

## SECTION 1.3

# Classes of Materials Used in Medicine

### OUTLINE

The Materials Side of the Biomaterials Relationship

Polymers: Basic Principles

Polyurethanes

Silicones

Fluorinated Biomaterials

The Organic Matrix of Restorative Composites and Adhesives

Hydrogels

Degradable and Resorbable Polymers

Applications of “Smart Polymers” as Biomaterials

Metals: Basic Principles

Titanium Alloys, Including Nitinol

Stainless Steels

CoCr Alloys

Biodegradable Metals

Ceramics, Glasses, and Glass-Ceramics: Basic Principles

Natural and Synthetic Hydroxyapatites

Structural Ceramic Oxides

Carbon Biomaterials

Natural Materials

Processed Tissues

Use of Extracellular Matrix Proteins and Natural Materials in Bioengineering

Composites

Microparticles

## Nanoparticles