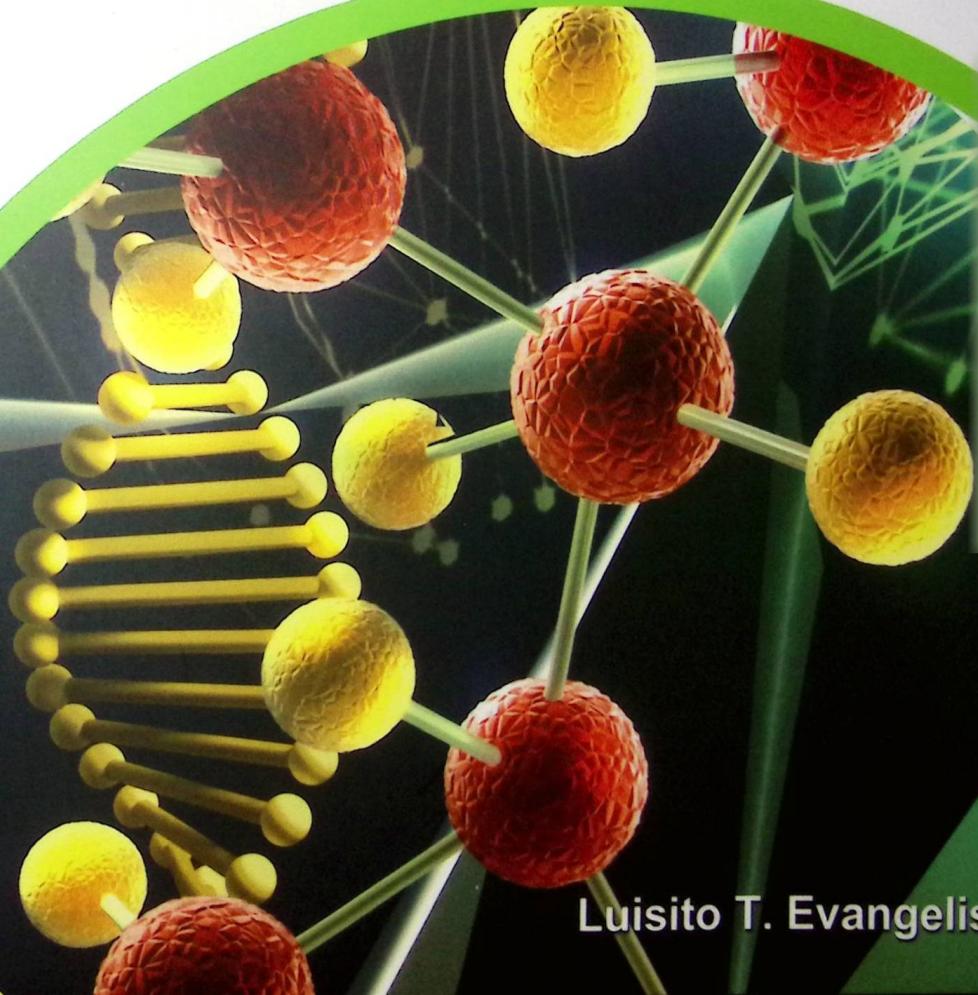


GENERAL BIOLOGY 1

for SENIOR HIGH SCHOOL

Revised Edition



Luisito T. Evangelista

GENERAL BIOLOGY 1

for SENIOR HIGH SCHOOL

Revised Edition

Luisito T. Evangelista



**C & E Publishing, Inc.
2022**

Table of Contents

Preface	vii
---------------	-----

UNIT 1: MICROSCOPY AND THE CELL

Chapter 1: Structures and Functions of the Cell	2
Lesson 1: Microscopy and the Discovery of the Cell	3
Lesson 2: Cell Structures and Their Functions.....	18
Lesson 3: Cellular Transport	36
Lesson 4: Animal and Plant Tissues	48
Chapter 2: Cellular Reproduction	66
Lesson 1: The Cell Cycle	67
Lesson 2: Cell Division: Mitosis and Meiosis.....	74

UNIT 2: CHEMISTRY OF LIFE

Chapter 3: Review of the Basic Chemistry of Life	98
Lesson 1: Composition and Classifications of Matter	99
Lesson 2: Carbohydrates and Lipids	117
Lesson 3: Proteins and Nucleic Acids	128

UNIT 3: HARVESTING ENERGY

Chapter 4: Photosynthesis: Converting Light to Chemical Energy	146
Lesson 1: Metabolism and Energy in the Cell	147
Lesson 2: Photosynthesis	156
Chapter 5: Cellular Respiration	174
Lesson 1: Cellular Respiration	175
Lesson 2: Fermentation: The Anaerobic Harvesting of Energy from Food	186
Glossary	197
Bibliography	205
Index	209

Index

A

active transport, 39
adenine, 131
adenosine triphosphate (ATP), 148
aerobic respiration, 176
albumin, 131
amylase, 119
amylopectin, 119
anaerobic respiration, 176
anaphase, 76
animalcules, 17
anion, 101
antibodies, 130
atom,
 electron, 100, 101
 neutron, 100
 proton, 100
ATP synthase, 161

B

biomolecules, 117, 128

C

carbohydrates, 118
cardiovascular disease, 121
carrier protein, 39

catabolism, 148
cation, 101
channel protein, 39
Chargaff, Erwin, 132
cell cycle, 67
cell cycle checkpoints, 69
cell theory, 10
cellulose, 119
chemical bond, 105
chemiosmosis, 160
chloroplast, 157
collenchyma, 52
colloid, 109
compound, 107
connective tissues, 49
covalent bond, 105
Crick, Francis, 132
cyclin, 69
cytokinesis, 77
cytosine, 131

D

defense proteins, 130
diffusion, 36
disaccharides, 118

E

- electronegativity, 106
- electron microscope, 7
- electron transport chain (ETC), 161, 179
- element, 100
- endocytosis
 - phagocytosis, 41
 - pinocytosis, 41
- enzyme, 130
- epithelial tissues, 48
- eukaryotic cell, 20
- exocytosis, 40

F

- facilitated diffusion, 39
- fermentation, 186
- Franklin, Rosalind, 132

G

- G1 checkpoint, 69
- G2 checkpoint, 69
- gametogenesis, 81
- glycerol, 120
- glycogen, 119
- glycolysis, 176
- glycosidic bond, 118
- guanine, 131

H

- Hooke, Robert, 3
- hormones, 130
- hydrogen bond, 106

I

- interphase 67-68
- ionic bond, 76

J

- Janssen, Hans, 4, 5
- Janssen, Zacharias, 4, 5

K

- Krebs cycle, 178

L

- Levene, Phoebus, 132
- light-dependent reaction, 159, 160-162
- light-independent reaction, 162-163

M

- M checkpoint, 69
- meiosis, 77
- Miescher, Friedrich, 132
- meristematic tissue, 51
- metaphase, 76
- metastasis, 70
- mixture, 108
- monosaccharides, 118
- muscle tissues, 49-50

N

- neurons, 51
- neutrons, 35
- non-meristematic tissue, 51

O

oligosaccharides, 119
oogenesis, 81
osmosis, 37

P

parenchyma, 52
passive transport, 36
phloem, 53
polysaccharides, 119
phospholipids, 121
phosphorylation, 148
photoelectric effect, 156
photolysis, 160
photon, 156
photosynthesis, 159
photosystem, 158
prokaryotic cell, 18
prophase, 75
protein, 128
pure substance, 107

R

reaction center, 160
reduction-oxidation, 159
regulatory protein, 130

S

saturated fatty acids, 120
sclerenchyma, 52

spermatogenesis, 81

steroids, 122
sterol, 122
stomata, 157
structural protein, 130

T

telophase, 76
terpene, 122
thymine, 131
transport protein, 130
triglyceride, 120

U

uracil, 131

V

van der waals forces, 106
van Leeuwenhoek, Antonie, 4, 6
vascular tissue, 53

W

Watson, James, 132
Wilkins, Maurice, 132

X

xylem, 53

