and core courses.

Major Requirements

NUMBER	CREDIT	TITLE
MATH 101	3	Single Variable Calculus I
MATH 102	3	Single Variable Calculus II
MATH 211	3	Ordinary Differential Equations & Linear Algebra
MATH 212	3	Multivariable Calculus
PHYS 101•/111	4*	Mechanics w/Lab
PHYS 102••/112	4*	Electricity and Magnetism w/Lab
CHEM 121/123	4*	General Chemistry I w/Lab
CHEM 122/124	4*	General Chemistry with II Lab
CAAM 210	3	Introduction to Engineering Computation
CAAM 335	3	Matrix Analysis
PHYS 201/CHEM 211/311	3	Waves and Optics/Organic Chemistry/Physical Chemistry
MSNE 201	3	Introduction to NanoEngineering
MSNE 301	3	Materials Science
MSNE 303	1	Materials Science Junior Lab
MSNE 311	4	Materials Selection & Design
MSNE 401	4	Thermodynamics & Transport Phenomena in Materials Science
MSNE 402	3	Mechanical Properties of Materials
MSNE 406	3	Physical Properties of Solids
MSNE 407	4	Capstone Design I
MSNE 408	3	Capstone Design II
MSNE 411	3	Metallography and Phase Relations
MSNE 415	3	Ceramics and Glasses
MSNE 435	3	Crystallography and Diffraction
MSNE 450	0	Materials Science Seminar
MSNE 451	1	Materials Science Seminar
MSNE 437	1	Crystallography & Diffraction Lab/Materials Science Senior Lab
Elective	3	1 approved science elective (not MSNE)
Elective	3	1 approved technical elective (MSNE)
Elective	3	1 approved technical elective (MSNE)
Elective	3	1 approved engineering elective (not MSNE)

* In addition to class hours, these courses have a regularly scheduled lab and/or discussion session that must fit into your schedule.

- When registering for PHYS 101, you must also register for PHYS 103, the discussion section for 101.
- When registering for PHYS 102, you must also register for PHYS 104, the discussion section for 102.
- § When registering for CHEM 211, you must also register for CHEM 213, the discussion section for 211.