

Pir Mehr Ali Shah
Arid Agriculture University Rawalpindi



Self Assessment Report
6th Cycle (Fall 2016 - Spring 2018)
M.Sc. Wildlife Management

Department of Wildlife Management
Faculty of Forestry, Range Management and Wildlife

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INTRODUCTION

The Department of Wildlife Management at Pir Mehr Ali Shah Arid Agriculture University Rawalpindi was established in 2007 with a mandate to carry out teaching and research on various aspects of wildlife, suggesting measures for conservation of wildlife populations and their habitat, especially focusing on threatened species, management of protected areas and wetlands, and management of human-wildlife conflict. The department is offering postgraduate degrees of M.Sc., M. Phil. and Ph.D. in wildlife management. The students' enrollment in M.Sc. programme was 43 during the reporting period. The faculty members and students of this department have published more than 70 research papers (as senior author or co-author) during the last two years.

An extensive scheme of study (consisting of 32 courses) has been developed for post graduate degree programme in the field of wildlife management including all major aspects such as wildlife study techniques, wildlife population, management, diseases and captive breeding, management of protected area, wetlands and terrestrial habitats, wildlife policy, laws, conservation strategies and conventions, wildlife damage management, threatened species management, illegal trade, etc. The courses are supported by latest text books and research publications.

Presently, the research studies conducted by the students and faculty focus on population density and size, wildlife habitat analysis, evaluation and preference, food habits and diet composition, breeding habits and breeding biology, distribution of wildlife species in their habitat, baseline data on protected areas and threatened species, wetland ecology, population size and trends of water birds, threats to wildlife species, etc. In future, the department would address major issues on wildlife population, habitat and threats, developing strategies for their conservation and environmental education/awareness among the public.

The research facilities have been established both for the field as well as laboratory. Necessary field equipment required for conducting wildlife research studies have been procured under HEC funded development and research projects as well as university funded research projects. This includes; live traps, nets, binoculars, spotting scopes, cameras, GPS, camping gear, glassware, refrigerators, ovens, deep freezers, chemicals, etc.

The faculty members implemented four research projects during reporting period which included; i) "Baseline studies on wildlife diversity in selected protected areas of Pakistan-Phase-II funded by HEC for a period of three years (2014-17), amounting to Rs. 3,916,555.00, ii) "Spatial distribution of habitats influences anuran diversity and space use in the landscape: implications for conservation beyond species level" funded by International Foundation for Science, Sweden (2013-2016) amounting to US\$12,000/-, iii) "Ecology and conservation of soft-shell turtles (Family Trionychidae) in North Punjab, Pakistan" (2013-2016) funded by Idea

Wild for US\$ 1000/-, and iv) Ecologically based rodents management in croplands of Pothwar Plateau, Pakistan” amounting to Rs. 7.596 millions.

More than 270 books related to wildlife ecology, management and conservation are available in the departmental library, in addition to several books in university library for ready reference to the students. In addition, students are encouraged to get electronic copies of latest research papers related with their area of research by contacting relevant authors, institutions, publishers, etc.

This Self Assessment Report (SAR) is based on eight criteria. The first criterion outlines the program mission and objectives. Criterion 2 provides information about the curriculum development. Criterion 3 enlists the laboratories and other relevant information. The fourth criterion is pertinent to the information about students' support and advising. Criterion 5-8 provides information about process control, faculty characteristics and institutional facilities and support.

CRITERION 1: PROGRAM MISSION, OBJECTIVES AND OUTCOMES

Standard 1.1. The program must have measurable objectives to support Mission

Mission Statement: To deliver quality education on various aspects of wildlife and its habitat including ecology, biology, research and management for its conservation.

Objectives:

1. To impart education and training to students in wildlife science / research to make them able to understand and address the issues related to wildlife management.
2. To impart conservation education and awareness about wildlife resources of Pakistan.

Main elements of strategic plan to achieve mission and objectives:

- Development of sound teaching baseline from latest available literature, reviews, field experiences, symposia, workshops, etc. for the award of degree.
- Designing of curricula including core subjects, elective subjects and study tours.
- Setting up laboratories for the students; depending upon the available resources.
- Arranging study tours to impart first-hand knowledge to students about wildlife identification and management.
- Development of scientific writing and presentation skills through assignments and research reports.

The assessment of the program objectives through different criteria is presented in Table 1

Table 1. Program Objectives Assessment

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	To impart education and training to students in the field of wildlife science to make them able to understand and address the issues related to wildlife management.	Knowledge of students about the subject through exams and students feedback from assessment proformas	During the semesters' examinations	Courses to be updated regularly by inducing new knowledge/ techniques & also induct new courses	Revision of curriculum and induction of new courses.
2	To impart conservation education and awareness about wildlife resources of Pakistan	Assessing students knowledge through quizzes, papers, assignments	During mid, final exams, presentation of assignments, field visits	Updating contents of courses and induct new courses	Revision of curriculum and induction of new courses.

Standard 1.2 The program must have documented outcomes for graduating students. It must be documented that the outcomes support the program objectives and that graduating students are capable of performing these outcomes

Students of M. Sc. In Wildlife Management should possess the ability of:

- Identification of problems in wildlife management/conservation and suggest appropriate solutions
- Preparation of problem based research proposals and use of scientific study techniques.
- Communication skills through presentations, oral discussions, scientific and review articles, etc.
- Scientific writing skills and publication of research papers and popular articles in scientific journals.

PROGRAM LEARNING OUTCOMES

Students of M.Sc. should possess the ability of:

- Identification of wildlife species, their habitats and distribution in Pakistan
- Identification of wildlife management issues and suggest appropriate solutions
- Scientific writing and communication skills through presentations, oral discussions, scientific reports, etc.

Questionnaire surveys were conducted to assess program outcomes of the department / graduates for M.Sc. (Table 2).

Table 2. Relationship of Program Objectives with Program Outcomes

Program Objectives	Program Outcomes		
	Wildlife species identification skills	Problem solving / management skills	Scientific writing & communication skills
Wildlife management	+++	++	++
Conservation education/ awareness	++	+	++

+ = Moderately satisfactory

++ = Satisfactory

+++ = Highly satisfactory

PROGRAM ASSESSMENT RESULTS:

Teacher's Evaluation

Four teachers of the department teach classes to M.Sc. students namely:

- | | |
|---------------------------|---------------------|
| 1. Dr. Maqsood Anwar | Professor |
| 2. Dr. Tariq Mahmood | Assistant Professor |
| 3. Dr. Muhammad Rais | Assistant Professor |
| 4. Dr. Bushra Allah Rakha | Lecturer |

The teachers were evaluated by the students at the end of course completion through **Proforma-10**. Detail of performance of each teacher is given in Figs. 1-13.

Note: All teachers' designation represents their designation for the period of evaluation.

WL-701

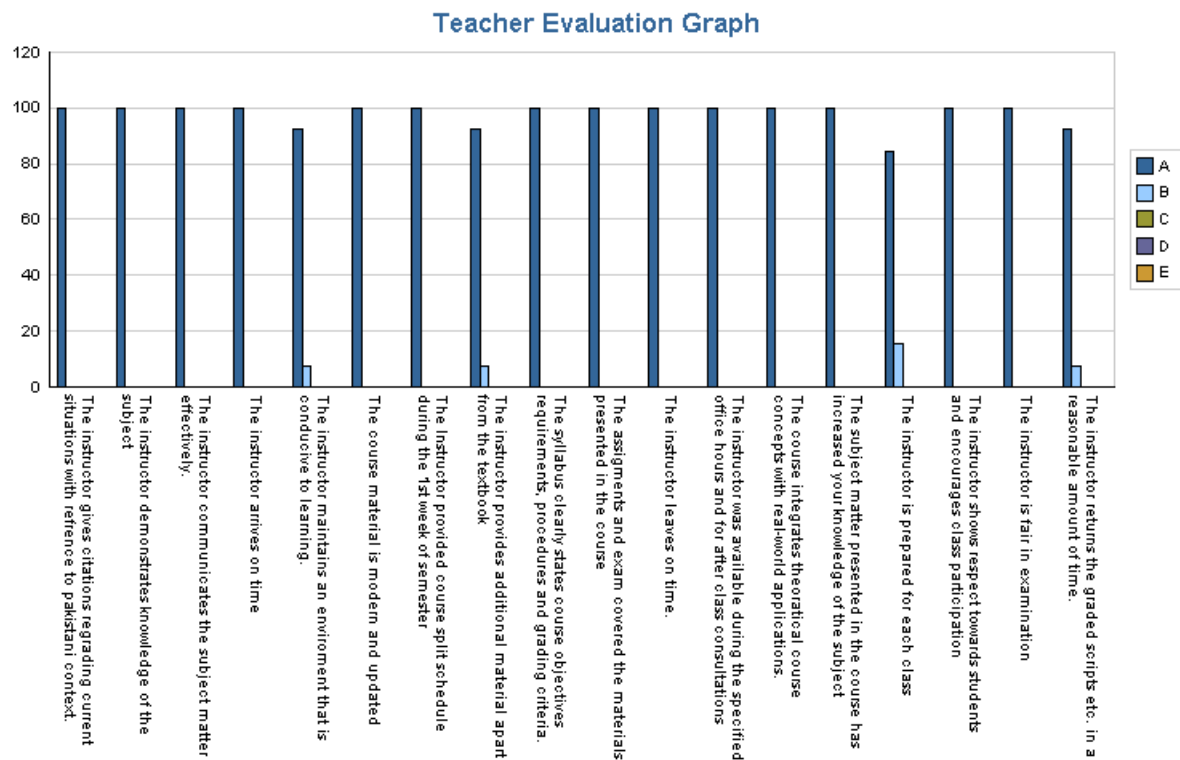


Figure 1. Teacher's evaluation for WL-701 during Fall-2016.

Discussion: The majority of the students agreed that the course was informative, imparted practical knowledge. They agreed to quality of course contents, clarity about course objectives and evaluation, teacher's punctuality, teaching method, preparedness of teacher, fairness and impartiality. However, a few showed dissatisfaction about provision of course material besides text book.

WL-702

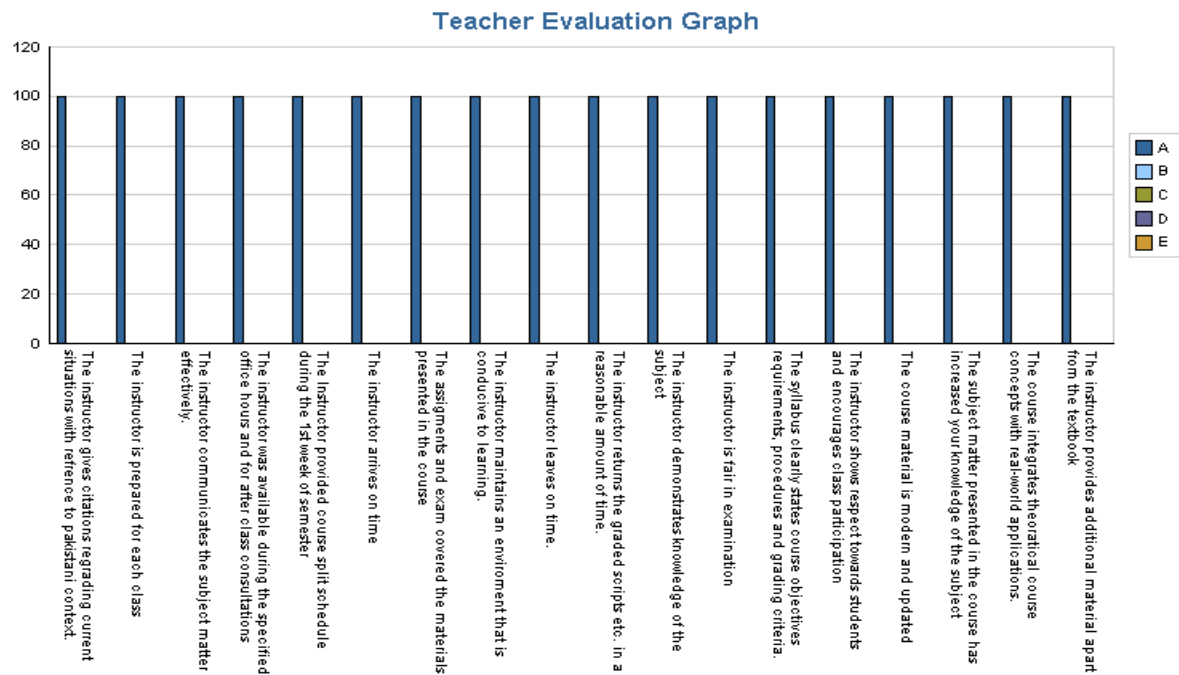


Figure 2. Teacher Evaluation for WL-702 during Fall-2016

Discussion: All of the students agreed that the course was informative, imparted practical knowledge. They showed satisfaction about provision of course material besides text book, clarity about course objectives and evaluation, teacher's punctuality, teaching method, preparedness of teacher, fairness and impartiality. However, a few showed dissatisfaction about course contents up gradation.

WL-706

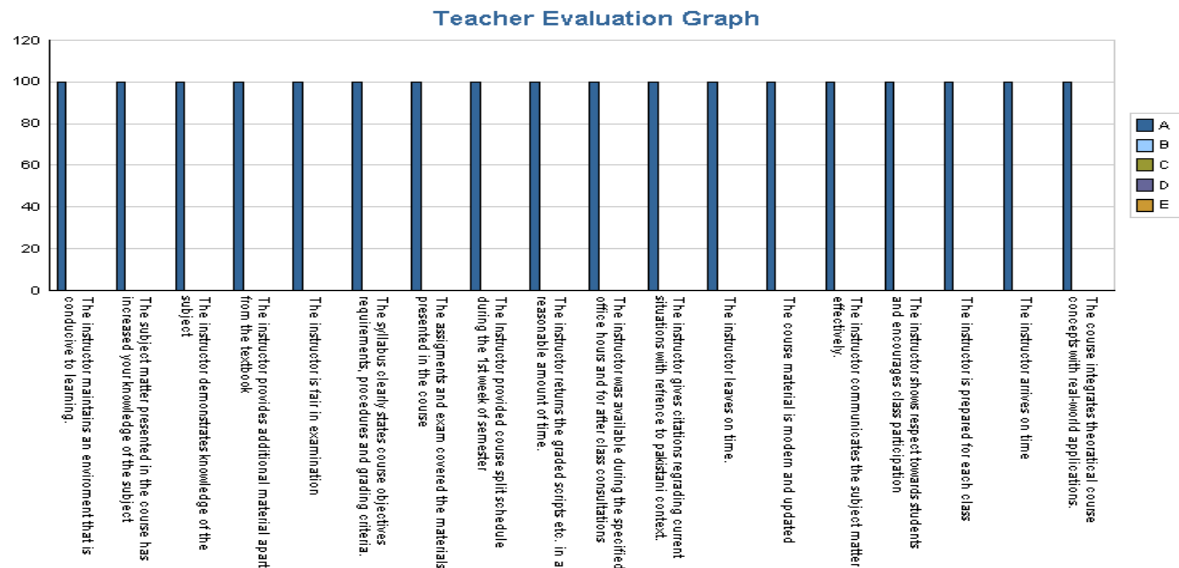


Figure 3. Teacher Evaluation for WL-706 during Fall-2016

Discussion: All students agreed that the course was informative, imparted practical knowledge. They showed satisfaction about provision of course material besides text book, clarity about course objectives and evaluation, teacher's punctuality, teaching method, preparedness of teacher, fairness and impartiality and course contents up gradation.

WL-707

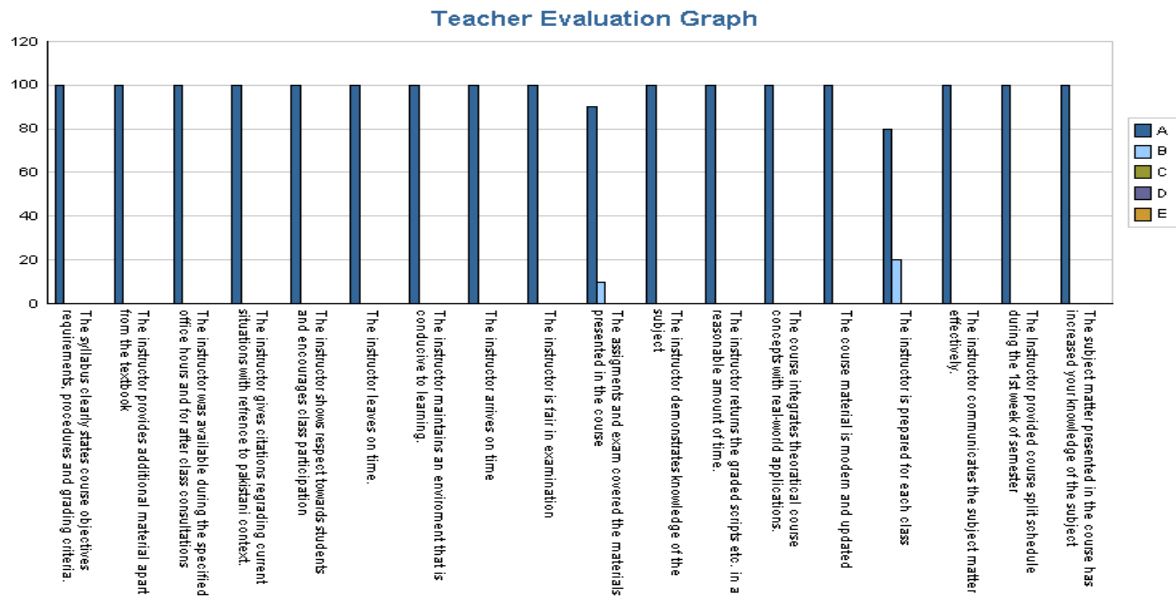


Figure 4. Teacher Evaluation for WL-707 during spring 2017

Discussion: Majority students showed satisfaction about provision of course material besides text book, clarity about course objectives and evaluation, teacher's punctuality, teaching method, preparedness of teacher, fairness and impartiality. They agreed that the course was informative and updated and imparted practical knowledge.

WL-708

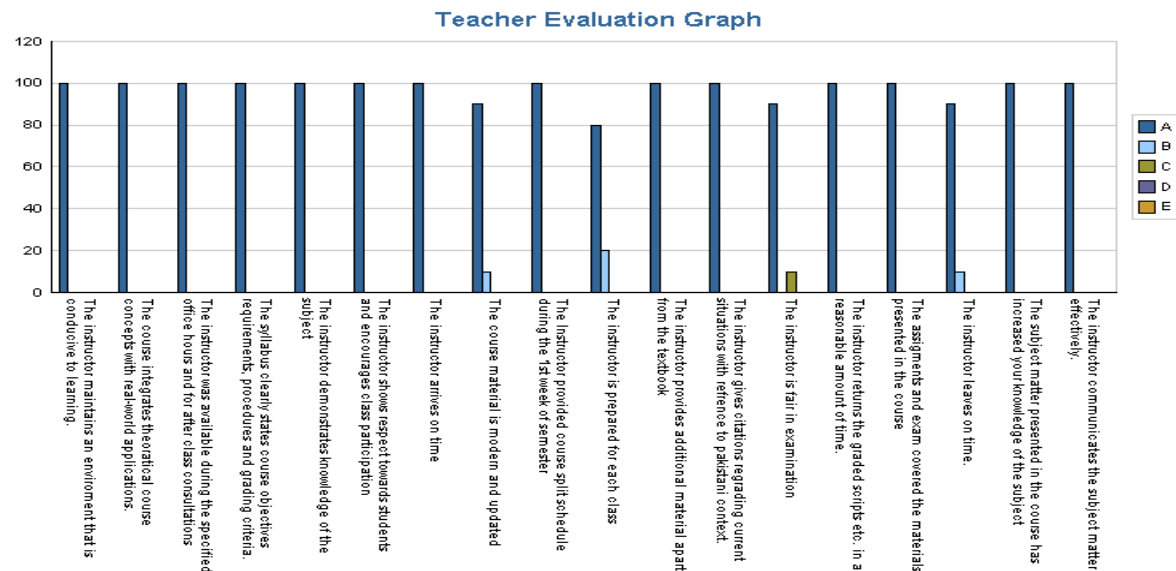


Figure 5. Teacher Evaluation for WL-708 during Spring-2017.

Discussion: Majority of the students agreed that the course was informative, imparted practical knowledge. They showed satisfaction about provision of course material besides text book, clarity about course objectives and evaluation, teacher's punctuality, teaching method, preparedness of teacher, fairness and impartiality and course contents up gradation.

WL-709

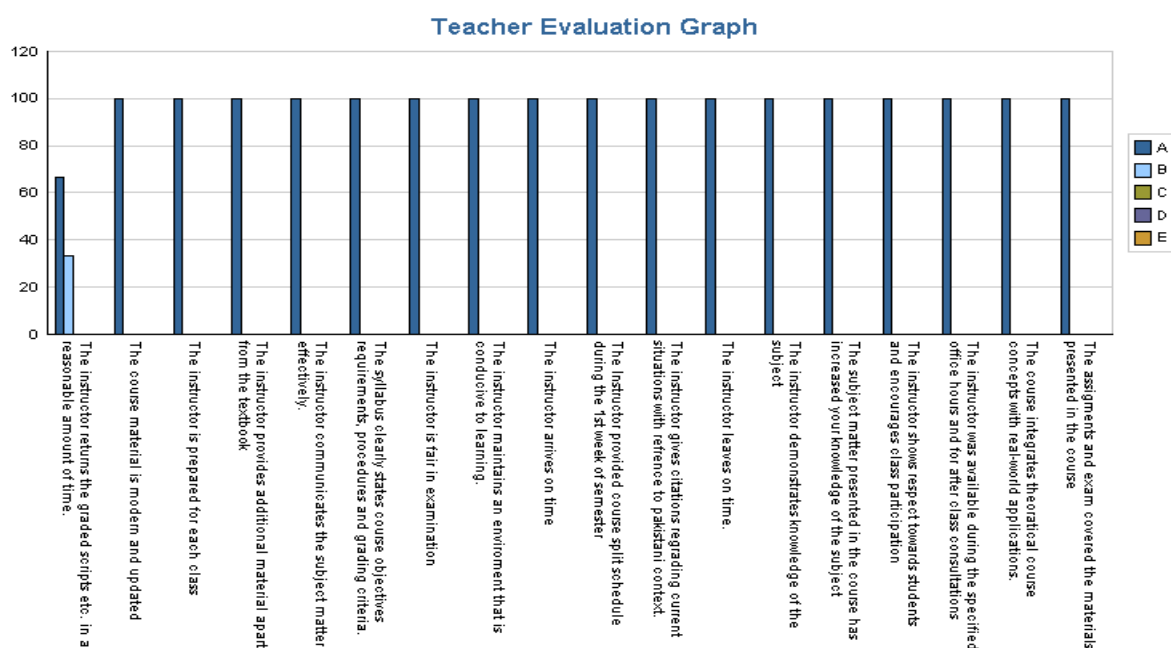


Figure 6. Teacher Evaluation for WL-709 during Spring-2017

Discussion: All students showed satisfaction about provision of course material besides text book, clarity about course objectives and evaluation, teacher's punctuality, teaching method, preparedness of teacher, fairness and impartiality. They agreed that the course was informative and updated and imparted practical knowledge.

WL-711

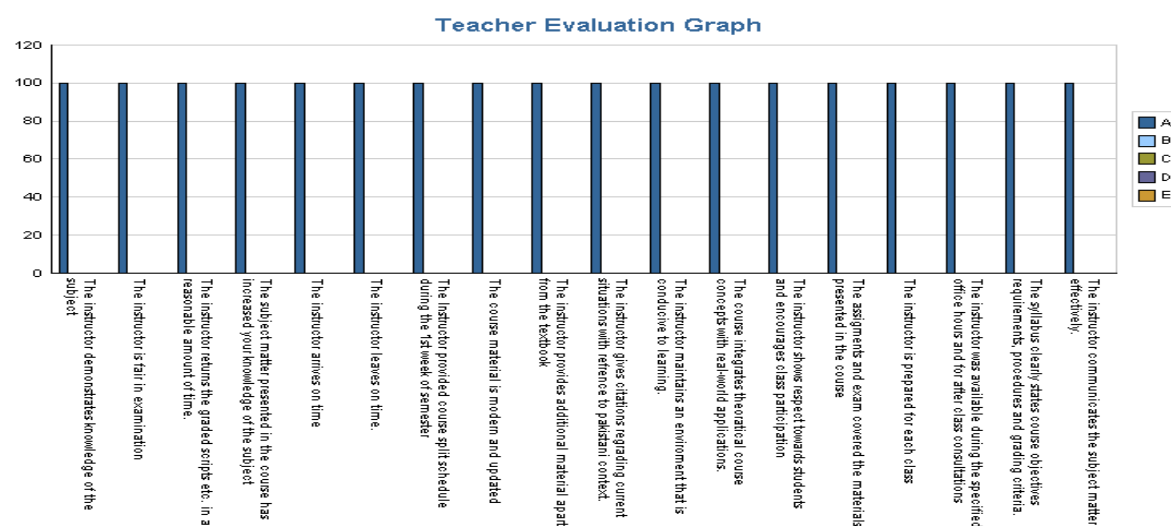


Figure 7. Teacher Evaluation for WL-711 during Fall-2017

Discussion: All of the students were satisfied regarding the instructor's abilities, method of teaching, lecture preparedness, punctuality, behavior and attitude. A few showed dissatisfaction over provision of course material besides text book, clarity about course objectives and evaluation. Some showed varied level of satisfaction on teacher's punctuality, teaching method, preparedness of teacher, fairness and impartiality. They agreed that the course was informative and updated and imparted practical knowledge.

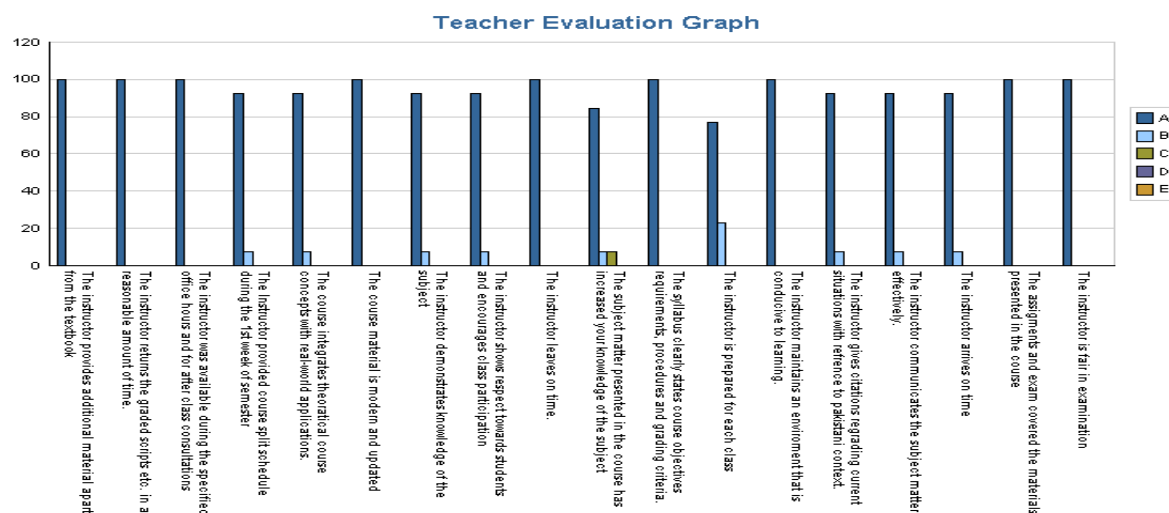
WL-712

Figure 8. Teacher Evaluation for WL-712 during Fall-2017

Discussion: The majority of the students agreed that the course was informative, imparted practical knowledge. They showed satisfaction about provision of course material besides text book, clarity about course objectives and evaluation, teacher's punctuality, teaching method, preparedness of teacher, fairness and impartiality. However, a few showed dissatisfaction about course contents up gradation.

WL-714

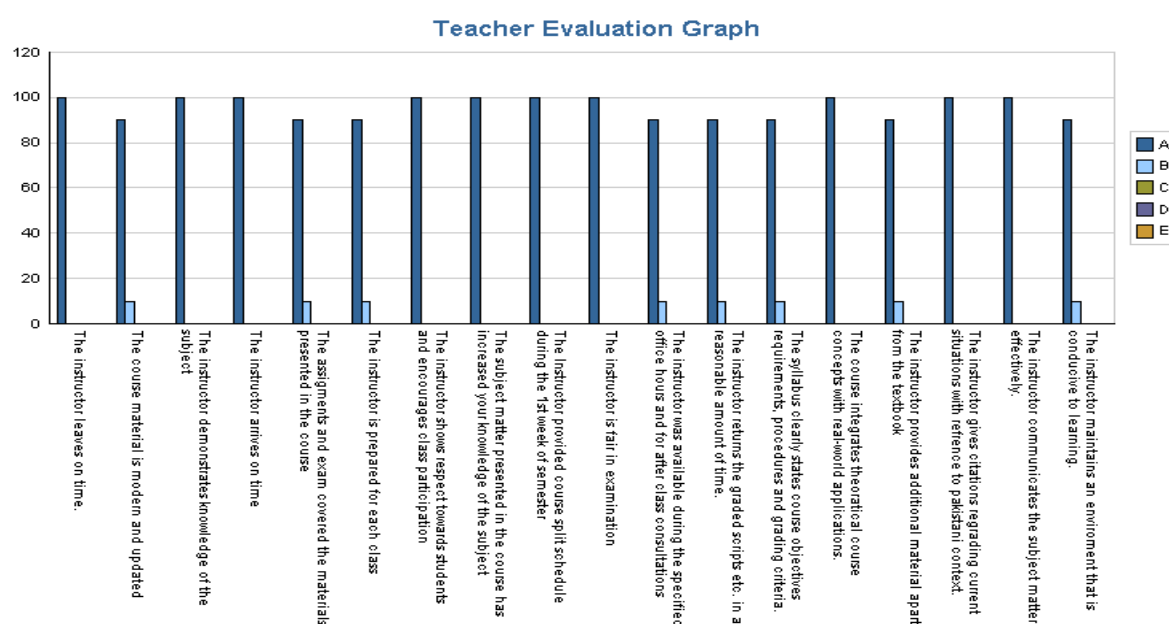


Figure 9. Teacher Evaluation for WL-714 during spring 2017

Discussion: The majority of the students were satisfied regarding the instructor's abilities, method of teaching, lecture preparedness, availability, behavior and attitude. Only few students showed dissatisfaction over punctuality of the instructor, provision of course material and content of the course in relation to current situations in Pakistan.

WL-716

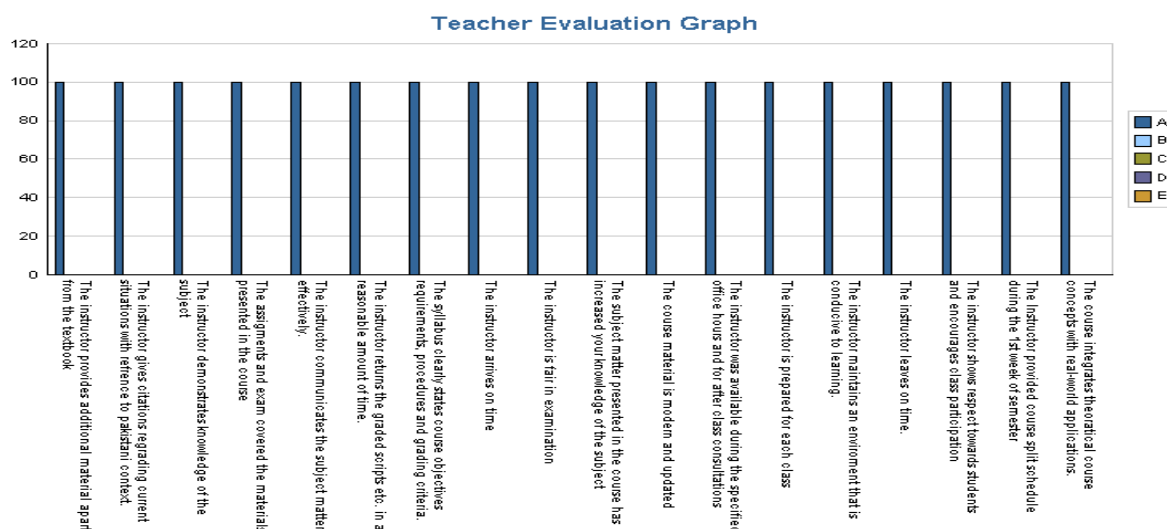


Figure 10. Teacher Evaluation for WL-716 during Fall-2017

Discussion: All of the students were satisfied regarding abilities, method of teaching, lecture preparedness, punctuality, behavior and attitude, provision of course material besides text book, clarity about course objectives and evaluation, teacher's punctuality, teaching method, preparedness of teacher, fairness and impartiality. They agreed that the course was informative and updated and imparted practical knowledge.

WL-718

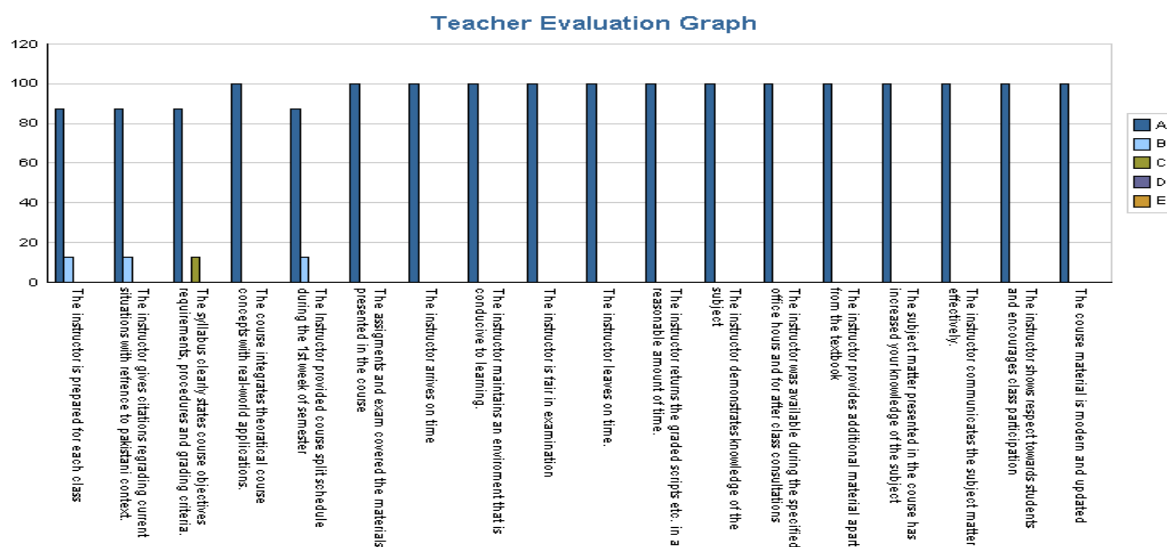


Figure 11. Teacher Evaluation for WL-718 during Spring-2018

Discussion: Majority of the students showed satisfaction about provision of course material besides text book, clarity about course objectives and evaluation, teacher's punctuality, teaching method, preparedness of teacher, fairness and impartiality. They agreed that the course was informative and updated and imparted practical knowledge. No negative feedback was received.

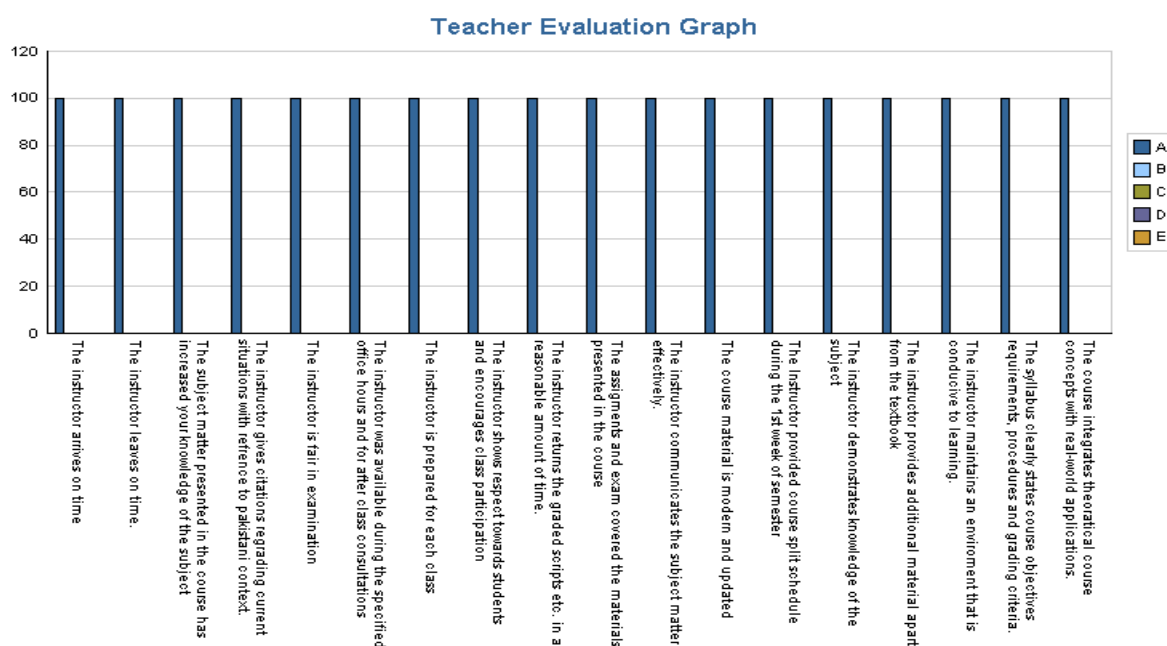
WL-726

Figure 12. Teacher Evaluation for WL-726 during Fall-2017

Discussion: All of the students were satisfied regarding the instructor's abilities, method of teaching, lecture preparedness, availability, punctuality, behavior and attitude and provision of course material.

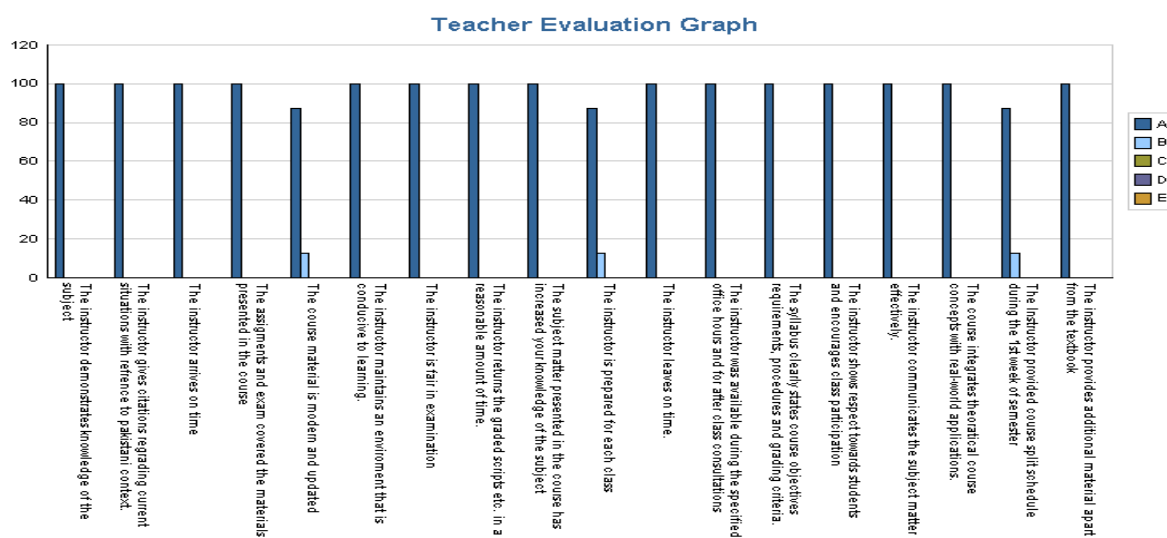
WL-729

Figure 13. Teacher Evaluation for WL-729 during Spring 2018

Discussion: Majority of the students showed satisfaction about provision of course material besides text book, clarity about course objectives and evaluation, teacher's punctuality, teaching method, preparedness of teacher, fairness and impartiality. They agreed that the course was informative and updated and imparted practical knowledge. No negative feedback was received.

Course Evaluation

The Courses offered during the report period (Table-3) were evaluated by the students at the end of course completion through **proforma-1**. Detail of evaluation of each course is given in Figs. 14-26.

Table 3. Courses offered and evaluated during Fall 2016 to Spring 2018

#	Code	Course Title	Semester	Teacher
1	WL-701	An introduction to wildlife of Pakistan	Fall 2016 + Fall 2017	Dr. Bushra Allah Rakha
2	WL-702	Wildlife Population Ecology	Fall 2016 + Fall 2017	Dr. Tariq Mahmood
3	WL-706	Wildlife Management at Wetlands	Fall 2016 + Fall 2017	Dr. Muhammad Rais
4	WL-707	Terrestrial Wildlife Management	Spring 2017 + Spring 2018	Dr. Muhammad Rais
5	WL-708	Wildlife damage management	Spring 2017 + Spring 2018	Dr. Maqsood Anwar
6	WL-709	Society, values and economics of wildlife	Spring 2017 + Spring 2018	Dr. Tariq Mahmood
7	WL-711	Research planning and report writing	Fall 2016 + Fall 2017	Dr. Tariq Mahmood
8	WL-712	Conservation biology of wildlife	Fall 2016 + Fall 2017	Dr. Muhammad Rais
9	WL-714	Reproductive Biology and Breeding	Spring 2017 + Spring 2018	Dr. Bushra Allah Rakha
10	WL-716	Wild Fish Fauna of Pakistan	Fall 2016 + Fall 2017	Dr. Bushra Allah Rakha
11	WL-718	Captive wildlife management	Spring 2017 + Spring 2018	Dr. Bushra Allah Rakha
12	WL-726	Essentials of wildlife conservation- National Perspective	Fall 2016 + Fall 2017	Dr. Muhammad Rais
13	WL-729	Biology and conservation of amphibians and reptiles	Spring 2017 + Spring 2018	Dr. Muhammad Rais

WL 701

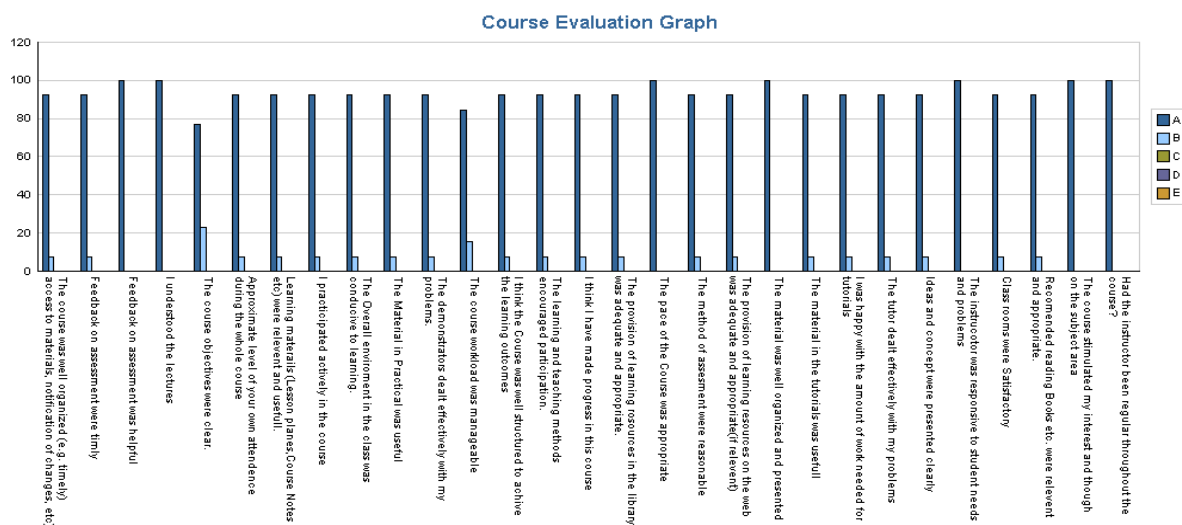


Figure 14. Course Evaluation of WL-701 during Fall-2016

Discussion: The majority of students showed satisfaction on environment of the class, classroom condition, learning resources, clarity of ideas and concepts, tutorial material, organization of the course, assessment method and feedback, pace of the course, communication skills of the tutor and punctuality of the tutor. The students gained knowledge and participated in the class.

WL-702

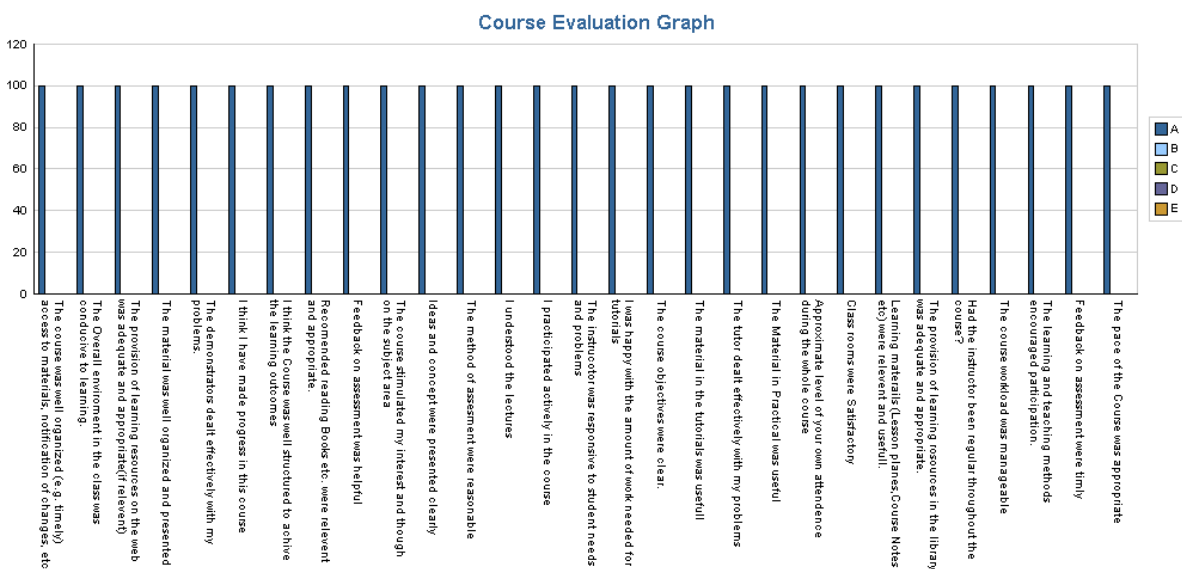


Figure 15. Course Evaluation of WL-702 during Fall-2016

Discussion: The majority of the students showed maximum levels of satisfaction on environment of the class, classroom condition, learning resources, clarity of ideas and concepts, tutorial material, organization of the course, assessment method and feedback, pace of the course, communication skills of the tutor and punctuality of the tutor. The students gained knowledge and participated in the class.

WL-706

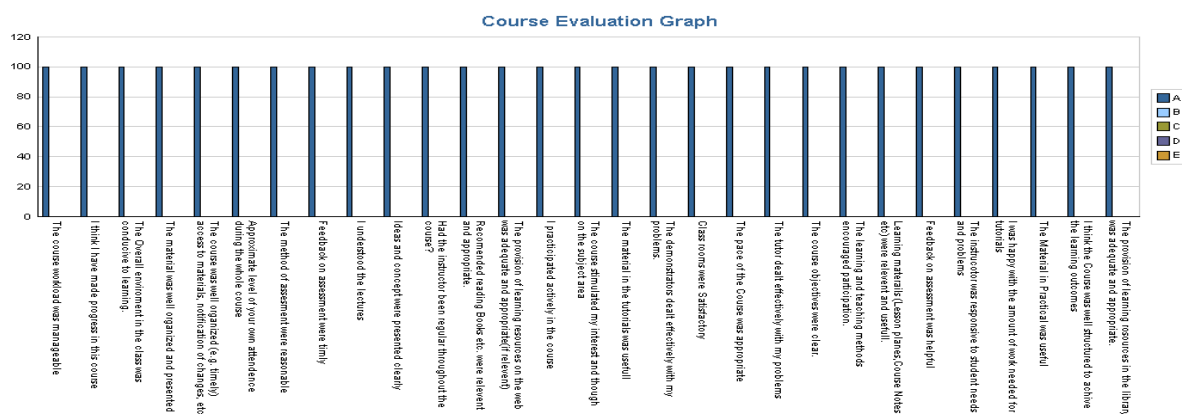


Figure 16. Course Evaluation of WL-706 during Fall-2016

Discussion: All students showed satisfaction on environment of the class, classroom condition, learning resources, clarity of ideas and concepts, tutorial material, organization of the course, assessment method and feedback, pace of the course, communication skills of the tutor and punctuality of the tutor. The students gained knowledge and participated in the class. The students thought that the instructor was punctual and was helpful in solving the problems.

WL-707

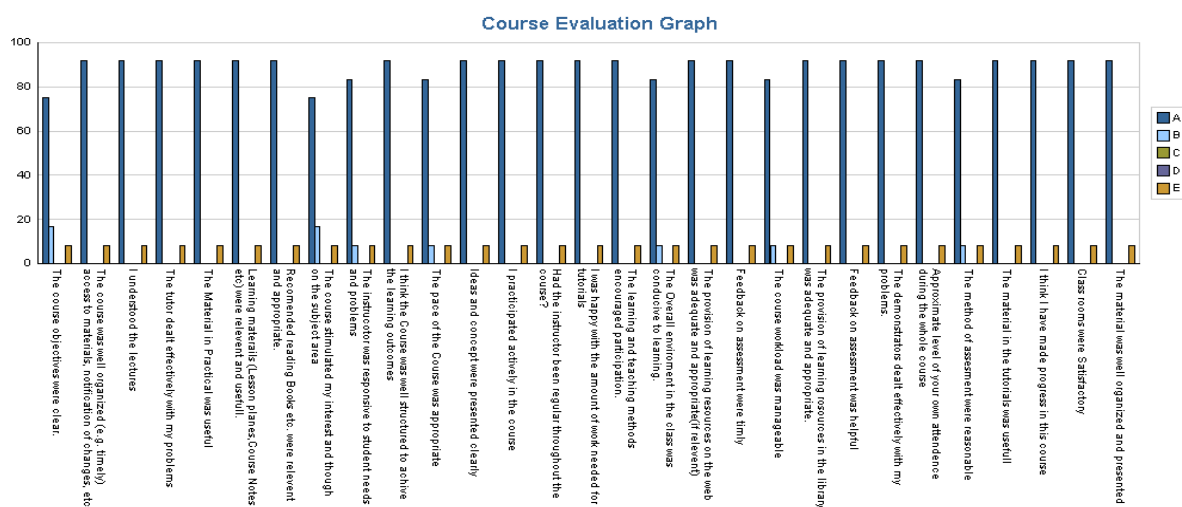


Figure 17. Course Evaluation of WL-707 during Spring 2017

Discussion: The students gained knowledge and participated in the class. The students thought that the instructor was punctual and was helpful in solving the problems. All students showed satisfaction on environment of the class, classroom condition, learning resources, clarity of ideas and concepts, tutorial material, organization of the course, assessment method and feedback, pace of the course, communication skills of the tutor and punctuality of the tutor.

WL-708

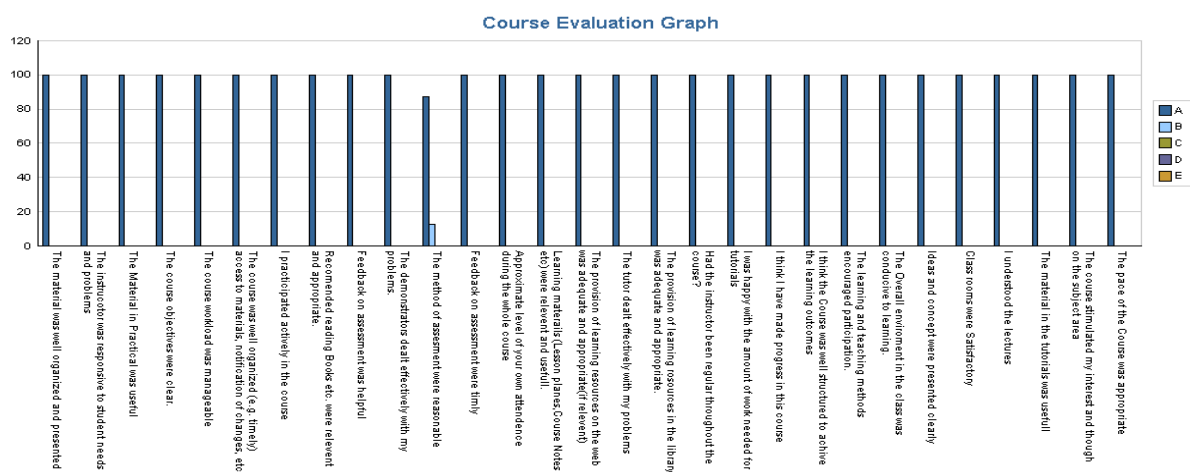


Figure 18. Course Evaluation of WL-708 during Spring-2018

Discussion: The majority of students showed satisfaction on environment of the class, classroom condition, learning resources, clarity of ideas and concepts, tutorial material, organization of the course, assessment method and feedback, pace of the course, communication skills of the tutor and punctuality of the tutor. The students gained knowledge and participated in the class. The students thought that the instructor was punctual and was helpful in solving the problems. However, a few were dissatisfied about the questions asked.

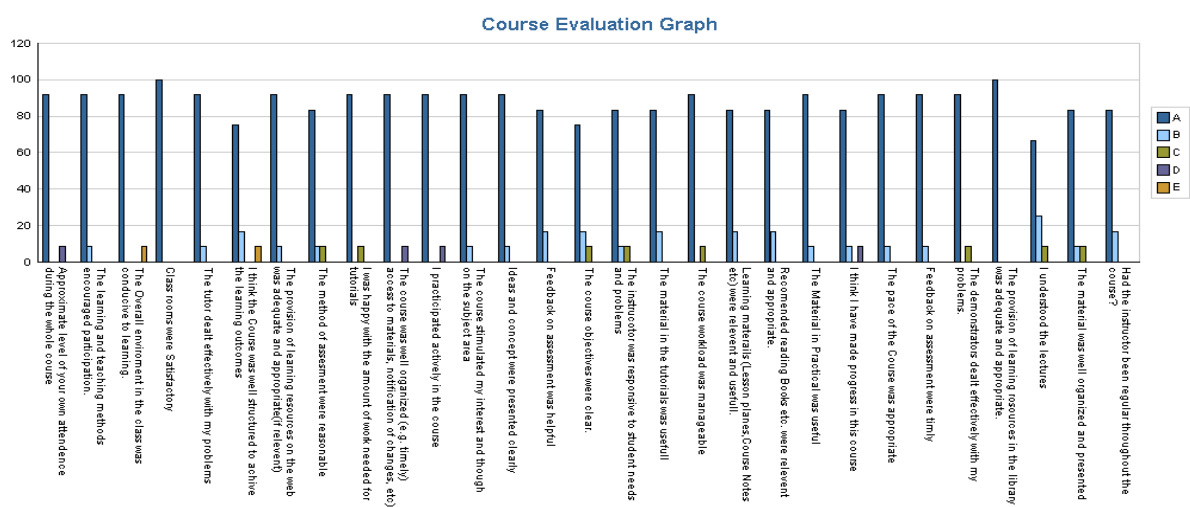
WL-709

Figure 19. Course Evaluation of WL-709 during Spring-2018

Discussion: The majority of the students were satisfied and termed the course interesting, well organized, with clear objectives. The students were satisfied with the pace of the course during the semester, provision of learning resources and feedback on assignment timely and helpful. The students thought that the instructor was punctual and was helpful in solving the problems.

WL-711

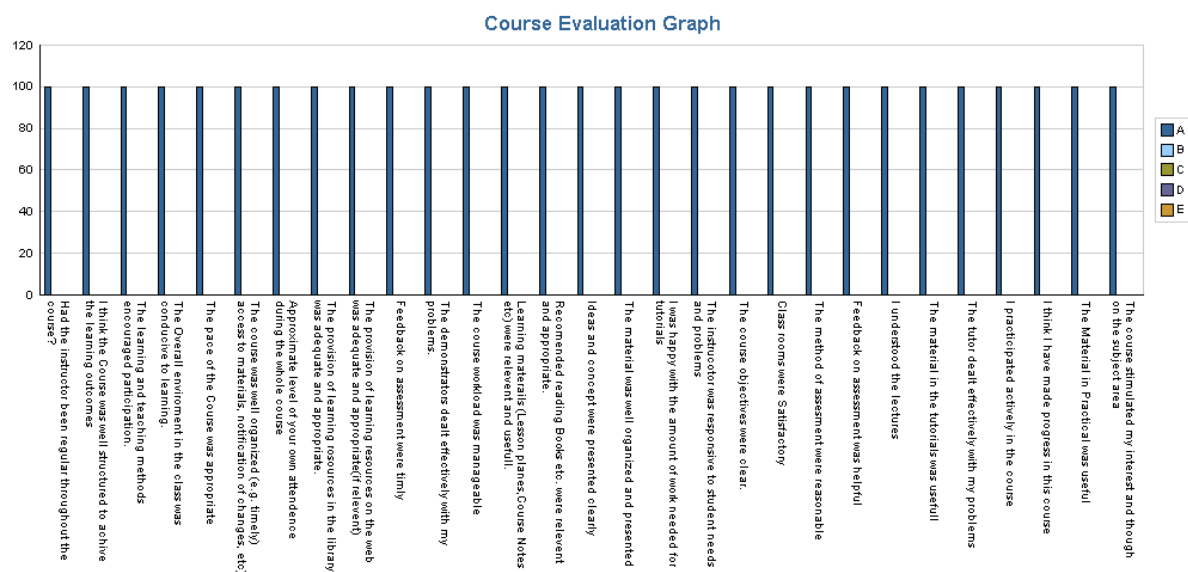


Figure 20. Course Evaluation of WL-711 during Fall-2017

Discussion: The majority of the students showed maximum level of satisfaction on the pace of the course during the semester, provision of learning resources and feedback on assignment. The students thought that the instructor was punctual and was helpful in solving the problems.

WL-712

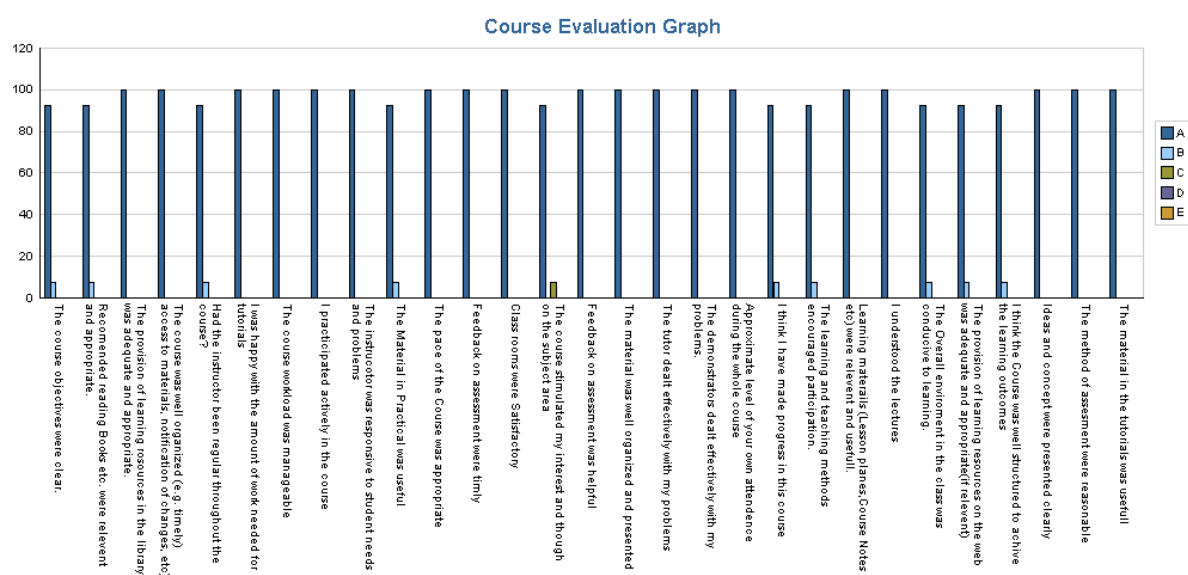


Figure 21. Course Evaluation of WL-712 during Fall-2016

Discussion: The majority of the students were satisfied and termed the course interesting, well organized, with clear objectives. The students were satisfied with the pace of the course during the semester, provision of learning resources and feedback on assignment timely and helpful. The students thought that the instructor was punctual and was helpful in solving the problems. Few students were unsatisfied with their approximate level of attendance.

WL-714

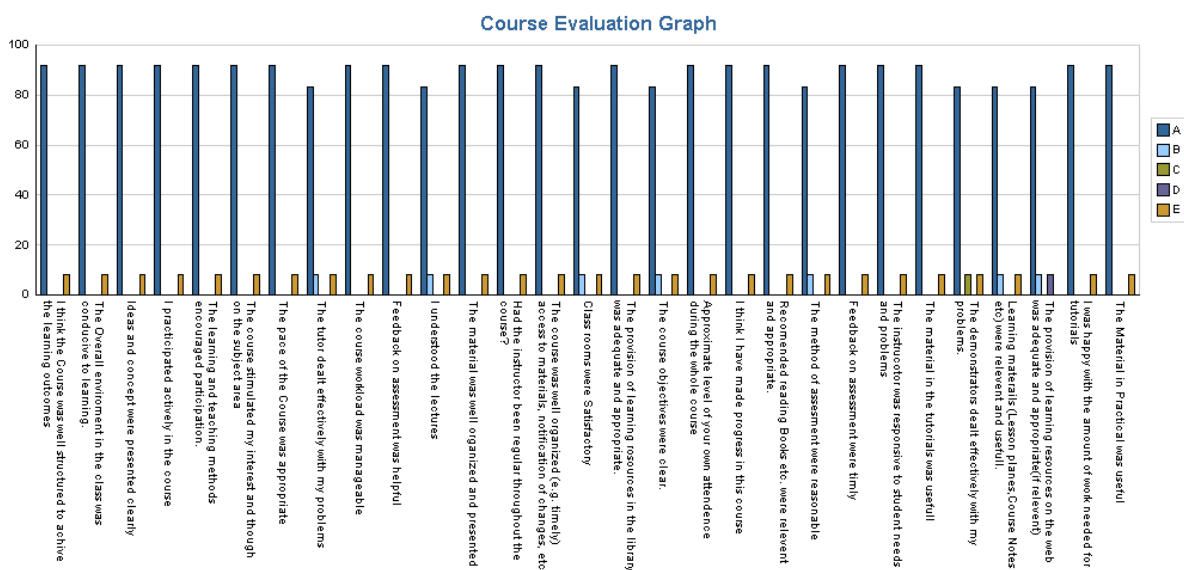


Figure 22. Course Evaluation of WL-714 during Spring 2017

Discussion: All students showed satisfaction on environment of the class, classroom condition, learning resources, clarity of ideas and concepts, tutorial material, organization of the course, assessment method and feedback, pace of the course, communication skills of the tutor and punctuality of the tutor. The students gained knowledge and participated in the class.

WL-716

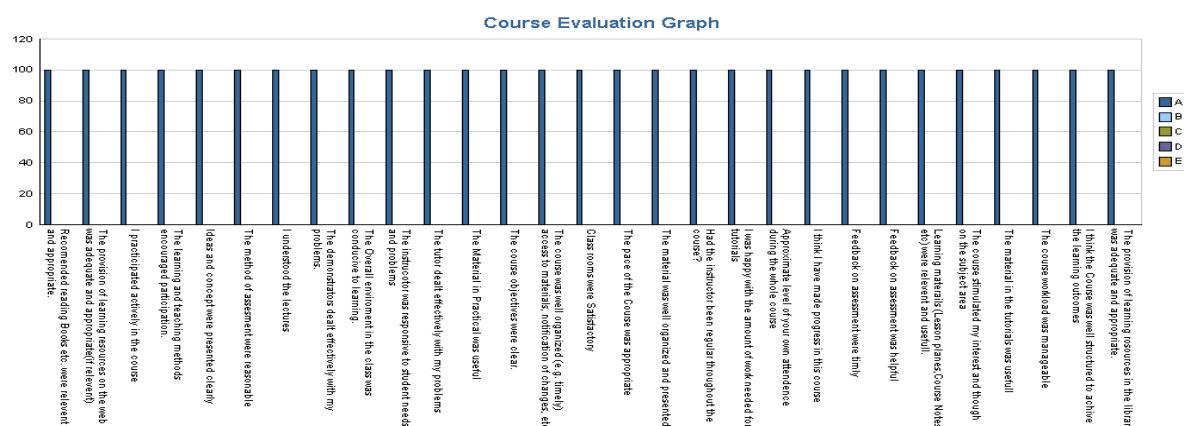


Figure 23. Course Evaluation of WL-716 during Fall-2016

Discussion: The majority of the students gave mixed responses about the course interesting, well organized, with clear objectives. The students were satisfied with the pace of the course during the semester, provision of learning resources and feedback on assignment timely and helpful. The students thought that the instructor was punctual and was helpful in solving the problems.

WL-718

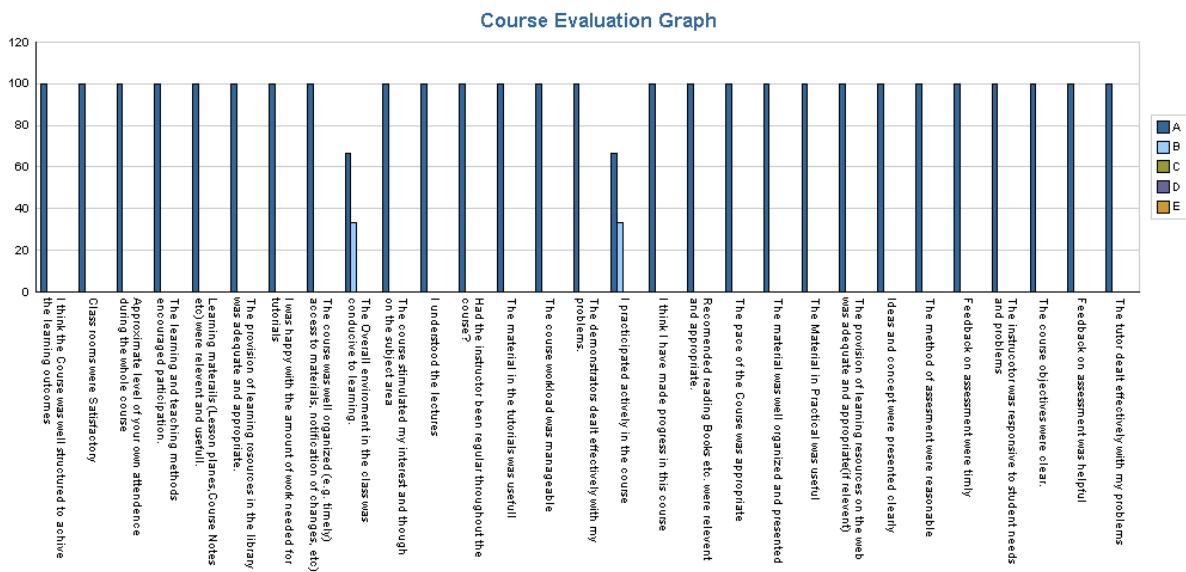


Figure 24. Course Evaluation of WL-718 during Spring-2017

Discussion: The majority of students showed satisfaction on environment of the class, classroom condition, learning resources, clarity of ideas and concepts, tutorial material, organization of the course, assessment method and feedback, pace of the course, communication skills of the tutor and punctuality of the tutor. The students gained knowledge and participated in the class.

WL-726

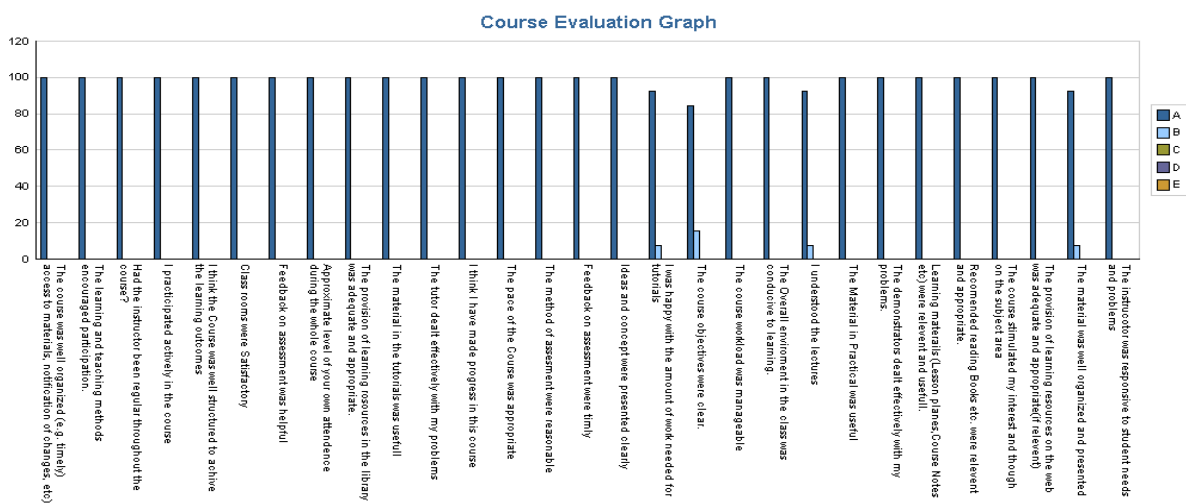


Figure 25. Course Evaluation of WL-726 during Fall-2016

Discussion: The majority of the students were satisfied and termed the course interesting, well organized, with clear objectives. The students were satisfied with the pace of the course during the semester, provision of learning resources and feedback on assignment timely and helpful. The students thought that the instructor was punctual and was helpful in solving the problems. Few students were unsatisfied with their approximate level of attendance.

WL-729

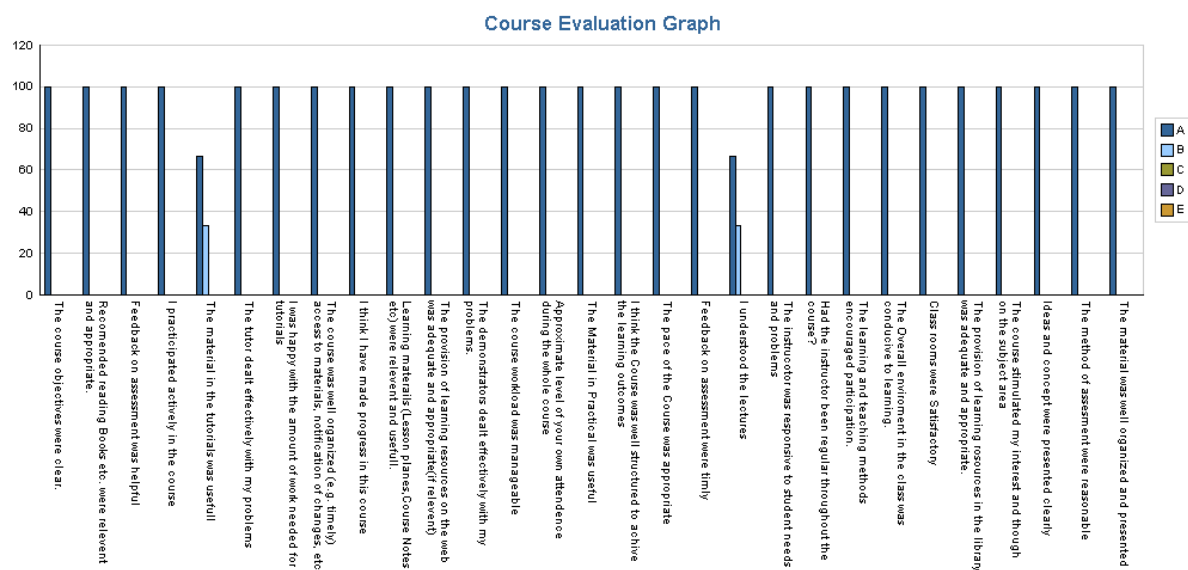


Figure 26. Course Evaluation of WL-729 during Spring-2017

Discussion: The majority of the students were satisfied and termed the course interesting, well organized, with clear objectives. The students were satisfied with the pace of the course during the semester, provision of learning resources and feedback on assignment timely and helpful. The students thought that the instructor was punctual and was helpful in solving the problems.

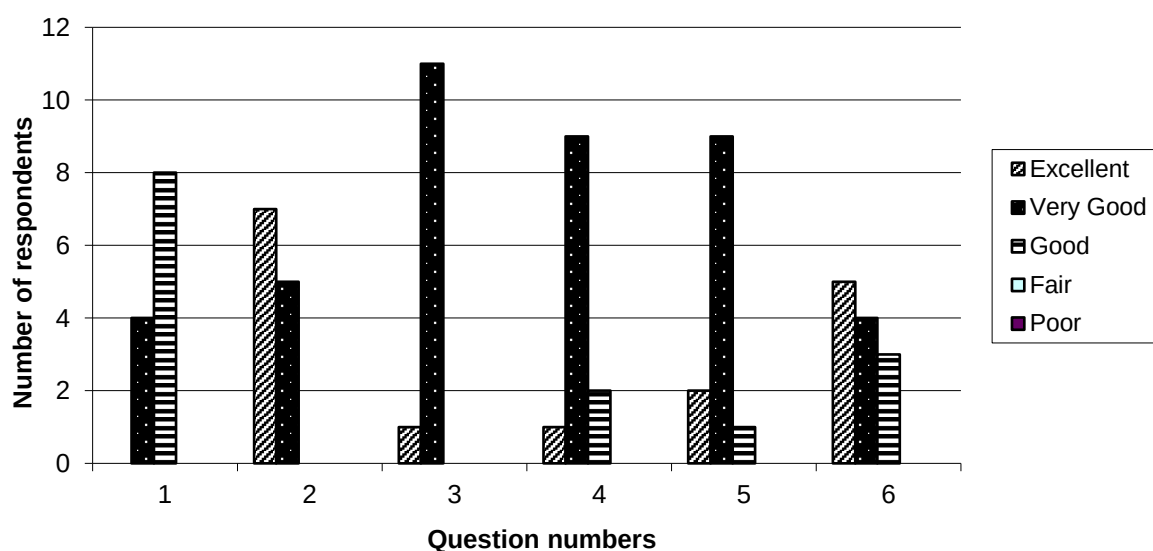
FACULTY COURSE REVIEW REPORT

At the time of completion of each semester, each faculty member for each course offered during the semester filled and completed **performa 2** (online on CMS) to compile the Faculty Course Review report. The results and details of the said review report are provided as annexure I.

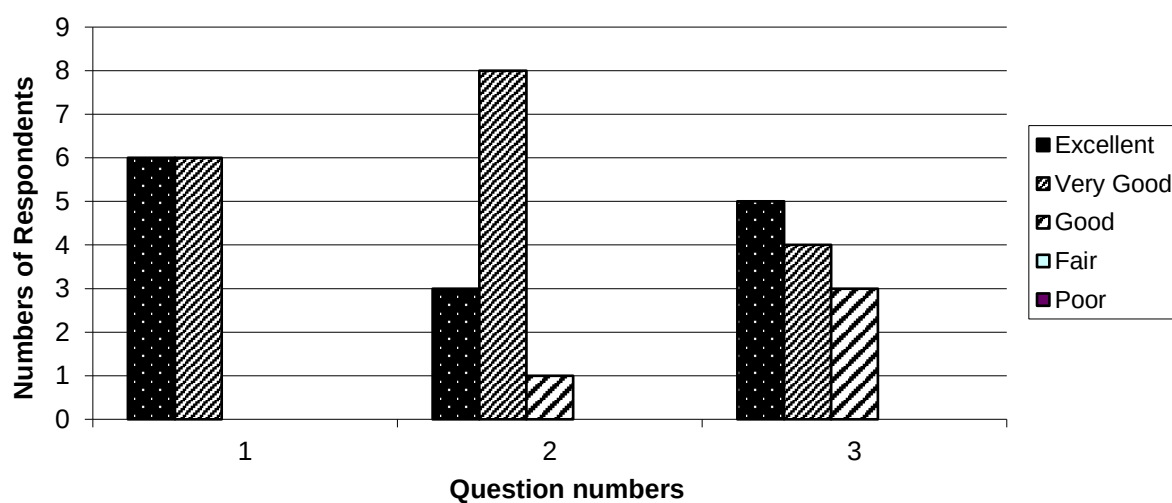
ALUMNI SURVEY RESULTS

Feedback of students graduated during was acquired through **Proforma-7**. Majority of the Alumni have rated the knowledge imparted by the department and communication skills as very good. Interpersonal skills and management/leadership skills have also been given good. Results of the survey are presented in Fig. 27(I-V).

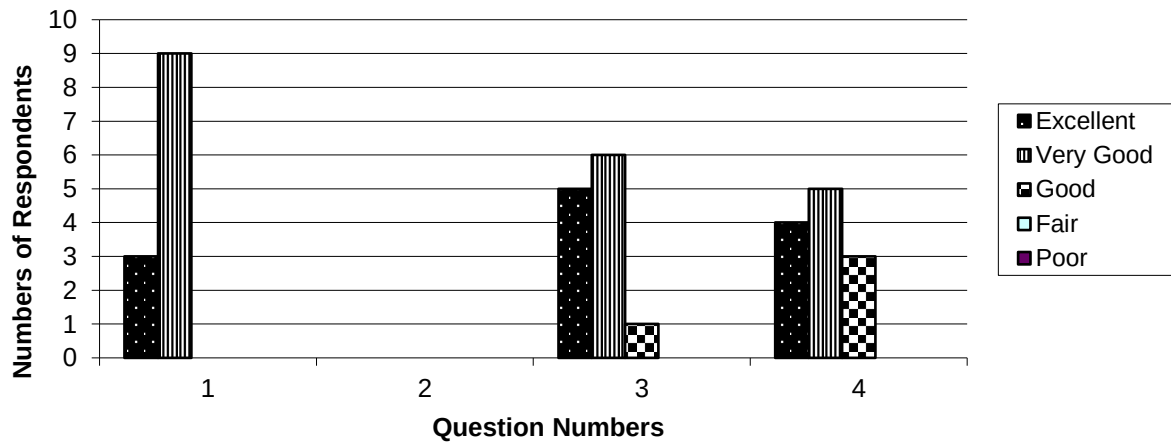
Alumni Survey-I- Knowledge



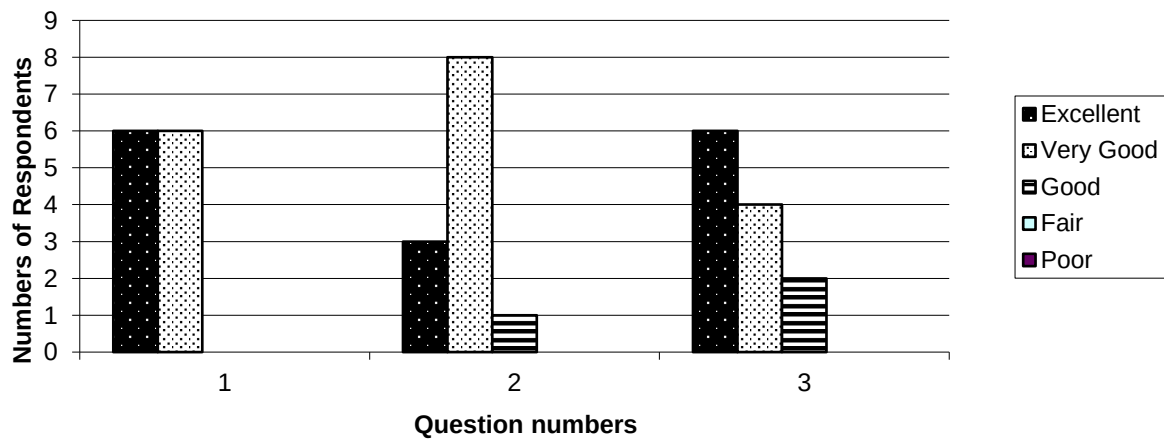
Alumni Survey-II-Communication skills



Alumni Survey-III- Interpersonal Skills



Alumni Survey-IV- Management Skills



Alumni Survey-V-Department Status

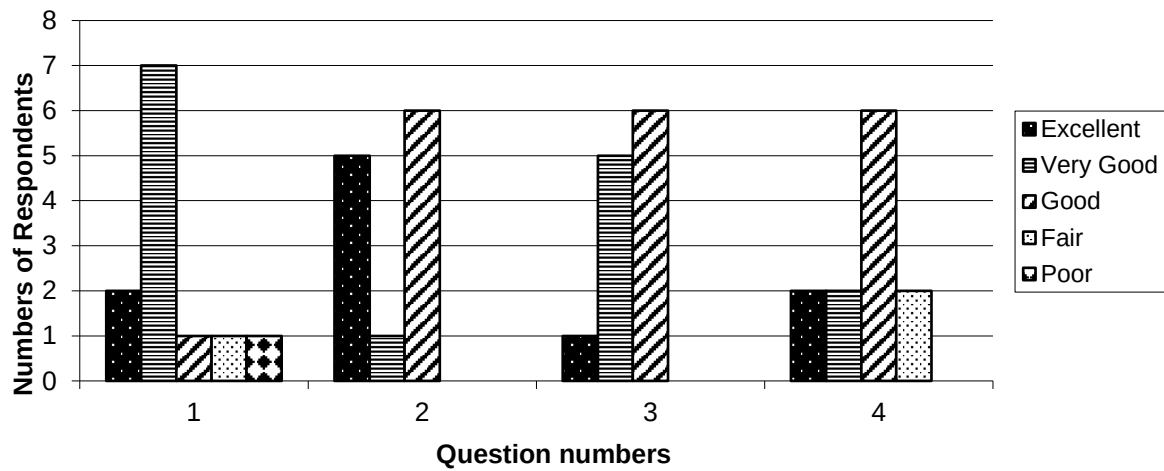


Figure 27(I-V). Alumni Survey Results.

SURVEY OF GRADUATING STUDENTS

Survey of graduating students was conducted through **Performa 3**. On the average 40% students showed their high satisfaction regarding all the parameters asked. With respect to enhancing team work skills and written communication skills, 100% students were highly satisfied. The results of the survey are given below in Fig. 28.

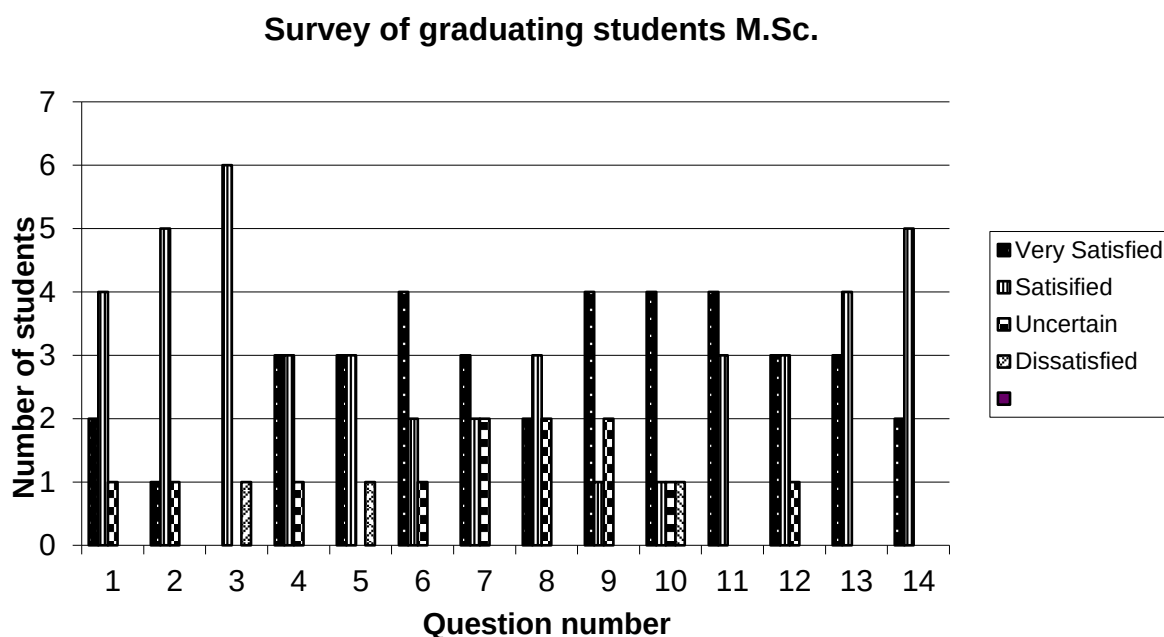


Figure 28. Survey results for Graduating students (M.Sc.)

Standard 1-3. The results of program's assessment and the extent to which they are used to improve the program must be documented

Regular assessment process will be continued and results will be incorporated accordingly. Following are the strengths and weaknesses of program identified.

Strengths of the Program

1. The department is having qualified teachers with full acquaintance of their respective subjects, knowledge of research and management techniques for study of wildlife.
2. There is one professor, one associate professor in the department both are foreign qualified, one assistant professor who got Ph.D. degree from Quid-i-Azam University, Islamabad, one lecturer with Ph.D. in Zoology (with specialization in wildlife) from Karachi University and one lecturer has completed her M. Phil. (Wildlife Management) from PMAS-AAU Rawalpindi. Three faculty members are HEC approved supervisors who can supervise Ph.D. students.
3. All faculty members are involved in research directly or indirectly as supervisor and committee member of the post-graduate students.
4. Two faculty members (one assistant professor and one lecturer) have got six months training in wildlife from foreign universities (USA and Malaysia).
5. All faculty members have got research projects funded from various funding sources.

6. Two laboratories have been established with basic necessary equipment in addition to having equipments to carry out field studies on wildlife species.
7. The department has got a development project funded by HEC under which necessary field and laboratory equipment and class room aids have been purchased to strengthen academic and research activities of the department.
8. Department has signed MoUs with five public and private sector organizations to facilitate its research projects and students' theses research.

Weaknesses of the Program

1. There is scarcity of space as there is only one class room due to which difficulty is faced in adjusting simultaneous classes.
2. Two faculty members are housed in cabins within the laboratories due to which working and sitting place (for Ph.D. students) has become insufficient. The laboratories are also filled with equipments purchased under the HEC project. Therefore, at least two faculty office rooms, one store room and one laboratory are needed to meet the needs.
3. Wildlife is an applied, field-based subject which needs extensive touring for imparting hands-on training and knowledge to the students and therefore, there is need of having a suitable field vehicle.
4. Coordination with federal and provincial wildlife departments and other organizations is currently under development which needs to be further facilitated/ enhanced for field tours and research studies.

Standard 1-4. The department must assess its overall performance periodically using quantifiable measures.

The evaluation process indicated high efficiency of system and satisfactory impact of outcomes (Table 1.4).

Table 4. Performance measures for research activities

Faculty	Publications in Journals	Research & Development Projects
Dr. Iftikhar Hussain	29	0
Dr. Tariq Mahmood	15	1
Mr. Muhammad Rais	10	3
Ms. Bushra Allah Rakha	21	1

Future Plans

The Department of Wildlife Management has planned a number of research studies in future addressing the issues of wildlife conservation and protected areas management including

wetlands and collecting data on biology/ecology of wildlife species particularly the threatened species. Some of the studies/activities include:

1. Population density/size, habitat utilization/preference, breeding habits/biology of wildlife species, especially rare and threatened species
2. Food habits, diet composition and food preference of wildlife species, particularly focusing on ungulates, carnivore and threatened bird species.
3. Distribution range/pattern of wildlife species especially focusing on Pothwar area.
4. Baseline data on protected areas including wildlife diversity, threatened or rare species studies, social issues and major threats to the PAs.
5. Baseline data on wetlands including both resident and migratory waterfowl and threats to the ecosystem.
6. Wildlife damage assessment / management particularly of rodent pests, porcupine and wild boar.
7. To impart quality education in wildlife management/conservation through study tours, audio visual aids along with provision of latest literature, journals, books and internet.
8. To impart training to employees of wildlife/forest departments, other relevant organizations and NGOs in wildlife research and management.
9. To develop strong collaboration and linkages with wildlife related government departments and NGOs for wildlife conservation and research.
10. To equip the department with the advanced equipments both for laboratories and field surveys/studies of wildlife species.
11. To enhance knowledge and skills of faculty members about latest advancements in wildlife/biodiversity research and conservation through exchange programs, short trainings and collaborative research projects within and outside Pakistan.

Faculty satisfaction regarding the administrative services

- The department maintains a ratio of 4:1 for the academic (including technical) and administrative/support (non-technical) staff which fulfils the standard set by HEC
- Administrative meetings (departmental, university, academic council, and syndicate) are attended as and when required.
- Office matters/files are disposed regularly and so far no complaint has been received from higher administrative authorities.
- Proper records/file of each employee and students are maintained.

Quantitative assessment of the department for the last two years is given in the Table 5.

Table 5. Quantitative assessment of the department (Fall 2014 to Spring 2016)

Sr. #	Particular	No.	Remarks
1	M. Sc. degree awarded	14	
5	Students: Faculty ratio		Fulfils HEC criteria
6	Technical: Non-technical ratio		Fulfils HEC criteria

EMPLOYER SURVEY

The employer survey under **Performa 8** could not be completed.

CRITERION 2: CURRICULUM DESIGN AND ORGANIZATION

A. Intent

All courses for M.Sc. were initially developed by faculty members and finalized after sharing with relevant government departments, NGOs, universities and individual experts. During the course of time, a few courses have been revised and some new courses added based on the need felt by the department. Curriculum and course contents are finally approved by the University Academic Council.

B. Definition of credit hour

One credit hour is one theory lecture or two hours laboratory practical per week. A credit hour carries 20 marks.

C. Degree plan - pre-requisites

B.Sc. with a minimum of 45% marks or its equivalent from a recognized institution in related subjects Biological sciences with Zoology as one of the major subject/Forestry & Range Management or an equivalent qualification in relevant discipline from a HEC recognized institution.

The selection criterion for each course is as follows;

- The course is relevant to the degree program
- It meets the national and international requirements for the degree
- Adequate facilities are available in the department to offer the courses
- The course contents meet the program objectives as highlighted and provided by the Higher Education Commission of Pakistan.

Each course in the program is to be completed for credits specifying the following:

- Course title (WL)
- Course objectives and outcome (Given in course breakdown into lectures separately)
- Catalogue description (yes)
- Text book and reference (Given in course contents)
- Syllabus breakdown in lectures (yes supplied to QEC separately)
- **Computer usage:** Internet facility is used by faculty members to update their knowledge regarding each course, research studies and recent references. Students also use this facility to solve their problems, assignments and presentations.
- **Laboratory facilities** are provided to the students for their practical exercise, given in the curricula. Post-graduate students also use laboratories for their theses research where equipment, material and chemicals are provided.

D. Degree requirements

The duration of M.Sc. degree shall not be less than four semesters for whole time students and not less than six semesters for part time/partial residents and not more than six and eight semesters, respectively. Each student has to complete a minimum of 60 credits for the award of degree. Student may opt for thesis carrying 10 credits (not counted towards calculation of CGPA). List of major courses for M.Sc. is given in Table 6.

Table 6. Course Requirements for M.Sc. in Wildlife Management

S. No.	Course No	Course Title	Credit Hours
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1	WL-701	An Introduction to Wildlife of Pakistan	3 (2-2)
2	WL-702	Wildlife Population Ecology	3 (3-0)
3	WL-706	Wildlife Management at Wetlands	3 (3-0)
4	WL-707	Terrestrial Wildlife Management	3 (3-0)
5	WL-708	Wildlife Damage Management	3 (2-2)
6	WL-709	Society, Values & Economics of Wildlife	3 (3-0)
7	WL-711	Research Planning and Report Writing	3 (1-4)
8	WL-712	Conservation Biology of Wildlife	3 (3-0)
9	WL-714	Reproductive Biology and Breeding	3 (2-2)
10	WL-716	Wild Fish fauna of Pakistan	3 (3-0)
11	WL-718	Captive Wildlife Management	3 (3-0)
12	WL-719	Special Problem	1 (1-0)
13	WL-720	Seminar	1 (1-0)
14	WL-726	Essentials of Wildlife Conservation- National Perspectives	3 (3-0)
15	WL-729	Biology and Conservation of Amphibians and Reptiles	3 (2-2)

Standard 2.1. The curriculum must be consistent and support the program's documented objectives.

The curriculum of Department is consistent with the program objectives (Table 7).

Table 7. Courses with relation to their outcomes

Course	Objectives		
	HRD	Priority of Research	Integrated approaches
Wildlife management/ conservation	++ +	++	+ +++
Wildlife study/ management techniques	+ + +	++ ++	+ + + +
Wildlife ecology	+ +	+ + +	+ + +
Wildlife biology	+ +	++	+ +
In-situ conservation	++	++	++
Ex-situ conservation	+	+	+
Policy/law/social issues	+	+	+ +

+ = Relevant, ++ = Relevant & satisfactory, + + + = Very relevant & satisfactory,
+ + + + = highly relevant & highly satisfactory

Assessment of the Department of Wildlife Management Curriculum

The assessment of curriculum given in Table 12 and the courses are cross tabulated according to the program outcomes.

1. The curriculum fits very well and satisfies the core requirements for the program, as specified by the respective accreditation body.
2. The curriculum satisfied the general arts and professional and other discipline required for the program according to demands and requirements set by the Higher Education Commission.

Standard 2.2. Theoretical background, problem analysis and solution design must be stressed within the program's core material

Table 8. Courses representing theoretical background, problem analysis and solution design

Elements	Courses	Title of Courses
Theoretical Background	WL-701	An Introduction to Wildlife of Pakistan
	WL-702	Wildlife Population Ecology
	WL-709	Society, Values & Economics of Wildlife
	WL-714	Reproductive Biology and Breeding
	WL-716	Wild Fish fauna of Pakistan
Problem Analysis	WL-711	Research Planning and Report Writing
	WL-719	Special Problem
Solution Designs	WL-706	Wildlife Management at Wetlands
	WL-707	Terrestrial Wildlife Management
	WL-708	Wildlife Damage Management
	WL-712	Conservation Biology of Wildlife
	WL-718	Captive Wildlife Management
	WL-720	Seminar
	WL-726	Essentials of Wildlife Conservation-National Perspectives
	WL-729	Biology and Conservation of Amphibians and Reptiles

Standard 2-3: The curriculum must satisfy the core requirements for the program, as specified by the respective accreditation body.

The curriculum fully satisfies the core requirements for the M.Sc. degree program (please refer to Table 8)

Standard 2-4: The curriculum must satisfy the major requirements for the program as specified by HEC, the respective accreditation body / councils.

The curriculum is in consistency as specified by the HEC and it satisfies the major requirements for the Ph.D. Program.

Standard 2-5: The curriculum must satisfy general education, arts, and professional and other discipline requirements for the program, as specified by the respective accreditation body / council.

The student are encouraged to conduct social activity programs in the department, to organize welcome and farewell parties for the juniors and seniors, which also promotes their interaction among themselves. Similarly, the students are also encouraged to conduct and host short term (one day) seminars, exhibitions related to their degree program and so on.

Standard 2-6. Information technology component of the curriculum must be integrated throughout the program

During curriculum development, all aspects of information technology were considered and after a critical analysis, relevant aspects were integrated into the program. Two courses of statistics (6 credit hours) based on computer practical were included in the curriculum to fulfill the requirements of the students.

Standard- 2.7. Oral and written communication skills of the student must be developed and applied in the program.

- Two seminars each of one credit hour are compulsory for post-graduate students.
- Special problem (one credit hour) is offered to the students which require writing a comprehensive report on a topic and presenting it in the class.
- A course of 3 credit hours entitled “Research planning and report writing” has been integrated in the curriculum for M.Sc. students.
- Assignments are given to all students in each course on specific titles relevant to the course which are presented orally and given as written assignments by the students which improve their oral and written communication skills.

CRITERION 3.

LABORATORIES AND COMPUTER FACILITIES

- Laboratory Title: Wildlife Management Laboratory -1
Wildlife Management Laboratory-2
- Location and Area: Faculty of Forestry, Range Management and Wildlife, Ground and 1st Floor of Spur-D, Main Academic Block.
- Objectives: Laboratories are used by students and faculty for research studies including; autopsy of animals, micro-histological studies and food/diet composition analysis studies.

Research work for the graduate and post-graduate students

- Adequacy for instructions: Laboratories meet the requirements in terms of equipment, chemicals, furniture and general facilities, however, not spacious enough for demonstration and analysis studies.
- Major apparatus: Major equipment available in the Labs. include; Light microscopes, deep freezers, refrigerators, pH meters, electric balances, electric oven, slides, glass ware, centrifuge machine, spectrophotometer, tissue homogenizers, equipment for histological studies of animal tissues etc.
- Field Equipments: Binoculars, GPS, Cameras, Cages, live traps, spotting scopes, spring balances, camping gear, radio-telemetry etc.
- Safety Regulations: Safety measures such as fire extinguishers, first aid kit are not available in the Labs. However, the University maintains a Medical Dispensary for minor incidents.

Standard 3.1. Laboratory manuals/documentation/instructions for experiments must be available and readily accessible to faculty and students.

Laboratory manuals of each subject are not available in the departmental library. However, books and manuals owned by individual faculty are used by the students. A number of books and manuals have been prepared in the department.

Standard 3.2. There must be adequate support personnel for instruction and maintenance of laboratory

Laboratories are maintained by two laboratory attendants and one laboratory assistant who assist the students in research studies, practical, cleaning and washing, etc. Students are instructed for Lab. work by respective faculty members.

Standard 3.3. The university computing infrastructure and facilities must be adequate to support program's objectives

The University has limited computer facility for students. Computer facility is available at the department level to most of faculty members independently. However, it is not adequate to meet the objectives of the programme and needs improvement

CRITERION 4. STUDENT SUPPORT AND GUIDANCE

Directorate of Students Affairs of the University organizes support programs, cultural activities for students and guides them in case of any problem. The university staff provides information regarding admission, scholarships, career opportunities, etc. The university arranges orientation programme for new students and guided tours to various departments. However, currently Parent/Teacher association in the university does not exist.

Standard 4.1. Courses must be offered with sufficient frequency and number for students to complete the program in a timely manner.

- Courses are taught as per strategy and guidance provided by HEC.
- Subject courses are offered as per scheme of study of the department after approval of Academic Council of the university. Courses are offered by faculty trained in the relevant subject and as per their availability.
- Elective courses and minor courses are offered as per policy of HEC and University.

Standard 4.2. Courses in the major must be structured to ensure effective interaction between students, faculty and teaching assistants.

- Courses are structured and decided among the faculty members in the departmental board of study meeting.
- Courses to be offered are decided before the commencement of semester and the faculty members interact frequently among themselves and with students.
- Students are encouraged to ask question, give comments and take part in the discussions in the class.
- Emphasis is given on effective interaction between the students and between students and teachers.

Standard 4.3. Guidance on how to complete the program must be available to all students and access to qualified advising must be available to make course decisions and career choice.

- Students are informed about program requirements through office of chairperson of the department and through personal communication of teachers with them.
- The counseling of students is continuous process and students are free to contact relevant teachers whenever they face any professional problem.
- Students are also facilitated for interaction with faculties/scientists in other universities and research organizations whenever they need and there is open option for the students to get membership of professional societies.

CRITERION 5. PROCESS CONTROL

Standard 5.1. The process by which students are admitted to the program must be based on quantities criteria and clearly documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

- The process of admission is well established and followed as per rules and criterion set by University for post graduate students of M.Sc.
- Admission criteria for M. Sc. program: 16 years of education in relevant field/ subjects.
- All these entries are based on the recommendations of admission committees.
- Admission criteria is revised if required before the announcement of admissions.

Standard 5.2. The process by which students are registered in the program and monitoring of students progress to ensure timely completion of the program must be documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

- Registration of students is done once every year at the time of admission. When a student is admitted for each degree, he/she is evaluated through the result of each course for each semester. If the students fulfill the criteria of the University (a specific CGPA after each semester) they are promoted to the next semester.
- Students are evaluated through Mid, Final and Practical exams and through written assignments and oral presentations.
- In general, the students are registered on competition bases keeping in view the academic and research standards.

Standard 5.3. The process of recruiting and retaining highly qualified faculty members must be in place and clearly documented. Also processes and procedures for faculty evaluation, promotion must be consistent with institution mission statement. These processes must be periodically evaluated to ensure that it is meeting with its objectives.

- The University follows the recruitment policy and rules recommended by HEC.
- Posts are advertised in national newspapers and university website, and applicants are short-listed on the basis of experience, qualification, publications and other qualities / activities as fixed by the University
- The candidates are interviewed by the University Selection Board and principal and alternate candidates are selected.
- Selection of candidates is approved by the Syndicate for issuing orders to join within a specified period.
- Induction of new candidates depends upon the number of approved vacancies.
- Recently, Tenure Track System (TTS) has been introduced by the University which is a good incentive for retaining highly qualified faculty members.
- HEC also supports appointment of highly qualified members as foreign faculty professor, national professors and deputes them in various departments.

Standard 5.4. The process and procedures used to ensure that teaching and delivery of course material to the students emphasizes active learning and that course learning outcomes are met. The process must be periodically evaluated to ensure that it is meeting its objectives.

- Periodical update of curriculum is done depending upon the requirements, innovations and new knowledge generated.
- New courses are developed and included in the curriculum when need arises.
- Books on various aspects of wildlife are available in the department and in University library where documentation, photocopying and internet facilities are also available. .
- Students also take notes during the classes and photocopies of slides/transparencies are also provided in addition to printed material.
- All efforts are made to impart the course material and knowledge to meet the objectives of the curriculum.

Standard 5.5. The process that ensures that graduates have completed the requirements of the program must be based on standards, effective and clearly documented procedures. This process must be periodically evaluated to ensure that it is meeting its objectives.

In the examination system of the University, the following are clearly mentioned;

- The evaluation procedure consists of quizzes, mid and final examinations, practical, assignments, reports and oral presentations.
- The controller of examinations announces the dates of examinations. After each semester, the controller office notifies results of the exams.
- The minimum passing marks for each course is 40% for M.Sc.in theory and practical, separately.
- In theory, weight age of each component of examination is as under:

Mid Examination	30%
Assignments	10%
Final Examination	60%

- Grade points are as follows

Marks	Grade	Grade point	Remarks
80-100 %	A	4	Excellent
65-79 %	B	3	Good
50-64 %	C	2	Satisfactory
40-49 %	D	1	Pass
Below 40 %	F	0	Fail

- Gold medals are awarded to the students who secure highest cumulative marks in each department. Degrees are awarded to the students in the convocation which is held every year.

CRITERION 6. FACULTY

Standard 6-1. There must be enough full time faculty who are committed to the program to provide adequate coverage of the program areas/courses with continuity and stability. The interests and qualifications of all faculty members must be sufficient to teach all courses, plan, modify and update courses and curricula. All faculty members must have a level of competence that would normally be obtained through graduate work in the discipline. The majority of the faculty must hold a Ph.D. in the discipline.

Currently, there are five full time faculty members out of which four are Ph.D. and one M. Phil. in wildlife management. The fields of specialization of faculty members include; wildlife management/conservation, wildlife study/management techniques, wildlife ecology, wildlife biology, in-situ conservation, ex-situ conservation and policy/law/social issues (Table 9).

Table 9. Faculty distribution by program area in wildlife management

S. No.	Area of specialization	Relevant Courses	Number of faculty members	Number of faculty with Ph.D. degree
1	Wildlife management/ conservation	7	4	4
2	Wildlife study/management techniques	4	4	4
3	Wildlife ecology	3	5	3
4	Wildlife biology	7	5	3
5	In-situ conservation	4	3	4
6	Ex-situ conservation	5	2	3
7	Policy/law/social issues	3	2	3

Standard 6-2. All faculty members must remain current in the discipline and sufficient time must be provided for scholarly activities and professional development. Also, effective programs for faculty development must be in place.

- In each semester courses are offered according to work load of faculty members
- Division of students for supervision is made on the basis of faculty expertise/research interests

Existing faculty development programs at department and university level

- Faculty members, like the previous years, attended conferences/workshops/seminars outside and within university.
- Laboratory, library and internet facilities are available for scholarly work and academic improvement
- Support for attending conferences lead to enhancement of research initiatives.
- All faculty members got financial support for research projects from HEC and university-funded program specifically designed for junior faculty members.

Standard 6-3. All faculty members should be motivated and have job satisfaction to excel in their profession

The young faculty is mobilized by timely back up and appreciation by the senior faculty members. Avenues for research funding are provided to them through university research programme. There are programs and processes in place to attract good faculty members e.g. teaching and research awards annually, reasonable teaching load and class size, social activities and better salary package.

Results of the faculty survey

Results of faculty survey (**Performa 5**) are summarized in Fig. 29. The results generally showed satisfaction of the teachers over most of parameters. However, level of monitoring, cooperation with colleagues and the cooperation of teachers needs to be improved.

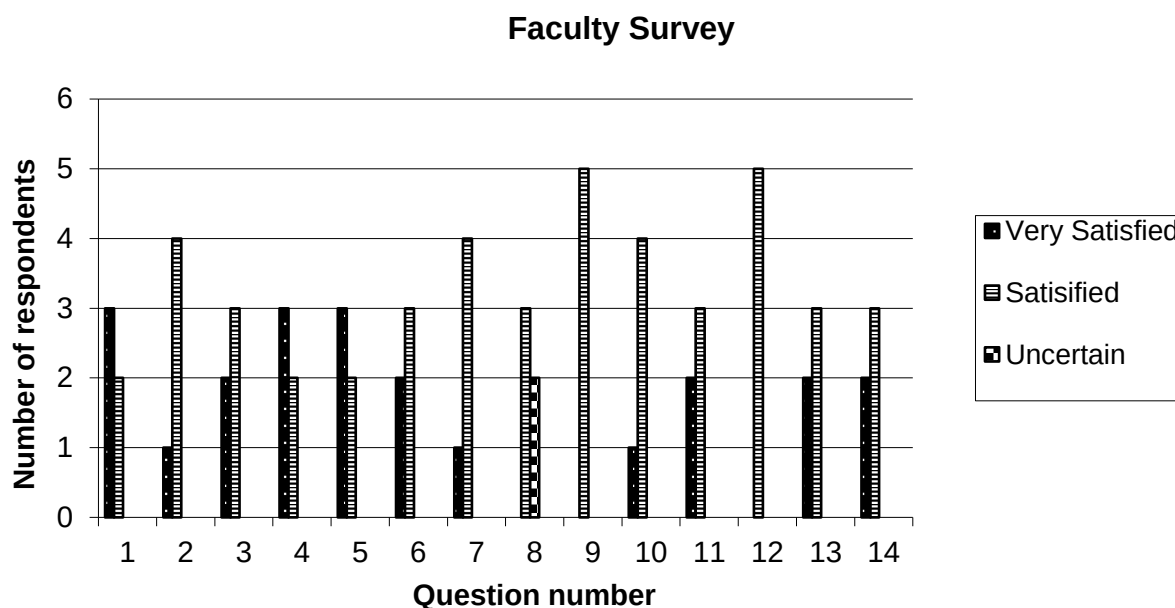


Figure 29. Results of faculty survey

CRITERION 7. INSTITUTIONAL FACILITIES

Standard 7.1. The institution must have the infrastructure to support new trends in learning such as e-learning. Supportive Infrastructure and Facilities in learning:

- a. Two well-equipped laboratories and one class room with teaching aids (multimedia, over- head projector) and number of books are available in the department.
- b. However, more sitting place for faculty members and Ph.D. students with computer and internet facility is desired to make working/research/study environment conducive for higher learning.

Standard- 7.2. The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personnel.

- Central university library has been recently up-graded with provision of computer and internet facility to the post-graduate students.
- The department is regularly suggesting to the central library for provision of new books related to wildlife sciences.
- The department under its HEC funded project has purchased more than 270 books in the area of wildlife studies.
- Only a small number of scientific journals are available in the central library; even Pakistani Journals are not available. Provision of major journals related to wildlife is highly desired for research and scientific/technical writing.

Standard- 7.3. Class-rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities.

There is only one classroom with the department which possesses proper teaching facilities such as multimedia projector and overhead projector. Classroom is inadequate for all classes. Sometimes classes are taken in the laboratories. Similarly, space for faculty offices is not appropriate and two faculty members are housed in the cabins built inside the Labs. This makes Lab. space insufficient for practical and research use by the students.

CRITERION 8. INSTITUTIONAL SUPPORT

The university administration is making all possible efforts for strengthening the existing departments by attracting highly qualified faculty and by getting financial support through R&D Project.

Standard 8-1. There must be sufficient support and financial resources to attract and retain high quality faculty and provide the means for them to maintain competence as teachers and scholars.

As mentioned in the previous SAR, there is no proper maintenance/documentation and attractive investment of GPF deducted from salary of the employees. Similarly, no benefit/welfare from BF deduction is available to the faculty except a meager benefit for faculty children's education at university level. Similarly, little attention is being paid for faculty residential facilities at university campus and majority of faculty members remain on waiting list for a long period. Transport facility is not frequently and easily available for field works/touring. Department budget is too low to meet expenses and only Rs. 50,000/- were allocated for the year 2014-15 and 2015-16 for office and Lab. expenses including student research. However, the department can get chemicals, glassware, stationery and other office use items from central stores of university by submitting special request.

Technical Staff: Civil Works and internet networking departments are very slow in response. Financial and accounting departments are also slow in their delivery.

Office equipment: Sufficient office equipment is available to meet the current teaching and research activities of the department.

Standard 8-2. There must be an adequate number of high quality graduate students, research assistants and Ph.D. students.

The admission of M.Sc. is held once a year. Details are given in Table 10.

Table 10. Enrollment in M.Sc. degree program in 2014-15 and 2015-16

Year	Students enrolled in M.Sc
2014-15	23
2015-16	20
Total	43

Standard- 8.3. Financial resources must be provided to acquire and maintain Library holdings, laboratories and computing facilities.

An amount of Rs. 50,000/- per annum is considered sufficient to meet the needs of the department which is too low to maintain and run the departmental activities.

SUMMARY AND CONCLUSIONS

The Department of Wildlife Management at PMAS-Arid Agriculture University, Rawalpindi was established in 2007 with a mandate to carry out teaching and research in wildlife for its conservation in the country, particularly in Pothwar region. There are five faculty members out of them four having doctoral degrees and three are HEC approved supervisors. The courses have been prepared keeping in view the latest developments in wildlife management and conservation. The department is offering M.Sc., M. Phil. and Ph.D. in wildlife management. During the report period 19 students were enrolled in M.Sc. programme. The department has published more than 49 research papers during the period under report.

Basic equipment for field surveys of wildlife and its habitats has been procured through various funding sources which include binoculars, spotting scopes, global positioning system (GPS), camera, telemetry equipment, camping gear, etc. Two laboratories have been established with basic necessary equipment for micro-histological, taxonomy, food habit studies and food/diet composition. More than 270 latest books on the subject of wildlife/biodiversity have also been purchased and placed in the main library and in the department for ready reference to the students.

Young faculty members have got six research projects from the university funding programme while senior faculty has earned three research projects from HEC. The departmental teaching and research capacity has been enhanced through PSDP/HEC funded project. Research studies currently being conducted focus on wildlife population density and size, wildlife habitat analysis, food habits and diet composition, breeding habits and breeding biology, distribution patterns, data on protected areas and threatened species, wetland ecology, population trends of water birds, threats to wildlife species, wildlife damage assessment and management, etc.

Proper steps are taken to guide the students for programme requirements, communication, meetings, study tours, students-teacher interaction, etc. They are well informed of relevant scientific societies, job opportunities and other such activities. University and HEC rules and guidelines are followed for process control covering admission, registration, recruiting policy, courses and delivery of material, academic requirements, performance and grading.

Curriculum design, development and organization is based upon approved criteria. Pre-requisites are fully observed, examinations are conducted as per schedule, academic schemes are prepared and courses for each semester are developed. Their efficacy was found to range between satisfactory to highly satisfactory. Self assessment report has shown programme outcomes as satisfactory. Teachers' evaluation and course evaluation by the students' revealed highly satisfactory standards. Faculty survey results were variable but with overall satisfactory rating. Graduating students also showed their satisfaction over the knowledge being provided and research studies conducted about wildlife management in the department.

Performance of the department could be improved considering the following points.

1. There is need for refresher courses for teachers pertaining to teaching methodology, education psychology, research and developments and evaluation of students.
2. Professional and behavioral training of support staff will improve their abilities for enhancing the quality of research and teaching.
3. Advance laboratory equipments are needed to carry out molecular/DNA analysis in food habits and species verification.
4. Department budget may be increased to fulfill its requirements for purchase of chemicals, glassware and other items required for conducting of research.
5. The department is in dire need of office rooms for two faculty members, one store room, one library room, one class room and one laboratory room.
6. Regular provision of transport facility for field visits is highly desired.

Thanks

Program Team Members

1. **Prof. Dr. Maqsood Anwar** (Coordinator)
2. **Dr. Tariq Mahmood** (Member)
3. **Dr. Muhammad Rais** (Member)

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management
 Course Code: WL-701 Title: Introduction to Wildlife of Pakistan
 Session: 2015-2016 Semester: Autumn
 Credit Value: 3(2-2) Lectures 58
 No. of Students: 11 Seminars: 11
 Contact Hours:
 Assessment Method: Mid-Term Exam=12 Assignment=04 Final Exam=24 Practical=20

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	11	5	3	1	0	0	2	0	0	11

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

All students seem to be satisfied with the course and the teacher

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

NA

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

All objectives have been fully achieved. However, there is still need for improvement

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

The method of teaching was very effective

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

Field visits were proposed in the previous report, however, this still need to be added.

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

NA

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management
 Course Code: WL-702 Title: Wildlife Population Ecology
 Session: 2016 Semester: 45
 Credit Value: 3(3-0) Lectures: 45
 No. of Students: 10 Seminars: 0
 Contact Hours: 3(3-0)
 Assessment Method: Mid Exam: 18 Marks Assignment: 06 Marks Final Exam: 36 Marks

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	10	1	3	4	2	0	0	0	0	10

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

Yes

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any) N/A

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

appropriate

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

effective

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

N/A

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

to be updated with passage of time in future

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management

Course Code: WL-706 Title: Wildlife Management at Wetlands

Session: 2017 Semester: 60

Credit Value: 3(2-2) Lectures: 60

No. of Students: 12 Seminars: 0

Contact Hours:

Assessment Method: Mid-term:12; Assignment:04; Final:24; Practical:20

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	14	0	1	9	2	0	0	0	2	12

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

Yes

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

NA

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

The curriculum was tailored as per HEC guidelines. The course was taught according to the objectives of the course set when the contents were prepared.

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

The assessment methods particularly feedback from the students have proved to be very useful.

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

Incorporation of new topics, inclusion of field and laboratory learning topics.

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

NA

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management

Course Code: WL-712 Title: Conservation Biology of Wildlife

Session: 2016 Semester: Autumn

Credit Value: 3(3-0) Lectures 43

No. of Students: 15 Seminars: 0

Contact Hours:

Assessment Method: Mid-term:18; Assignment:06; Final:36

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	15	0	4	11	0	0	0	0	0	15

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

Yes

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

NA

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

The curriculum was tailored as per HEC guidelines. The course was taught according to the objectives of the course set when the contents were prepared.

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

The assessment methods particularly feedback from the students have proved to be very useful.

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

Incorporation of new topics, inclusion of field and laboratory learning topics.

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

NA

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management
 Course Code: WL-726 Title: Essentials of Wildlife Conservation
 Session: 2016 Semester: 42
 Credit Value: 3 (3-0) Lectures 42
 No. of Students: 0 Seminars: 0
 Contact Hours:
 Assessment Method: Mid=18; Final=36; Assignment=6

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	15	0	2	13	0	0	0	0	0	15

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

Yes

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

NA

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

The curriculum was tailored as per HEC guidelines. The course was taught according to the Objectives of the course set when the contents were prepared.

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

Incorporation of new topics, inclusion of field and laboratory learning topics

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

.

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

NA

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management

Course Code: WI-701 Title: Introduction to Wildlife of Pakistan

Session: Fall 2017 Semester: Autumn

Credit Value: 3 (2-2) Lectures 48

No. of Students: 19 Seminars: 20

Contact Hours: 48

Assessment Method: Mid Exam= 30% Assignment= 10% Final Exam= 60% Practical=100%

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	19	1	5	12	0	0	1	0	0	19

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

All of the students were satisfied with the course

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

NO

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

Curriculum approved as per HEC guidelines

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management

Course Code: WL-702 Title: Wildlife Population Ecology

Session: 2017 Semester: 40

Credit Value: 3(3-0) Lectures: 40

No. of Students: 14 Seminars: 0

Contact Hours: 3 per week

Assessment Method: Midterm Exam: 18 Assignment: 06 Final Exams: 36

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	14	2	7	1	2	0	2	0	0	14

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

Yes

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any) N/A

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

appropriate and in accordance to HEC criteria

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

effective

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

ok

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

to be updated in future with passage of time

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management

Course Code: WI-707 Title: Terrestrial Wildlife Management

Session: 2017 Semester: Spring

Credit Value: 3(3-0) Lectures 45

No. of Students: 14 Seminars: 5

Contact Hours: NA

Assessment Method: Mid-term:18; Assignment:06; Final:36

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	15	0	9	5	0	0	1	0	0	15

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

Yes

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

NA

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

The course was taught according to the objectives of the course set when the contents were prepared.

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

The assessment methods particularly feedback from the students have proved to be very useful.

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

Incorporation of new topics, inclusion of field and laboratory learning topics

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

NA

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management

Course Code: WL-709 Title: Society, Values and Economics of Wildlife

Session: 2017 Semester: Spring

Credit Value: 3(3-0) Lectures 40

No. of Students: 10 Seminars: 0

Contact Hours: 3 hours per week

Assessment Method: mid-term exam: 18 Assignment: 06 Terminal exam: 36

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students										
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	10	3	5	1	1	0	0	0	0	10

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

filled by students online

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

00

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

appropriate

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

effective

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

okay

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

to be updated in future

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management
 Course Code: WL-711 Title: Research Planning and Report Writing
 Session: 2017 Semester: 67
 Credit Value: 3(1-4) Lectures: 67
 No. of Students: 14 Seminars: 0
 Contact Hours: 4 per week
 Assessment Method: Theory: Mid-term Exam: 06 Assignment: 02 Final Exam: 12 Practical Final Exam: 40

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	14	8	4	0	0	0	2	0	0	14

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

Yes

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any) N/A

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

appropriate

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

effective

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

N/A

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

to be updated in future as required

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management
 Course Code: WL-712 Title: Conservation Biology
 Session: 2017 Semester:
 Credit Value: 3(3-0) Lectures 45
 No. of Students: 19 Seminars: 0
 Contact Hours:
 Assessment Method: Mid-term:18; Assignment:06; Final:36

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	19	0	2	14	3	1	0	0	0	19

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

Yes

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

NA

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

The curriculum was tailored as per HEC guidelines. The course was taught according to the objectives of the course set when the contents were prepared.

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

The assessment methods particularly feedback from the students have proved to be very useful.

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

Incorporation of new topics, inclusion of field and laboratory learning topics.

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

NA

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management
Course Code: WL-716 Title: Wild Fish Fauna of Pakistan
Session: Fall 2017 Semester: Autumn
Credit Value: 3 (3-0) Lectures: 37
No. of Students: 14 Seminars: 14
Contact Hours: 37
Assessment Method: Mid Exam=30% Assignment=10% Final Exam=60%

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	14	7	5	2	0	0	0	0	0	14

Overview/Evaluation (Course Co-coordinator Comments)

Feedback:

1: Student (Course Evaluation) Questionnaires

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management

Course Code: WL-726 Title: Essentials of Wildlife Conservation

Session: 2016 Semester: Autumn

Credit Value: 3 (3-0) Lectures 42

No. of Students: 15 Seminars: 0

Contact Hours:

Assessment Method: Mid=18; Final=36; Assignment=6

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	15	0	2	13	0	0	0	0	0	15

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

Yes

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

NA

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

The curriculum was tailored as per HEC guidelines. The course was taught according to the Objectives of the course set when the contents were prepared.

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

Incorporation of new topics, inclusion of field and laboratory learning topics

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

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7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

NA

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department:	Department of Wildlife Management		
Course Code:	WL-729	Title:	Biology and Conservation of Amphibians and Reptiles
Session:	2017	Semester:	Spring
Credit Value:	3(2-2)	Lectures	55
No. of Students:	10	Seminars:	0
Contact Hours:	NA		
Assessment Method:	Mid term:12; Assignment:04; Final:24; Practical:20		

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	10	0	8	2	0	0	0	0	0	10

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

Yes

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

NA

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

The curriculum was tailored as per HEC guidelines. The course was taught according to the objectives of the course set when the contents were prepared

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

The assessment methods particularly feedback from the students have proved to be very useful.

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

Incorporation of new topics, inclusion of field and laboratory learning topics.

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

NA

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management
 Course Code: WL-702 Title: Wildlife Population Ecology
 Session: 2018 Semester: Autumn
 Credit Value: 3(3-0) Lectures 48
 No. of Students: 16 Seminars: 0
 Contact Hours: 3 hours per week
 Assessment Method: Mid-term: 18 Assignment:06 Terminal Exam: 36

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	16	3	4	5	4	0	0	0	0	16

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

yes filled by students online

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

00

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

appropriate

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

effective

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

ok

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

to be update in future when required

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management

Course Code: WL-707 Title: Terrestrial Wildlife Management

Session: 2018 Semester: 45

Credit Value: 3-(3-0) Lectures 45

No. of Students: 15 Seminars: 0

Contact Hours: NA

Assessment Method: Mid-term:18; Assignment:06; Final:36

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	15	0	12	3	0	0	0	0	0	15

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

YES

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

The curriculum was tailored as per HEC guidelines. The course was taught according to the objectives of the course set when the contents were prepared.

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

The assessment methods particularly feedback from the students have proved to be very useful.

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

Incorporation of new topics, inclusion of field and laboratory learning topics

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

NA

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management
 Course Code: WL-709 Title: Society, Values and Economics of Wildlife
 Session: 2018 Semester: Spring
 Credit Value: 3(3-0) Lectures 38
 No. of Students: 13 Seminars: 0
 Contact Hours:
 Assessment Method: Mid-term exam: 18 Assignment: 06 Terminal Exam: 36

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students										
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	13	3	8	2	0	0	0	0	0	13

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

filled online by students

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

00

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

appropriate

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

effective

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

okay

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

to be updated in future

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management

Course Code: WL-711 Title: Research Planning and Report Writing

Session: 2018 Semester: Autumn

Credit Value: 3(1-4) Lectures 60

No. of Students: 16 Seminars: 0

Contact Hours: 5 hours per week

Assessment Method: mid-term exam: 18 Assignment: 06 Terminal Exam: 36

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students										
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	16	6	9	1	0	0	0	0	0	16

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

filled online by students

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

00

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

appropriate

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

effective

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

okay

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

to be update in future as per needs

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management

Course Code: WL-714 Title: Reproductive Biology and Breeding

Session: 2018 Semester: Spring

Credit Value: 3 (2-2) Lectures 55

No. of Students: 15 Seminars: 15

Contact Hours: 55

Assessment Method: Theory: Mid exam: 30% Assignment: 10% Final exam: 60% Practical: Final exam: 100%

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	15	1	1	10	3	0	0	0	0	15

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

All of the students were satisfied with the course contents, method of teaching and class environment.

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

NA

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

Yes, Approved by HEC

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

The course objectives were fully achieved and students have learn about the reproductive systems of various animals species.

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

NA

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

NA

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management
 Course Code: WL-718 Title: Captive Wildlife Management
 Session: 2018 Semester: Spring
 Credit Value: 3 (3-0) Lectures: 41
 No. of Students: 13 Seminars: 13
 Contact Hours: 41
 Assessment Method: Theory: Mid exam: 30% Assignment: 10% Final exam: 60%

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	13	3	10	0	0	0	0	0	0	13

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

100% of the students are satisfied with the course contents and method teaching.

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

NA

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

YES

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

Students have gained familiarity with captive management of Wildlife species

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

NA

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

NA

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management
 Course Code: WL-726 Title: Essentials of Wildlife Conservation
 Session: 2017 Semester: 42
 Credit Value: 3(3-0_ Lectures 42
 No. of Students: 19 Seminars: 0
 Contact Hours:
 Assessment Method: Mid=18; Final=36; Assignment=6

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	19	0	2	14	2	1	0	0	0	19

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

Yes

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

na

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

The curriculum was tailored as per HEC guidelines. The course was taught according to the Objectives of the course set when the contents were prepared.

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

relation to the intended learning outcomes (Course objectives) Incorporation of new topics, inclusion of field and laboratory learning topics

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

na

PMAS-Arid Agriculture University Rawalpindi

Faculty Course Review Report

Department: Department of Wildlife Management

Course Code: WL-729 Title: Biology and Conservation of Amphibians and Reptiles

Session: 2018 Semester: 2018

Credit Value: 3(2-2) Lectures: 55

No. of Students: 13 Seminars: 0

Contact Hours: na

Assessment Method: Mid term:12; Assignment:04; Final:24; Practical:20

Distribution of Grade/Marks and other Outcomes

Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	0	0	0	0	0	0	0	0	0	0
Undergraduate	Originally Registered	% Grade A	% Grade B	% Grade C	% Grade D	% Grade E	% Grade F	No Grade	Withdrawal	Total
No. of Students	13	0	4	9	0	0	0	0	0	13

Overview/Evaluation (Course Co-coordinator Comments)

PMAS-Arid Agriculture University Rawalpindi

Feedback:

Faculty Course Review Report

1: Student (Course Evaluation) Questionnaires

yes

2: External Examiners or Moderators (if any)

3: Student/Staff Consultative Committee (SSCC) or equivalent (if any)

na

4: Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved/Revised National Curriculum Guidelines

The curriculum was tailored as per HEC guidelines. The course was taught according to the objectives of the course set when the contents were prepared

5: Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

The assessment methods particularly feedback from the students have proved to be very useful.

6: Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Report

Incorporation of new topics, inclusion of field and laboratory learning topics.

7: Outline any changes in the future delivery or structure of the course that this semester/terms experience may prompt

na

Annexure-II
Proforma 9

Faculty Resume

Proforma 9	 <i>Faculty Resume</i>		
Name:	Dr. Iftikhar Hussain		
Father name:	Bashir Ahmad		
Date of Birth:	01 June 1955		
Place of Birth:	Bahawalpur		
Citizenship:	Pakistani		
National ID:	61101-1791269-3		
Passport No:	--		
Address:	H. No. 1157, Street No. 25, Phase-5, Bahria Town, Islamabad		
Contact No.	0333-5163248		
E-mail:	ifthussain@uaar.edu.pk		
Experience	30 years		
S. No.	Job Title	Employer	Duration
1	Scientific Officer	Pakistan Agricultural Research Council	Jan-1982 to Dec. 1993
2	Senior Scientific Officer	Pakistan Agricultural Research Council	Dec. 1993 to Sept. 2004
3	Principal Scientific Officer	Pakistan Agricultural Research Council	Sept. 2004 to May 2007
4	Professor (Wildlife Management)	PMAS-Arid Agriculture University, Rawalpindi	May 2007 to May 2015
Honor and Awards	List honors or awards for scholarship or professional activity		
Memberships	List Memberships in professional and learned Societies, indicating offices held, committees, other specific assignments		
	1. Life Fellow, Zoological Society of Pakistan. 2. Founder Member, Society of Facilitators and Trainers (SOFT), Islamabad (from 2009 to date). 3. Chairman, Society of Facilitators and Trainers (SOFT), Islamabad (2015-17) 4. Founder Member, Pakistan Wildlife Foundation, Islamabad. 5. Member, Executive Council, Zoological Society of Pakistan, 2001-2002. 6. Member, Pakistan Association for the Advancement of Sciences, (2006-07) 7. Member, Crop Protection Association of Pakistan 8. Member, The wildlife Society, USA (1987-1990) 9. Member (Technical), Kissan Welfare Association (Punjab), Bahawalpur. 10. Member, Pakistan Nematological Society, Karachi (2006)		

	11. Member, National Curriculum Revision Committee (Zoology), University Grants Commission, Islamabad (2001-2002). 12. Member, National Curriculum Revision Committee (Zoology), Higher Education Commission, Islamabad (2005). 13. Member, National IPM Expert Committee (from 2003 to 2007), National Integrated Pest Management Project, National IMP Programme, IPEP, NARC, Islamabad. 14. Member, coordination committee (2005) for collaboration between Pakistan Agricultural Research Council and Bahauddin Zakria University, Multan, Pakistan. 15. Member (Secretary), IPM Coordination Committee for Sindh (from 06-08-06 to 10-05-07). 16. Member, Research and Review Committee for Zoological Survey Department, Govt. of Pakistan (w.e.f. 26-05-2011). 17. Convener, Subject Committee (Wildlife), for development of curriculum of GAT, National Testing Service, 402, St. 34, I-8/2, Islamabad. (w.e.f. 19-11-2011). 18. External Member (Expert), Board of Studies, Department of Plant and Environmental Protection, PARC Institute of Advanced Studies in Agriculture, University of Agriculture Khyber Pakhtunkhwa, NARC, Islamabad (2011-14) 19. Member, Board of Studies, Department of Plant and Environmental Protection, PARC Institute of Advanced Studies in Agriculture, Quaid-i-Azam University, Islamabad (2011-14).		
Graduate Students Post Docs Undergraduate students Honour Students	List supervision of graduate students, post docs and undergraduate honors theses Showing:		
	Year	Degree	Name/Title of Thesis/Report
	2014	M.Phil	Atta-ul-Mohsin Chaudhary: Habitat preference and damage of wild boar (<i>Sus scrofa</i>) to field crops in Taxila area. Department of Wildlife Management, PMAS-AAUR.
	2014	M.Phil	Naureen Mustafa: Diet analysis of straight-horned markhor (<i>Capra falconeri jerdoni</i>) in Torghar mountains, Balochistan. Department of Wildlife Management, PMAS-AAUR.
	2014	M.Phil	Nadeem Munawar: Evaluation of different baits for kill trapping of lesser bandicoot rat (<i>Bandicota bengalensis</i>) in field crops of Pothwar area. Department of Wildlife Management, PMAS-AAUR.
	2015	M.Phil.	Mazhar Hayat Khan: Habitat preference and damage to field crops by wild boar (<i>Sus scrofa</i>) in Chasma Barrage area, district Mianwali.

	2015	Ph.D.	Sameera Arshad: Birds' prevalence, hazards and evaluation of management techniques at the Rawalpindi/Islamabad Airport. Department of Wildlife Management, PMAS-AAUR (Supervisor).
	2015	Ph.D.	Durr-e-Shahwar: Development of rodenticide bait for rodent control in poultry farms of Rawalpindi-Islamabad area. Department of Wildlife Management, PMAS-AAUR (Supervisor).
	2016	Ph.D.	Misbah Sarwar: Role of crop-field boundary vegetation in population ecology of passerine birds in Pothwar Plateau, Pakistan. Department of Wildlife Management, PMAS-AAUR (Supervisor).
Service Activity	List University and Public Service activities		
	1. Convener (Organizing Committee) of Wild and Fancy Bird Show on 21-23 Nov. 2012 at PMAS-Arid Agriculture University, Rawalpindi. 2. Convener (Organizing Committee) of Fancy Bird Show/Dog Show on 28-30 March 2013 at PMAS-Arid Agriculture University, Rawalpindi. 3. Convener Publication Committee (University Convocation 2014) 4. Convener Publication Committee (University Convocation 2014) 5. Convener University Cafeteria Committee (2014-15).		
Brief Statement of Research Interest	Wildlife Damage Management/Vertebrate Pest Management		
Publications	PUBLICATIONS INTERNATIONAL (Peer Reviewed Journals/Proceedings) 1) Ashraf, N., M. Anwar, I. Hussain and M.A. Nawaz. 2014. Competition for food between the markhor and domestic goat in Chitral, Pakistan. <i>Turkish Journal of Zoology</i>, 38: 191-198. doi:10.3906/zoo-1306-6. (IF: 0.591, Citation: 1) 2) Rais, M., J. Rehman, S. Baloch, S. M. Ali and I. Hussain. 2014. On the herpetofauna in Loi Bher Wildlife Park, Rawalpindi, Pakistan. <i>TAPROBANICA</i>, 6(1): 56–58. 3) Rakha, B.A., M.S. Ansari, I. Hussain, M.F.Malik, S. Akhter and E. Blesbois. 2015. Semen characteristics of the Indian Red Jungle Fowl (<i>Gallus gallus murghi</i>). <i>European Journal of Wildlife Research</i>, 61(3):379-386 (DOI 10.1007/s10344-015-0904-x) (IF: 1.208) 4) Shahwar, D. and I. Hussain. 2016. The level of rodent problems in poultry farms of Rawalpindi-Islamabad, Pakistan. <i>Mammalia</i>, 80(2):193-204 (DOI: 10.1515/mammalia-2014-0046), (IF: 0.824) 5) Rakha, B.A., I. Hussain, A.U. Husna, M. F. Malik, S. Akhter and M.S. Ansari. 2015. Impact of ejaculate frequencies on the quality of Red Jungle Fowl (<i>Gallus gallus murghi</i>) semen. <i>Avian Biology Research</i>, 8(2):109-112 (doi 10.3184/175815515X14275620284704) (IF: 0.93).		

	6) Mahmood, T., N. Irshad, R. Hussain, F. Akrim, I. Hussain, M. Anwar, M. Rais and M.S. Nadeem. 2015. Breeding habits of the Indian pangolin (<i>Manis Crassicaudata</i>) in Potohar plateau, Pakistan. <i>Mammalia</i>, 80(1): 59-70. (DOI: 10.1515/mammalia-2014-0099), (IF: 0.824) 7) Hussain, I., M. Munir and M. Anwar. 2015. Food habits of Punjab Urial, <i>Ovis vignei punjabiensis</i> Lydekker, 1913, in Chumbi Surla Wildlife Sanctuary, Chakwal, Pakistan. <i>Acta Zoologica Bulgarica</i>, 67(4): 507-514. (IF: 0.532). 8) Kayani, S. B., M. Anwar, M. Ashfaq, I. Hussain and T. Mahmood. 2015. Cytochrome b gene based phylogenetic studies of <i>Pangshura smithii</i> from Pakistan. <i>International Journal of Biosciences (Bangladesh)</i>, 6(10): 57-63. 9) Kayani, S. B., M. Anwar, I. Hussain and T. Mahmood. 2015. Cytochrome b gene based characterization of <i>Lissemys punctata</i>. <i>International Journal of Biosciences (Bangladesh)</i>, 6(10): 73-81. 10) Qureshi, B. D., M. Anwar, I. Hussain and M. A. Beg. 2015. New record of distribution and population density of Golden Marmot (<i>Marmota caudata</i>) from district Neelum, AJ&K, Pakistan. <i>International Journal of Biosciences (Bangladesh)</i>, 7(2): 96-105. 11) Kayani, S. B., M. Anwar, M. Ashfaq, I. Hussain and T. Mahmood. 2015. Morphometric studies of the fresh water turtles from Rawalpindi-Islamabad region of Pakistan. <i>Journal of Biodiversity and Environmental Sciences (Bangladesh)</i>, 6(5): 228-233. 12) Khalil, S., M. Anwar and I. Hussain. 2015. Threats affecting grey francolin (<i>Francolinus pondicerianus</i>) population in Salt Range, Punjab, Pakistan. <i>International Journal of Sciences: Basic and Applied Research</i>, 24(1): 386-401. 13) Shahwar, D.E., I. Hussain, M. Anwar, M. A. Beg, A. Kawan, F. Akrim. 2015. Development of cereal baits and comparative field efficacy of some additives as bait carrier for zinc phosphide and coumatetralyl against rodent pests of poultry farms in Rawalpindi-Islamabad, Pakistan. <i>International Biodeterioration & Biodegradation</i>, 104: 460-471 doi:10.1016/j.ibiod.2015.08.01 (IF: 2.131). 14) Khalil, S., M. Anwar, I. Hussain and N. Mustafa. 2015. Roosting ecology of grey francolin (<i>Francolinus pondicerianus</i>) in Salt Range, Punjab, Pakistan. <i>Asian Journal of Science and Technology (India)</i>, 6(9): 1766-1768. 15) Khalil, S., M. Anwar and I. Hussain. 2015. Population estimation of grey francolin (<i>Francolinus pondicerianus</i>) in Salt Range, Punjab, Pakistan. <i>Pure and Applied Biology</i>, 4(4): 584-596, (http://dx.doi.org/10.19045/bspab.2015.44018). 16) Shahwar, D.E., I. Hussain, A. Kawan and F. Akrim. 2016. Influence of bait station design on bait uptake by rodents in poultry farms of Rawalpindi-Islamabad area, Pakistan. <i>International Biodeterioration & Biodegradation</i>, 107: 17-20. (IF: 2.131).
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	17) Ashraf, N., M. Anwar, I. Hussain, S. N. Mirza. M. C. Latham and A. D. M. Latham. 2016. Habitat use of Himalayan grey goral in relation to livestock grazing in Machiara National Park, Pakistan. <i>Mammalia</i> 80(1): 59-70. (DOI 10.1515/mammalia-2014-0099) (IF: 0.824). 18) Ashraf, N., M. Anwar, M. K. Oli, W. E. Pine, M. Sarwar, I. Hussain and M. S. Awan. 2016. Seasonal variation in the diet of the grey goral (<i>Naemorhedus goral</i>) in Machiara National Park (MNP), Azad Jammu and Kashmir, Pakistan. <i>Mammalia</i>. (DOI 10.1515/mammalia-2015-0075), published online 20 April 2016. (IF: 0.824). 19) Rakha, B.A., M.S. Ansari, S. Akhter, I. Hussain and E. Blesbois. 2016. Cryopreservation of Indian red jungle fowl (<i>Gallus gallus murghi</i>) semen. <i>Animal Reproduction Science</i> 174: 45–55 (IF: 1.377). 20) Rakha, B.A., M.S. Ansari, I. Hussain, M. Anwar, S. Akhter, and E. Blesbois. 2016. Comparison of extenders for liquid storage of Indian Red Jungle Fowl (<i>Gallus gallus murghi</i>) spermatozoa. <i>Avian Biology Research</i>, 9(3): 207-212. DOI: https://doi.org/10.3184/175815516X14679871861418 (IF: 0.928). 21) Balouch, S., M. Rais, I. Hussain and A. Akram. 2016. Squamate diversity in different croplands of district Chakwal, Punjab, Pakistan. <i>Journal of King Saud University – Science</i> 28: 255–260. 22) Sarwar, M., I. Hussain, M. Anwar and S.N. Mirza. 2016. Diet of the Eurasian skylark (<i>Alauda arvensis</i> Linnaeus, 1758) wintering in the agro-ecosystem of the Pothwar plateau, Pakistan. <i>Acta Zoologica Bulgarica</i> 69(4):547-552. IF: 0.532) a. NATIONAL (Peer Reviewed Journals/Proceedings) 1. Ashraf, N., M. Anwar, I. Hussain and S. N. Mirza. 2015. Population parameters of grey goral (<i>Naemorhedus goral goral</i>) at two different sites in Machiara National Park, Azad Jammu and Kashmir, Pakistan. <i>The Journal of Animal and Plant Sciences</i>, 25(1): 88-94 (IF: 0.448). 2. Habiba, U., M. Anwar, I. Hussain and M. Rais. 2015. Population density and habitat status of Punjab urial (<i>Ovis vignei punjabiensis</i>) In Diljabba-Domeli Game Reserve, Punjab, Pakistan. <i>The Journal of Animal & Plant Sciences</i>, 25(3): 650-655 (IF: 0.448). 3. Anwar, M., A. Mahmood, M. Rais, I. Hussain, N. Ashraf, S. Khalil and B. D. Qureshi. 2015. Population density and habitat preference of Indian peafowl (<i>Pavo cristatus</i>) in Deva Vatala National Park, Azad Jammu & Kashmir, Pakistan. <i>Pakistan Journal of Zoology</i>, 47(5): 1381-1386.(IF: 0.404) 4. Khalil, S., M. Anwar and I. Hussain. 2016. Breeding biology of grey francolin (<i>Francolinus pondicerianus</i>) in Salt Range, Pakistan. <i>Pakistan Journal of Zoology</i>, 48(1): 115-123. (IF: 0.404). 5. Arshad, S., I. Hussain, M. Anwar and S .N. Mirza. 2015. Habitat survey for recognizing bird attractants around Benazir Bhutto International Airport, Islamabad, Pakistan. <i>Pakistan Journal of Agricultural Research</i>, 28(3): 263-271. 6. Hussain. I., N.A. Qureshi, M. Anwar and M. Mushtaq. 2016. Burrow characteristics of lesser bandicoot rat (<i>Bandicota bengalensis</i>) in the
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	agro-ecosystem of Pothwar Plateau, Pakistan. <i>Pakistan Journal of Zoology</i> , 48(3): 631-638. (IF: 0.404). 7. Sarwar, M., I. Hussain, M. Anwar and S. N. Mirza. 2016. Baseline data on anthropogenic practices in the agro-ecosystem of Pothwar plateau, Pakistan. <i>The Journal of Animal & Plant Sciences</i> , 26(3): 850-857 (IF: 0.448). b. BOOKS & MANUALS (Chapters) Published				
Research Grants and Contracts	Date	Title	Agency/Organization	Amount of Award (Million)	Status
1	2013-15	Role of crop field boundary vegetation in population ecology of passerine birds in Pothwar area	WWF-Pakistan	Rs. 0.600 million	P.I.
2	2014-17	Ecologically-based rodent management in croplands of Pothwar Plateau, Pakistan	HEC	Rs. 7.364 million	P.I. (till June 2016)
Other Research Creative Accomplishments	List patents, software, new products developed, etc. Nil				
Selected professional presentations	NA				

2. Faculty Resume

Name	Dr. Tariq Mahmood
Personal	Associate Professor, Department of Wildlife Management 0321-5105689; tariqjanjua75@uaar.edu.pk
Experience	Year Title Institution Since 2007 Assistant Professor PMAS-AAUR
Honor and Awards	--
Memberships	➤ IUCN Pangolin Specialist Group ➤ Society for Conservation Biology: Asia-Section ➤ Zoology Society of Pakistan
Graduate Students	Year Degree Name October 2015 Ph.D. Nausheen Irshad

	October 2015 MPhil Ayesha Younas October 2015 MPhil Ayesha Adil October 2015 MPhil Shafqat Rasool January 2016 MPhil Syed Wasif Ahmed Shah October 2016 Ph.D. Riaz Hussain
Service Activity	Teaching to M.Phil., M.Sc. and Ph.D. classes Member Departmental Admission committee Secretary Departmental Board of studies Supervising Research Students
Brief statement of research interest	I am working on various Ecological aspects of mammals and birds in the Potohar Plateau, and in other parts of the country.
Publications	Faraz Akrim, Tariq Mahmood, Muhammad Siddique Awan, Siddiqua Qasim Butt, Durr-e-Shewar, Muhammad Arslan Asadi, and Imad-Ul-Din-Zangi. 2016. Habitat preference and Roosting behavior of the Red Junglefowl <i>Gallus gallus</i> (Aves: Galliformes: Phasianidae) in Deva Vatala National Park, Azad Jammu & Kashmir, Pakistan. Journal of Threatened Taxa, 8(9): 9138-9143. Tariq Mahmood, Irfan Qadir Qadosi, Hira Fatima, Faraz Akrim and Muhammad Rais. 2016. Metal concentrations in common skittering frog (<i>Euphlyctis cyanophlyctis</i>) inhabiting Korang River, Islamabad, Pakistan. 2016. Basic and Applied Herpetology, 30: 25-38. http://dx.doi.org/10.11160/bah.16001. Shagufta Nighat, Muhammad Sajid Nadeem, Tariq Mahmood, Amjad Rashid Kayani, Muhammad Mushtaq and M. Mahmood ul Hassan. 2016. Estimation of Heavy Metals in Indian Flying Fox <i>Pteropus giganteus</i> (Brünnich, 1782) from Punjab, Pakistan. Pakistan J. Zool., 48(6): 1787-1792. (IF:0.478) Riaz Hussain and Tariq Mahmood. Comparative Ecology of two Sympatric mongoose species (<i>Herpestes javanicus</i> and <i>H. edwardsii</i>) in Pothwar Plateau, Pakistan. 2016. Pakistan J. Zool., 48(6): 1931-1943. (IF:0.478) Nausheen Irshad, Tariq Mahmood, and Muhammad Sajid Nadeem. 2015. Morpho-anatomical characteristics of Indian pangolin (<i>Manis crassicaudata</i>) inhabiting Potohar Plateau, Pakistan. Mammalia, 80(1): 103-110. (IF: 0.538) Tariq Mahmood, Nausheen Irshad, Riaz Hussain, Faraz Akrim, Iftikhar Hussain, Maqsood Anwar, Muhammad Rais, Muhammad Sajid Nadeem. 2015. Breeding habits of Indian pangolin (<i>Manis crassicaudata</i>) in Potohar Plateau, Pakistan. Mammalia. 80 (2): 231-234. (IF: 0.538) Nausheen Irshad, Tariq Mahmood, Riaz Hussain and Muhammad Sajid Nadeem. 2015. Distribution, abundance and the diet of Indian

	pangolin (<i>Manis crassicaudata</i>). Animal Biology. 65: 57-71. (IF: 0.617) Tariq Mahmood, Saida Amna Nazir, Hira Fatima, Faraz Akrim, Riaz Hussain, and *Muhammad Sajid Nadeem. 2015. Temporal variation in reproductive physiology of small Indian mongoose male (<i>Herpestes javanicus</i>) inhabiting Potohar Plateau, Pakistan. Pakistan J. Zool., 47 (5): 1263-1270. (IF: 0.478) Tariq Mahmood, Shaista Andleeb, Maqsood Anwar, Muhammad Rais, *Muhammad Sajid Nadeem, Faraz Akrim and Riaz Hussain. 2015. Distribution, abundance and vegetation analysis of the Scaly anteater (<i>Manis crassicaudata</i>) in Margalla Hills National Park Islamabad, Pakistan. The JAPS, 25 (5). 1311-1321. (IF: 0.422) Tariq Mahmood and Riaz Hussain. 2015. A Note on Nest Characteristics and Diet of the Red-headed Merlin <i>Falco chicquera</i>, Common Kestrel <i>Falco tinnunculus</i> and Saker Falcon <i>Falco cherrug</i> in Chakwal District, Potohar Plateau, Pakistan. PODOCES, 10(1)-15-20. Faraz Akrim, Muhammad Siddique Awan, Tariq Mahmood, Muhammad Zubair Anjum, Siddiqa Qasim, Jehanzeb Khalid, Durr-e-Shahwar and Shaista Andleeb. 2015. Threats to Red Junglefowl (<i>Gallus gallus murghi</i>) in Deva Vatala National Park, District Bhimber, Azad Jammu and Kashmir, Pakistan. Annual Research & Review in Biology. DOI: 10.9734/ARRB/2015/9596. Samah Bashir Kayani*, Maqsood Anwar, Muhammad Ashfaq, Iftikhar Hussain, Tariq Mahmood. 2015. Cytochrome b gene based phylogenetic studies of <i>Pangshura smithii</i> from Pakistan. Int. J. Biosci. 6(10): 57-63. Samah Bashir Kayani*, Maqsood Anwar, Iftikhar Hussain, Tariq Mahmood. 2015. Cytochrome b gene based characterization of <i>Lissemys punctata</i>. Int. J. Biosci. 6(10): 73-81. Samah Bashir Kayani1*, Maqsood Anwar1, Muhammad Ashfaq, Iftikhar Hussain1, Tariq Mahmood. 2015. Morphometric studies of the fresh water turtles from Rawalpindi Islamabad Region of Pakistan. Journal of Biodiversity and Environmental Sciences, 6(5): 228-233. Tariq Mahmood, Nausheen Irshad, and Riaz Hussain. 2014. Habitat preference and population estimates of Indian pangolin (<i>Manis crassicaudata</i>) in district Chakwal of Potohar Plateau, Pakistan. Russian Journal of Ecology, 45(1): 70-75. (IF: 0.456).
Research Grants	Date/Year Title Agency Progress 2014-2015 Captive breeding and Rearing wild and Fancy Birds” Funding Agency: PMAS-AAUR

	Progress: Continue
Other research or creative accomplishment	Supervising 5 Ph.D. Scholars at the same time for their Ph.D. Degrees.

3. Faculty Resume

Name	Dr. Muhammad Rais
Personal	Assistant Professor, Department of Wildlife Management 0332-5442050 sahil@uaar.edu.pk
Experience	Year Title Institution 2015 Assistant Professor PMAS AAUR 2007 Lecturer PMAS AAUR
Honor and Awards	--
Memberships	--
Graduate Students	Year Degree Name 2016 MPhil Misbah Razzaq 2016 MPhil Sadia Munir 2016 MPhil Saleha Abbassi 2016 MPhil Abdullah Ibrahim 2015 MPhil Nida Amjad 2014 MPhil Muhammad Jawad Jilani 2014 MPhil Muhammad Arslan Asadi 2014 MPhil Rukhsana Bibi 2014 MPhil Sidiqa Qasim
Service Activity	--
Brief statement of research interest	I am working on various aspects of herpetology in the Potohar Area, Punjab, Pakistan. I have completed three foreign trainings (USA, Australia, and India) in herpetology. I am a member of IUCN amphibian specialist group. I initiated research to document genetic diversity and radio-telemetric studies on endemic and threatened amphibians and reptiles of the area. I am currently executing two research projects (local and foreign funded) on genetic diversity, space use, habitat association, and monitoring of anuran populations.
Publications	1. Bibi, R., Rais, M., Saeed, M., Akram, A., Mahmood, T. and Anwar, M. 2016. Impacts of ammonium nitrate on survival of tadpoles of the common skittering frog (<i>Euphlyctis cyanophlyctis</i>). Basic and Applied Herpetology. 30: 39-46. 2. Mahmood, T., Qadosi, I. Q., Fatima, H., Akrim, F. Rais, M. 2016. Metal concentrations in common skittering frog (<i>Euphlyctis cyanophlyctis</i>) inhabiting Korang River, Islamabad, Pakistan. Basic and Applied Herpetology. 30: 25-28

	3. Anwar M., S. Ali, M. Rais and T. Mahmood. 2016. Breeding ecology of red jungle fowl (<i>Gallus gallus</i>) in Deva Vatala National Park, Azad Jammu & Kashmir, Pakistan. J. Appl. Agric. Biotechnol., 1(1): 59-65 4. Balouch, S., Rais, M. Hussain, I. and Ayesha Akram. 2016. Squamate diversity in different croplands of District Chakwal, Punjab. Journal of King Saud University – Science. 28: 255-260. (Citations=01) 5. Mahmood, T., Andleeb, S., Anwar, M., Rais, M., Nadeem, M. S., Akrim, F. and Hussain, R. 2015. Distribution, abundance and vegetation analysis of the scaly anteater (<i>Manis crassicaudata</i>) in Margalla Hills National Park Islamabad, Pakistan. The Journal of Animal & Plant Sciences. 25 (5): 1311-1321. (Impact factor=0.448) 6. Anwar, M., Mahmood, A., Rais, M., Hussain, I., Ashraf, N., Khalil, S. and Qureshi, B. 2015. Population Density and Habitat Preference of Indian Peafowl (<i>Pavo cristatus</i>) in Deva Vatala National Park, Azad Jammu & Kashmir, Pakistan. Pakistan Journal of Zoology. 43 (2): 237-247. (Impact factor=0.404) 7. Rais, M., A. Akram, S. M. Ali, M. A. Asadi, M. Jahangir, M. J. Jilani, and M. Anwar. 2015. Qualitative analysis of factors influencing diversity and spatial distribution of herpetofauna in Chakwal Tehsil (Chakwal District), Punjab, Pakistan. Herpetological Conservation and Biology. 10 (3): 801-110. (Impact factor=0.595) 8. Akram, A., Rais, M., Asadi, M. A., Jilani, M. J., Balouch, S., Anwar, M. and Saleem, A. 2015. Do habitat variables correlate anuran abundance in arid terrain of Rawalpindi–Islamabad Areas, Pakistan? Journal of King Saud University – Science. 27: 278–283. 9. Habiba, U., Anwar, M., Hussain, I. and Rais, M. 2015. Population density and habitat status of Punjab Urial (<i>Ovis vignei punjabiensis</i>) in Diljabba-Domeli Game Reserve, Punjab, Pakistan. The Journal of Animal & Plant Sciences. 25 (3): 650-655. (Impact factor=0.448) 10. Mahmood, T., Irshad, N., Hussain, R., Akrim, F., Hussain, I., Anwar, M., Rais, M. and Nadeem, M.S. 2015. Breeding habits of the Indian pangolin (<i>Manis crassicaudata</i>) in Potohar
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	Plateau, Pakistan. Mammalia. DOI 10.1515/mammalia-2014-0153. (Impact factor=0.681) (Citations=02)
Research Grants	Date Title Agency Progress 2015 Are anurans impacted by urbanization? Anuran monitoring and conservation in a human-dominated landscape. HEC In progress

1. Faculty Resume

Name:	Dr. Bushra Allah Rakha		
Father name:	Haji Allah Rakha		
Date of Birth:	21-09-1983		
Place of Birth:	Hasilpur distt Bahawalpur		
Citizenship:	Pakistani		
National ID:	32103-1670611-2		
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E-mail:	arbushra@uaar.edu.pk bushrauaar@gmail.com		
Experience			
S. No.	Job Title	Employer	Duration
1	Lecturer	Pir Mehr Ali Shah Arid Agriculture University Rawalpindi	09, May 20007- To date
Honor and Awards	List honors or awards for scholarship or professional activity		
Memberships	List Memberships in professional and learned Societies, indicating offices held, committees, other specific assignments		
	Member Zoological Society of Pakistan Since 2009		
	Member Asian Reproductive Biotechnology Society (ARBS) Since 2012		
	Member of Editorial Board of Journal of Physical Science and Environmental Studies		
	Member Editorial Board of Journal of Austin Gynecology Case Reports		
	Member Editorial Board of Independent Journal of Management and Production		
	Member, Society for the Study of Reproduction		
	Member, Society of Conservation Biology		
Graduate Students	List supervision of graduate students, post docs and undergraduate honors theses Showing:		

Post Docs Undergraduate students Honour Students	Year	Degree	Name/Title of Thesis/Report
	2015	M. Sc.	Time budget of captive golden pheasant (<i>Chrysolophus pictus</i>) at avian research station of PMAS AAUR.
	2015	M. Sc.	Time budget of captive common pheasant (<i>Phasianus colchicus</i>) at avian research station of PMAS AAUR.
	2015	M. Sc.	Breeding biology of lakka pigeon at avian research station-1 of PMAS AAUR.
	2015	M. Sc.	Effect of different feed additives on white silky hen at avian research station-1 of PMAS AAUR.
	2015	M. Sc.	Evaluation of commercial feeds on egg shell quality of captive Bantam hen at avian research station-1 of PMAS AAUR.
	2015	M. Sc.	Digestibility of different commercial feeds by Captive Bantam hen at avian Research station of PMAS AAUR
	2016	M. Phil. Student name?	Microbial characteristics of Indian Red Jungle Fowl spermatozoa in captivity.
	2016	M. Phil. Student name?	Population Density And Habitat Association of cape Hare (<i>Lepus Capensis</i>) In Shigar Valley, Central Karakoram National Park
	2016	M. Phil. Student name?	Effect of different formulations of bird feeds on the growth and rearing of ring-necked pheasant (<i>phasianus colchicus</i>) in captivity
Service Activity	List University and Public Service activities		
	Member of Sports Committee of Faculty of Forestry Range Management and Wildlife, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi		
	Member of Media Club of the University of Pir Mehr Ali Shah Arid Agriculture University Rawalpindi		
	Member of Departmental Board for evaluation of Research Proposal for M. Phil. And Ph.D. students		
Brief Statement of Research Interest	Animal Biotechnology especially Assisted Reproductive Technologies for the conservation of Wild animals Reproductive Physiology Wildlife Ecology		
Publications	<u>INTERNATIONAL REFREED JOURNALS:</u>		
	^{1.} S. Qadeer, M. A. Khan, M. S. Ansari, <u>Bushra Allah Rakha</u> , R. Ejaz, A.U. Husna, M. Ashiq, R. Iqbal, N. Ullah and S. Akhter. 2014. Evaluation of Antifreeze Protein III for Cryopreservation of Nili-Ravi		

	(<i>Bubalus bubalis</i>) Buffalo Bull Sperm. Anim. Reprod. Sci., 148: 26-31. 2. R. Ejaz, M. S. Ansari, B.A. Rakha, N. Ullah, A. U. Husna, R. Iqbal and S. Akhter. 2014. Arachidic acid in extender improves post-thaw parameters of cryopreserved Nili-Ravi buffalo bull semen. Reproduction in Domestic Animals. 49: 122-125. 3. Qadeer, S., M. A. Khan, M. S. Ansari, <u>Bushra Allah Rakha</u>, R. Ejaz, R. Iqbal, M. Younis, N. Ullah, Arthur L. DeVries and S Akhter. 2015. Efficiency of Antifreeze Glycoproteins for Cryopreservation of Nili-Ravi (<i>Bubalus bubalis</i>) Buffalo Bull Sperm. Animal Reproduction Science. http://dx.doi.org/10.1016/j.anireprosci.2015.03.015 4. <u>Bushra Allah Rakha</u>, M. S. Ansari, I. Hussain, M. F. Malik, S Akhter and E. Blesbois. 2015. Semen characteristics of the Indian Red Jungle Fowl (<i>Gallus gallus murghi</i>). Eur J Wildl Res. 61:379–386. 5. <u>Bushra Allah Rakha</u>, M. S. Ansari, I. Hussain, M. F. Malik and S Akhter. 2015. Impact of Ejaculate Frequencies on the Quality of Red Jungle Fowl (<i>Gallus gallus murghi</i>) Semen. Avian Biology Research. 8 (2), 2015. 6. M. S. Ansari , <u>Bushra Allah Rakha</u>, M.F. Malik, S. M. H. andrabi, N. Ullah, R. Iqbal., W. V. holt, and S Akhter. 2016. Effect of cysteine addition to the freezing extender on the progressive motility, viability, plasma membrane and DNA integrity of Nili Ravi buffalo (<i>Bubalus bubalis</i>) bull spermatozoa. J. Applied Anim. Res., 44: 36-41. 7. Ansari, M. S., <u>Bushra Allah Rakha</u>, S Akhter, M. Ashiq. 2016. OPTIXcell® improves the post thaw quality and fertility of buffalo bull sperm. Theriogenology. 85: 528-532. 8. <u>Bushra Allah Rakha</u>, M. S. Ansari, I. Hussain, M. Anwar, S Akhter and E. Blesbois. 2016. Comparison of extenders for liquid storage of Indian red Jungle fowl (<i>Gallus gallus murghi</i>) spermatozoa. Avian Biology Research 9(3); 207-212. 9. S. Qadeer, M.A. Khan, Q. Shahzad, A. Azam, M.S. Ansari, <u>Bushra Allah Rakha</u>, R. Ejaz, A.U. Husna, J.G. Duman, S. Akhter. 2016. Efficiency of beetle (<i>Dendroides canadensis</i>) recombinant antifreeze protein for buffalo semen freezability and fertility. Theriogenology, 86: 1662-1669 10. M. S. Ansari, <u>Bushra Allah Rakha</u>, S. Akhter. 2016. Effect of Thioglycol on fertility of frozen Nili-Ravi buffalo semen. Buffalo Bulletin 35(2); 277-283. 11. R. Ejaz, M. S. Ansari, <u>Bushra Allah Rakha</u>, A. U. Husna, S. Qadeer, R. Iqbal, N. Ullah and S. Akhter. 2016. Cholesterol supplementation in extender improves quality of frozen-thawed Nili-Ravi buffalo bull semen. Buffalo Bulletin 35(2); 259-68. 12. S. Akhter, S. Qadeer, M. A. Khan, M. S. Ansari, B. A. Rakha. 2016. Cryopreservation of Nili-Ravi buffalo bull sperm: The role of antifreeze glycoproteins (AFGPs). Thai Veterinary Journal 46; 91-94. 13. <u>Bushra Allah Rakha</u>, Muhammad Sajjad Ansari, S. Akhter, I. Hussain and E. Blesbois. 2016. Cryopreservation of Indian red jungle
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	fowl (<i>Gallus gallus murghi</i>) semen. <i>Animal Reproduction Science</i>. 174: 45-55. 14. U. Husna, R. Ejaz, S. Qadeer, A. Azam, <u>Bushra Allah Rakha</u>, M. S. Ansari, Q. Shahzad, M. Javed, M. H. Vazquez-Levin and S. Akhter. 2016. A comparative analysis of sperm selection procedures prior to cryopreservation for Nili-Ravi buffalo (<i>Bubalis bubalis</i>) semen: Assessment of its impact on post-thaw sperm functional quality. <i>Animal Reproduction Science</i>. 174: 29-36 <u>NATIONAL REFREED JOURNALS:</u> 15. Ansari, M. S., <u>Bushra Allah Rakha</u>, S. M. H. Andrabi, N. Ullah, R. Iqbal, W. V. Holt and S. Akhter. 2014. Thioglycol in extender improves the post-thaw quality of buffalo (<i>Bubalus bubalis</i>) bull spermatozoa. <i>J. Anim. Plant Sci</i>. 24: 1256-1259. 16. Zia, U., M. S. Ansari, S. Akhter and <u>Bushra Allah Rakha</u>. 2014. Breeding biology of red vented bulbul (<i>pycnonotus cafer</i>) in the area of rawalpindi/Islamabad. <i>J. Anim. Plant. Sci</i>. 24: 24: 656-659. 17. M. S. Ansari, <u>Bushra Allah Rakha</u>, R. Iqbal, S. Akhter. 2014. Effect of glutathione in extender on the Freezability of Sahiwal bull spermatozoa. <i>Pakistan Journal of Zoology</i>. 46: 17-21. 18. S. Akhter, <u>Bushra Allah Rakha</u>, R. Iqbal, M. S. Ansari. 2014. Effect of bovine serum albumin on motility, plasmalemma, viability and chromatin integrity of buffalo bull spermatozoa. <i>Pakistan Journal of Zoology</i>. 46: 115-120. 19. Akhter S, M. S. Ansari, <u>Bushra Allah Rakha</u>, S. M. H. Andrabi, M. Qayyum and N. Ullah. 2014. Effect of Fructose in Extender on Fertility of Buffalo Semen. Short Communication. <i>Pakistan Journal of Zoology</i>. 46: 279-281. 20. Akhter S, M. S. Ansari, <u>Bushra Allah Rakha</u>, T. Aziz, S. M. H. Andrabi, N. Ullah, M. Anwar and M. Qayyum. 2015. Effect of Milk Based Extenders on Motility and Acrosomal Integrity of Buffalo Bull (<i>Bubalus bubalis</i>) Spermatozoa at 5°C. <i>Pakistan Journal of Zoology</i>. 47: 1645-1648. 21. Fiza, Y., <u>Bushra Allah Rakha</u>, S. Akhter and M. S. Ansari. 2015. Breeding Biology of Scaly-Bellied Woodpecker, <i>Picus squamatus</i>, in Margalla Hills National Park, Pakistan. <i>Pakistan Journal of Zoology</i>. 47: 1003-1007. <u>IN PROCEEDINGS (Abstracts):</u> <u>INTERNATIONAL CONFERENCES:</u> 1. <u>Bushra Allah Rakha</u>, M. S. Ansari, I. Hussain, A. Maqsood, S. Akhter and E. Blesbois. 2016. Evaluation of extenders for short and long-term storage of Indian red jungle fowl (<i>Gallus gallus murghi</i>) spermatozoa. The 6th congress on the “Asia Pacific Initiative on Reproduction” 8-10, April 2016. Aspire, Jakarta, Indonesia. 2. S. Akhter, S. Qadeer, M. A. Khan, M. S. Ansari, <u>Bushra Allah Rakha</u>. 2016. Cryopreservation of Nili-Ravi buffalo bull sperm: The role of antifreeze glycoproteins (AFGPs). The 15th Chulalongkorn
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Research Grants and Contracts	University Veterinary Conference CUVAC 2016: Research in Practice, April 20-22, 2016, Bangkok, Thailand. 3. <u>Bushra Allah Rakha</u>, 2015. Evaluation of tris-citric acid, skim milk and sodium citrate extenders for liquid storage of Punjab urial (<i>Ovis vignei punjabiensis</i>) spermatozoa. Journal of Tissue Science and Engineering, 6 (2): 14. Proceedings of International Conference and exhibition on Tissue Preservation and Bio-Banking. July 20-22, 2015, Barcelona Spain. http://dx.doi.org/10.4172/2157-7552.S1.019 4. S. Akhter, <u>Bushra Allah Rakha</u>, M. S. Ansari, N. Kamal, S. Rani, S. Bibi, S. Naz, S. Qadeer, and M. Khalid. 2014. Effect of amino acid supplementation of extender on post-thaw quality of sahiwal bull spermatozoa. The 11th Annual Conference Asian Reproductive Biotechnology Society ARBS 2014. Thailand November 3-8, 2014, Sukosol Hotel, Bangkok. <u>NATIONAL CONFERENCES:</u> 5. M. S. Ansari, <u>Bushra Allah Rakha</u>, M. Anwar and S. Akhter. 2016. Effect of Cryopreservation on Indian Red Jungle Fowl (<i>Gallus gallus mgrghi</i>) Spermatozoa. Proceedings of the 36th International Pakistan Congress of Zoology held at University of Sindh, Jamshoro, 16-18, February 2016. 6. Rasool, A., M. Anwar, I. Hussain, M. S. Nadeem and <u>Bushra Allah Rakha</u>. 2015. Prevalence and Habitats of Carnivore Species in Riverine Forest of Dera Ghazi Khan Forest Sub-Division. Proceedings of the 36th International Pakistan Congress of Zoology held at Centre of excellence in marine biology, University of Karachi, 1-4, March 2015. 7. Asadi, M. A., M. Rais, <u>Bushra Allah Rakha</u>, A. Saleem, M. Anwar, I. Hussain, T. Mahmood, M. Saeed and M. J. Jilani. 2015. Breeding and Spatio-Temporal Variations in Abundance and Red-Wattled Lapwing (<i>Vanellus lildicus</i>) in North Punjab, Pakistan. Proceedings of the 36th International Pakistan Congress of Zoology held at Centre of excellence in marine biology, University of Karachi, 1-4, March 2015. 8. Saeed, M., M. Anwar, M. Rais, I. Hussain, <u>Bushra Allah Rakha</u>, T. Mahmood and A. R. Kayani. Baseline Study on Abundance and Habitat of White-Breasted Waterhen (<i>Amaurornis phoenicurus</i>) in Rawalpindi-Islamabad Area, Pakistan. Proceedings of the 36th International Pakistan Congress of Zoology held at Centre of excellence in marine biology, University of Karachi, 1-4, March 2015. 9. Khalil, S., M. Anwar, I. Hussain, T. Mahmood, M. Rais and <u>Bushra Allah Rakha</u>. Identification of Threats to Grey Partridge (<i>Francolinus pondicerianus</i>) in Salt Range, Punjab Pakistan. Proceedings of the 36th International Pakistan Congress of Zoology held at Centre of excellence in marine biology, University of Karachi, 1-4, March 2015.				
	Date	Title	Agency/Organization	Amount of Award (Million)	Status

	2012 - 2017	Screening of different avian egg yolks for cryopreservation of buffalo semen: a step to improve fertility in buffaloes with frozen semen (As Co-PI)	Higher Education Commission of Pakistan	4.75	On-going
	2014 - 2015	Establishment of aviary facility: wild birds	PMAS Arid Agriculture University Rawalpindi	0.147	Completed
	2016 - 2018	Evaluation of Antifreeze proteins extracted from various Sources for cryopreservation of Buffalo Spermatozoa (As Co-PI)	Higher Education Commission of Pakistan	2.4	On-going