

**JYOTI NIVAS COLLEGE AUTONOMOUS
SYLLABUS FOR 2019 BATCH AND THEREAFTER**

Programme: INT. BSc . MSc

Semester: I

BEHAVIOUR GENETICS

Course Code: 18I IS103

No. of Hours: 60

COURSE OBJECTIVES:

- Give an outlook to interdisciplinary aspects of psychology and behaviour genetics
- To understand the role of genes in cognitive, personality, emotions, motivation and consciousness functioning.
- To analyze the current status of research in the field of genetics influences on psychological functioning.

LEARNING OUTCOMES:

- Learn the basics of genes and its effects on behaviour.
- Familiarize with technique of gene analysis.
- Understand the mental health disturbances due to genetic functioning.

UNIT I

CHAPTER 1 - INTRODUCTION

12 HRS

Definition; Branches (molecular, developmental, cytogenetic, population genetics, applied genetics, human genetics); History of genetics: Plato, Aristotle, Francis Galton, Charles Darwin, John L. Fuller and William Robert, Thompson; Methods of study: Quantitative Genetic Methods, Selective Breeding, Twin Studies, Adoption Studies; Basic concepts: structure and function of -Cell, DNA, RNA; Chromosomes: structure, types: Eukaryote and prokaryote, function; Heredity-Genes, Genetic code, Genetic Inheritance- genotype and phenotype.

UNIT II

CHAPTER 2- GENETIC BASIS OF COGNITIVE PROCESSES

12 HRS

Definition of cognitive genome; History – Plato, Rene Descartes, George Berkeley and John Locke, Immanuel Kant, Paul Broca, Wernicks. Role of genes on -Sensation, Perception, Learning, Memory and Intelligence through Family Studies, Twin, Pedigree Analysis, Linkage Studies, Gene Hunting and Functional Analysis. Imaging techniques-FMRI, DTI, and FDG-PET. Cognitive development across lifespan.

UNIT III

CHAPTER 3 - ROLE OF GENES IN EMOTION, MOTIVATION

12 HRS

Definition of emotions, motivation; Darwin's notion of Basic Emotions, Positive and Negative Emotional Expressions, Social Engaging and Disengaging Emotions, Emotional Regulation, Reconciling Gene - Cultural Interaction with the Differential Susceptibility Hypothesis, Motivational Setting Hypothesis, Gene Culture Interactions in the domain of Emotions- Serotonin and Negative Emotions, Dopamine and Positive Emotions, Oxytocin and Social Relevant Emotions. Genetic correlates of Personality Malfunctioning.

UNIT IV

CHAPTER 4 - PERSONALITY AND THE GENETIC MAKEUP

12 HRS

Theories -Hippocrates, Hans Eysenck, Jeffrey Alen Grey, Cloninger and five factor model of personality; Biology and Temperament, the Brain and Personality – serotonin and dopamine pathways. Phineas Gage: A Case Study. Studying personality through heritability, shared and non-shared environment; molecular genetics and personality – Human Genome project 2010; Gene Expression in personality traits.

UNIT V

CHAPTER 5--GENETICS OF CONSCIOUSNESS

12 HRS

The Neurobiological Basis of consciousness-Alertness, Awareness, Attention, Neurobiological Theory of Consciousness- The Global Neuronal Workspace; Level of Arousal and Content of Consciousness; Genetic abnormalities and Consciousness; Role of Genes in Altered State of Consciousness and Addiction behaviors.

REFERENCES

1. Emery's Elements of Medical Genetics- Peter Turnpenny, SlanEllard 15th Edition. 2017
2. Genetics – from genes to genomics – Leland Hartwell, Leroy Hood, Charles (Chip) Aquadro, Michael L. Goldberg, Maria Papaconstantinou, Fischer, Janice, Jim Karagiannis. McGraw-Hill Education, 2017.
3. Genetics – Analysis of Genes and genomes – VII edition – Daniel L. Hartl and Elizabeth W. Jones. 2011.
4. Genes- IX, 9th Ed., Benjamin Lewin. Jones and Bartlett Publishers, 2008.
5. C.R. A.L. Beudit, W.S. Sty abnd D. Valle (EdsOMcGrawHill, NewYork. Advanced Genetics by G.S.Miglani. 2002.
6. Human Cytogenetics. Denise Rooney Oxford University Press, 2001.
7. Human Genetics : Concepts and Applications by Lewis R (2001) McGrawHi; Boston.
8. Human Genetics by S.D. Gangane (2nd edition-Reprint 2001), B.L Churchill Livingstone Pvt. Ltd., New Delhi.
9. Human Genetics – Bruce.R.Korf. 2000
10. Essentials of Human Genetics by S.M. Bhatnagaretal (1999) IV edition. Orient Longman.
11. Advanced Molecular Biology by Twyman R.M (1998) Viva Books Ltd.
12. Basic Human Genetics by EJ. Manage and A.P. Manage (1997 India Reprint) a Rastogi Publications, Meerut
13. Genetics in Medicine by M.W. Thompson et al, 5 Edition, W.B. Saunders Company, London 1996.
14. Hay, D. A., & Hay, D. A. (1985). Essentials of behaviour genetics (No. 591.51 H3). Oxford: Blackwell.
15. Cell Biology and Molecular Biology by EDP Robertis and EMF Robertis, Saunder College. 1980.
