



LS1201

Introduction to Biology II

Part B - Evolution

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Syllabus



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Part A

Introduction to genetics: Mendelian principles, Extensions of Mendelian principles (Examples from model systems), Gene mapping methods Pedigree analysis, Basics of Central dogma, mutation, Genetic diseases.

Part B

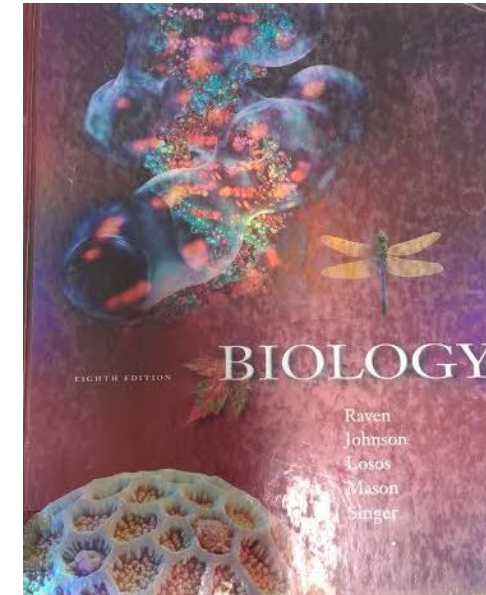
Basics of Evolution: Why evolution is true, Evidence; Tree of Life.
Theories of evolution: Use and disuse theory, natural selection, new synthesis, sexual selection.

Types of selection; mechanisms of evolution

Reference Books



Life
The Science of Biology
Eight edition



Biology
Eight edition

Recommended Book

Evolution, Second Edition (2009).

**Douglas J. Futuyma,
Sinauer Associates**

- Life Sciences for the Non-Scientists
by Viqar Zaman
- This is Biology The Science of the living world
by Ernst Mayr

Marks Overview

Evolutionary Biology Total 50 marks

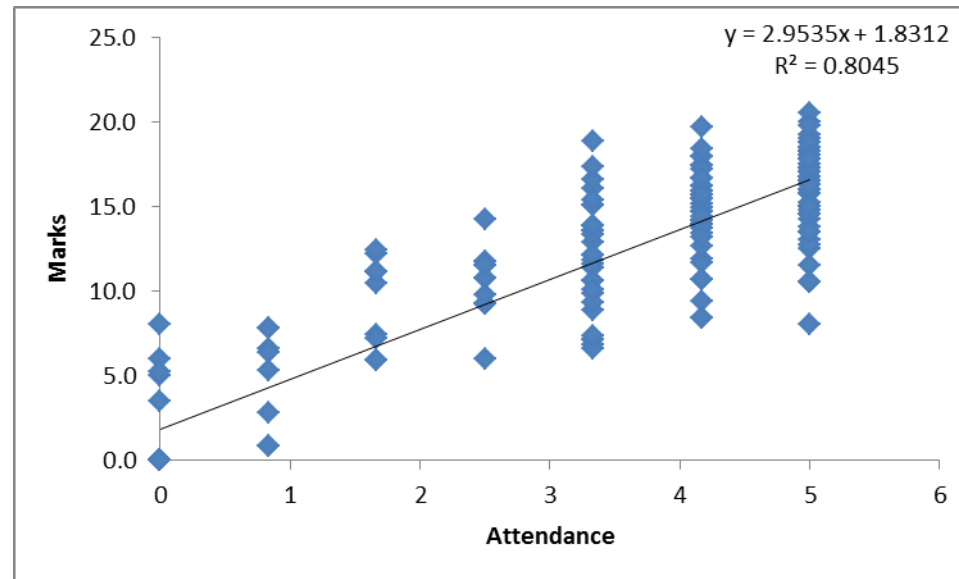
End semester exams = 35 marks
Internal assignments = 15 marks

Internal assignments
At least 3+1 Quiz/tests

Expectations !

- Tell me what you are expecting in this class
- Is there a specific topic you want to discuss in class relating to evolutionary biology?
- Do you want creative/out of the ordinary assignments?

Why attend classes?



There is a correlation between number of classes and marks.

Looking around

Cuckoo video

Are you awake?

- Think a little more about this curious case
- Write four questions that is of interest to you about this case, two from the cuckoo's point of view and two from the parents point of view.
- Please try to do so by yourself.

Quiz 1

0.75 marks each question, Identify the questions you have written as belonging to Proximate and Ultimate categories
Total of 4 marks

Mutation

- Sudden heritable change in the genetic material is called mutation
- Chromosome level and/or individual gene
- it is the ultimate source of genetic variation; it provides raw material for **evolution**

Is the case of the cuckoo and reed warbler is Evolution involved?
So how do we think about mutation in this context?

Curious case Cuckoos and their hosts



Hungary
great reed warbler
Acrocephalus arundinaceus



Finland
common redstart
Phoenicurus phoenicurus



Czech Republic
reed warbler
Acrocephalus scirpaceus



Teaching Plan

- Aim – motivate you to appreciate Biology
- No need to take notes, all the slides will be uploaded.
- No drawings to make or Latin names to memorize
- Concept based understanding of topics
- Try to make things quantitative