

As Per NEP 2020

University of Mumbai



Syllabus for Basket of Life Sciences - Minor	
Board of Studies in Life Sciences	
UG First Year Programme	
Semester	II
Title of Paper: Introduction to Contemporary Biology	Credits 2
From the Academic Year	2024 - 2025

Name of the Course: Life Sciences – Introduction to Contemporary Biology

Sr.No.	Heading	Particulars	
1	Description the course : Including but Not limited to:	The course aims at addressing the most contemporary issues in biology that influence the health and well-being of an individual and that of the Earth. It also aims at instilling scientific reasoning and compassion for maintaining our biosphere.	
2	Vertical :	Minor Course	
3	Type :	Theory and Practical	
4	Credits :	2 credits (1 credit = 15 Hours for Theory; 1 credit Practical = 30 h)	
5	Hours Allotted :	15 h + 30 h = 45 hours.	
6	Marks Allotted:	50 Marks	
7	Course Objectives(CO): The course aims to: CO1 Introduce interdisciplinary of Biology CO2 Relate all living systems to non-living systems on Earth. CO3 Analyze health and disease conditions and the factors influencing health.		
8	Course Outcomes (OC): The learner would be able to: OC 1. Understand the interdependence of branches of sciences OC 2. Describe the relationship between living and non-living processes on Earth. OC 3. Read and interpret relevant literature OC 4. Analyze given data and communicate with peers and teachers using presentations and written assignments.		

<p>9</p>	<p>Module 1 Topics in Contemporary Biology Human health and disease:</p> <ul style="list-style-type: none"> a. Physical, Cognitive and Emotional wellness. b. Role of Nutrition and Exercise in wellness c. . Importance of gut microflora in health. <p>Diabetes a systemic malady:</p> <ul style="list-style-type: none"> a. Origin and types of diabetes. b. Glucose deficiency and metabolic changes. c. Possible modes of treatment. <p>Cancer and its impact of human health:</p> <ul style="list-style-type: none"> a. Introduction to Cancer biology. b. Cell cycle and molecular checkpoints. c. Oncogenes and anti-cancer genes. d. Impact of cancer on society. <p>The GAIA theory (Earth as a living organism):</p> <ul style="list-style-type: none"> a. Our fragile environment b. Health of soil, water and air. c. Health of Earth and our responsibility. 	<p>Lectures 15</p> <p>4</p> <p>4</p> <p>5</p> <p>2</p>
	<p>Module 2 Practicals in Contemporary Biology:</p> <ol style="list-style-type: none"> 1. Introduction to Emotional wellness. 2. Recording of SPO₂ using an oximeter before and after simple exercises. 3. Monochrome staining of lactobacilli 4. Qualitative detection and quantitative estimation of reducing sugars in various samples to find glycemic index. 5. Identification of stages of mitosis in onion / garlic root tips. 6. Estimation of the following parameters: 7. Estimation of pH of various water samples using pH paper, Universal Indicator and pH meter. 8. Estimation of dissolved oxygen by Winkler's method. Preparation of an observational diary depicting different flora and fauna around your residence and assessment of their economic importance. 	<p>Lectures 30</p>

10 and 11.	Recommended Text and Reference Books: 1. Lehninger Principles of Biochemistry; David L. Nelson and Michael M. Cox; 2017 2. Disease of the Human Body; Carol Tamparo and Marcia Lewis; 2000 3. The Essential Guide to Diabetes; Robert Duffy; 2018 4. Understanding Cancer; Kakar and Nundy; 2017. 5. Gaia: A New Look at Life on Earth; James Lovelock; 2000.		
12	Internal Continuous Assessment: 40%	Semester End Examination: 60%	
13	Continuous Evaluation through: Quizzes, class test, presentation, project, role play, creative writing, assignment etc.: 10 marks Journal: 05 marks Attendance and Participation: 05 marks. Total 20 marks.	Theory and Practical evaluation: 30 marks.	
14	Format of Question Paper: Details given at the end of the document.		

Evaluation for Minor Course: 50 Marks

The evaluation of these courses would include continuous evaluation (internal assessment) and Semester end examinations (External assessment). The evaluation pattern would be as follows:

Internal Assessment: 20 marks.

Theory Component: 10 marks.

Quizzes, class test, presentation, project, role play, creative writing, assignment etc: 10 marks

Practical Component: 10 marks.

Journal: 05 marks

Attendance and Participation: 05 marks.

External Assessment: 30 marks.

Theory Component: 15 marks.

- Duration: **1 Hour**
- Theory question paper pattern:

Question No.	Unit	Question	Marks
Q1.	I	Any 1 out of 2 (1 or 1a, b)	12
Q2	I	Any 1 out of 2 (2 or 2a, b)	3
		Total	15

Practical Component: 15 marks.

Assessment of these questions would be done at the time of Major Practical External Assessment. The marks earned by the candidate would be added to the theory component to make a total of 30 marks of External Assessment.

Question No.	Unit	Question	Marks
Q1.	II	Practical Performance	10
Q2	II	Viva	05
		Total	15

**Sign of the
Offg. Dean
Prof. Shivram S. Garje
Faculty of Science &
Technology**

**Sign of the
Offg. Associate Dean
Dr. Madhav R. Rajwade
Faculty of Science &
Technology**

**Sign of the
Offg. Dean
Prof. Shivram S. Garje
Faculty of Science &
Technology**