2.12 COURSE OUTLINE

2.12.1 BCM 2342: METABOLIC PROCESSES & DISORDERS (BIOCHEMISTRY III)

Pre-requisites: BCM 1341

Credit Units: 4.5

2.12.2 Purpose of the course;

To teach the student the nature of biological forms, the mechanisms of life and the mechanisms of life processes in terms of chemistry and biology.

2.12.3 Expected Learning Outcomes of the Course;

At the end of the course, the student should be able to:

- Explain the mechanisms of biochemical reactions,
- Explain the metabolic pathways of different bio-molecules in the body,
- List and explain the metabolic disorders of medical importance,
- Perform some biochemical analyses and
    - To use this knowledge in the diagnosis of diseases

2.12.4 Course Content;

Metabolism: Introduction, ATP and other high energy phosphate compounds; carbohydrate metabolism; Lipid metabolism, protein metabolism; Urea biosynthesis, special derivatives of amino acids; Inborn errors of metabolism; essential and non-essential amino acids and their biosynthesis. Metabolism of Purines and pyrmidines. **Practicals:** Tests for and analysis of biochemical compounds.

2.12.5 Mode of Delivery;

Lectures, power point presentations, and class discussions. These will take a participatory approach. **Laboratory learning and Experiments:** The lecturer, together with the laboratory technical staff, will take the students through practical sessions, beginning with **demonstrations**. The students will thereafter be expected to use pre formulated laboratory manuals to carry out various practical exercises then write out their findings in their laboratory workbooks. **Video demonstrations and/or CD-Roms** on Metabolic Processes & Disorders when available, after the relevant topic has been covered. **Assignment criteria:** Students will be given several individual or group research assignments on topics relevant to the course. These could include lectures, discovery learning, problem-based learning, experimental learning, group-based learning, independent studies and e-learning.

2.12.6 Instructional Materials and/or Equipment;

Lecture notes or power points for presentation; Tutorials; Video demonstrations; CD-Roms; Dissection kits; Microscopes; Text books; Practical Manuals, biochemical reagents; glassware; biochemical analytical equipment; biochemical charts.

2.12.7 Course Assessment;

2.12.7.1 Distribution of Marks

Attendance & Participation	5%
Continuous Assessment Tests /Quizzes	5%
Term Paper	10%
Oral examination	10%
Mid-Quarter Exam	15%
Final Exam	25%
Laboratory exercises	30%
Total	**100%**

2.12.7.2 Grading

90 – 100	A
87 - 89	A^-
84 - 86	B^+
80 - 83	B
77 - 79	B^-
74 - 76	C^+
70 - 73	C
67 - 69	C^-
64 - 66	D+
62 - 63	D
60 - 61	D-
00 - 59	F

2.12.8 Core Reading Materials for the Course

Meisenberg, G., Simmons, W. H. (2012). Principles of Medical Biochemistry. 3rd Ed. Saunders, Elsevier, Philadelphia

Nelson, D. L. & Cox, M. M. (2012). Lehninger Principles of Biochemistry. 6th Ed. W. H. Freeman & Co., New York

Ninfa, A. J., Ballou, D. P., Benore, M. (2009). Fundamental Laboratory Approaches for Biochemistry and Biotechnology. 2nd Edition. Wiley, Hoboken, NJ, USA

2.12.9 Recommended Reference Materials;

Cammack, R., Attwood, T., Campbell, P., Parish, H., Smith, A., Vella, F., and Stirling, J. (Eds). (2006). Oxford Dictionary of Biochemistry and Molecular Biology. 3rd Edition. Oxford University Press, London

Chatterjea, M. N., Rana, S. (2012). Textbook of medical Biochemistry. 8th Edition. Jaypee Brothers Medical Publishers (P) Ltd., New Delhi

Jeremy, M. B., John L. T. and Lubert, S. (2002). Biochemistry. 5th Edition. W. H. Freeman & Co., New York

Reginald H. Garrett, R. H., Grisham, C. M. (2013). Biochemistry. 5th Edition. Books /Cole Cengage Learning, Belmont, CA

Robert, K. M., Daryl K. G., Mayes, P. A., Rodwell, V. W. (2009). Harper's Illustrated Biochemistry. 29th Edition. Lange Medical Books, New York