ICM 2117: BIOCHEMISTRY II METABOLISM OF AMINO ACIDS AND NUCLEOTIDES

45 Contact Hours; 15 Practical Hours

Prerequisite: None

a) Course Purpose

To equip learners with knowledge and skills in amino acid and nucleotide metabolism

b) Learning Outcomes

At the end of this course, learners should be able to;

1. Describe the pathways of amino acid metabolism.
2. Explain inborn errors of amino acid metabolism.
3. Describe the pathways of nucleotide metabolism.
4. Explain inborn errors of nucleotide metabolism.

c) Course Content

Amino acid metabolism: Catabolism of amino acids, Biosynthesis of Amino acids, Inborn error of amino acid metabolism, Biosynthesis of amino acid derivatives: Nucleotide metabolism: Metabolism of purine and pyrimidines, *Deno novo* and salvage biosynthetic pathways, Catabolism of purines and pyrimidines nucleotides, Synthetic nucleotides analog, Inborn error of nucleotide metabolism.

d) Mode of Delivery

Lectures, Tutorials, Practicals.

e) Instructional Materials/ Equipment

Laboratory manuals, and equipment, computer, LCD Projector.

f) Course Assessment

Continuous Assessment Tests (CATS) 10%, Practical 10%, Assignments, 10%, End of Semester Examination 70%.

g) Course Textbooks

1. Lehninger, A., Anderson, S. and June, F. (2002). Principles of Biochemistry. Worth Publications Inc. ISBN 0-87901-136-x.
2. Berg, J. M., Tymoczko, J. L. and Stryer, L. (2010). Biochemistry, 7th Edition. *W.H. Freeman & Company* ISBN-13: 978-1429229364 ISBN-10: 1429229365.
3. Voet, D. and Voet, J. G. (2003). Biochemistry: Biomolecules, Mechanisms of Enzyme Action, and Metabolism, Wiley, John & Sons, Inc. ISBN-13: 978-0471250906 ISBN-10: 0471250902.

h) Course Journals

1. Journal of Nucleic Acids Research. Hindawi Publishing Corporation. ISSN: 2090-0201 (Print); ISSN: 2090-021X (Online) 10.4061/JNA.
2. Journal of Molecular Biology. Elsevier. ISSN: 0022-2836.
3. Annual Review of Biochemistry. Annual Reviews, Inc. ISSN: 15454509, 00664154.

i) Reference Textbooks

1. Navdeep, C. (2014). Navigating Metabolism. Cold Spring Harbor Laboratory Press ISBN-13: 978-1621821298, ISBN-10: 1621821293.
2. Peet, A. (2012) Marks' Basic Medical Biochemistry (Lieberman, Marks's Basic Medical biochemistry). Lippincott Williams & Wilkins. ISBN-13: 978-1608315727 ISBN-10: 160831572X.
3. Salway, J. G. (2004). Metabolism at a Glance, 3rd Edition (2004). Wiley Blackwell. ISBN-10: 1405107162, ISBN-13: 978-1405107167.

j) Reference Journals

1. Journal of Clinical Microbiology. American Society for Microbiology. Print ISSN: 0095-1137; Online ISSN: 1098-660X.
2. Journal of Experimental Medicine. The Rockefeller University Press. Online ISSN: 1540-9538; Print ISSN: 0022-1007.
3. Journal of Biochemical and Biophysical Methods. Elsevier. ISSN: 0165-022X.