

Semester	JAN 2022
Open to semester	6,8,12,14,22
Course code	BI3433/BI6433
Course title	Evolution
Credits	3 /3
Course Coordinator & participating faculty (if any)	Sutirth Dey
Nature of Course	Lectures
Pre-requisites	This course has no pre-requisites and is not a pre-requisite for any other course. However students who have taken (and remember) BIO 201/BI2113 shall be at an advantage.
Objectives (goals, type of students for whom useful, outcome etc)	<p>Objectives: This course is aimed at being a slightly non-trivial introduction to evolutionary theory and its applications to various fields of biology. While some of the topics listed here have been already introduced in BIO-201/BI2113, the treatment in this course will be much more detailed as well as mathematical. The course will be useful for all students in general and biology students in particular. We are departing slightly from a traditional evolutionary biology course to explicitly incorporate elements of the ongoing Extended Evolutionary Synthesis. There will also be a strong component of application of evolutionary biology in various ways.</p> <p>Outcomes: After this course, the students should be able to appreciate why the evolutionary perspective permeates the whole of biology.</p>
Course contents (details of topics /sections with no. of lectures for each)	<ol style="list-style-type: none"> 1. Evidence for evolution 2. Variation: The Central Concept in Evolution 3. The theory of evolution: <ol style="list-style-type: none"> a) Population genetics: Hardy-Weinberg principle; incorporating mutation, selection, drift, migration. b) Quantitative Genetics: Heritability, Breeding Value c) Price Equation 4. Consequences of Evolution: Adaptations, life-history evolution, experimental evolution 5. Extended Evolutionary Synthesis: Plasticity, Robustness / Evolvability, Chance variation, Niche construction.
Evaluation /assessment	End-Sem Examination-40%

	Mid-Sem Examination-40% Others-20%
Suggested readings (with full list of authors, publisher, year, edn etc.)	The treatment shall be based on primary literature and multiple monographs. The following two books shall cover a lot (but not all) of the material being covered. Pigliucci, M. and Muller, G.B. (2010). Evolution: the extended synthesis. MIT press. Roff, D.A. 1992. The Evolution of Life Histories: Theory and Analysis. Chapman and Hall, New York.