

# B.S. IN MATERIALS SCIENCE & ENGINEERING

## CATALOG YEAR 2019-2020

Below is the *advised sequence* of courses for this degree program and prerequisites as of 12/13/18.

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
<b>1<sup>ST</sup> SEMESTER</b>		
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 113 or 120R & CHEM 151; ENGR102B: Concurrent enrollment or completion of MATH 122B or 125
Tier I General Education	3	
<b>2<sup>ND</sup> SEMESTER</b>		
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	
<b>3<sup>RD</sup> SEMESTER</b>		
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	
<b>4<sup>TH</sup> SEMESTER</b>		
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
<b>5<sup>TH</sup> SEMESTER</b>	
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
<b>6<sup>TH</sup> SEMESTER</b>	
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/Kinetics – Spring Only	4
Advanced Science Elective – See major advisor for course approval	3
<b>7<sup>TH</sup> SEMESTER</b>	
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
<b>8<sup>TH</sup> SEMESTER</b>	
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.