Second Semester 2015-2016 **13th Jan-2016**

COURSE HANDOUT (PART II)

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 F314
Course Title : Conservation Biology
Instructor-in-charge : PANKAJ K. SHARMA (pankajsharma@pilani.bits-pilani.ac.in)
Co-instructor : Sandhya Marathe (sandhya.marathe@pilani.bits-pilani.ac.in)

1. Course description:

Fundamentals of conservation biology; biological diversity- its measurement, value and threatened status; concepts related to conservation at the population and species levels; protection, management and restoration of ecosystems; and sustainable development and community-based conservation; conservation legislation. Course practicum will be effected through classroom and field activities.

2. Scope and Objectives of the course:

With the biodiversity crisis looming large, conservation biology is fast emerging as a field that requires urgent progress. This course will educate and train students on the foundations and advances in conservation science. The students will develop a scientific approach to study the current state of the natural world, the threats posed due to human activities and the effort involved in conserving it.

The course will deal with the fundamental, intellectual, conceptual, and practical problems that conservation biologists need to address and solve. Topics that will be taught include some key concepts related to the conservation at various trophic levels, systematic conservation planning, sustainability, community-based conservation and legislation. The course will also offer a glimpse of the state-of-the-art research and field work by leading institutes and NGOs in the Indian context. The course includes a compulsory practical component in the form of on and off-the-field assignment(s) that will attempt, in a small way, to bridge the gap between the theory covered and real world conservation efforts.

3. Textbook (TB):

1. Bawa. K. S., Primack. R. B. and Oommen. M. A.(2011). Conservation Biology: A Primer for South Asia. Hyderabad: University Press (India) Private Limited.

2. Sodhi N. S., and Ehrlich P. R. (2010). Conservation Biology for All. New York: Oxford University Press (.pdf file is made freely available by the authors & publisher)

4. Reference Books (RB):

1. Dyke F. V. (2008) Conservation Biology: Foundations, Concepts, Applications. (2nd edition) Springer
2. Mills L. S. (2012) Conservation of Wildlife Populations: Demography, Genetics, and Management. (2nd edition) Wiley-Blackwell
3. Gordon M., Bartol S. (2004) Experimental Approaches to Conservation Biology. (1st edition) University of California Press

5. Lecture plan:

Lec. #	Learning objective	Topics to be covered	Chap#
1	Conservation biology in context of biodiversity	Introduction to the course, distinctions of conservation biology	TB1:1
2-4	Biodiversity assessment	Biodiversity: Measurement, importance and challenges. Rarity and endemism	TB1:1, RB1: 4
5-7	Biodiversity crisis	Causes: Anthropogenic, ecological and genetic, habitat loss & fragmentation, invasive & alien species, wildlife diseases, overexploitation, extinction dynamics.	TB1:2, TB2: 4-7,10
8-11	Factors determining the fitness and persistence of wildlife population	Effective size, genetic variability (drift, in/out-breeding depression, demographic and environmental variability, hybridization and introgression/GMOs, extinction vortices.	TB1: 3, RB1: 6, RB2:12
12-13	Managing genetic diversity for conservation goal	Conservation Genetics, Genetic Techniques, Genetic Insights into Conservation Management	RB1:7
14-15	Conservation at species & population levels	Tools predicting risks to small/declining populations. Conservation strategies and management.	TB1: 3, RB1: 8, RB2:12
16-18	Conserving biological communities, habitat and landscape	Systematic conservation planning, prioritization of sites & establishment of protected areas, sustainability	TB1: 4, TB2: 11, RB1: 10 & 11
19-22	Research needs and tools in conservation biology	Principles & approaches for biodiversity conservation including theoretical & experimental (behavioral) approach	TB1: 7, TB2: 16, RB3
23-24	Community-based conservation	Cultural traditions, local participation, tenurial rights, economic dimensions, ecological limits & opportunities	TB1: 5, TB2: 14,

*** Special readings:** As the subject is vast, students are expected to read select topics from reference books and research/review articles as and when recommended by the Instructors.

6. Practical hours: On-field or *in-silico* projects &/or field trips (whenever feasible) will be accounted for as practical hours of the course. Field assignments will include studies on biological diversity on campus.

7. Evaluation Scheme

Evaluation component	Duration	Weight	Date and time	Remarks
Mid-semester Test	1 ½ hrs.	20%	18/3 2:00 -3:30 PM	Closed book
Quizzes	-	15%	-	Announced/ surprise
Assignments/ group discussions/ practical components	-	30%	-	Announced/ surprise
Comprehensive examination	2 ½ hrs.	35%	13/5 FN	Closed+Open book

Students should note that participation with uniform and enthusiastic effort, and sincerity, in all the activities of the course mentioned in the handout will be **absolutely essential** for registering a good performance in the course.

8. Grading Policy:

Award of grades would be based on the student's participation, regularity and performance, and instructor's overall assessment of the individual's sincerity and ability. If the student absents himself/herself in any one of the components (listed in evaluation scheme) entirely, his/her performance may be reported as NC (Not Cleared).

9. Office Consultation Hour: To be announced in class.

10. Make-up Policy:

Make-up for any evaluative component will be granted only in case of severe medical problem, hospitalization or personal/family emergencies. However, instructor should be informed beforehand or at the earliest after missing the evaluation component. The decision to grant make-up or not is taken by the instructor team and shall be final.

11. Course notices:

All course announcements shall be displayed on the Dept. of Biological Sciences notice board or announced during the lecture.

IC – BIO F314