



FIRST SEMESTER 2019 – 2020
COURSE HANDOUT (PART II)

01.08.2019

In addition to Part – I (General Handout for all courses) printed on Page 1 of the timetable book; this portion gives further specific details regarding the course.

Course Number : **BIO F411**

Course Title : **LABORATORY**

Instructor In-charge : **P. SANKAR GANESH** (<http://universe.bits-pilani.ac.in/hyderabad/psankarganesh/Profile>)

Instructor : **P. Sankar Ganesh, Naresh Patnaik**

Description of the course :

This is a specially designed course which aims to impart practical/ hands-on training in various areas of biology such as Animal and Plant Physiology, Ecology, Genetics, Cell Biology and Biophysics. Relevant experiments will be done to acquaint students with practical aspects of these areas.

Scope of the course :

This course would impart knowledge on selected techniques/bench procedures in modern areas of biology with an aim of giving them a hands-on experience. In this pursuit, the student will understand the applications various biological phenomena in their chosen area of research.

Text Book :

Protocols for each experiment will be provided in each class by the instructor.

Experiment Plan :

Expt. No.	Area/ Course	Title of the Experiment
Introductory and preparatory class		
1	Plant Physiology	Studying the effect of physicochemical factors on membrane permeability of beetroot tissues
2		Spectrophotometric estimation of chlorophyll content
3	Animal Physiology	Haemocytometry: Counting of Red Blood Cells
4		Haemocytometry: Counting of White Blood Cells
5		Determination of glycosylated hemoglobin in human blood
6	Ecology	Estimation of tannin and lignin from ecological samples
7		Analysis of heavy metals using atomic absorption spectroscopy
Mid-Semester Examination		

8	Genetics	Ultra violet & ethidium bromide induced mutagenesis in <i>E. coli</i>
9		Flow cytometric detection of reactive oxygen species
10	Cell Biology	Determination of the effect of colchicine on mitosis
11		Studying the effect of physiological parameters on bacterial growth
12	Biophysics	Studying the structural information of proteins using circular dichroism
Comprehensive Examination		

Guide for writing lab reports :

The records should be meticulously maintained in hard bound practical files. Each experiment should include the following titles: (i) Objective, (ii) Theory/ Principle, (iii) Step-wise experimental procedure, (iv) Results including all observations, (v) Inference and (vi) Precautions (if any).

Special Instructions :

Laboratory coat is mandatory to enter into the lab and no student would be permitted into the lab after 10 minutes from the beginning of the session.

Evaluation Scheme :

<i>Evaluation component</i>	<i>Duration</i>	<i>Weightage, %</i>	<i>Date and Time</i>	<i>Nature of the Component*</i>
Laboratory Record	NA	50%	Continuous Evaluation	OB
Surprise Quiz[§]	NA	10%	Continuous Evaluation	CB
Mid-Semester Exam	1 Hr	15%	26.09.2019	CB
Comprehensive Exam	2 Hrs	25%	26.11.2019	CB

[§]There may be surprise quizzes in the practical sessions.

*OB: Open book (50%), CB: Closed book (50%)

Chamber consultation hour: To be announced in the class.

Grading policy: Award of grades will be guided in general by the histogram of marks. Decision on border line cases will be taken based on individual's sincerity, student's regularity in attending labs, and the instructor's assessment of the student.

Make-up policy: Make-up shall be given only for Experiments No. 1 to 7, based on decisions made on a case-by-case basis and only genuine cases as determined by the team and validated by Wardens and/or Medical Officer will be considered. However, make-up will not be given for surprise quizzes and for Experiments No. 8 to 12 will not be provided, considering the complexity of these experiments. Also refer to Clause 4.07 of BITS *Academic Regulations* for more details.

Notices: Notices/ announcements of the course will be displayed only in Course Management System (CMS).

Academic Honesty and Integrity Policy: Academic honesty and integrity are to be maintained by all the students throughout the semester and no type of academic dishonesty is acceptable.

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