

# 2019-2020 B.S. in Materials Engineering Curriculum

## Materials Engineering Option Curriculum

Courses	Units
<b>FRESHMAN YEAR</b>	
<i>1st Quarter</i>	
Chemistry and Biochemistry 20A — Chemical Structure <sup>1</sup>	4
English Composition 3 — English Composition, Rhetoric, and Language	5
Materials Science and Engineering 10 — Freshman Seminar: New Materials <sup>2</sup>	1
Mathematics 31A — Differential and Integral Calculus <sup>1</sup>	4
<i>2nd Quarter</i>	
Chemistry and Biochemistry 20B/20L — Chemical Energetics and Change/General Chemistry Laboratory <sup>1</sup>	7
Mathematics 31B — Integration and Infinite Series <sup>1</sup>	4
Physics 1A — Mechanics <sup>1</sup>	5
<i>3rd Quarter</i>	
Materials Science and Engineering 104 — Science of Engineering Materials <sup>2</sup>	4
Mathematics 32A — Calculus of Several Variables <sup>1</sup>	4
Physics 1B — Oscillations, Waves, Electric and Magnetic Fields <sup>1</sup>	5
<b>SOPHOMORE YEAR</b>	
<i>1st Quarter</i>	
Materials Science and Engineering 110/110L — Introduction to Materials Characterization A/Laboratory <sup>2</sup>	6
Mathematics 32B — Calculus of Several Variables <sup>1</sup>	4
Physics 1C — Electrodynamics, Optics, and Special Relativity <sup>1</sup>	5
<i>2nd Quarter</i>	
Materials Science and Engineering 90L — Physical Measurement in Materials Engineering <sup>2</sup>	2
Materials Science and Engineering 150 — Introduction to Polymers <sup>2</sup>	4
Mathematics 33A — Linear Algebra and Applications <sup>1</sup>	4
UCLA Samueli GE Elective <sup>3</sup>	5
<i>3rd Quarter</i>	
Civil and Environmental Engineering M20 (Intro to Computer Programming with MATLAB) or Computer Science 31 (Intro to Computer Science I) <sup>2</sup>	4
Electrical and Computer Engineering 100 — Electrical and Electronic Circuits <sup>2</sup>	4
Mathematics 33B (Differential Equations) or Mechanical and Aerospace Engineering 82 (Mathematics of Engineering) <sup>1</sup>	4
Technical Breadth Course <sup>3</sup>	4
<b>JUNIOR YEAR</b>	
<i>1st Quarter</i>	
Materials Engineering Laboratory Course <sup>2</sup>	2
Materials Science and Engineering 130 — Phase Relations in Solids <sup>2</sup>	4
Mechanical and Aerospace Engineering 101 — Statics and Strength of Materials <sup>2</sup>	4
<b>TOTAL</b>	<b>180</b>

<b>Courses</b>	<b>Units</b>
Technical Breadth Course <sup>3</sup>	4
<b>2nd Quarter</b>	
Materials Science and Engineering 131/131L — Diffusion and Diffusion-Controlled Reactions/Laboratory <sup>2</sup>	6
Materials Science and Engineering 143A — Mechanical Behavior of Materials <sup>2</sup>	4
UCLA Samueli GE Elective <sup>3</sup>	5
<b>3rd Quarter</b>	
Civil and Environmental Engineering 108 — Introduction to Mechanics of Deformable Solids <sup>2</sup>	4
Materials Science and Engineering 132 — Structures and Properties of Metallic Alloys <sup>2</sup>	4
Materials Engineering Laboratory Course <sup>2</sup>	2
UCLA Samueli GE Elective <sup>3</sup>	5
<b>SENIOR YEAR</b>	
<b>1st Quarter</b>	
Materials Engineering Elective <sup>2,4</sup>	4
Materials Science and Engineering 160 — Introduction to Ceramics and Glasses <sup>2</sup>	4
UCLA Samueli Ethics Course	4
Upper-Division Mathematics Course <sup>1,5</sup>	4
<b>2nd Quarter</b>	
Materials Engineering Elective <sup>2,4</sup>	4
Materials Science and Engineering 120 — Physics of Materials <sup>2</sup>	4
Materials Science and Engineering 140A — Materials Selection and Engineering Design A <sup>2</sup>	3
UCLA Samueli GE Elective <sup>3</sup>	5
<b>3rd Quarter</b>	
Materials Science and Engineering 140B — Materials Selection and Engineering Design B <sup>2</sup>	3
Materials Engineering Elective <sup>2</sup>	4
Technical Breadth Course <sup>3</sup>	4
UCLA Samueli GE Elective <sup>3</sup>	4
<b>TOTAL</b>	<b>180</b>

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1. Counts as Mathematics and Basic Sciences for ABET, total units Mathematics and Basic Sciences = 54.
  2. Counts as Engineering Concepts for ABET, total units Engineering Concepts = 81.
  3. Students should contact the Office of Academic and Student Affairs for approved lists in the categories of technical breadth and GE (see page 23 for details).
  4. See counselor in 6426 Boelter Hall for details.
  5. See page 103 for list of approved mathematics courses.