Quality Assurance Council

2022

Subject Benchmark Statement

Zoology

University Grants Commission – Sri Lanka

SUBJECT BENCHMARK STATEMENT

ZOOLOGY

FOREWORD

Subject Benchmark Statements provide a set of reference points to show how the key features of a programme of study, its intended learning outcomes, and the standards that derive from these intended outcomes, relate to what is deemed appropriate by the subject community.

During the period 2003 - 2013, about 40 Statements were developed by subject committees for programmes offered by the state universities in Sri Lanka, under the guidance of the Quality Assurance & Accreditation Council and the University Grants Commission. Subsequent to adoption of the Sri Lanka Qualifications Framework by the University Grants Commission in 2016, it was decided that these Statements should be revised and updated, particularly to take into account the requirements stipulated in the SLQF 2015, and to incorporate recent developments in each field of study.

Subject Committees were appointed by the UGC for this purpose, drawing on expertise within each subject community both within and outside academia.

The new Subject Benchmarks Statements are meant to provide:

- institutions and academic staff with a framework for articulating the intended learning outcomes of programmes, in the context of SLQF 2015;
- institutions with a minimum standard for the award of a degree in a particular subject area;
- peer reviewers with a reference point for making judgments about the appropriateness of programme outcomes and their achievement;
- students, employers, professional bodies and others with the information about the range of provision in particular subject/discipline areas, the qualities developed in graduates, and the standards that would of graduates;
- the public at large with the information about the nature of higher education awards

1. INTRODUCTION

1.1 About this Subject Benchmark Statement

This Subject Benchmark Statement (SBS) for education refers to the subject Zoology taught in the Bachelor of Science (BSc) Degree programmes in most of the universities in Sri Lanka. It defines the academic standards that can be expected of graduates in the subject, in terms of what they should know, do and understand at the end of their studies, and describes the nature of the subject Zoology. The Zoology SBS provides general guidance for articulating the learning outcomes associated with the courses in this subject and allows flexibility and innovation in course design within a framework agreed by the subject community. It has been produced by a group of subject specialists drawn from, and acting on behalf of, the larger subject community and guided by the standards set by the Sri Lanka Qualification Framework (SLQF).

The Zoology Subject Benchmark Statement (ZSBS) is intended to:

- Provide academics a common and explicit reference point to design, develop, and review curricula of Zoology
- Educate prospective students on the subject content and Intended Learning Outcomes (ILOs) of Zoology
- Inform prospective employers and postgraduate degree providers of the competencies achieved by students after following Zoology in a BSc degree programme
- Motivate government and private institutions to invest resources to expand their activities and businesses to create employment opportunities

1.2 Summary of Changes from the Previous ZSBS

The major change in this version of the ZSBS (2021) is the inclusion of ILOs in the subject of Zoology. ILOs of Zoology have been designed based on the twelve categories of ILOs recommended by the SLQF (2015).

The “teaching and learning methods” in the ZSBS of 2004, is referred to as “student-centred teaching learning methods’ and have been aligned with the ILOs of Zoology. Further, specific teaching and learning methods that could be used by teachers have been described here, along with possible assessment methods.

Also, in order to accommodate the advancing trends in Zoology (from molecular to integrated studies), the list of “Core areas of Zoology” have been revised, and an additional list named as “Elective areas of Zoology” proposed to provide both an in-depth and broader learning experiences in Zoology.

1.3 Defining Principles

The study of Zoology at the undergraduate level is designed to provide a broad understanding of the scientific study of animals. It essentially includes theoretical as well as laboratory studies coupled with field explorations introducing real-time experiences from the field.

BSc degree programmes cover many subdivisions ranging from core to elective areas, arranged in a manner that would enable students to achieve the ILOs specified for the subject of Zoology.

It is expected that, at the completion of a BSc degree programme, where Zoology is offered as a subject, a graduate will be competent in subject-specific knowledge, intellectual and technical skills as well as acquire qualities such as professionalism, independent thought, personal responsibility, decision making, and effective skills in communication of information.

The successful completion of such degree programs will also enable graduates to follow post-graduate programmes of study (Certificate and Diploma courses, Master's and Doctoral degree programmes) either in Zoology or in a specialized field related to Zoology.

Competency in Zoology will enable graduates to seek career opportunities in a wide range of institutions such as government, private and international institutions, laboratories, educational institutions, museums, environmental conservation groups, zoological parks, aquariums, consulting companies and marine parks.

The Performance Standard identified in the ZSBS will enable employers in selecting suitably qualified graduates as employees and/or in initiating new employment opportunities within their institutions. Following are some of the institutions:

- Secondary and tertiary level institutes of education in the state and private sectors
- Research laboratories in universities and in research institutions (Coconut, Rubber, Tea, Rice, Sugarcane, etc.), Medical Research Institute, National Institute of Fundamental Studies, Industrial Technology Institute and National Aquatic Resources Research and Development Agency, Marine Environment Protection Authority, National Aquaculture Development Authority, etc.
- Medical laboratory services in state and private hospitals and diagnostic clinics
- Government ministries dealing with subjects of Science and Technology, Education, Agriculture, Fisheries and Aquaculture, Environment, Forestry, Wild Life Conservation, Health, Small and medium scale enterprises, Animal quarantine, Imports and Exports.
- Organizations involved in the ornamental fish and plant industries, food processing and export, ecotourism and pest control, etc.
- Private sector and Non-Governmental Organizations that offer consultancy services in environmental management, biodiversity assessment and

conservation, environmental education and awareness and rural development, etc.

- International organizations such as IUCN, IWMI, World Bank, WHO and UN organizations that are involved in programmes related to biodiversity conservation, disease control and prevention, environmental monitoring and development projects, etc.
- Sri Lanka Administrative Service, Sri Lanka Scientific Service and Sri Lanka Foreign Service.

2. DEGREE PROGRAMMES COVERED BY THIS STATEMENT

This statement covers BSc degrees with Zoology as a subject (Level 5) and, BSc Honours degree in Zoology (Level 6), and any other BSc Degree programme with Zoology as a subject (Level 6).

Above programmes of study should include "Core areas of Zoology" specified in section 3.1, including a minimum credit requirement in Zoology as specified by the UGC.

3. NATURE AND THE EXTENT OF ZOOLOGY

Zoology is the scientific study of animals and their interactions. Animals play an essential role as consumers in the intricate balance of nature, in both aquatic and terrestrial environments.

Animals are an inseparable part of 'living organisms" or "biota" in the environment, which also includes plants and microorganisms. They heavily depend on each other to sustain life on Earth and their distribution is governed by environmental conditions of their habitats derived from abiotic processes that occur in air, water and soil. Therefore, the scientific study of animals is aimed at providing a holistic knowledge on the life of animals that live among a myriad of other living organisms.

In view of the above, when teaching Zoology as a subject in the BSc degree programmes, its overall objectives should be to:

- Describe the evolution of animals, their diversity, and distribution
- Explain their lifestyles and relate morphological and physiological adaptations, and behavioural patterns to fully utilize their habitat to suit their lifestyle
- Evaluate both positive and negative influences of animals on counterpart "biota" and their habitats
- Provide experiences in specific skills in Zoology
- Explain the significance of animals to the livelihood of humans and their well-being

- Promote the development of attitudes to protect animal species and preserve their habitats

As such, the curriculum of the BSc degrees referred to here, include teaching of Zoology from the first year (Level 3) to either the 3rd year (Level 5) or to the 4th year (Level 6) of the degree programmes. The subject content should include the 'Core areas of Zoology' and suitable areas included in the list of 'Elective areas of Zoology'.

3.1 Core Areas of Zoology

The Core areas of Zoology by definition are the subject contents that deal with basic concepts and principles of Zoology that a student should understand if he/she is considering to follow Zoology as a subject in the BSc degree programme.

Core areas in Zoology include the following subject contents:

Animal Systematics	Ecology
Animal Diversity	Histology
Cell Biology	Animal Physiology
Genetics	Animal Development
Evolution	Animal Behaviour
Zoogeography	Molecular Biology

3.2 Elective Areas of Zoology

By definition, this includes subject contents related to specific animal groups and subject contents of Applied Zoology. During recent times, the Zoology curriculum has been further revised with subject contents that provide an in-depth understanding of animals at the molecular level to a broader biosphere level, which includes their interactions with other organisms in their environment.

It is noted that the elective areas may change with time depending on new discoveries and advances in scientific knowledge and modern technology. The following are elective areas in Zoology*.

Entomology	Aquaculture	Statistical Methods for Zoology
Nematology	Fisheries	Immunology
Ichthyology	Parasitology	Biotechnology
Herpetology	Pest Management	Bioinformatics
Ornithology	Insect Vector Management	Environmental Impact Assessment (EIA)
Mammalogy	Wildlife Conservation and Management	Geographical Information Systems (GIS) and Remote Sensing
Human Biology	Oceanography	
Conservation		

Biology

**Note: this list is not exhaustive*

However, it should be recognised that the composition of the subject content of "Elective areas of Zoology" taught in different BSc Degrees could be variable. Flexibility in the choice of subject content in the "Elective areas of Zoology" is allowed and should suit the nature and the objectives of each Study Programme and its Programme Learning Outcomes (PLOs).

For example:

A BSc General Degree having Zoology as a subject should include course units with subject content that provide theoretical knowledge and practical experience/ skills to students in "Core areas of Zoology" in its curriculum. It should also have a choice of course units in "Elective areas of Zoology", to ensure that the necessary knowledge and understanding are gained, and both skills and attitudes are developed throughout the Study Programme.

A BSc Honours Degree programme in Zoology should include course units that provide in its Zoology curriculum theoretical and practical experience/ skills in "Core areas of Zoology" and in many more course units in "Elective areas of Zoology". The choice and combination of "Elective areas of Zoology" will depend on the nature and objectives of each Study Programme. In addition to the theory and practical courses offered, students in an Honours degree programme are required to carry out a research project, submit a report in the format of a dissertation and make an oral presentation based on the project.

4. SUBJECT-SPECIFIC ILOS OF CORE AREAS OF ZOOLOGY

SLQF promotes student-centred outcome-based learning. Outcome-based education model focuses on making students demonstrate what they know and are able to do. This requires measurable ILOs to be designed for course units. By definition ILOs are statements that describe what students should know, understand and can demonstrate upon completion of a course unit.

This section attempts to identify the subject-specific ILOs of Zoology and will be aligned with the 12 Learning Outcomes identified in the SLQF 2015. ILOs have been categorized within three domains of learning; i.e., **Knowledge**, **Skills** and **Attitudes** (SLQF, 2015). In generic terms, **Knowledge** is what the qualification holders know**, Skills** are what qualification holders can do, and **Attitudes** are how the qualification holders think and behave at the end of their Programme of Study.

4.1 Knowledge

Zoology is heavily dependent on the practical application of theoretical knowledge to explain real-life situations. As a result, when Zoology is taught within the BSc degree curriculum, it should provide the students with both theoretical knowledge and experience in practical skills. The students are thus

expected to achieve the following ILOs with respect to their learning experiences from studying Zoology as a subject.

4.1.1 Subject/Theoretical Knowledge

Students will be able to:

a) Recall and demonstrate comprehension of theoretical concepts and principles related to Core areas in Zoology.

b) Integrate the application of principles and concepts of Core areas of Zoology with other subject areas to appraise zoological phenomena.

c) Analyse, synthesize, and integrate information across levels of organization from cells to ecosystems to formulate arguments and critically evaluate scientific claims.

4.1.2 Practical Knowledge and Application

Students will be able to:

a) Demonstrate competence in subject-specific practical and experimental skills.

b) Apply theoretical knowledge to design and conduct laboratory exercises and/or field investigations.

c) Apply statistics and physical/ chemical principles in the analysis and interpretation of findings of practical experiments and field observations.

d) Demonstrate hands-on experience in laboratory techniques while adhering to laboratory safety and ethical guidelines.

e) Conduct laboratory experiments and techniques adhering to recommended quality guidelines.

4.2 Skills

The curriculum of Zoology is implemented using a series of student-centred teaching and learning methods that the students engage in, during their studies from year 1 to year 3 or 4 of their respective study programmes. Through these teaching and learning methods, it is expected that students will acquire not only knowledge and subject-specific practical skills, but also generic skills within the following seven categories of skills.

4.2.1 Communication

Students will be able to:

a) Express ideas and theoretical concepts, and demonstrate practical work, logically and clearly, to a wide variety of audiences using a range of novel tools and approaches.

b) Communicate scientific information through effective formal writing and speaking methods to scientific communities and lay persons.

4.2.2 Teamwork and Leadership

Students will be able to:

a) Engage in a common task related to either theoretical or practical Zoology, and implement the task as a group.

b) Share ideas and responsibilities to achieve outcomes within a specified time period.

c) Develop leadership qualities to initiate, coordinate, negotiate, effectively communicate, solve problems, make decisions, and to implement shared activities related to Zoology.

4.2.3 Creativity and Problem Solving

Students will be able to:

a) Use creative ideas for innovation and invention in different contexts*.

b) Design and carry out experiments in different contexts and propose suitable solutions.

c) Apply knowledge to explain new observations and/or real-world problems.

d) Analyse methodologies/proposals/ projects and determine the feasibility of implementation.

∗Note: *"**Creative"** is to involve in imagination/knowledge/original ideas to develop a new idea or a product. "**Context**" means circumstances/conditions/setting. "**Invention**" can be defined as the creation of a product or introduction of a process for the first time. "**Innovation**" is when someone improves on or makes a significant contribution to an existing product, process or service.)*

4.2.4 Managerial and Entrepreneurship

Students will be able to:

a) Design, conduct, and manage resources by engaging in mini community projects/events and/or related subjects.

b) Acquire knowledge and skills to plan and implement a project to successfully complete it within a given timeframe.

c) Acquire knowledge and skills to start independent businesses.

4.2.5 Information Usage and Management

Students will be able to:

a) Carryout literature searches, compare and contrast the information collected, critically.

b) Analyse to generate new knowledge and develop a tangible hypothesis.

c) Use reference management systems.

d) Demonstrate the limitations of data.

e) Adopt relevant policies with respect to copyright and citation of publications.

4.2.6 Networking and Social Skills

Students will be able to:

a) Use networking skills like active listening, social skills, public speaking skills, nonverbal communication, empathy, and positivity to connect with people and organizations.

b) Demonstrate interpersonal skills* to function smoothly and effectively in society.

c) Demonstrate interest and self-motivation to interact with others in society.

Note: **Interpersonal skills is the ability to communicate or interact well with other people by actively listening, being dependable and being patient.)*

4.2.7 Adaptability and Flexibility

Students will be able to:

a) Embrace new concepts to add value to existing information.

b) Adapt and accept changing concepts/environments/methodologies easily and positively.

4.3 Attitudes

While developing both subject-specific and generic skills, it is expected that students will think and act differently about issues in terms of the following three learning outcome categories.

4.3.1 Attitudes, Values and Professionalism

Students will be able to:

a) Express views clearly and constructively.

b) Act responsibly, truthfully, and ethically.

c) Recognize and respect the views and opinions of peers.

d) Respect protocols and ethical guidelines.

e) Recognize and respect the laws and regulations, both national and international.

4.3.2 Vision for Life

Students will be able to:

a) Apply acquired subject knowledge to broader social and environmental aspects.

b) Develop an adaptable and flexible approach to personal and professional development.

c) Identify individual and collective goals and responsibilities and perform accordingly.

4.3.3 Updating Self/Lifelong Learning

Students will be able to:

a) Reflect on learning, written contents, and practical experiences and adopt improvements through lifelong learning.

b) Demonstrate flexibility, adaptability, and self-motivation towards continuous professional development.

c) Continue self-paced and self-directed learning aimed at personal development and for improving knowledge/skill development.

5. TEACHING, LEARNING AND ASSESSMENT PROCESS

The teaching, learning and assessment process of Zoology should aim at equipping students with the acquisition of Knowledge, Skills, and Attitudes as they progress through course units in the curriculum from the time they enrol in their first year (Level 3) to graduation. This requires teaching and learning methods of course units in the Zoology curriculum to be carefully designed and delivered to students, with implementation of an appropriate assessment process.

The “Teaching and learning methods” are designed based on the ILOs of individual course units of the curriculum. However, they should collectively contribute towards achieving the expected attributes of a qualification holder. SLQF (2015) recommends generic student-centred teaching and learning methods with respect to acquiring Knowledge, Skills, and developing Attitudes. The ZSBS has adopted the generic student-centred teaching and learning methods and proposes several specific student-centred teaching and learning methods (Table 1) that can be used for guidance by teachers involved in teaching Zoology at undergraduate Levels.

The “Assessment” is an important component of the teaching and learning process. It determines the development of Knowledge, Skills, and Attitude by way of assessing the performance of students in course units by continuous assessment and/or final examination. Assessment methods should be designed to align with the appropriate ILOs of a course unit and its teaching and learning methods. A combination of assessment methods may be used depending on the attribute being tested, i.e., whether Knowledge, Skills, or Attitude development. The ZSBS has identified appropriate assessment methods (Table 1) for student-centred teaching and learning methods.

The teachers should make students aware of the assessment methods as well as relevant rubrics in advance. For some types of assessments, for e.g. project report writing/portfolio writing/presentation, the student should be informed in advance about the relevant format.

The students should be provided with feedback on their performance at the end of each assessment.

Table 1 – Specific Student-centred Teaching and Learning Methods of Zoology and Assessment Methods

Categories of learning outcomes	**Generic Student-centred teaching and learning methods**	**Specific student-centred teaching and learning methods**	**Assessment methods**
Subject/Theoretical Knowledge	Interactive lectures Independent learning Team-based learning and other small group activities	Interactive lectures inclusive of questions for students to answer/handouts with content of lectures and space for students to make notes while listening to lectures or after a lecture to recall and comprehend what they learn Self-study course material with Self- assessment questions (SAQs) to recall and comprehend lesson contents Independent learning activities to evaluate zoological claims/case studies through analysis and integrating relevant facts from cellular to ecosystem level from knowledge gained through lectures/additional reading/ blogging (e.g., correlation of temperature on mosquito abundance) Group/team-based learning to appraise Zoological phenomena supported by scientific facts from related disciplines using activity-based sessions/group discussions/debating in class or LMS/group presentation/ blogging/ reporting (e.g., bird migration, whales washing ashore, etc.)	MCQ/Structured questions Essays Assignments Presentations/Poster presentation(group/individual) Reports (including critiques, case studies) Digital creations on specific topics
Practical Knowledge and Application	Practical classes Laboratory sessions Problem-based learning Team-based learning Inquiry-based learning Role play	Practical demonstration sessions/web tools to learn and understand (e.g., animal systematics, form and function) Laboratory sessions/virtual lab sessions/field visits to develop skills and competencies in practical zoology, ensuring quality, safety, and ethical guidelines. (e.g., handling animals/instrument/equipment/museum techniques/morphometry/experimentation, etc.) Design and conduct mini-projects/case studies individually/group-wise to demonstrate the application of theoretical knowledge in laboratory exercises and/or field investigations, record observations, and maintain reflective journals/diaries etc. Individual/group visits to areas of interest to gather information, assess and report on community status/environment status ecological status through inquiry-based learning	Spot tests Practical/Field exercises Practical/Mini project reports Presentations *Viva voce* Reflective journals/Learning portfolios and diaries

Categories of learning outcomes	**Generic Student-centred teaching and learning methods**	**Specific student-centred teaching and learning methods**	**Assessment methods**
Communication	Student presentations Role play Debate and drama	Recording experimental work/field notes /data as written documents and digital records Writing and presentation of components of individual student research project Writing tutorial assignments/fact sheets/ newsletter articles/posters/seminar presentations as both curricular and extracurricular activities Writing abstracts/ Extended abstracts/ journal articles/review papers as part of the final year research project Video clip preparations as part of the case studies/ seminar presentation/ research presentations as individual activities or group activities	Project proposal Progress reports Final reports writing Assignments/Fact sheets/ Newsletter articles End of course written examination Seminar
Teamwork and Leadership	Group projects Industrial training Small group learning	Preparation of a model/culture or rearing method as a small group to depict specific concepts in a subject (e.g., gastrulation of frog) Explaining a model to a team of teachers (evaluators), taking turns to do the explanations Visits to an organization (e.g., ornamental fish farming) as groups to understand the organizational behaviour and reporting on the success, strengths and future improvements Preparation of taxonomic keys in species identification in the field	Group project reports Group presentations Taxonomic keys
Creativity and Problem Solving	Assignments Projects Small group activities with Problem Based Learning (PBL) approach	Project/case study on an observation or a real-world problem Designing suitable alternative experimentation/models to solve issues for a given situation (e.g., landscaping models) Undertaking projects to develop a new product for commercial purposes (e.g., using animal-based raw materials such as cow dung) Group activity on cost-benefit analysis of an innovative project	Project proposals Project/case reports Group assignments Group/individual presentations Writing essays Blogs Product/output *Viva voce*

Categories of learning outcomes	**Generic Student-centred teaching and learning methods**	**Specific student-centred teaching and learning methods**	**Assessment methods**
Managerial and Entrepreneurship	Industrial training/ internships Small-group projects Problem-based learning Inquiry-based learning Workshops Simulated training	In-class training/brainstorming sessions (discussions)/role play sessions/games to uplift managerial skills in industrial training/internship courses/job shadowing Coordinating/managing student Lab experiments/Field surveys Product development Coordinating lab activities/field surveys for junior students Case studies on business ventures	Group-project reports Business proposal Case study presentations Training logbooks Concept papers Group assignments *Viva voce* Developed products Group debate sessions
Information Usage and Management	Assignments Presentations Projects Case studies	Regular submission of assignments as essays/ critical reviews of the literature on given topics Project proposal on an issue/problem with careful analysis of literature and stating the hypothesis/objectives Presentations made after self -studying aspects of development processes/ projects in Sri Lanka or elsewhere Writing of reviews/ research papers on given topics discussing limitations of published work and observing policies and accurate citations (e.g., use of Mendeley) Development of databases/websites and competence in data retrieval systems	Assignments – essays/critical review of literature/ review papers End-semester examination Project proposal/Research project presentation Reports on projects Seminar presentation
Networking and Social Skills	Student presentations Role-play Debates Dramas	Group project on current topics in a course by networking through virtual platforms (e.g., ResearchGate) Production of a video and designing of web pages based on zoology related social issues Organizing workshops on common themes (e.g., Scientific writing/research methods/handling of animal groups) In class role-play/debates/ interpretation of society or industry concerned topic, provide practical solutions to community problems (e.g. wildlife conflicts)	Presentations Portfolios Formulation and effectiveness of web posts/ blogs Video recording of role play and debates Student self -assessment and

Categories of learning outcomes	Generic Student-centred teaching and learning methods	Specific student-centred teaching and learning methods	Assessment methods
			peer assessment reports. Final reports
Adaptability and Flexibility	Industrial/internship training Small-group projects/problem-based learning Simulated training Extracurricular activities	Role-playing of adapting to new work environments/methods In-house training programs on overcoming challenges Short training workshops simulating challenging environments and succeeding through flexibility Group projects/case studies on concepts related to unexpected events Hands-on practical training (e.g., laboratory experimentation on new concepts) Interactive group discussions on new and innovative ideas Preparing Portfolios/ e-portfolios Engaging in extracurricular activities	Group presentations Reports/ Essay writing/ LMS discussion forums/ Collaborative writing using WIKI Concept papers on alternate methods to progress in projects/learning *Viva voce* examinations Assessment of assignments Training-logbook evaluations Case-study report evaluation and Portfolios
Attitudes, Values and Professionalism	Industrial training Group projects/Small group learning	In-plant training programme which includes the development of a log book and portfolio to build up on professionalism for aspects of time management, attention to detail and care for persons and equipment Interactive discussions related to given topics (e.g., human-elephant conflicts, spreading of viral diseases, vaccination program in Sri Lanka, water pollution in upcountry, etc.) Debates on ethics in research and development (e.g., animal models in research, pros, and cons of GM organisms) Project proposals related to the environment (e.g., problems such as marine pollution in protected coasts, IUU fishing etc., development of EIA reports)	Individual presentation/Group presentation to staff members and community Student peer assessment of reports/Project proposals/*Viva voce*/Evaluation reports Log book entries/Portfolios/ Presentations

Categories of learning outcomes	**Generic Student-centred teaching and learning methods**	**Specific student-centred teaching and learning methods**	**Assessment methods**
Vision for Life	Portfolios Reflective practice	Conduct individual or group projects in social and environmental work (e.g., community environmental awareness project) to apply knowledge and skills acquired during a course /programme Interview an eminent person who is successful in his/her field to learn from life experiences Reflect on learning strategies used/knowledge and skills gained /performance in the years of study/personal goals/ambitions to make future plans to continue studying for an Honours degree/Postgraduate degree Engage in extracurricular and professional activities to work towards a long-term goal related to the learner's own ambition, career-goal, or preference. (e.g., relevant student society work)	Portfolio/E-portfolio Written Report Reflective essay Blog/Web journal Oral/digital presentation *Viva-voce*
Updating Self/Lifelong Learning	Portfolios Reflective practice	Working on a topic or updating a lesson/handout during specialization, where new trends are reported with his/her own comments about it. Writing a reflective essay or maintaining a blog (web journal) to record one's achievements during studies and university life in order to realise successes and failures and ways of overcoming the latter Developing a Portfolio that identifies personal learning goals and needs and reflecting on the learning styles and strategies used to achieve those learning needs and how to improve any weaknesses. Conducting a literature survey on a selected topic, using library and web searches, and writing a critical review Critically evaluate a published journal article Analyse a case study relevant to zoology, identifying the problem and suggesting possible solutions Group project where students write success stories/ achievements during their university life to draw inspiration and motivation from each other, with an opportunity for self – and peer assessment	Written Report Oral/Digital presentation Critical review Portfolio/E-portfolio Reflective essay Blog/Web journal *Viva-voce*

6. PERFORMANCE STANDARDS

It is expected that the BSc Degree holders of Level 5 (minimum 24 credits in Zoology) and BSc Honours in Zoology of Level 6 (minimum 72 credits in Zoology) will have the following achievements listed in 6.1 and 6.2, respectively.

For any other BSc Degree where Zoology (Level 6) is considered as a subject, the performance standards have to be defined, guided by relevant achievements listed under 6.1 and 6.2.

6.1 Bachelor's Degree

A graduate should:

- Demonstrate basic knowledge and appreciation of subject contents in Core areas of Zoology (Section 3.1)
- Demonstrate understanding and appreciation of Zoological phenomena from the molecular level to the level of the biosphere
- Demonstrate competency in basic practical skills and field techniques
- Interpret quantitative and qualitative data using theoretical and practical knowledge in Zoology
- Demonstrate ability to search and use Zoological information from a variety of sources, including web-browsing
- Present Zoological information as written material and oral presentations following appropriate scientific writing styles and presentation skills
- Initiate/implement and complete a project/training on a task related to Zoology as a team within a given time frame
- Develop through curricular and extracurricular activities additional competencies to pursue further studies, take-up responsibilities of future careers, and to be responsible citizens

6.2 Bachelor's Honours Degree

A graduate should:

- Demonstrate in-depth knowledge, comprehension, and appreciation of subject contents in Core areas of Zoology (Section 3.1) and Elective areas of Zoology (Section 3.2)
- Construct and sustain arguments to demonstrate a conclusive understanding and explanation of Zoological phenomena from molecular level to the level of the biosphere

- Demonstrate competency in basic and advanced practical skills and field techniques
- Propose solutions to practical problems applying theoretical knowledge and modern techniques in a professional manner
- Demonstrate the ability to extract relevant literature from a variety of sources, including web-browsing
- Present Zoological information effectively as written material and oral presentations following appropriate scientific writing styles and presentation skills
- Exercise personal/team responsibility and leadership in an assigned task in a professional environment during industrial visits/field training
- Carry out a research project, critically analyse qualitative and quantitative data collected to test the research hypotheses, and report findings
- Develop through curricular and extracurricular activities additional competencies to pursue further studies, take-up responsibilities of future careers and to be responsible citizens

ANNEXES

Members of the Subject Committee on Zoology

1. Prof. H. Thusitha R. Jayasooriya (Chairperson)	The Open University of Sri Lanka
2. Prof. Rupika S. Rajakaruna (Rapporteur)	University of Peradeniya
3. Prof. Deepika Amarasinghe	University of Kelaniya
4. Dr. Priyanie Amerasinghe	Emeritus Scientist, International Water Management Institute (IWMI), Formerly University of Peradeniya
5. Prof. Nissanka de Silva	University of Sri Jayewardenepura
6. Prof. R.K. Sriyani Dias	University of Kelaniya
7. Prof. K.B. Suneetha Gunawickrama	University of Ruhuna
8. Prof. S.H.P. Parakrama Karunaratne	University of Peradeniya
9. Prof. Sivashanthini Kuganathan	University of Jaffna
10. Prof. Dharshini Mahaulpatha	University of Sri Jayewardenepura
11. Prof. D. Hemali N. Munasinghe	University of Ruhuna
12. Prof. Gaya R. Ranawaka	The Open University of Sri Lanka
13. Prof. S. Noble Surendran	University of Jaffna
14. Prof. Sriyani Wickramasinghe	Rajarata University of Sri Lanka
15. Prof. M.J.S. Wijeyaratne	Emeritus Professor, University of Kelaniya

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