DEPARTMENT OF HUMAN GENETICS

TEACHING FACULTY

Professors
Vasudha Sambyal, Ph.D. (PU Patiala)
Vanita, Ph.D. (GNDU)
Anupam Kaur, Ph.D. (GNDU) (**Head**)
Amarjit Singh Bhanwer, Ph.D. (Re-employed), Ph.D.(PU Patiala)

Assistant Professor:
Manpreet Kaur, Ph.D. (GNDU)
Kamlesh Guleria, Ph.D. (GNDU)
Sanjana Mehrotra, Ph.D. (BHU) Varanasi)

Associate Professors:
Gursatej Gandhi, Ph.D. (CCSHAU Hisar)
Badaruddoza, Ph.D. (AMU Aligarh) (on leave)

Courses offered:

- B.Sc. (Hons. School)
- M.Sc. (Hons. School)
- M.Sc.
- Ph.D.

Course Detail: B.Sc. (Hons. School)

Distribution of Seats:

Course Name	Duration (Years)	System	Total Seats	Reserved Categories			
				SC/ST	BC	RA	Others
B.Sc. (Hons. School)	3	Semester	50	12	3	4	6

Eligibility

a) Senior Secondary Examination (12^{th} grade) in Medical Stream with at least 50% marks (45% for SC/ST) in aggregate.
b) Any other examination recognized equivalent thereto.

Mode of Admission

Admission will be based on merit of the candidate in the qualifying examination. The Coordinator of admission shall be Dr. Kamaljit Singh, Professor, Department of Chemistry.

Dates

a)	Fee deposit date in State Bank of India (Any branch).	02.06.2017 to 20.06.2017

b)	Last date for online application form submission.	05.06.2017 to 23.06.2017
c)	Admission counselling.	06.07.2017 to 10.07.2017

Venue: Guru Nanak Bhawan, GNDU, Amritsar

Contact No.

Coordinator: (M) 9501061545

Fee (Approximate): Rs. 20360/- (1st.Semester), Rs.4800/- (2nd Semester)

Contact No.

Coordinator/Head(M) 99140-06662 Extn. 2258802-09 (3508)

Course Detail: M.Sc. (Hons. School)

Distribution of Seats:

Course Name	Duration (Years)	System	Total Seats	Reserved Categories			
				SC/ST	BC	RA	Others
M.Sc. (Hons. School)	2	Semester	**30**	8	2	2	3

Eligibility:

B.Sc. (Hons. School) Human Genetics, GNDU with at least 5.62 CGPA or 50% marks in aggregate (5.06 CGPA or 45% marks for SC/ST candidates).

Mode of Admission:

Admission will be based on merit of the candidate in B.Sc. (Hons. School).

Fee (Approximate): Rs. 25060/- (1st Semester), Rs.8500/- (2nd Semester)

Dates:

Consult Head of Department.

Contact No.

Head/Coordinator: (M) 9872239393, 0183-2258802-09 Extension 3251.

Course Detail: M.Sc.

Distribution of Seats:

Course Name	Duration (Years)	System	Total Seats	Reserved Categories			
				SC/ST	BC	RA	Others
M.Sc.	2	Semester	50	12	3	4	6

Eligibility

a) B.Sc. Medical/Bachelor in any combination of Life Sciences subject with at least 50% marks (45% for SC/ST) in aggregate..
b) Any other examination recognized equivalent thereto as at (a).
c) MBBS or BDS only, with at least 50% marks in aggregate (45% for SC/ST).

Mode of Admission

Admission will be based on merit of the candidate in the Entrance Test to be conducted by the Department.

Dates:

a)	Fee deposit date in State Bank of India (Any branch).	05.06.2017 to 27.06.2017
b)	Last date for online application form submission.	07.06.2017 to 30.06.2017
c)	Entrance Test	11.07.2017 at 11.30 am – 12.30 pm
c)	Admission counselling.	14.07.2017

Venue: Lecture Theatre Complex, GNDU, Amritsar.

Contact No.:

Head/Coordinator: (M) 9872239393, 0183-2258802-09 Extn. 3251

Fee (Approximate): Rs. 25060/- (1st Semester), Rs.8500/- (2nd Semester)

Syllabus

Unit I: Cell division: Mitosis and Meiosis.
Unit II: Chromosomes: Physical and chemical structure, Nucleosome.
Unit III: Structural changes in chromosomes: Deletion, duplication, para- and pericentric inversions, translocations and their significance. Meiosis in inversions and translocations. Heterozygote and its significance.
Unit IV: Numerical changes in chromosomes: Non-disjunction, aneuploidy (monosomy, trisomy, nullisomy including primary, secondary and tertiary).
Unit V: Modification of Mendelian ratios: Gene interaction, epistasis, complementary and supplementary genes, multiple alleles (as in blood groups of man), inheritance of blood groups.
Unit VI: Chromosome theory of heredity, chromosomal determination of sex, sex-linked disorders in man.
Unit VII: Linkage, crossing-over and recombination: Sex-linked characters, cytological basis of crossing-over, synaptonemal complex, chromosome mapping.
Unit VIII: Gene, genetic code, structure of DNA and RNA.
Unit IX: DNA replication and transcription.
Unit X: Gene expression, protein synthesis in prokaryotes and eukaryotes.
Unit XI: Genetic code and its properties.
Unit XII: Split and overlapping genes.
Unit XIII: Mutations: Spontaneous, induced, somatic and carcinogenesis.
Unit XIV: Applied genetics: Recombinant DNA, gene cloning and its applications in medicine, DNA fingerprinting.
Unit XV: Population genetics: Hardy-Weinberg's Law.
Unit XVI: Multiple factors: Qualitative and quantitative traits, inheritance of quantitative traits (skin colour) in man.

Note: 1. One hundred questions (objective type) will be set from the prescribed syllabus. Each question will be of **one mark** and followed by a list of three or four options, i.e., A, B, C, or D (see Model Question Paper). The duration of the test will be **one hour**.

2. Kindly bring black pen with you for the examination.

Model Question Paper

1. The complete DNA sequence of an organism containing the complete genetic information is called:

   (A) Genome (B) Genetic code (C) Genotype (D) Gene

2. DNA synthesis occurs in:

   (A) G1 phase (B) G2 phase (C) M phase (D) S phase

3. In meiosis, crossing-over occurs during:

   (A) Prophase-I (B) Metaphase-I (C) Anaphase-I (D) Telophase-I

4. Base substitution that leads to amino acid substitution is known as:

   (A) Missense mutation (B) Nonsense mutation
   (C) Frameshift mutation (D) Triple repeat expansion

5. Consanguinity is a term related to:

   (A) Mating between the populations (B) Mating between the races
   (C) Mating between the relatives (D) None of these

6. Number of chromosomes in a human gamete are:

   (A) 42 (B) 46 (C) 23 (D) 21

7. Genetic information is stored in:

   (A) DNA molecule (B) Protein molecule
   (C) Both DNA and protein molecule (D) Lipid molecule

8. A trait that manifests only in homozygous state is known as:

   (A) Dominant (B) Co-dominant (C) Recessive (D) Hemizygous

9. Blood group alleles in human are referred to as:

   (A)Multiple alleles (B) Multiple factors (C) Polygenes (D) Multigenes

10. Haemophilia is transmitted through:

(A) X-Chromosome
(B) Y-Chromosome
(C) Chromosome 21
(D) Chromosome 13

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