FACULTY OF LIFE SCIENCES

Syllabus

For

Interdisciplinary Course in Human Genetics (PG)

Examinations: 2019–20

Guru Nanak Dev University
Amritsar

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Please visit the University website time to time.
Interdisciplinary Course in Human Genetic (PG)

SCHEME OF COURSE

Interdisciplinary/Optional Courses in Human Genetics (PG) — For other departments

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<th>Course No.</th>
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<th>Course Title</th>
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The Interdisciplinary Courses are offered for the students of other departments of Guru Nanak Dev University Campus, Amritsar.
Interdisciplinary Course in Human Genetic (PG)

HGL-053 HUMAN GENETICS: CONCEPTS AND APPLICATIONS
(Odd Semester)

Credits: 3-1-0
Max. Marks: 100
Mid Semester Marks : 20
End Semester Marks : 80

Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

Time: 3 Hours

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Section A
An overview of Human Genetics, Introduction to different fields of Human Genetics, Pedigree analysis, Patterns of inheritance, Problems in modes of inheritance, assignment of genotypes, genetic heterogeneity, Origin and consequences of point and chromosomal mutations.

Section B
Structural and molecular organization of Human nuclear and mitochondrial genome, The Human Genome Project.

Section C

Section D
Prenatal and postnatal diagnosis, Chorionic villus sampling (CVS), amniotic fluid testing, Preimplantation diagnosis, Maternal serum screening, DNA fingerprinting, Genetic disorders and their management, Human genetics and ethical concerns.

Books Recommended:
Interdisciplinary Course in Human Genetic (PG)

HGL-054 BASIC CONCEPTS IN HUMAN GENETICS
(Even Semester)

Time: 3 Hours

Credits: 3-1-0
Max. Marks: 100
Mid Semester Marks : 20
End Semester Marks : 80

Mid Semester Examination: 20% weightage
End Semester Examination: 80% weightage

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Section A
Overview of genetics, Cell and cell components, Prokaryotic/Eukaryotic cells, Cell division — Mitosis, Meiosis, Gametogenesis. Human sex determination.

Section B
Molecular basis of inheritance — Chemical composition of DNA, DNA structure, DNA replication. Gene action — From DNA to protein, Gene mutations and chromosomes,

Section C
Basic concepts of inheritance — Mendelian inheritance, Modes of inheritance, Multifactorial traits. Genetic diseases and disorders

Section D
Human genome — Nuclear and mitochondrial, Human Genome Project. Manipulation of genetic material — Genetic engineering, Genetic forensics, Genetic testing, Gene therapy, Cloning.

Books Recommended: