

GOVERNMENT COLLEGE GURDASPUR

(affiliated to Guru Nanak Dev University, Amritsar) Accredited B++ by NAAC

PROGRAMME AND COURSE OUTCOMES

Bachelor of Arts (B.A)

POLITICAL SCIENCE

Program outcome

It is expected this course to equip students with the concepts, principles, theories, and processes studied in political science. so as facilitate their career choice and employment. The course is aimed at shaping the student's perception and outlook on the social, Economic, and political environment of India and beyond. The course also seeks to develop abilities. observation skills, and decision-making capabilities of the students so that they can face different challenges in life.

Course outcome

SEMESTER -I Principles of Political Science: -

The students will be familiarized with the meaning, nature, scope Of Political science, and origin of the state from different viewpoints

SEMESTER -2 Modern Political Theory:-

The expected outcome of this paper is to enable the students learn the different dimensions and the contemporary relevance of different concepts and theories.

SEMESTER -3. Indian Constitution: -

The students be shaped as citizens who are aware of the ideals and philosophies Of the Indian constitution, constitutional rights. and duties, governmental institutions, and Center-state relations.

SEMESTER -4 Indian PoliticalSystem :-

It knowledge about the mechanism of Indian political system and the way it shapes institutions in India, through interaction with actual politics.

SEMESTER – 5 Comparative Political System (UK, USA):-

The expected outcome of this paper is to enable the students with the basic concepts and approaches of comparative politics and political systems of the UK and USA.

SEMETER – 6 International Politics: -

The students will be familiarized with the different theories on international politics and to make them aware of the different units and factors that operate in the international system which determines the

domestics and foreign policies of a nation, students will be taught power-politics and relations among states.

2. SOCIOLOGY

Program outcome

The expected outcome of this course is to

- equip students with concepts, principles and processes studied in sociology, so as facilitate their career and employment.
- shape students' perception about society in general. It also seeks to develop research aptitude and to face challenges in life.

Course Outcome

SEMESTER- 1. FUNDAMENTALS OF SOCIOLOGY: -

This course is an Introduction to the discipline of Sociology .It familiarizes the students with fundamental concepts of sociology

SEMESTER -2 SOCIETY IN INDIA: -

The course aims to provide an outline of institutions and Society in India.

SEMESTER- 3. SOCIAL CHANGE IN INDIA: -

This course aims to provide Knowledge of changes in Indian society. It also gives knowledge of factors, processes and challenges of social change.

SEMESTER -4

SEMESTER-5 SOCIAL THOUGHT: -

The course introduces the students to classic sociological thinkers, whose work has shaped the discipline of social thought.

SEMESTER-6. SOCIAL RESEARCH AND SCIENTIFIC METHODS: -

The course is general introduction to the methodologies of sociological research and provide student elementary knowledge of the complexities of research. It emphasizes on methods of data Collection, qualitative and quantitative research and Coding.

14. DRUG ABUSE — prevention and Management

Program Outcome

To identify the biological, environmental, behavioral and social causes and consequences of drug use and addiction across the lifespan. To develop new and improved strategies to prevent drug use and its consequences of Individual Family, Society and Nation.

To study the management of Drug Abuse like: Medical Management, Psychiatric Management, Social Management.

Course Outcome

This paper focuses on Identifying the biological, environmental, behavioral and social causes and consequences of drug use and addiction across the lifespan, developing new and improved strategies to prevent drug use in India and Punjab.

SCIENCES

BSC - MEDICAL & NON-MEDICAL

This program helps the students to acquire the skills in handling scientific instruments planning and performing in laboratory, experiments. Students get the knowledge regarding basic concepts, fundamental principles, scientific theories related to various scientific phenomenon and their relevancies in day-to-day life.

Program specific outcomes:

BSc Medical

Under this Program, the students are able to acquire knowledge regarding Botany, Zoology, Chemistry, Biotechnology etc. They will learn to recognize the relationship between structure and function at molecular, cellular, and organizational levels. They will acquire skills in handling scientific instruments, planning and performing in laboratory experiments, fundamental principles, scientific theories related to various scientific phenomena and their relevance in day to day life.

BSc Non-Medical:

Under this Program students will acquire a scientific knowledge of the core principles of Physics and Chemistry -- Mechanics, Electromagnetism, Modern Physics and Optics, Chemical Thermodynamics, Kinetics, Electrochemistry, Atomic structure, Organic Chemistry Spectroscopy and skills in Industrial Chemistry.

Course Outcomes (BSc – medical/Non-medical)

BSc Sem 1

Organic Chemistry

This course aims at making the students to understand the fundamental principles of organic chemistry and mechanisms of various types of organic reactions. Students are able to understand the various types of reactive intermediates, factors affecting their stability, nomenclature, synthesis, isomerism, and physical properties of alkanes and cycloalkanes, synthesis of alkanes, alkynes, alkyl halides. Students will learn the rules for naming different organic compounds.

Inorganic Chemistry

This paper provides students a detailed knowledge about electronic configuration of given atomic number, name of orbitals by recognizing shapes of orbitals. The students will learn to calculate bond order of different molecules, effective nuclear charge using Slater's Rule, to draw MO diagrams of different molecules and structures of different ionic solids .

Botany Paper A - Diversity of Microbes

This course help the students to understand the diversity among algae, systematic, morphology and structure of algae, life cycle and economic importance of algae, the biodiversity of fungi and

economic importance Of fungi , the diversity and reproduction in bacteria and viruses , the types and analogy of lichens.

Botany Paper B: - Diversity and cryptogens

This course help the students to understand the Morphological diversity or bryophytes and pteridophytes, the evaluation of ophyes and pteridophytes. the economic importance of bryophytes and pteridophytes, the taxonomic position, common occurrence. thallus structure and reproduction in bryophytes.

Physics Paper A:- Mechanics

This course aims at

- Making the students to understand how length and time changes in different inertial frames or reference and Fundamentals of' the harmonic oscillator model, including damped and forced oscillator,
- It also describes conservation of energy, work, force, linear momentum and angular momentum and the motion of charged particles in an electromagnetic field.

Physics Paper B: - Electricity and Magnetism

After studying this course, student will be able to

- understand how we calculate Electric field, potential in different charged substances, Magnetic properties of a ferromagnetic solid and identify the presence of static electric charges and fields due to static charges.

Zoology

Paper A - Cell Biology

This course aims at making the students to understand the structure of prokaryotic and eukaryotic cells, cell wall, plasma membrane, cell organelles and cell division. To learn the scope and importance of molecular biology, types of mutations and ultrastructure of nucleus and its components. It help the student to Recall the history of cytology.

Zoology

Paper B - Animal Biodiversity

This course enables the students to understand the general taxonomic rules on animal classification, to help the students to classify phylum using examples from parasitic adaptation, Phylum Nematodes and give examples of pathogenic Nematodes, classify Phylum porifera to Echinodermata with taxonomic keys.

BSc SEM 2

Inorganic Chemistry

In this subject the students will be able to state the principal resemblances of elements within each main group in particular alkali metals, alkaline earth metals, halogens and noble gases. The students will learn to describe the periodic table as a list of elements arranged to demonstrate trends in physical and chemical properties. Students will be skilled in problem solving critical thinking and analytical reasoning as applied to scientific problems.

Physical Chemistry

Students will be able to describe the different physical properties of each state of matter, difference between solids, liquids and gases, solution and its types, intermolecular forces, liquid crystals and Vander Waal equation of state

Botany

Paper A: - Cell Biology

This course help the students to distinguish (he structure of prokaryotic and eukaryotic cell, structure or cell wall, plasma membrane, cell organelles and cell division, importance of molecular biology, types and mechanism of mutations, ultrastructure of nucleus and its components history of cytology and draw the structure of cell organelles and locate its parts along with functions.

Botany

Paper B: - Genetics

This course helps the students to

- understand the structure, function and replication Of DNA as the genetic material, chromosomal basis of inheritance, Mendelian and non-Mendelian factors, modes or inheritance, gene expression in prokaryotes and eukaryotes, role of mutagens in cell transformation, comparison of genes, chromosomes and genomes mitosis and meiosis in cells.

Physics

Paper- A : Relativity and Electromagnetism

This course enables to understand

- the postulates of special theory of relativity, phenomenon of length contraction and time dilation in different frames of reference, transformation of electric and magnetic field from one frame to another, displacement current and power consumed in mechanical circuits.

Physics

Paper - B: Waves and Vibrations

This course enables to understand simple harmonic motion, Energy of a simple harmonic motion, Decay of free vibrations due to Damping, types of Damping, types of waves, wave equation and its solution and use of mathematical oscillator regulations and wave equations, phenomena of reflection and transmission of energy.

Zoology

Paper A - Ecology

This course aims to provide the basic principles of

- ecology, including population ecology, community ecology ecosystem function, ecological succession and the role of environmental disturbance.
- soil, its characteristics and formation, water sheds and hydrologic cycles.

Zoology

Paper B- Animal Biodiversity - II

This course enables the students to understand about general taxonomic rules on animal classification. This will help the students to classify phylum Arthropoda using examples cockroaches and phylum Hemichordate.

B.Sc. Sem 3

Organic Chemistry

This subject helps the students to

- recognize and draw optical isomers, enantiomers and diastereomers, racemic mixtures and meso compounds, mechanisms of organic reactions, mechanism of different reactions related to carbonyl compound
- understand different classes of alcohols, structure, or phenol mechanisms

Physical Chemistry

This helps the students to

- understand the reversible and irreversible reactions, physical significance of three laws of thermodynamics. Thermodynamics of one and two component system, basic rules of various component system. Basic concepts of thermodynamics, energy change in heat capacities at constant volume and pressure and their relationship, joule's law and its applications,

Botany Paper A: - Structure, Development and Reproduction in Flowering Plants -1

This course enables the students to understand the habit Of Angio spermic plant body, vegetative characteristics of the plant. anatomy of root. stem and leaf of Monocot and dicot plants, plant morphology and basic taxonomy, the adaptations in plants in response to environment. the vascular tissue system in plants, concepts of senescence and abscission in plants.

Botany Paper B: - Structure. Development and Reproduction in Flowering -2

This course enables the students to understand the detail structure of male and female reproductive organ of plant, pollination in plants through various agencies ,vegetative propagation, concept of double fertilization in plants, seed dormancy. pollen pistil interaction and self-incompatibility in plants.

Physics Paper A: - Statistical Physics and Thermodynamics

This course enables the students to

- explain basic ideas of statistical physics about probability, concepts of macro states. microstates, concept of entropy, reversible and irreversible processes, entropy changes in Carnot cycle-different thermal processes and understand laws of thermodynamics.

Physics

Paper B:- Optics and Lasers

This course enables the students to understand the principle of superposition of waves, formation of standing waves-phenomenon of plane polarization of light, polarization of reflection, scattering, Double reflection, polarization interference and the effect of diffraction in optical imaging, resolving power of telescope, microscope and components of laser devices, common conditions for laser actions and its types.

Zoology

Paper A - Evolution

This course enables the students to understand the embryological evidence, Geological time scale, Genetics basis of evolution of human karyotyping and speciation, Structural and functional aspects of the basic unit of life, theories of evolution.

Zoology Paper B - Biodiversity -III (Chordates)

- This course enables the students to understand conceptual knowledge of vertebrates, their adaptations and associations in relation to their environment, complex vertebrate interactions and classify phylum Protochordate.

B.Sc Sem 4

Organic Chemistry

This course aims to provide the basic knowledge to students about

- different functional groups, amines, carboxylic acid and its derivatives. structures of acids halides, ester, amides and acid anhydrides, reactivity order of acid derivatives, phase transfer catalysts. preparation and properties of nitro alkanes.
- heterocyclic compounds and organometallic compounds.

Inorganic Chemistry

The students be able to explain fundamental concepts in Coordination Chemistry. The students should be familiar with the basic knowledge of non-aqueous solvents in analytical chemistry. The students will develop the ability to

solve practical problems of analytical chemistry of non-aqueous solutions.

Botany

Paper A: - Diversity of Seed Plants and their Systematics -I

This course helps the students to understand the distinguishing features of angiosperms and gymnosperms, scope of paleobotany, common types of fossils its role in geological time scale, various fossil genera representing different fossil groups. life cycle of Pinus, Cycas, Ephedra, Ginkgo, evolution of gymnosperms and angiosperms.

Botany

Paper B: - Diversity of Seed Plants and their Systematics -II

This course helps the students to understand the plant morphology and basic taxonomy, conceptual development of taxonomy and systematics, wide activities in angiosperm and trends in classification.

Physics

Paper —A: Quantum Mechanics

This course enables the students to Describe wave function and derive the Schrodinger equation and interpret the wave function and Eigen value equation, concept of wave practical duality. It also helps the students to calculate de - Broglie wavelength of a wave associated with the particle, Heisenberg's Uncertainty Principle.

Physics

Paper B: Atomic and Molecular Spectrum

This course provides the basic ideas of interaction energy, molecular bonding, and symmetric structure and explanation of Bohr's theory, energy level diagram, Bohr's correspondence principle, and evidences in favour of Bohr's theory, X-ray spectra, molecular spectra, and Raman spectra, subshells in atoms, atomic spectra of helium and atomic spectra of alkaline earth atoms.

Zoology

Paper A - Biochemistry

This course enables the students

- to understand the structure and general function of enzymes, concept of enzyme activity and. enzyme inhibition, lipid metabolism in plants, beta oxidation, gluconeogenesis and its role in mobilization of fatty acids during germination, oxidative phosphorylation.

Zoology

Paper B- Animal Physiology

This course enables the students to learn

- the concept of endocrine and homeostasis,
- a brief account of genetics and organic evolution. gain fundamental knowledge of physiology and endocrine systems, concepts of digestion, respiration, excretion. the functioning of nerves and muscles.
- execute the roles of a biology teacher or medical lab technicians with training as they have fundamentals.

B.Sc Sem V

Physical Chemistry

This course lays an emphasis on basic principles of electrochemistry, various methods for the determination of transport number. concept of electrolytic conduction and dilution. The students will be able to understand the concept of spectroscopy. UV spectra, IR spectra, Raman Spectra , concept of electromagnetic waves, Franck-Condon Principle , nuclear reactions and radioactivity etc.

Inorganic Chemistrv

Students will be able to

- name different organometallic compounds, recognize the bonding in transition metal complexes b'. VBT and CFST theories.

- understand the concept of CFSE crystal field splitting in octahedral, tetrahedral, and square planar complexes, concept of magnetic susceptibility, L-S coupling.
- learn to write term symbols for p² and d² systems and to differentiate kinetic and thermodynamic stability of coordination complexes.

Botany Paper A: - Plant Physiology'

In this course students are able to

- learn and understand about mineral nutrition in plants, growth and development processes in plants, photosynthesis and respiration in plants, process of translocation of solutes in plants, higher plants vs with particular emphasis on light and dark reactions of C₃ and C₄ pathways, importance and scope of plant physiology.

Botany Paper B: - Biochemistry and Biotechnology

This course helps the students to

- understand structure and general features of enzymes, concept of enzyme activity and enzyme inhibition, lipid metabolism in plants, beta oxidation, gluconeogenesis and its role in mobilization of fatty acids during germination, fundamentals of recombinant DNA technology, genetic engineering, the principle and basic protocols for plant tissues culture.

Physics

Paper A : Condensed Matter Physics

This course enables the students to explain symmetry elements and Bravais lattice, lattice vibrations, concepts of photons, scattering of photons by phonons and the success and failure of free electron theory, the origin of band gap.

Physics

Paper-B Nuclear Physics

This will explain nuclei properties. the shell model, constituents of nucleus, non-existence of electrons in nucleus. common nuclear mass and binding energy. angular momentum, parity, and magnetic moment of nuclear ground States. The modes of radioactive decay. radioactive dating. nuclear reactions, and type of nuclear reactions.

Zoology

Paper A - Developmental Biology

This course provides the basic concepts of developmental biology, concept of fertilization, pregnancy, lactation, concept of placenta, fetal membrane and hormonal ovulation.

Paper B - Genetics

This course enables the students to understand the structure, function and reproduction of DNA as the genetic material, chromosomal basis of inheritance, mendelian and non mendelian modes of inheritance, gene expression in prokaryotes and eukaryotes, mitosis and meiosis in cells, comparison of genes, chromosomes and genomes will help to assess the role of mutagens in cell transformation.

BSc Sem 6

Physical Chemistry

This course helps the students to understand about the concept of polarizability, black body radiations, phosphorescence, chemiluminescence and fluorescence phenomenon, concept of Jablonski diagram, laws of photochemistry, crystal lattice and methods to determine the internal structures of crystals

Organic Chemistry

Students can

- understand the significance of the number, positions, intensities and splitting of signals in nuclear magnetic resonance spectra, basic principle of NMR spectroscopy.
- learn to assign structures to simple molecules based on NMR spectra.
- learn about the types of polymers and their uses, concept of enolates, to demonstrate advanced knowledge and understanding in respect of protein structures, peptides, carbohydrates.
- explain common terms NMR spectroscopy like chemical shift coupling constant and anisotropy.

Botany Paper A: - Ecology

This course enables the students to understand the basic principles of ecology, including population ecology, community ecology and ecosystem function, role of humans in affecting the environment, ecological succession, and the role of environmental disturbance in this process, water, watersheds and hydrological cycle, soil, its characteristics and formation.

Physics

Paper A Electronics

This course enables the students to explain basic knowledge or semiconductor diode, rectifier, and filter circuits. transistor biasing working principles of Amplifiers. oscillatory circuits, the operation, and characteristics of FITV. MOSFET. SCR, concepts of current and voltage sources, p-n junction, V-I characteristics.

Paper B: Radiation and Particle Physics

This course will help the students to explain basic ideas about interaction of radiation and charged particles with matter. working of different Accelerators i.e., Linear Accelerators. synchrotron, cyclotron etc. and detectors, able to detect X and B- particles. This subject enables to classify various elementary particles - Bosons, Mesons, hadrons etc., and also explain six types of quarks.

Zoology

Paper A - Option (ii) Economic Entomology

This course enables the students to understand beneficial and non-beneficial insects, Classification of insects, Role of insects in spread of diseases, a study of silkworms and cocoons, other defective cocoons. They will learn how insects interact "with the environment, other species and humans. Students gain knowledge about various systems,

Paper B - Option (ii) Economic Entomology

This course enables the students to understand the role of pesticides and their classification, concept of attractant and repellents. feeding apparatus of different insects. Students gain knowledge regarding Vector borne diseases there pathology- control measure thus aiming at 'Swachh and Swasth Bharat'.

EVS Outcome

Class B.Sc.(Med / Non-Med)

Sem- 3rd/4th

This course enables the students to

- understand and evaluate the global scale of environmental problems, ethical, cross-cultural and historical context of environmental issues and links between human and natural systems, physical, chemical, and biological components of the earth's system and
- show how they function, to integrate the many disciplines and fields that intersect with environmental concerns, Communicate complex environmental technical and non-technical , interdisciplinary, EVS.