Program outcomes, program specific outcomes and course outcomes

GDMM, Patna offers PG program in Botany, Zoology, Sociology, English, History and Home science. UG programs across Science, Arts and commerce streams are offered. The 4 year UG programs have been introduced since 2023 with the implementation of NEP 2020. Till 2022, students were admitted in 3 year UG program. The College also offers three Vocational courses namely, BCA, BBM and B.LiS. All the courses are focused on increasing a students' knowledge and critical thinking in accordance to the syllabus and curriculum prescribed by Patliputra University, Patna.

PO, PSO AND CO OF PG COURSES

Programme specific outcome (PG Zoology)

PSO1- To demonstrate and apply the fundamental knowledge of the basic principles of major fields of Zoology;

PSO2- To apply knowledge to solve the issues related to animal sciences

PSO3-To take appropriate steps towards conservation of endemic and endangered animal species

PSO4- To help to develop scientific tempers and attitudes, which in turn can prove to be beneficial for the society.

PSO5- To use their in-depth knowledge about different biological systems, their coordination and control as well as evolution, behavior, and biological roles of the animals in the ecosystem.

PSO6- To acquire complete in-depth knowledge in the specific areas of Functional Biology of Invertebrates and Chordates, Molecular Cell Biology, Genetics, Environmental Science, Bio-instrumentation & Biostatistics, Biochemistry, Biosystematics and Evolution and Vertebrate Immunology.

PSO7- To able to qualitatively and quantitatively analyze evolutionary parameters using various biostatistics and computational tools used in modern sciences.

PSO8- To acquire hands on experience of working in the field on these areas and experimentation inthese areas.

PSO9- To gain mastery on the biological functioning of fish and inland fisheries or in the field of Entomology.

PSO10- To understand about complex interactions among the various animals of different phyla, their distribution and their relationship with the environment
PSO11- To understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology

PSO12- To understand the importance and knowledge of agro – based industries like sericulture, pisciculture etc.

PSO 13- To learn about animal behaviour and will develop empathy towards animals.

PSO 14- Understand about various concepts of genetics and its importance in human health

PSO 14- To apply the scientific knowledge acquired in zoology and become skilled professionals adhering to the values of sustainable living.

PSO 15- To develop and popularize scientific temper to make conceptual contributions in zoology and promote environmental consciousness.

PSO 16- To understand and contextualize environmental and ethical issues and contribute towards the betterment of the environment, protection of endangered species and sustainable growth.

PSO 17- To demonstrate analytical reasoning, problem-solving, scientific reasoning, and reflective thinking as professionals in all frontiers of zoology. M.Sc.

PROGRAMME SPECIFIC OUTCOMES (PG Botany)

PSO 1 Develop and promote interest, participation and commitment in the subject Botany by conceptual understanding of principles of Botany. Enable the students to be resourceful in identifying the plants both growing naturally and the specimen of the lab. Various courses of the programme are carefully designed in order to prepare the students for competitive exams like CSIR NET, SET, GATE etc. The courses taught and the hands -on -training gained by students during practicals of courses equip the students to write value based research proposals for grants.

PSO 2 A student completing the course is able to understand and link different core branches of Botany such as systematics, taxonomy of various life forms, biodiversity, ecology, developmental biology, physiology, biochemistry, plant interactions with microbes and insects, anatomy, reproduction, genetics, plant tissue culture and molecular biology. With the gained knowledge and understanding student will be able to systematically classify and link salient features of different plant groups and microbes. Knowledge of ethanobotany will help student in deducing and evaluating concepts and importance of our traditional medicinal system. The understanding and training on Biofertilizer technology will equip students with concepts on benefits of biofertilizers in crop improvement as well as improvement of soil health. Student will understand and evaluate biodiversity in correlation to habitat, climate change, land and forest degradation and can trace the evolution of plants through Paleobotany.

PSO 3 Benefited with their knowledge on cytogenetics, recombinant DNA technology, application of biostatistics, analytical techniques, plant tissue culture, phytochemistry, karyotyping and chromosome mapping, microscopy and chromatography etc. student can speculate and draw inferences from the biological data.

PSO 4 Develop an understanding of application of Botany in fields like Agriculture through study of plant pathology and Genetic Engineering. Understand Molecular and Physiological adaptations in plants in response to biotic and abiotic stress and genes responsible for stress tolerance genetic engineering of plants. The students will also gather the role of botany in environmental cleanup, forestry, floriculture, pharmaceutical industry, etc.

PSO 5 With the detailed understanding of the multi functionality of plant cells, student can perform experiments in production of fine chemicals and their wide spread industrial applications.

PSO 7 Perform procedures as per laboratory standards in the areas of Biochemistry, Anatomy, Breeding procedures for hybridization, Biofertilizer Technology, Taxonomy, Economic Botany, Cell Biology, Reproduction and Ecology. This would help them create, select and apply appropriate techniques, resources and modern technology in multidisciplinary way and design experiments, analyze and interpret data to reach to an effective conclusion.

PSO 8 Understand the issues of environmental contexts and sustainable development. Student will become aware of natural resources and environment and the importance of conserving it.

PSO 9 Carry out innovative research projects through best problem-solving skills thereby making them to use knowledge in depth.

PSO 10 Project, Seminar and Dissertations would build up research aptitude among the students. The objective is to train and persuade students in basics of research, literature study, analysis and interpretation of research topic and expression of their understanding of the topic in their own words. This would help develop entrepreneurial skills in them

Course Outcome (PG Sociology)

Papers

1. Principles of Sociology

CO1. Acculturate students into a sociological way of thinking

CO2 Understand and analyse intricacies.of specialised social theories and concepts,

CO3. Prepare for careers in an increasingly diverse world.

2. Classical Sociology

CO1. Learn and understand fundamentals of classical sociology.

CO2. Ruminate over thoughts of pioneer sociological thinkers.

CO3. Understand the contemporary and current social issues and problems.

3. Perspectives in Indian Sociology

CO 1. Familiarize with perspectives on Indian society in relation to thought and theory in sociology.

CO 2. Understand Indian society.

CO 3. Develop insight into impact of social structure on development and vice-versa.

CO 4. Enable to address the Indian experience of social change,

CO5. Prepare for professional careers in the field of development planning,

CO6. Understand the contemporary socio-economic framework of development in India and so on.

4. Rural Sociology

CO1. Analyse an overview of the rural social reality with emphasis is on the changing nature of the rural society.

CO2. Enables to understand the factors responsible for the changes and governmental approaches to rural issues and crisis.

5. Research Methods in Sociology

CO1. Understand the basics of Qualitative and Quantitative Social Research.

CO2. Acquaint with the important concepts, techniques and processes in qualitative and Quantitative Acquaint.

CO3. Enable to undertake socially meaningful research.

6. Sociology of Population Studies

CO1.Stimulate understanding of a systematic interface of population and society along with theoretical aspects related to the population growth,

CO2. Acquire the basics of clenlographic concepts and their impact on the composition, size, and structure of population.

7. Gender and Society

CO1 Enable to understand gender in all of its dimensions.

CO2. Understand Indian society in true context.

CO3. Make aware of the impact of society and culture on gender roles in different cultural settings and economic groups of women.

8. Urban Sociology

CO1 Acquaint with the fast pace of urbanisation and its problems.

CO2. Equip to understand the social problems in urban setting.

CO3. Sensitize towards the urban reality of India.

9. Crime and Society

CO1. Make aware of social aspects of crimes in terms of key concepts, phenomena of criminality, social responses to crimes, reflections of crimes on society etc.

10.Theoretical Perspectives in Sociology

CO2. Equip with the ways to explain different aspects of social interaction.

CO2 Create a testable proposition,.called hypothesis about the society.

CO3. Encourage thinking and build concepts of the perspectives of Sociological phenomena to carry out research.

11 . Social Problem in India

CO1. Acquaint with social problems and dysfunctions.

CO2 Familiarise the with the problems of Indian society and its remedies.

CO3. Equip to address the problems of both the individuals and the community and offer solutions, both at society and policy levels,

CO4. Acculturate to become sensible citizens.

12. Industrial Sociology

CO1. Understand sociology of Industry, labour and their actual problems, industrial society, industrialization process, transformation, establishing relationship and interaction between society and Industry.

13. Sociology of Change and Development

CO1. Familiarize with the changes occurring in the context of equality, power and politics.

CO2. Understand the regional, ethnic and religious differences and grasp the social realities.

CO Familiarize with development and social transformation.

14. Sociology of Marginalised Communities

CO1. Understand and perceive marginalised communities, especially SC, ST, Minorities, handicaps etc.and their conditions, social roots of dysfunctions, social mobility. factors of cultural marginalisation and measures of their amelioration.

15 & 16. Project Work and Dissertation

CO1. Develop research skills/ Practical skills for sociological analysis.

CO2. Enable to carry out dissertations/ projects.

CO3. Enable to make theoretical construct, assessing findings, develop skills of digging literature and logical thinking

Prgorame Specific Outcome (PG History)

On completion of the M.A..with History, students will be able to …

PSO-01 Students will learn basic narrative of historical events, personalities and turning points of the history of the India, World and Bihar.

PSO-02 Build critical ability through completion of a combination of courses, students become familiar with the political processes and structures, society and culture, political thoughts, historical thoughts and historiography, economy and society in India, Bihar and World.

PSO-03 To Understand background of the religious, customs, institutions and administration and so on.

PSO-04 Evaluation of historical ideas, arguments and point of view, presentation of a summary of a topic in an organized, coherent and compelling fashion orally or written.

PSO-05 Students will acquire basic historical research skills including effective use of libraries, archives and databases.

PSO-06 To understand the depth of subject of history from Macro to micro level

Programme Specific Outcome (PG English)

The outcome of the programme is to deliver responsible and socially conscientious students who will focus on future challenges. A familiarity with other literatures promotes an awareness of diverse cultures among students. At the completion of the course, students will have acquired a broader vision of the world and will be better equipped to engage in intercultural dialogue. Literatures of different periods and genres will provide a wholesome vision of life and will enable them to view the world from many perspectives. One of the major outcomes of the M.A. English programme is to help strike a balance between critical thinking and creative writing. The course promotes a mature response to literary texts and relate to them in life. Students of the programme are more aware of issues of class, caste, gender sensitization, subjugation of women, disability etc. Young graduates develop an empathetic response to existing social issues and will be inspired to contribute towards society. The wide range of emerging areas in the field of literary studies helps students develop the spirit of critical enquiry, analytical skills and creative faculties. They will also be better equipped to keep alive the classical ideals of the past. Students emerge with better communicative skills and linguistic competence. This in turn enhances their performance in interviews, competitive areas, and affords them more employability. The programme ensures that students develop the capacity to be competent teachers of English language and literature and build a rich scholastic tradition.

Programme Specific Outcome (PG Home Science)

- Home Science is the mixture of arts and science, evolved over years and now it includes a study of different subjects like nutrition, health care, textiles, community living and home economics and provides & provides excellent careeropportunities and management of their home efficiently and to make the students aware about the global environment and cleanliness.
- It gives complete information about different units/branches ofHome Science after the completion of undergraduate curriculum. The degree in home science molds you into a responsible individual,who can handle his/ her home and community responsibly.
- Home Science provides with skills to manage home, childcare, personal finances, food, clothing, beautification, tradition etc. and brings the changes in basic outlook about home and society.
- Food and Nutrition being the important subject in home science, important details about art of preparing a balanced meal using freshand natural ingredients.
- It specialized in food and nutrition, further research can be pursued and candevelop products such as detox supplement, health products with natural ingredients and so on.
- In the hotel industry, housekeeping and food catering are lucrative jobs forthe home science graduate and post graduate specialized in food and nutrition.
- Home science gives skills to manage home, child care and provide first aid and preventive and promotive care in common illness.
- The outcome of teaching and knowledge in textiles leads to anotheremerging field of modern era- the fashion designing.
- Home Science is a presently a very emerging branch with multiple career choices.

PO, PSO AND CO OF UG COURSES (3 YEARS)

B.Sc. (Hons) Botany

Program Outcome

The B.Sc. Botany honours programme is designed to equip students with essential knowledge and technical skills to study plants in a holistic manner. Botany is a broad discipline that encompasses many topics related to the study of plants. The B.Sc. Botany (Hons) programme educates students in a variety of areas of plant biology through lectures, discussions, and hands-on labs. The focus of current study has switched from traditional botany to cutting-edge plant sciences and applied approaches. But, there is a need to maintain a balance between conventional botany and contemporary sciences and applied approaches. This syllabus was created to give students the opportunity to get ready for future career in a variety of disciplines, including academia and competitive exams. Students would study the plant life forms, their evolution and interactions with other organisms within the ecosystem. Students would also become aware of the social and environmental significance of plants and their economic uses. Insight into the line of Plant Evolution on Earth and the consequent Study of Biodiversity and its importance is instrumental in creating awareness on the threats to biodiversity and sensitize young minds towards the Biodiversity Conservation for sustainable development.

Program Specific Outcome

1. Students will be able to understand and explain different specializations of Botany such as systematics, evolution, ecology, developmental biology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction, genetics, cell and molecular biology of plants.
2. Students will be able to identify various life forms of plants, design and execute experiments related to basic studies on evolution, ecology, developmental biology, physiology, biochemistry, plant interactions with microbes and insects, morphology, anatomy, reproduction, genetics, microbiology, molecular biology, recombinant DNA technology, transgenic technology.
3 Students will acquire core competency in the subject Botany and in allied subject areas. They will be able to use the evidence based comparative studies approach to explain the evolution of organism and understand the genetic diversity and its significance.
4. The students will be able to explain various physiological and metabolic processes unique to plants. They would be able to elaborate on the concepts of gene, genome and the molecular processes of replication, transcription and translation.
5. They will be able to understand adaptation, development and behaviour of different forms of life. The students will get an understanding of functioning of ecosystem and tracing the energy pyramids through nutrient flow.
6. Combination of Theoretical and Practical components will provide comprehensive information and insight into the fascinating world of Microbes and Plants

Course Outcome for B.Sc. (Hons.) Botany

B.Sc. (Hons.) Part-I

Paper-I Cryptogams

1. Students will be able to Identify and classify the different algae, Fungi, Lichens and

Bryophytes and pteriodophytes.
2. They will be able to explain the occurrence, structure, reproduction and life cycle of mentioned algae, fungi, bryophytes and pteridophytes.
3. Understanding fossils like Rhynia, Lepidodendron and Calamites.
4. Develop understanding of the economic importance of algae, fungi and bryophytes.
5. To get Insight into the brief account of lichen.

Paper-II Microbiology and Plant Pathology

1. Student will be able to understand the classification, characteristics, nutrition and ultrastructure of bacterial cell.
2. To gain understanding about the nature and structure of TMV and bacteriophages.
3. To gain knowledge of industrial importance of bacteria and fungi.
4. To explain the role of nitrogen fixation.
5. Familiarization with some common plant diseases occurring in Bihar.

Practical Paper - Cryptogams + Microbiology

1. Microscopic observation and identification of algae, fungi, bryophytes, lichens and pteridophytes.
2. Understanding the staining techniques for bacteria .
3. Technique of isolation and inoculation of fungi.
4. Understanding the preparation of a solid culture media.
5. To gain insight on working principle of incubator and pH meter.

B.Sc. (Hons.) Part-II

Paper-III Gymnosperms & Angiosperm Taxonomy

1. Understanding the morphological, anatomical and embryological features of Pinus, Taxus and Gnetum.
2. Gain knowledge about the methods of fossilization and there preservation.
3. Gain insight into brief idea of plant fossils of Bihar.
4. Understanding different angiospermic systems of classification.
5. Identification and family description of locally available plants.

Paper-IV Anatomy Embryology and Applied Botany

1. To gain insight into to the agricultural and horticultural products of Bihar with special reference to drugs, oil and pulses yielding plants.
2. Develop understanding about the basic knowledge of plant tissue culture.
3. Understanding the concept of sporogenesis and embryogenesis.
4. Understanding the structure and function of plant tissue.
5. Gain knowledge of abnormal secondary growth.

Practical Paper - Phanerogams and Applied Botany

1. Identification of locally available angiospermic plant upto genus level.
2. Qualitative test of Carbohydrates protein and lipids in plant products like seed, oil and fruits.
3. To gain knowledge about performing section cutting of root stem and leaf.

4. Gain basic knowledge of living and fossil gymnosperms.
5. Familiarization with normal and abnormal secondary growth.

B.Sc. (Hons.) Part-III

Paper-V Plant Physiology and Biochemistry

1. Understanding the properties, nomenclature and classification of enzymes.
2. To gain insight into structure, classification and function of carbohydrates, proteins and lipids.
3. Understanding the mechanism of osmosis, respiration and transpiration in plants.
4. To gain knowledge about the phytohormone such as auxins, gibberellins and cytokinin.
5. Understanding the physiology of flowering in plants.

Paper VI Cytogenetics, Molecular Biology and Plant Breeding

1. Understanding the structural organisation of Eukaryotic chromosome.
2. Develop concept of linkage, sex determination,cytoplasmic inheritance and different types of mutations.
3. Develop understanding about artificial synthesis of gene and genetic engineering.
4. Gain knowledge of DNA and RNA structure and replication
5. Understanding various statistical methods of analysis.

Paper VII Environmental Biology

1. Understanding the basic concept of population ecology.
2. Develop understanding about the ecosystem specially grassland, freshwater and forest ecosystem.
3. Gain knowledge about ecological succession and adaptation.
4. Understanding different types of environmental pollution.
5. To develop concept about biological diversity, ecological stability and conservation of biological diversity.

Paper VIII Physiology, Biochemistry, Environmental Biology and Cytogenetics

1. Familiarization with distribution and frequency of locally available plants.
2. Proficiency in analysis of various secondary metabolites.
3. Understanding the basic physiological processes based on simple lab experiments.
4. Developing practical skills in field of Cytogenetics.
5. Developing expertise in emasculation and pollination technique.

B.Sc. (Hons) Zoology

Program outcome –

One of the most fundamental subfields of Biology studied at the undergraduate level is Zoology. To appreciate the diversity of morphology, anatomy, and behaviour among various species, it is helpful to acquire and comprehend the notions of animal diversity.

Our students will be better prepared to learn about various human systems, their coordination, and control after taking this course. Additionally, this course will give students the chance to comprehend their own, as well as other creatures', evolution. Using numerous bioinformatics and computational tools utilized in contemporary sciences, they will be able to qualitatively and quantitatively analyze evolutionary factors. They will have plenty of possibilities to investigate other employment options as a result.

A platform for understanding classical genetics will also be provided by the zoology degree programme in order to comprehend how various traits are distributed among populations, how they are inherited, how ethnicity affects them, and how these concepts relate to more recent and cutting-edge techniques like genomics, metagenomics, genome editing, and molecular diagnostic tools. The theoretical and practical knowledge acquired in this course will be useful for creating various public health policies for social welfare. The course has been created to give students in-depth knowledge of practical subjects while ensuring the instillation of employability skills, allowing them to pursue careers and start their own businesses in a variety of disciplines such as aquatic biology, sericulture, apiculture, etc. Students who successfully complete this course will be able to influence public policy regarding environmental protection, animal preservation, and wild life conservation.

Program specific outcome

Students participating in the B.Sc. (Hons.) degree program in Zoology will have knowledge that will provide them a competitive edge in pursuing higher education, seeking employment in academia, research, or industry after completing their studies.

After completion of the UG program, based on the morphological, anatomical, and systemic arrangement of various chordates and non-chordates, students should be able to recognize, group, and distinguish these organisms. Also, they will be able to explain the importance of numerous animals to humans in economic, ecological, and medical terms life. This will cater to the inquisitiveness of young minds and make them aware of the diversity of animals, encouraging them to think about professions in wild life investigation or photography.

Students' practical understanding of animal identification and classification will help them in their professional lives and will be an additional edge for jobs as a taxonomist, researcher, teacher in numerous private and government organizations; employments in the National Parks and Sanctuaries and the Zoological Survey of India

Students can pursue higher studies and make a career as a scientist in the basic Sciences or applied Sciences like drug development sector in India or overseas by using the practical knowledge of molecular biology, biotechnology, biostatistics, and bioinformatics acquired during the program. Basic experimental skills will be taught to our students in the areas of enzymology, analytical biochemistry, qualitative and quantitative microscopy, genetics, molecular biology, and biotechnology. These techniques will give our students who want to pursue further education an advantage. A thorough awareness of the comparative anatomy, developmental biology, and organization, functions, strengths, and weaknesses of distinct biological systems will present a picture of evolution that has taken course over millions of years, making them appreciate the nature and natural selection.

Students will be able to realize the potential and economic and environmental impact of aquaculture, sericulture, and apiculture. They may choose to pursue these specific courses in higher education if they

have interest and deem it fit for their professional career.
Students will learn many learn diagnostic tests, haematology, histology, and staining techniques, enzymatic assays etc which will aid them if they wish to pursue a career in clinical and research laboratories. It will be easier for them to determine their career options if they have a thorough understanding of the various physiological systems and techniques available for measuring vital physiological parameters, understanding the causes of various life-threatening diseases via laboratory examination, and assessing basic physiological functions by interpreting physiological charts.
Students will become effective communicator, critical thinker and problem solver, will develop reasoning, team spirit and become ethically aware.

Course Outcomes:

B.Sc. Part1 Zoology Hons.

PAPER-IA: Non-Chordate
CO 1- Explain and able to distinguish the characteristic features of each phylum like Protozoa, Porifera, Cnidaria, Ctenophora, Platyhelminthes Aschelminthes Annelida, Arthoropoda, Mollusca, Echinodermata and Hemichordate
CO 2- Recognize the diversity of non-chordates and their diverse habitats and behavioural patterns.
CO 3- Recognize the origins and relationships of various non-chordates through affinities between structure and function
CO 4- Classify, Identify and recall the name and distinct features of nonchordates.
CO 5 - Explain, and relate the origin, structural organization and evolutionary aspects of invertebrates. Analyze, compare and distinguish the developmental stages and describe the important biological process.
CO 6 - . Realize the economic significance of non-chordates, their relationship with the environmental factors and ecological role.

PAPER-IIA: Ecology, Animal Behaviors and Biometry
CO1- Understanding of fundamental ideas of ecology, the function of physical variables, and the idea of limiting factors.
CO 2- Understand the dynamics, growth models, and interactions of the population.
CO 3- Learn about climax theories, ecosystem development, and community features.
CO 4- Be familiar with the different kinds of ecosystems, food webs, food chains, energy models, and ecological efficiency.
CO 5- Use the fundamental concepts of ecology to manage and conserve wildlife.
CO 6- Bring awareness about the impact of socio-economic development on the environment and the solutions put forward by the government to reduce environmental damage.
CO 7-Discuss the environmental hazards and social and economic ramifications.
CO 8- Recall the basics of animal behaviour, ethology patterns of behaviour and approaches and methods in the study of behaviour.
CO 9- Describe and compare social behaviour reproductive behaviour
CO 10- Learn the origin and development of animal behaviour and to understand the influence of genetics, environment on animal behaviours.
CO 11- Understand the biological properties of animal behavior, with an evolutionary and ecological emphasis.
CO 12-Compare innate and learned behavior and differentiate between various mating system.
CO 13- Impart the knowledge about visual and auditory communication; courtship, mate choice, and mating systems; social behavior and social systems; and animal personality.
CO 14- Discuss how movement and migration behaviors are a result of natural selection

CO 15- Illustrate ecological aspects of behaviour which includes habitat selection, optimal foraging theory and aggressive behaviour.
CO 16-Understand and explain courtship and parental behaviour evolution of sex and reproductive strategies.
CO 17- Calculate numerical of mode, median and arithmetic mean, standard error, standard deviation, Simple test and Chi-square test using formula
CO 18- Understand and recall the basic concepts of biometry.
CO 19- Apply suitable statistical methods to solve problems.
CO 20-Identify and relate the statistical principles for the application of biological experiments
CO 21- Realizing the importance of integration of statistical methods to validate research investigations.

PRACTICAL PAPER: IB and IIB
CO1- Gain Basic knowledge on handling preserved specimens of Pheretima, Palaemon, Unio, Pila and their dissection
CO2- Identify the different groups of nonchordates animals by observing their external characteristics.
CO 4- Get knowledge about the different modes of life and their adaptation based on the environment.
CO 5- Able to dissect and display the internal organs and mount the mouthparts and scales of lower animals.
CO 6- Understand the basic structure on invertebrate animals through dissection
CO 7- Acquire knowledge of the reproductive system, nervous system, excretory system and respiratory system of animals like Pheretima, Leech, Palaemon,Unio, Pila and Sepia.
CO 8-Learn the process of temporary and permanent mounting.

B. Sc. Part II Zoology (Hons)
PAPER-III Chordata
CO1- Understand and describe general features of phylum chordata
CO 2- Recognize the diversity of chordates and their diverse habitats and behavioural patterns.
CO 3- Recognize the origins and relationships of various chordates through affinities between structure and function
CO 4- Classify, Identify and recall the name and distinct features of chordates.
CO 5 - Explain, and relate the origin, structural organization and evolutionary aspects of vertebrates. Analyze, compare and distinguish the developmental stages and describe the important biological process.
CO 6 - Realize the economic significance of chordates, their relationship with the environmental factors and ecological role.
PAPER-IV: Comparative Anatomy, Embryology
CO1- Understand and correlate the significance of cellular processes in embryonic development and specifically in organogenesis.
CO2- Describe and elaborate on the involvement of specific cell types in the formation of specific organs and explain the importance of morphogens.
CO3- Distinguish between the different types of developmental mechanisms in various organisms.
CO 4- Realize the role of environment and genetics in influencing embryonic development
CO 5- Understand the organ systems such as Integument, its derivatives and function, Evolution and fate of kidney, urinogential ducts, gonads, Evolution of chondro-Splanchno & osteocranium in the vertebrate groups
CO 6- Will get knowledge about Gastrointestial tract, Respiratory systems, Heart, Aortic arches, Brain and will be able differentiate and compare them in different classes of animal kingdom.

B. Sc. Part III - Zoology (Honours)
PAPER-V: Biochemistry, Physiology & Endocrinology

CO1-Understand the structure and classification of Amino Acids, Protein, Carbohydrate & fats
CO 2-Recognize the different types of Vitamins and their role in the metabolism as coenzymes
CO 3 - Describing structure, functions and the mechanism of action of enzymes.
CO 4-Understand the mechanism or working of body, its systems, its tissues, the cells and the biomolecules.
CO 5-Will get deeper insight about the structures and function of endocrine glands and get an understanding of the common endocrine disorders.

PAPER-VI: Cell Biology, Genetics and Economic Zoology
CO1- Recognize the basic tenets of cell biology.
CO2 - Describe the composition and purposes of the cell organelles that are engaged in various cellular activities.
CO3 - Understand how cells reproduce, divide, survive, die, and control these vital processes.
CO4 - Recognize how cell signalling works and how it affects cellular processes.
CO5 - Understand how disorders in the control of cellular activities and the functioning of cell organelles can result in illnesses.
CO6-Understand the structure and functions of a living cell and importance of genetics plays in organic evolution, adaptation and genetic disorders.
CO7-Correlate between cell structure and cell functions.
CO8 – Understand the economic importance of various insect cultures.

Department of History

Program Specific Outcome

History learning and teaching makes pupils aware about their past and present.

History encompasses almost all the happenings in the past and present which helps the students to create perspective for creativity and innovation.

The syllabus is designed in such a way that it covers most of the topics of general studies of various competitive exams.

Thus, the program prepares the ground for students to excel in different fields.

History helps to build new narratives in the large interest of contemporary society.

Program Outcome

Articulate factual and contextual knowledge of specific places and times, to
make careful comparisons and to discern how each
generation uses the past for present purposes.

Students should understand academic honesty, a concept presented to them
in all history classes.

Students should understand the basic skills that historians use in research.

Students should understand the basic skills that historians use in writing.

Students should understand the basic tools of historical analysis.

Students should understand the value of diversity.

Students should develop a secular outlook towards society.

Students should believe in the equality of man irrespective of caste, creed,
religion and colour.

Students should learn to believe in the ideas of religious toleration.

Course Outcome

The main focus in the History Course at the UG level is on the stages the growth of human civilizations and the evolution of social systems and on cultural and scientific development. The
main aims outlined for history teaching are:

The texts enable the students to comprehend the social, cultural and historical background of India and world. It also paves the way for career options for the students and facilitates to garner general knowledge.

Department of Chemistry

Program Outcome (PO)

B.Sc. Chemistry curriculum is a comprehensive compilation of different branches of Chemistry such as Organic Chemistry, Inorganic Chemistry, Physical Chemistry and Analytical Chemistry.

PO 1: Disciplinary knowledge and skill:

A graduate student should be able to demonstrating comprehensive knowledge and understanding of both theoretical and experimental/applied chemistry.

PO 2: Problem analysis:
The course curriculum brings out the critical thinking in UG students by employing a problem solving approach. It inculcates a thorough understanding of the concepts and enhances methodical and independent thinking and enables the student to draw a logical conclusion.

PO 3: Scientific Knowledge to Design/Development of solutions:

It is expected that the course curriculum will develop the scientific knowledge to demonstrate, carry out, record and report the experimental techniques and methods, to understand the characterization of materials and also to use the evidence based comparative chemistry approach to explain the chemical synthesis and analysis. The practical exercises done in the laboratories impart the students the knowledgeabout various chemical reagents, reactions and also skills of handling the corrosive, poisonous, explosive and carcinogenic chemicals making themselves employable in any kind of chemical industries.

PO 4: Use of modern tools and technology

Students will be able to understand the basic principle of an experiment and the equipments and instruments used in the chemistry laboratory. Further, the student will be capable of using of advanced instruments and related software's for in-depth characterization of materials/chemical analysis and separation technology.

PO 5: Chemistry: Impacts on Society and Environment

Create an awareness of the impact of chemistry on the environment, society, development of the human race. Students are expected to dispose laboratory waste and chemical wastes properly so as to avoid any harmful effect.

PO 6: Ethics

A graduate student requires understanding and developing ethical awareness/reasoning which the course curriculum adequately provides and to inculcate the scientific temperament in the students and outside the scientific community.

PO 7: Individual qualities and Team work

The course curriculum has been designed to provide opportunity to act as team player by contributing in laboratory, field based situation and industry. Chemistry graduates are expected to possess minimum standards of communication skills expected of a science graduate in the country. They are expected to read and understand documents with in-depth analyses and logical arguments. Graduates are expected to be well-versed of expressing the subject through technical writing as well as through oral presentation.

Program Specific Outcome

PSO: Life-long learning.

B.Sc. Chemistry courses are discretely divided into levels to provide a step-by-step progression of subject knowledge over the course of the three years of the term. They are also designed to instil a habit of continuous learning through the use of cutting-edge ICT tools and other tools, books, and journals for both individual academic growth and to improve employability.

Course Outcomes: The fundamentals and practical applications of modern chemical and scientific ideas, such as those in analytical, inorganic, organic, and physical chemistry, will be well-understood by the students. The periodicity in elemental characteristics, laboratory titrations, chromatography, and other separation methods are investigated in general and analytical chemistry. Additionally, students can learn about basic metallurgical processes, an introduction to nanochemistry, various bio and synthetic fuels, significant organic compounds for industry, and some industrial elements of inorganic and organic chemistry. Additionally, the course covers comprehending numerous atom models, various bond types, and exposure to many newly developed areas of organic chemistry. Additionally, students will comprehend the chemistry of biomolecules and natural products.

Department of Physics

Programme outcomes

PO-1 Curriculum will impart a conceptual understanding of principles of Physics. Students will be able to demonstrate concepts in Newtonian Mechanics, Electromagnetism, Thermodynamics and Quantum mechanics.

PO-2 Graduates should be able to utilise and transfer the knowledge they have gained to study many disciplines of physics.

PO-3 Graduates will be able to exhibit the skills necessary to convert a physical description into a mathematical equation and the other way around. They should also be able to illustrate important physics concepts with graphs and diagrams and apply geometric arguments to solve problems.

PO-4 Acquire capacity to defend and explain their ideas and methods in both writing and conversational form.

PO-5 Make measurements on physical systems understanding the limitation of the measurements and the limitations of models. Complete an experimental project, then submit your findings to the faculty by compiling your readings and present the outcome of the experimental work.

Program specific outcomes

PSO-1 The fundamentals of Physics, including understanding of electromagnetic, quantum mechanics, optics, electronics, contemporary physics, and microprocessors, are expected of all students.

PSO-2 Students should be able to operate laboratory equipment, analyse data, and interpret the results.

PSO-3 The ability to collect measurements in a physics lab and interpret those findings to get to reliable conclusions will be demonstrated by the students.

PSO-4 Students will demonstrate their capacity for both oral and written scientific communication as well as their capacity for independent thought.

PSO-5 Students will become aware of and have a comprehension of how physics affects society.

Course Outcomes

The course in physics includes different properties of natural objects, like mechanical, thermal, electrical, magnetic properties etc. The students become familiar with the computation facility with motives for physics applications in line with modern developments in information technology. They study fundamental mathematical concepts such differential equations, complex analysis, determinants, matrices, and vector analysis. There is also discussion of the general and mechanical qualities of matter. There are several natural particles that move at speeds close to that of light. Through the study of special theory of relativity, students gain an understanding of Einstein's modification of the notions of space and time. Both acoustical and electro-magnetic waves and oscillations are taught to the students. Kinetic Theory, Thermodynamics and Statistical mechanics are three approaches of thermal physics. Students learn their details and difference in approach. They are familiarized on the different statistics.

Department of Mathematics

Programme Outcomes

At the end of the UG course Mathematics prepares the students to understand and view mathematical structures. They will learn numerical aptitudeapplying both qualitative and quantitative knowledge for their future career. Curriculum offers need based computer courses which enable the students to solve computer oriented numerical problems. Students can opt for an advanced course such as Pure Mathematics, Applied Mathematics, Computer applications etc., Job market for a graduate in Mathematics is also very bright. The mathematics UG students after the completion of the course will gain a thorough knowledge in preparing competitive examinations conducted by different banking sectors, APSC and UPSC. Abstract courses and mathematical structuresincludes ins for higher education leading to M.Sc./MCA degree courses. (a) UG (Hons.) - On the completion of B.Sc (Hons) Mathematics students will have critical understanding of solving complex problems, interpreting data, learning oftheories of Mathematics and their application to the real world.

Programme Specific Outcome

- A student should be able to recall basic facts about mathematics andshould be able to display knowledge of conventions such as notations, terminology.
- Student is equipped with mathematical modelling ability, problem solving skills, creative talent and power of communication necessaryfor various kinds of employment.
- Acquire good knowledge and understanding in advanced areas of mathematics and statistics, chosen by the student from the given courses.
- Formulate and develop mathematical arguments in a logical manner.
- Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.
- Students will be aware of and able to develop solution-orientedapproach towards various Social and Environmental issues.
- Students will become employable; they will be eligible for careeropportunities in Industry, or will be able to opt for entrepreneurship.

Department of Home Science

Programme outcomes:

- It gives complete information about different units/branches ofHome Science after the completion of undergraduate curriculum. The degree in home science molds you into a responsible individual,who can handle his/ her home and community responsibly.
- Home Science provides with skills to manage home, childcare, personal finances, food, clothing, beautification, tradition etc. and brings the changes in basic outlook about home and society.
- Food and Nutrition being the important subject in home science, important details about art of preparing a balanced meal using freshand natural ingredients.

Programme Specific Outcomes:

Home Science is the mixture of arts and science, evolved over years and now it includes a study of different subjects like nutrition, health care, textiles, community living and home economics and provides & provides excellent careeropportunities and management of their home efficiently and to make the studentsaware about the global environment and cleanliness.

Course Outcome:

1. It specialized in food and nutrition, further research can be pursued and candevelop products such as detox supplement, health products with natural ingredients and so on.
2. In the hotel industry, housekeeping and food catering are lucrative jobs forthe home science graduate and post graduate specialized in food and nutrition.
3. Home science gives skills to manage home, child care and provide first aid and preventive and promotive care in common illness.
4. The outcome of teaching and knowledge in textiles leads to anotheremerging field of modern era- the fashion designing.
5. Home Science is a presently a very emerging branch with multiple career choices.

Department of Philosophy

Programme Outcomes:

On the completion of the UG program, students will be able to understanding about the fundamental concept of Epistemology, Metaphysics Indian and Western Philosophy, Ethics, Philosophy of Religion, Social and Political Philosophy and Logic, Students will be empowered with intellectual strength and power of ideas, a way of meaningful life.

Programme Specific Outcome:

The programme enhances and develop introspective thinking and analytical abilities of the students. At the end of the course students opt for higherstudies in Philosophy and also capable for any competitive examination includingCivil Services. Students are expected to be acquainted with Classical, Medieval and Modern Philosophers and their writings. The programme consists of Classical, Medieval and Modern Philosophies both Indian and Western.

Course Outcomes:

- To understand basic features of Indian Philosophy, Charvaka, Jainism, Buddhism, Nyaya, Vaisesika, Sankhya, Yoga, Mimansha, Advait Vedanta, Vishistdyaita Vedanta,
- nature of philosophy and its relation with science, Epistemology and Metaphysics
- To understand basic of Ethics, Moral, Non-Moral Actions, Punishment, Indian Ethics.
- To know about history of Modern & Western Philosophy, Rene Descartes, Benedict Spinoza Gottfried Wilhelm Leibritz, Jaha Locke, George Burkley, David Hume, Inomanual Kant.
- To understand philosophy of religion, Theories related to God world relation,
- Social and Political Philosophy.IT deals with the fundamental theory of political ideals. It includes the theory of justice, liberty, equality communism, socialism, Marxism, satyagraha ,Sarvodaya etc.
- To understand Logic and Analysis, Argument and Argument forms, Tautology,
- Concept of philosophy, Modern Indian concepts.

Department of Economics

Programme Outcomes:

After successfully completion of program in Economics student should be able to:

PO-1. Present economic theory and applications in written and oral form.

PO-2. Demonstrate an understanding of microeconomic and macroeconomic theory.

PO-3. Apply economic theory to issues in fields of economics.

PO-4. carry out economic and policy analyses that draw on microeconomic theory, apply economic analysis to everyday problems in real world situations, tounderstand current events and evaluate specific policy proposals.

PO-5. Explain the function of market and prices as allocative mechanisms.

PO-6. Apply the concept of equilibrium to both microeconomics and macroeconomics.

PO-7. Identify key macroeconomic indicators and measures of economicschange, growth, and development.

PO-8. Identify and discuss the key concepts underlying comparative advantage.

PO-9. Identify and explain major types of market failures.

Programme Specific Outcomes:

PSO-1. To able to understand basic concepts of economics.

PSO-2. To able to analyze economic behaviour in practice.

PSO-3. Understand the economic way of thinking.

PSO-4. The ability to analyze historical and current events from an economic perspective.

PSO-5. The ability to write clearly expressing an economic point of view.

PSO-6. Be exposed to alternative approaches to economic problems through exposure to coursework in allied fields.

PSO-7. To create student's ability to suggest of the various economic problems

Department of Psychology

Programme outcomes:

- Enable a person to understand the broad spectrum of behaviour. Like acceptable or aberrations, clinical aspects of behaviour and psychological disorders. They come across different behavior but they have better understanding and tolerance because of knowledge.

- Enable to understand relationships which affect our interpersonal relationship in family as well as at workplace.

- It sharpens analytical skills so that a person scientifically analyze the fact which can make a clear difference in common sense approach to systematic approach.

- Training in psychology can develop scientific and systematic understanding of human behavior.

- It also develops effectiveness at workplace through knowledge of human behavior which will facilitate understanding human dynamics at workplace.

- Psychology touches every aspects of our life and factors that influences our life, personal, societal and cultural impacting behavior.

- It can help in better communication- emotional language and body language.

- It develops greater appreciation for human life in all forms and stages like adolescence, adulthood or Sr.citizens.

- Study of psychology can complement their study of related subjects create better understanding of other subjects too.

Programme Specific Outcomes

On the completion of the program the students will have better understanding ofbasic theories underlying the human behavior, skills needed to solve the problemsfaced by human beings and students will be able to apply the skills gained duringthe program at clinical/industrial areas.

Department of Sociology

Programme Outcomes:

- Students will be able to think sociologically about the relationship between social structure, interaction, identities and discrimination.
- Students will be able to identify and explain major sociological theories and apply them to everyday life.
- Students will be able to practice sociology as educated and civically engaged persons application of oral, written and other technologically driven mediums to communicate and present sociological knowledge.
- Demonstrate expertise in a select subfield of sociology

Programme Specific Outcomes:

On the completion of the program, students will be acquainted with social relations, social transactions, social formations, social control, social values and culture, social groups like tribal community. They will be able to know the significance of social institutions, caste system, religion, nationalism, integrity, equality and justice.

Course Outcomes:

To understand fundamentals of sociology, nature and scope, social groups, social establishment, social structure, culture, family, social changes, Indians society, caste system, marriage, divorce, village community, position of women in Indian society. To understand significance of social Research, Scientific Methods, Hypothesis, Social Surveys, Sociometry, Research Methodologies. and learn social thoughts, August Comte, Herbert Spencer, L.H. Morgan, Pareto, Talcott Parsons, Raja Ram MohanRoy, Vivekanand, Mahatma Gandhi. To learn about Rural Sociology, rural society, rural family, rural social structure, rural development, social disintegration, Social Problems, Urbanization, Migration, Demography, Industrial Sociology.

Department of Political Science

Programme Outcomes:

On the completion of the program, students will be able to understand the concept and origin of power and different types of power relationship, government mechanism. Its functions duties and responsibilities, constitution of India, Political laws, attributes of appropriate and efficient political leaders.

Program Specific Outcomes:

- Understanding of the institutions, processes, constitutional background,and policy outcomes of the government or other power structures and the ability to compare one country's political system with others around the world
- Knowledge of key theories and concepts, historical developments, organizations, and modern issues in international relations
- Understanding of government institutions, electoral processes, and policies in a variety of countries around the world and the ability to compare the effectiveness or impact of differing political arrangements across countries
- Knowledge of some of the philosophical under pinning of modern politics and government and the legal principles by which political disputesare often settled.
- Ability to use the comparative case study method of analysis, quantitative forms of analysis, and legal analysis in oral communication and in written research

Department of English

Programme Outcome:

The graduation comprises the writings of English writers. It acquaints the students of the chief events and inventions of Great Britain. The texts enable the students to comprehend the social, cultural and historical background of British and other European literature, American literature, and Indian writings in English. It also paves the way for career options for the students such as teaching, electronic media, Tourism Industry, Air Hostess, etc. Students can go for further studies in English such as Post Graduation, Research, and Journalism.

Programme Specific Outcome:

The course enables students to communicate clearly and effectively. The students can analyse and interpret the writings. They can speak assertively and confidently in public. The course enhances the skill of writing. It enables students to understand literary criticism and interpret the literary work. The students can translate their thoughts into English. It develops imaginative and creative skills in student

Course Outcome:

The course produces Translators in Tourism as Professionals. Many professions prefer employees who excel in writing, reporting and documenting. This course enablesto excel in journalism, media productions, translation and script writing. Practical research work and dissertation help the students to be original and interested in wider perception of literature

Department of Hindi

स्नातक प्रतिष्ठा

हिंदी पाठ्यक्रम

PROGRAM OUTCOME (PO)

- इस पाठ्यक्रम के माध्यम से विद्यार्थियों में हिंदी भाषा और साहित्य के प्रति प्रेम और सम्मान की भावना जागृत होगी।
- विद्यार्थियों में नैतिक मूल्य विकसित होगा।
- हिंदी साहित्य के विविध विधाओं-- कविता, कहानी, उपन्यास, नाटक, निबंध, आलोचना, एकांकी आदि के जरिए विद्यार्थियों में साहित्य सृजन की भावना विकसित होगी।

- विद्यार्थी भारतीय एवं पाश्चात्य काव्यशास्त्र के विभिन्न संप्रदायों और प्रमुख से अवगत होंगे
- हिंदी साहित्य के इतिहास की विकासोन्मुख प्रवृत्ति को समझने में यह पाठ्यक्रम मदद करता है।

Department of BBM

Program Specific Outcome:

Students should be able to:

- Understand the dynamic and complex working environment ofBusiness.
- Understand the problems faced by the business sector in the Currentscenario.
- Understand the rapid changes of financial services include banking andinsurance sectors.
- Understand the micro and macro marketing environment.
- Demonstrate Effectively Oral and Written Communication.
- Demonstrate Ability to work in Groups.
- Analyze the various aspect of business research in the area ofmarketing, human resource and finance.
- Understand the Forms of business organization.
- Understand the factors influencing the consumer behaviour.
- Understand the methods of collecting primary and secondary data.
- Determine the steps involved in design of questionnaire.
- Analyze and prepare project report for the Functional areas of research. Demonstrate the ability to create business plans.

Department of BCA

Program Specific Outcome:

- To prepare young minds for the challenging opportunities in the IT industry.
- To develop programming and networking skills, learn applications, packages, programming languages and modern techniques of IT.
- To gain knowledge about various computer applications and latest development in IT and communication system.
- To give overview of the topics in IT like networking, computer graphics, web development, trouble shooting, and hardware and software skills.
- To develop skilled manpower in the various areas of software industry and Information Technology.
- To develop abilities for data analysis and interpretation Using ICT.
- To develop understanding of how different hardware components are related and work in coordination.
- To impart comprehensive knowledge with equal emphasis on theory and practice.

PO, PSO AND CO OF UG COURSES (4 YEARS)

The PO, PSO and CO of New NEP based curriculum is clearly mentioned in the syllabus and is being hosted by the university website. Links for the same is as follows:

Links:

https://www.ppup.ac.in/download/syllabus/FYUG-Economics.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-History.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-Political-Sc.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-Sociology.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-AI-and-AS.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-Chemistry.pdf

https://www.ppup.ac.in/download/syllabus/FYGU-Mathematics.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-Physics.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-Zoology.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-Urdu.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-Philosophy.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-Maithili.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-Hindi.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-Prakrit-and-Jainology.pdf

https://www.ppup.ac.in/download/syllabus/FYUG-Botany.pdf