Course Outline Form

ODD SEMESTER 2019

Dear Student: Course outlines are intended to provide students with an overall plan for a course to enable them to function efficiently and effectively in the course.

Academic Programs
BSc Biotechnology
EMEA College
Kondotty

Course Outline : BTY3BO3. BIOCHEMISTRY (2018-2019)

Name of the Stream	Science
Name of the Programme	BSc Biotechnology
Name of the Course	BTY3BO3. BIOCHEMISTRY
Nature of the Course	Core Course
Semester	Third
Lecturer(s)	Ruba Badrudheen and SomySoman
Name of the Coordinator	
Year	2018-2019
No of Credits	3
No of Contact Hours	3
Course Description	Course describes the understanding of fundamental biochemical principles, such as the structure/function of biomolecules, metabolic pathways, and the regulation of biological/biochemical processes.
Course Objectives	Students in the Biochemistry will understand and practice the ethics surrounding scientific research. students will gain proficiency in basic laboratory techniques in both chemistry and biology, and be able to apply the scientific method to the processes of experimentation and hypothesis testing.
Course Outcome	Students will be able to acquire, articulate, retain and apply specialized laboratory skills applicable to biochemical research or clinical methods, including accurately reporting observations and analysis.
Assessment Method	Assignments Class Tests Unit Tests Practical Tests Term Exam Seminars
Teaching Methods Used	
Textbook	1. Lehninger, Cox and Nelson: Biochemistry 2. Voet Voet : Biochemistry. 3. Stryer K. Biochemistry 1995. W.H. Freeman & Company, New York.
References	1. Lehninger, Cox and Nelson: Biochemistry 2. Voet Voet : Biochemistry. 3. Stryer K. Biochemistry 1995. W.H. Freeman & Company, New York. 4. Mathews, H.R. Freedland R. Miesfeld, R.L. 1997. Biochemistry a short course. Wiley-Liss Inc. 5. Neal, A.C., Chemistry & Biochemistry: A Comprehensive Introduction. McGraw Hill Book Company. 6. Donald Voet, Judith G. Voet, Biochemistry, Second edition. 7. David L. Nelson, Michael M. Cox, Lehninger. Principles of Biochemistry, third edition . 8. Plummer, D.T. 1988. An Introduction to Practical Biochemistry, Tata McGraw Hill Co., New Delhi.

Course Schedule

I Introduction to bimolecules; chemical bonds (weak interactions),	Week 1
Energy transactions in Biological systems, measurement of pH(Henderson Hasselbalch equation),I buffers & buffer actions (strong & weak acids),	Week 2
Biological buffer systems.	Week 3
Carbohydrates: Classification, occurrence, chemical reactions.	Week 4
structure and functions of monosaccharides, disaccharides. Assignment	Week 5
polysaccharides, UDP glucose	Week 6
glycolysis, Krebs cycle,Unit test	Week 7
ETC(Mitochondria) – arrangement of electron carriers in the electron transport chain, Oxidative phosphorylation (Chemiosmotic theory)	Week 8
Fate of pyruvate in alcoholic fermentation, I internal exam	Week 9
,Gluconeogenesis and Pentose phosphate pathway (only outline without structures of intermediates)	Week 10
Enzyme: Classification, Nomenclature,	Week 11
Mechanism of enzyme action, derivation of MichaelisMenten equation,	Week 12
Enzyme inhibition, Factors affecting enzyme activity, Allosteric enzymes, Isoenzymes.II internal exam	Week 13
Vitamins & Hormones: Classification, physiological functions	Week 14
deficiency disorders of vitamins and hormones (thyroxine, insulin, growth hormones),	Week 15
an overview to the functions of phytohormones	Week 16
Separation technique: Chromatography: (adsorption, ion exchange, affinity, gelfiltration).	Week 17
Electrophoresis: PAGE, AGE, SDS-PAGE. model examination	

Contact Details

Name	Ruba badrudheen and Somy Soman
Phone	9645099053
Email	somysoman1@gmail.com
Website	www.emeacollege.ac.in

	Lifelong Learning
	Application Skills
	Attitude and Values
	Social Responsibility
	Ethical Commitment
	Global Citizen