GOVERNMENT COLLEGE For WOMEN (Autonomous), Mandya .

DEPARTMENT OF ZOOLOGY

Academic Year-2020-21
(Revised CBCS Scheme 2018-19 Onwards)
Criterion –II- Teaching - Learning and Evaluation

2.6 Teaching – Learning Process

2.6. Student Performance and Learning Outcomes

2.6.1 Programme outcomes, programme Specific outcomes and Course outcomes for all programs offered by the institution are stated and displayed in website of the institution (to provide web link)

Name of the Program	Name of the Course	Program Outcomes
B.Sc. CBZ-(Chemistry, Botany, Zoology)	Zoology	As follows.

B.Sc. ZOOLOGY (CBZ-Chemistry, Botany, Zoology) **DEGREE PROGRAMME.**
Courses offered.

Semester	Code	Course title	CREDITS				MARKS			
			Theory	Tutorials	Practical	Total Credits	C1	C2	C3	Total
I SEM	DSC 1A	Animal Diversity - 1	4	0	2	6	15	15	70	100
II SEM	DSC 1B	Animal diversity -2	4	0	2	6	15	15	70	100
III SEM	DSC 1C	Physiology and Developmental Biology	4	0	2	6	15	15	70	100
IV SEM	DSC 1D	Cell Biology and Genetics	4	0	2	6	15	15	70	100
V SEM	DSE 1A (Elective 1)	Biochemistry and Applied Zoology	4	0	2	6	15	15	70	100
	DSE 1A (Elective 2)	Endocrinology and Reproduction	4	0	2	6	15	15	70	100
	SEC 1	Apiculture	2	0	0	2	10	10	30	50
VI SEM	DSE 1B (Elective 1)	Molecular Cell Biology and Ethology.	4	0	2	6	15	15	70	100
	DSE 1B (Elective 2)	Environmental Biology	4	0	2	6	15	15	70	100
	SEC 2	Aquarium fish keeping.	2	0	0	2	10	10	30	50

DSC - Discipline Specific Course.
DSE – Discipline Specific Elective.
SEC- Skill enhancement Course).

B.Sc.- CBZ-(Chemistry, Botany, Zoology)- Zoology

Program Outcome

This is one of the fundamental field of sciences. Zoology subject is treated as a basic science subject. This subject is studied all over the world at undergraduate level in science stream. The program helps the student to develop scientific temper and attitude. This scientific attitude in turn will benefit the student and the society in general. After studying the program,

1. Students will be more equipped to learn and know about different biological systems, their coordination and control as well as evolution, behavior and biological roles of the animals in the ecosystem.
2. They will be able to engage in research using all the fundamental knowledge, and the skills required for the modern-day science.
3. The knowledge, skills and expertise they accumulate during the course will enable the students to explore different career options.
4. The program will also provide a platform for classical genetics in order to understand distribution or inheritance of different traits and diseases among populations, their ethnicity and correlate with contemporary and modern techniques like genomics, metagenomics, genome editing and molecular diagnostic tools.
5. After the completion of this course, students have the option to go for higher studies, i.e., M. Sc. / Ph.D. and then do research work for the welfare of mankind.
6. After higher studies, students can join as scientist or assistant professor or assistant teacher and can even look for professional job-oriented courses, such as Indian Civil Services, Indian Forest Service, Indian Police Service etc.
7. Science graduates can go to serve in industries or may opt for establishing their own industrial unit.
8. Practical and theoretical skills gained in this program will be helpful in designing different public health strategies for social welfare.
9. The program has been designed to provide in-depth knowledge of applied subjects ensuring the inculcation of employment skills so that students can make a career and become an entrepreneur in diverse fields. After the completion of the B.Sc. degree there are various other options available for the science students.

Program Specific Outcome

1. Students enrolled in B.Sc. degree program in Zoology will study and acquire complete knowledge of disciplinary as well as allied biological sciences.
2. At the end of graduation, they are likely to possess expertise which will provide them competitive advantage in pursuing higher studies from India or abroad; and seek jobs in academia, research or industries.
3. Students will be able to define and explain major concepts in the biological sciences.
4. They are able to correctly use biological instrumentation and proper laboratory techniques.
5. Students will be able to communicate biological knowledge in oral and written form.
6. Students will be able to identify the relationship or synchronization between structure and function at all levels: molecular, cellular, and organismal.
7. Students should be able to identify, classify and differentiate diverse chordates and nonchordates based on their morphological, anatomical and systemic organization.
8. They will also be able to describe economic, ecological and medical significance of various animals in human life.

9. This will create a curiosity and awareness among them to explore the animal diversity and take up wild life photography or wild life exploration as a career option.
10. The procedural knowledge about identifying and classifying animals will provide students professional advantages in teaching, research and taxonomist jobs in various government organizations; including Zoological Survey of India and National Parks/Sanctuaries.
11. Students will be able to apply the scientific method to questions in biology by formulating testable hypotheses, gathering data that address these hypotheses, and analyzing those data to assess the degree to which their scientific work supports their hypotheses.
12. Students will be able to present scientific hypotheses and data both orally and in writing in the formats that are used by practicing scientists.
13. Students will be able to access the primary literature, identify relevant works for a particular topic, and evaluate the scientific content of these works.
14. Acquired practical skills in biotechnology, biostatistics, bioinformatics and molecular biology can be used to pursue career as a scientist in drug development industry in India or abroad.
15. The students will be acquiring basic experimental skills in various techniques in the fields of genetics; molecular biology; biotechnology; qualitative and quantitative microscopy; enzymology and analytical biochemistry.
16. These methodologies will provide an extra edge to our students, who wish to undertake higher studies.
17. Students will be able to use the evidence of comparative biology to explain how the theory of evolution offers the only scientific explanation for the unity and diversity of life on earth.
18. They will be able to use specific examples to explicate how descent with modification has shaped animal morphology, physiology, life history, and behavior.
19. Students will be able to explain how organisms function at the level of the gene, genome, cell, tissue, organ and organ-system.
20. Drawing upon this knowledge, they will be able to give specific examples of the physiological adaptations, development, reproduction and behavior of different forms of life.
21. Students will be able to explicate the ecological interconnectedness of life on earth by tracing energy and nutrient flows through the environment.
22. They will be able to relate the physical features of the environment to the structure of populations, communities, and ecosystems.
23. Students undertaking skill enhancement courses like aquaculture, sericulture and apiculture will inculcate skills involved in rearing fish, bees and silk moth which would help them in starting their own ventures and generating self-employment making them successful entrepreneurs.
24. Acquired skills in diagnostic testing, haematology, histopathology, staining procedures etc. used in clinical and research laboratories will provide them opportunity to work in diagnostic or research laboratory.
25. Candidates find opportunities in government departments, environmental agencies, universities, colleges, biotechnological, pharmaceutical, environmental/ecological fields.There are numerous career opportunities for candidates completing their B.Sc, M.Sc. and Ph.D. in Zoology in public and private sector. Candidates may find jobs as Animal Behaviourist, Conservationist, Wildlife Biologist, Zoo Curator, Wildlife Educator, Zoology faculty, Forensic experts, Lab technicians, Veterinarians etc.

Course Outcomes: ZOOLOGY

Semester	Course	Outcome
I Sem	Animal Diversity – I (Non-Chordates)	Student will learn the basics of animal kingdom. How the animals classified into different groups. Student will develop a clear picture of how the organisms are organized into complex structure from simple, by studying different phylums. Gets familiarized with typical animals from different groups and their unique characters.
II Sem	Animal Diversity – II Chordates	In this paper student will continue to study the advanced group of animals. Will get in depth knowledge of general characters of fishes, amphibians, reptiles, birds, and mammals. Some topics will be of significant help like study of poisonous and non-poisonous snakes of India. Migration behavior in birds etc.
III Sem	Physiology and Developmental Biology	Student will get in depth knowledge of functioning of different organs systems of the body. Homeostasis. Digestion, respiration, circulation, nervous coordination, muscle physiology etc. in Developmental biology paper student will understand the complex mechanism of reproduction in vertebrae animals. The knowledge and skill obtained will broaden the scope of student's opportunity to jobs and research.
IV Sem	Cell Biology and Genetics	Student will learn in detail about the cells and their functioning, how the various organelles of the cells are organized and function will be understood. In many cases student will be able to establish links between the cell functioning and overall activities in the body. In genetics student will learn basic principles of genetics, advanced concepts and also the various toolsa nd techniques used.
V Sem (Elective)	Biochemistry and Applied Zoology	In Biochemistry student will be familiarized with the structure, types and functioning of the various biological molecules like, carbohydrates, proteins, lipids, nucleic acids etc. In applied zoology student will learn the basic principlaes and the practice

		methods of Sericulture, Vermiculture, Poultry, Fishery, Diary etc. this course will prove more beneficial in making the student self employed after the course.
V Sem (Elective)	Endocrinology and Reproduction	The student will learn about different hormones and the glands which produce them. Students will learn many abnormalities and diseases caused due to abnormal secretion of hormones. In reproductive biology students will understand the mechanism of reproduction in humans.
V Sem (SEC)	Apiculture	This is a skill enhancement course in which the student will study different varieties of hone bees that can be reared, the hone bree rearing methods, equipment's, diseases et car taught in detail. This course will empower the student to self-employ after course.
VI Sem (Elective)	Molecular Cell Biology, Evolution and Ethology.	Molecular biology will teach the students some of the recent development in the field of biotechnology and genetic engineering. In Evolution topic student will get in depth knowledge of mechanism of evolution. Ethology is study of animal behaviour, this subject will help the student to understand some basic patterns of animal behaviour.
VI Sem (Elective)	Environmental Biology	This is an important paper wher the student will learn the basic principles of ecology and then they will understand more about the environmental pollution, wild life conservation etc. understanding this paper will make the student a more sensible and responsible citizen in the society.
VI Sem (SEC)	Aquarium fish keeping.	This is a skill base program where the students wil learn about different types of commercially important fishes, which can be reared in aquariums. Student will learn the techniques of maintain fishes in aquariums.