

Fundamentals of Biology

IC/101

Credits 3

- Unit 1 Contributions of Aristotle in biology. Development of physiology from Galen to William Harvey. Germ theory of diseases: works of Girolamo Fracastoro, Louis Pasteur and Robert Koch. Origin of evolutionary theories: Lamarckism and natural selection.
- Unit 2 Discovery of cell: contributions of Robert Hooke and Antonie van Leeuwenhoek. Origin of cell theory: Matthias Schleiden, Theodor Schwann and Rudolf Virchow. Birth of Genetics: Mendel's experiments and laws. Discovery of quinine and artemisinin.
- Unit 3 Discovery of drugs: Salvarsan, Prontosil (sulfonamide), penicillin, and streptomycin. Discoveries of DNA as a genetic material and the helical structure. Development of the Human Genome Project. Cloning – Dolly, and ethical issues.

Suggested readings

1. Lutz, P. L. (2002). *The Rise of Experimental Biology: An Illustrated History*. Springer.
2. Magner, L. N. (2002). *A History of the Life Sciences*. CRC Press.
3. Olby, R. C. (1994). *The Path to the Double Helix: the Discovery of DNA*. Dover Publications Inc.
4. Rosen, W. (2018). *Miracle Cure: The Creation of Antibiotics and the Birth of Modern Medicine*. Penguin.
5. Serafini, A. (2013). *The Epic History of Biology*. Springer.