

B.S. IN MATERIALS SCIENCE & ENGINEERING

CATALOG YEAR 2020-2021

Below is the *advised sequence* of courses for this degree program and prerequisites as of 12/18/19.

The official degree requirements and prerequisites found in the University General Catalog and the prerequisites are subject to change.

COURSE NUMBER AND TITLE	UNITS	PREREQUISITES
1ST SEMESTER		
MATH 122 A/B or MATH 125 Calculus I with Applications	5/3	Appropriate Math Placement
CHEM 151 General Chemistry I or CHEM 161/163	4	Appropriate Math Placement
ENGL 101 or 107 or 109H First-Year Composition	3	
ENGR 102A/B Introduction to Engineering or ENGR 102	3	ENGR102A: MATH 112 or 120R & CHEM 151; ENGR102B: Concurrent enrollment or completion of MATH 122B or 125
Tier I General Education	3	
2ND SEMESTER		
MATH 129 Calculus II	3	MATH 122B or 125 with C or better
MSE 110 Solid State Chemistry	4	CHEM 151 or 161/163
PHYS 141 Introductory Mechanics or PHYS 161H	4	MATH 122B or 125 or appropriate Math Placement Level
ENGL 102 or 108 First-Year Composition	3	ENGL 101 or ENGL 107
Tier I General Education	3	
3RD SEMESTER		
MSE 222 Introduction to Materials Science and Engineering I– Fall Only	3	CHEM 151; MSE 110 or CHEM 152; MATH 122B or MATH 125
MATH 223 Vector Calculus	4	MATH 129 with C or better
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	4	For PHYS 241 or 261H: PHYS 141 or 161H; MATH 129 or appropriate Math Placement Level
MSE 280 Introduction to Computer Methods in MSE – Fall Only	2	MATH 129; MSE 110 or consult with department
Tier I General Education	3	
4TH SEMESTER		
MSE 223R Introduction to Materials Science and Engineering II - Spring Only	3	MSE 222 or 331R
MSE 223L Materials Processing Laboratory - Spring Only	2	
MSE 345 Thermodynamics - Spring Only	4	MATH 129, CHEM 151; MSE 110 or CHEM 152 or Department Consent
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129 or 223 with C or better
Tier I General Education	3	

COURSE NUMBER AND TITLE

UNITS

CURRENT PREREQUISITES FOR UPPER DIVISION COURSES CAN BE FOUND IN THE UA GENERAL CATALOG

ADVANCED STANDING IS REQUIRED FOR 3XX AND 4XX COURSES (SEE ADVISOR FOR REQUIREMENTS)

COURSE NUMBER AND TITLE	UNITS
5TH SEMESTER	
MSE Technical Elective – See major advisor for course approval	3
Math Elective – See major advisor for course approval	3
MSE 370 Mechanical Behavior of Materials – Fall Only	3
ECE 207 Elements of Electrical Engineering	3
MSE 365 Physical Properties of Materials – Fall Only	3
6TH SEMESTER	
MSE 360L Materials Lab – Spring Only	1
MSE Technical Elective – See major advisor for course approval	3
MSE 480 Advanced Characterization Methods in MSE – Spring Only	3
MSE 415 Transport Phenomena & Kinetics in Materials Processing – Spring Only	4
Advanced Science Elective – See major advisor for course approval	3
7TH SEMESTER	
ENGR 498A Cross-disciplinary Design (Fall Only) – Senior Status or MSE 498 Senior Capstone	3
MSE Technical Elective – See major advisor for course approval	3
Technical Elective – See major advisor for course approval	3
Technical Elective – See major advisor for course approval	3
Tier II General Education	3
8TH SEMESTER	
ENGR 498B Cross-disciplinary Design (Spring Only) – Senior Status or MSE 498 Senior Capstone	3
MSE Technical Elective – See Advisor for Course Approval	3
Technical Elective – See major advisor for course approval	3
Technical Elective – See major advisor for course approval	3
Tier II General Education	3

*Tier I and II General Education Courses must meet University general education requirements. One course must be recognized by the university as meeting the Diversity Requirement.