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● ***ILM* Digital & Printable PDF Lab Manuals** include 93 Laboratory Studies exploring *Pure Culture Techniques, Staining Techniques, Microscopy, Eukaryote Microbes, Microbial Physiology,* Microbial *Biochemistry, Bacterial Genetics, Microbial Ecology, Food & Water Microbiology, & Clinical Microbiology.* These are written in PDF for PC & MAC computers, iPads and tablets.

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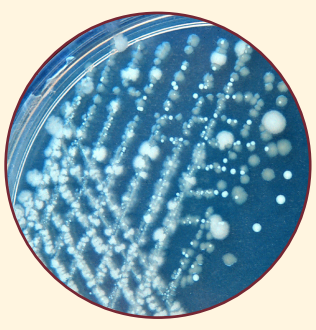
● ***ILM* Digital PDF Lab Manuals** include illustrated (i) Orientation pages explaining the purpose(s) of each study & its key concepts; (ii) Procedures pages providing illustrated, step-by-step microbiology techniques; & (iii) Best Practice for both Biosafety Level 1 & Biosafety Level 2 with (iv) Instructor Notes for any Instructor changes.

● ***ILM* Printable PDF Lab Manuals** consists of (iv) Student Notes & Observations for students (and instructors) to record the details of their microbiology lab experience, either by handwritten notes & drawings or digitally. Students may insert images collected by themselves or the class during the lab and possibly stored "in the Cloud". Students may submit paper or digital individual studies for instructor evaluation. ***ILM* Printable PDF Lab Manuals** are not time dependent allowing students (and instructors) to retain the complete details from their microbiology laboratory experience.


streak plate

I *Pure Culture Techniques* 2–7

2 Preparing Culture Media
3 Operating an Autoclave
4 Sterilization by Membrane Filtration
5 Subculturing
6 Streak Plate
7 Swab, Spread & Pour Plate

● 167 pdf pages
(i) 16 Orientation pages
(ii) 83 Procedures pages
(iii) 61 Best Practice with (iv) Instructor Notes
(v) 7 Student Notes & Observations

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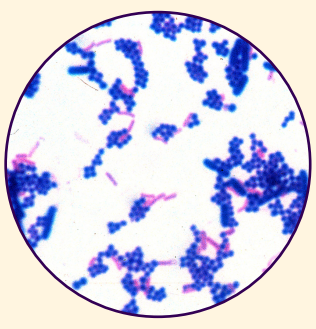
Gram stain

II *Staining Techniques* 1–11

1 Preparing a Smear
2 Negative Staining
3 Simple Staining
4 Gram Stain
5 Acid-Fast Stain
6 Cell Walls
7 Flagella
8 Capsules & Slime Layers
9 Endospores
10 Metachromatic Granules
11 Conidia, Cysts, Heterocysts & Akinetes

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(i) 20 Orientation pages
(ii) 47 Procedures pages
(iii) 54 Best Practice with (iv) Instructor Notes
(v) 34 Student Notes & Observations

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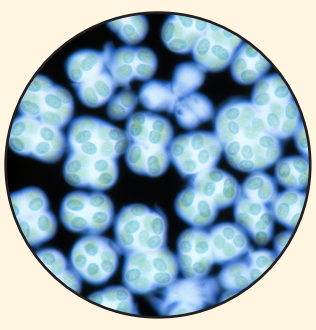
Gloeocapsa

III *Microscopy* 3–9

3 The Compond Microscope
4 Brightfield Microscopy
5 Phase-Contrast Microscopy
6 Wet Mount
7 Total Cell Count
8 Cell Dimensions
9 Colony Morphology

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(i) 18 Orientation pages
(ii) 68 Procedures pages
(iii) 18 Best Practice with (iv) Instructor Notes
(v) 23 Student Notes & Observations

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Dictyostelium

IV *Eukaryote Microbes* 1–7

1 Algae
2 Lichens
3 Fungi
4 Fleshy Fungi
5 Protozoa
6 Slime Molds
7 Water Molds

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(ii) 21 Procedures pages
(iii) 23 Best Practice with (iv) Instructor Notes
(v) 20 Student Notes & Observations

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saltern/*Halobacterium* Bonaire, Caribbean

V Microbial *Physiology* 1–8

1 Oxygen Requirements of Microbes
2 Candle Jar
3 Anaerobe Jar
4 Temperature
5 pH
6 Osmotic Pressure
7 The Growth Curve
8 Bacteriophage

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(ii) 43 Procedures pages
(iii) 37 Best Practice with (iv) Instructor Notes
(v) 11 Student Notes & Observations

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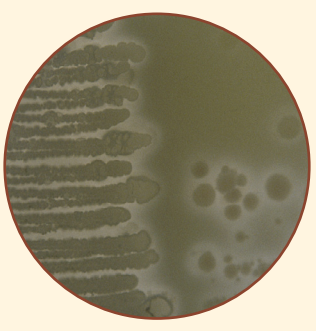
peptidoglycan hydrolysis

VI Microbial *Biochemistry* 1–11

1 Fermentation
2 Catalase
3 Oxidase
4 Triple-Sugar-Iron Agar (TSI)
5 Sulfide-Indole-Motility (SIM)
6 Indole-Methyl Red-Vogues Proskauer-Citrate (IMViC)
7 Extracellular Enzymes
8 API Staph
9 API 20 Strep
10 API 20E
11 EnteroPluri

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(ii) 52 Procedures pages
(iii) 60 Best Practice with (iv) Instructor Notes
(v) 34 Student Notes & Observations

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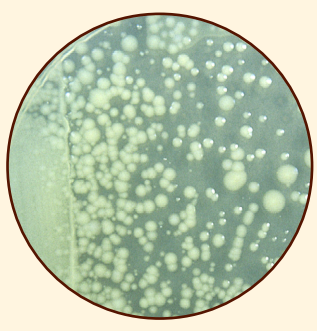
gradient plate

VII *Genetics* 1–7

1 Phenotype & Genotype
2 Gradient Plate
3 Transformation
4 Conjugation
5 Restriction Enzymes
6 Polymerase Chain Reaction (PCR)
7 The Ames Test

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(iii) 31 Best Practice with (iv) Instructor Notes
(v) 16 Student Notes & Observations

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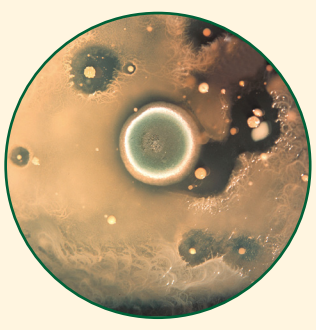
antibiosis

VIII *Ecology* 2, 4, 5–7

2 Winogradsky Column
4 Symbiotic Nitrogen-Fixing Bacteria
5 Free-Living Nitrogen-Fixing Bacteria
6 Nitrification
7 Antibiosis

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(iii) 26 Best Practice with (iv) Instructor Notes
(v) 22 Student Notes & Observations

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IX Food & Water Microbiology 2–5

2 Standard Plate Count
3 Methylene Blue Reductase Test
4 Coliform Tests
5 Coliform Counts

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(iii) 18 Best Practice with (iv) Instructor Notes
(v) 11 Student Notes & Observations

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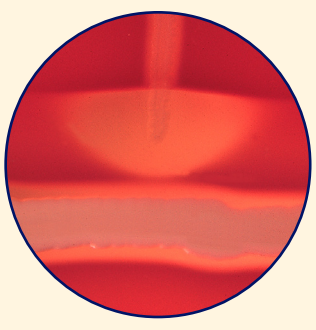
CAMP enhanced hemolysis

X *Clinical Microbiology* 2–25

2 Selective & Differential Media
3 Hemolysis
4 *Staphylococcus*
5 Beta-hemolytic *Streptococcus*
6 *Streptococcus pneumoniae*
7 Group D *Enterococcus* & *Streptococcus*
8 Skin & Nose Swab
9 Throat Swab
10 Vagina Flora
11 Antiseptics & Disinfectants
12 Minimum Inhibitory Concentration (MIC)
13 Kirby-Bauer Disk Diffusion Assay
14 Dermatophytes
15 Yeast Infections
16 Systemic Mycoses
17 Intestinal & Urogenital Protozoa
18 Blood & Tissue Protozoa
19 Tapeworms & Flukes
20 Roundworms
21 Arthropods
22 Leukocytes
23 Blood Typing
24 *Streptococcus* Serology
25 Enzyme-Linked-Immuno-Absorbant-Assay (ELISA)

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(i) 47 Orientation pages
(ii) 93 Procedures pages
(iii) 70 Best Practice with (iv) Instructor Notes
(v) 120 Student Notes & Observations

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