

Suggested Reading/Background Material for Biomaterials Module

Topic	Callister (10th edition, Chapters)	Ratner (3rd. Edition Sections)
Biomaterials – Structure/ Function	2 “Atomic Structure and Interatomic Bonding” 3 “The Structure of Crystalline Solids” 4 “Imperfections in Solids”	
Bio-compatibility		II.1 “Some background concepts” II.2 “Host Reaction to Biomaterials and their Evaluation” II.3.2 “The Concept and Assessment of Biocompatibility” II.3.5 “Evaluation of Blood-Materials Interactions”
Biomaterials – Metals	3 “The Structure of Crystalline Solids” 6 “Mechanical Properties of Metals” 11 “Applications and Processing of Metal Alloys” 22.10 “Anatomy of the Hip Joint”	I.2.3 “Metals: Basic Principles” II.5.6 “Orthopedic Applications”
Biomaterials – Ceramics	8.4 “Brittle Fracture” 12 “Structures and Properties of Ceramics” 13 “Applications and Processing of Ceramics” 22.10 “Anatomy of the Hip Joint”(prior edition, see home tab-courseworks)	I.2.4 “Ceramics, Glasses, and Glass-Ceramics: Basic Principles” 1.2.6 “Degradable and Resorbable Biomaterials” II.5.6 “Orthopedic Applications”
Biomaterials – Polymers	8.12 “Generalized Creep Behavior” 14 “Polymer Structures” 15 “Characteristics, Applications, and Processing of Polymers”	I.2.2 “Polymers: Basic Principles” → p. 67-79 for homo- and co-polymer figures II.5.6 “Orthopedic Applications”
Current Trends in Biomaterials (also see 2 posted articles)	17 “Corrosion and Degradation of Materials	I.2.6 “Degradable and Resorbable Biomaterials” II.4 “Degradation of Materials in the Biological Environment”