This lab manual provides an introduction to the biology and ubiquity of microorganisms (for example, bacteria, viruses, protozoa, fungi), including morphology, anatomy, physiology, classification, and identification. The significance and role of microorganisms in human affairs will also be explored.

- Front Matter
- Unit 1: Safety
- Unit 2: The Metric System, Measurement, and Lab Equipment Review
- Unit 3: Microscopy
- Unit 4: Environmental Sampling
- Unit 5: Survey of Eukaryotic Microorganisms- The Protists Algae
- Unit 6: Parasitic Helminths
- Unit 7: Fungi
- Unit 8: Pure Cultures- Aseptic Transfer Techniques and Streak Plates for Isolation
Unit 9: Bacterial Growth Patterns- Building your Stock Cultures and Observing Culture Characteristics
◦ Unit 10: Bacterial Growth Patterns- Direct Count, The Standard Plate Count, and Indirect Turbidimetric Methods
◦ Unit 11: Environmental Effects on Growth- Temperature
◦ Unit 12: Environmental Effects on Growth- pH
◦ Unit 13: Environmental Effects on Growth- Osmotic Pressure
◦ Unit 14: Oxygen Requirements- FTM and the Anaerobe Jar
◦ Unit 15: Environmental Effects on Growth- Antimicrobial Sensitivity Testing
◦ Unit 16: Transformation
◦ Unit 17: Smear Prep and Simple Stains
◦ Unit 18: Negative Stain
◦ Unit 19: Gram Stain
◦ Unit 20: Endospore Stain
◦ Unit 21: Acid-Fast Stain- Kinyoun Method
◦ Unit 22: Physiological Tests for Characterization and Identification of Bacteria
◦ Unit 23: Unknown 1 - What is yellow, wrinkled, round,...?
◦ Unit 24: Unknown 2- Mixed Culture
◦ Unit 25: Bacterial Examination of Food- Standard Plate Counts
◦ Unit 26: Bacterial Examination of Water- Multiple Tube Test, Standard Plate Count, and Membrane Filter Technique
◦ Unit 27: Immunology- ELISA-Simulation, StaphTEX-Agglutination Reaction
◦ Unit 28: Microscopes and Observation of Natural Samples
◦ Back Matter