

**Pir Mehr Ali Shah
ARID AGRICULTURE UNIVERSITY
RAWALPINDI**

DEPARTMENT OF ZOOLOGY

(M. Sc. Programme)



Self Assessment Report

4th Cycle (2012-2014)

Program Team

Dr. Mazhar Qayyum (Coordinator)

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DEPARTMENT OF ZOOLOGY/BIOLOGY

1. INTRODUCTION

Established in 1997, the Department of Zoology/Biology started its journey with the M. Sc. degree programs in Zoology and Biology. The Zoological Sciences degree programs are flexibly designed in a way to meet the requirements of students in such sub-discipline of modern Zoology as Microbiology, Animal Diversity and Zoography, Faunal Biodiversity of Pakistan, Parasitology, Reproductive Physiology/Endocrinology, Developmental Biology, Aquaculture and Fisheries, Animal Physiology, Conservation Biology and Environmental Biology. The faculty members are specialized in various fields of Zoology such as Parasitology, Microbiology, Physiology, Reproductive Physiology, Aquaculture and Fisheries and Wildlife/Ecology. The laboratories are designed in accordance with the needs of modern research in its diverse fields. Moreover, Students are encouraged to conduct coordinated research projects in collaboration with National Agriculture Research Center, Museum of Natural History, National Institute of Health, Islamabad.

SECTION-1

CRITERION-1: PROGRAM MISSION, OBJECTIVES AND OUTCOMES

The program is aimed at production of highly qualified Zoologists with specialization in one or more sub-discipline such as Parasitology/Microbiology, Reproductive Physiology/Endocrinology, Aquaculture and Fisheries and Wildlife/Ecology that qualifies the students' particular interest and expertise.

Mission Statement

The program promotes learning at all levels of biological organization (molecular, cellular, organismal, population, community, and ecosystem).

STANDARDS:

Standard 1-1: Documented measurable objectives

Objectives:

1. Attainment of learning skills with a major focus on such disciplines of classical and modern Zoology as Parasitology and Microbiology, Reproductive Physiology and Endocrinology, Aquaculture and Fisheries and Wildlife and Ecology
2. Attainment of teaching skills with emphasis on oral and written demonstrations of complex scientific ideas

Outcomes:

1. The passed out students have a command on the subject.
2. Graduates are able to seek jobs in several national teaching institutes.

Main elements to achieve objectives

1. Maintenance of a center of teaching and try for excellence in the areas of cell and molecular, organismal, ecological, evolutionary, and behavioral biology.

2. Making the major teaching efforts on a Combination of empirical and theoretical biology.
3. Maintenance of a dynamic, broad-spectrum major in the field of biological sciences that provides a promising learning experience.

TABLE-1: OBJECTIVES ASSESSMENT

S. #	Objective	How Measured	When Measured	Improvement Identified	Improvement made
1	A focus on a thorough knowledge of a specific topic dealing with one or more of the following areas: Parasitology/Microbiology, Reproductive Physiology/Endocrinology, Aquaculture and Fisheries and Wildlife/Ecology	Interview, semester examination; students Feedback from assessment proformas	While entry into the program, end of semester and course work	Curriculum update and faculty training	Specific optional courses are offered to increases knowledge of a specific sub-discipline of Zoology. The courses are given to senior faculty.
2	Acquisition of teaching skills involving oral and written explanations of complex scientific ideas	Seminars/Presentations, quizzes, papers, assignments	During course work; Mid and Final exams; presentations and field works	Only subject instructor took seminars	All the faculty members are bound to participate in seminars

TABLE-2: STANDARD 1-2: OBJECTIVES VS OUTCOMES

	Objectives		
	Sr. No.	1	2
Outcomes			
	1	**	**
	2	*	***

* Relevant

** Relevant and satisfactory

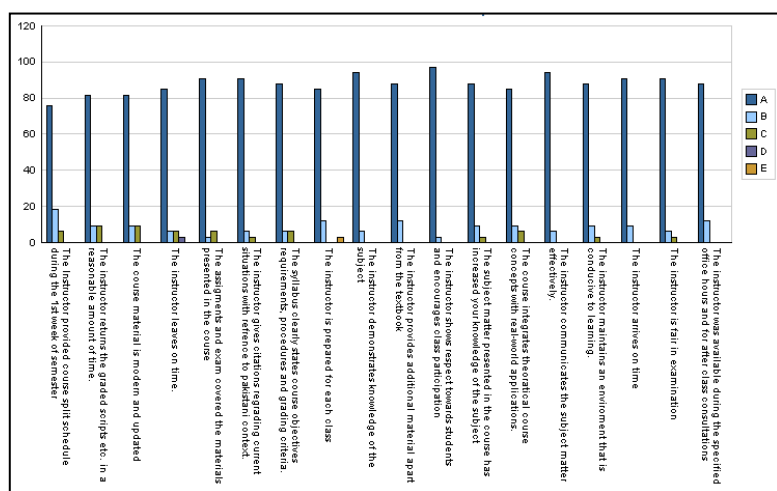
*** Highly relevant and satisfactory

Teacher Evaluation

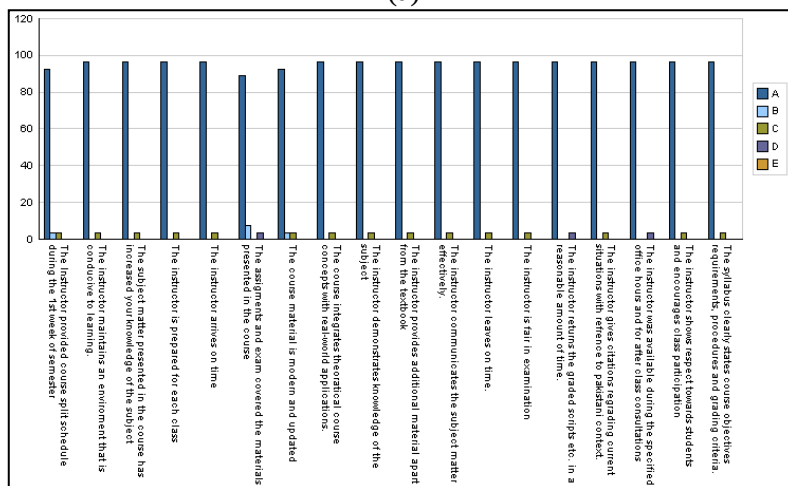
Teacher evaluation for the teachers of the Zoology/Biology department was carried out. The teachers were evaluated by the students at the end of course completion through the proforma-10 (Annex-II).

Detail of performance of each teacher is given in the following sections:

1. Evaluation of Dr. Mazhar Qayyum for Courses BIOL-709, ZOOL-713



(a)



(b)

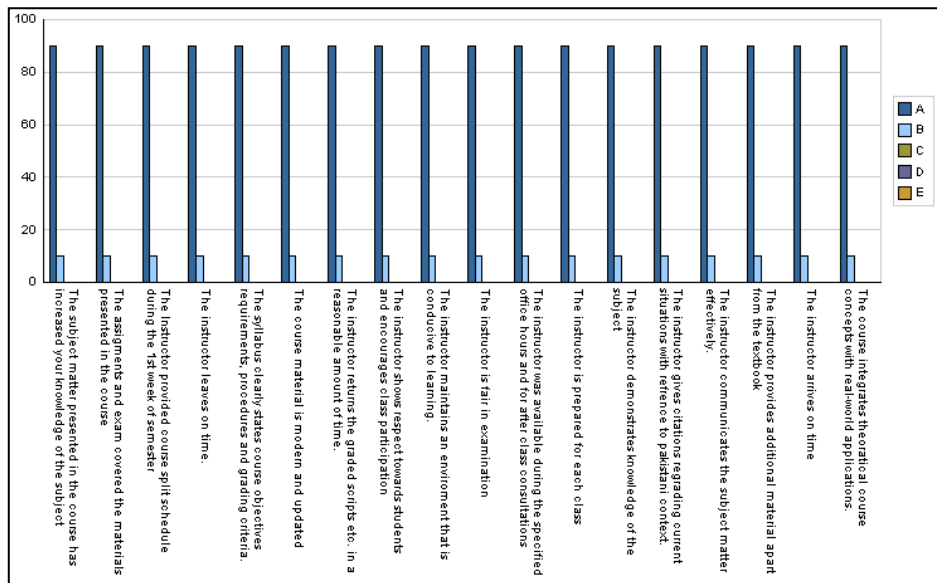
Key: A=Strongly Agree , B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

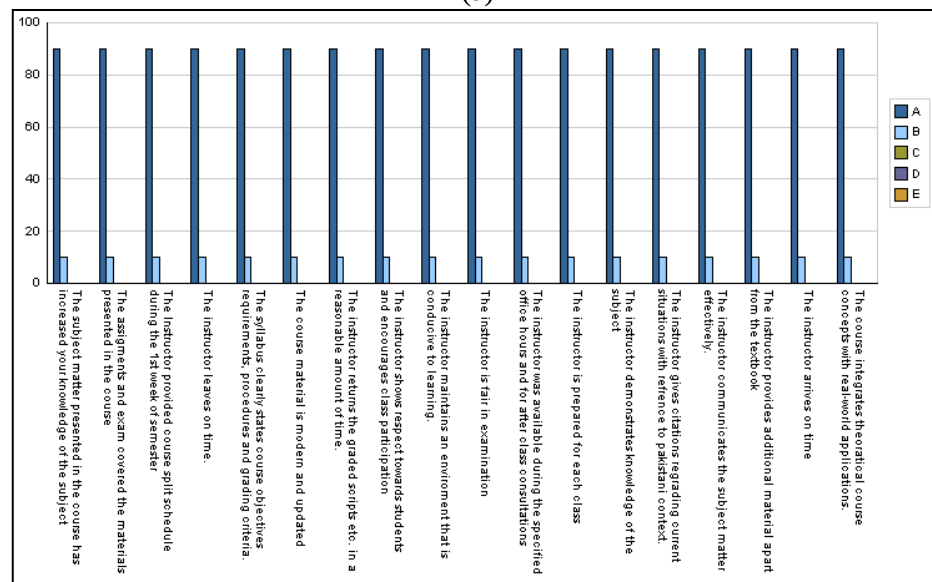
Fig. 1. Teacher Evaluation for Dr. Mazhar Qayyum for Course BIOL-709 (Fundamentals of Microbiology and Immunology)

Comments:

Instructor: Teacher is punctual, well-organized with an effective teaching method and well-prepared lectures.



(a)



(b)

Key: A=Strongly Agree , B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

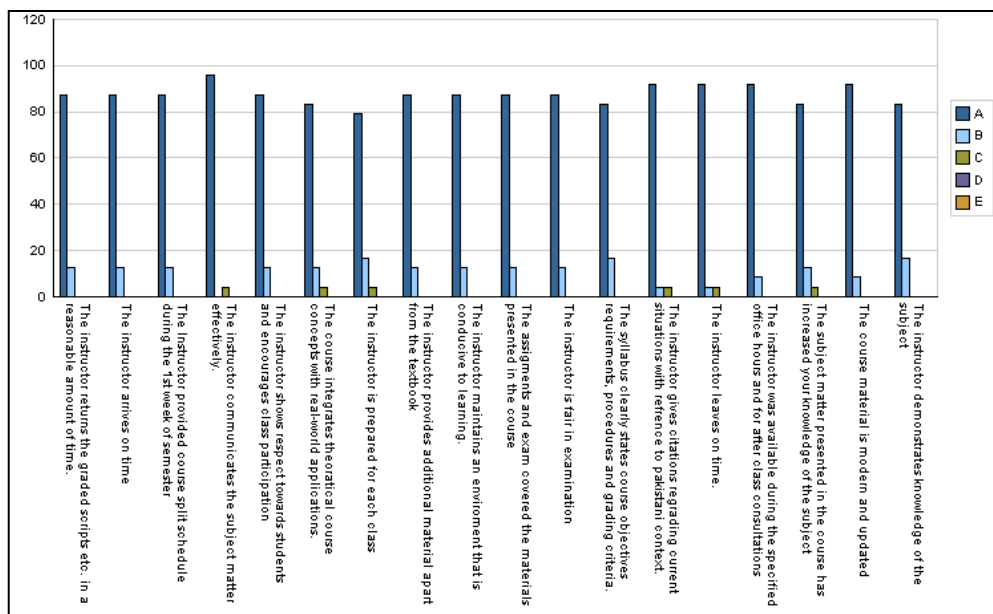
a: Section A; b: Section B

Fig. 2. Teacher Evaluation for Dr. Mazhar Qayyum for Course ZOOL-713 (Clinical Bacteriology)

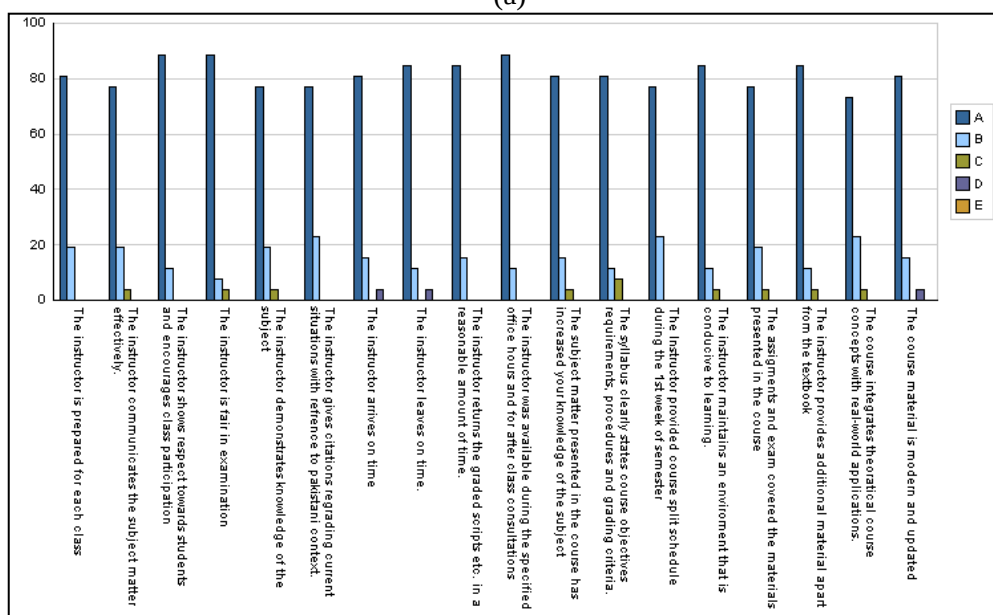
Comments:

Instructor: Teacher is punctual, well-organized with an effective teaching method and well-prepared lectures.

2. Evaluation of Dr. Shamim Akhtar for Courses ZOOL-707, ZOOL-718, BIOL-725



(a)



(b)

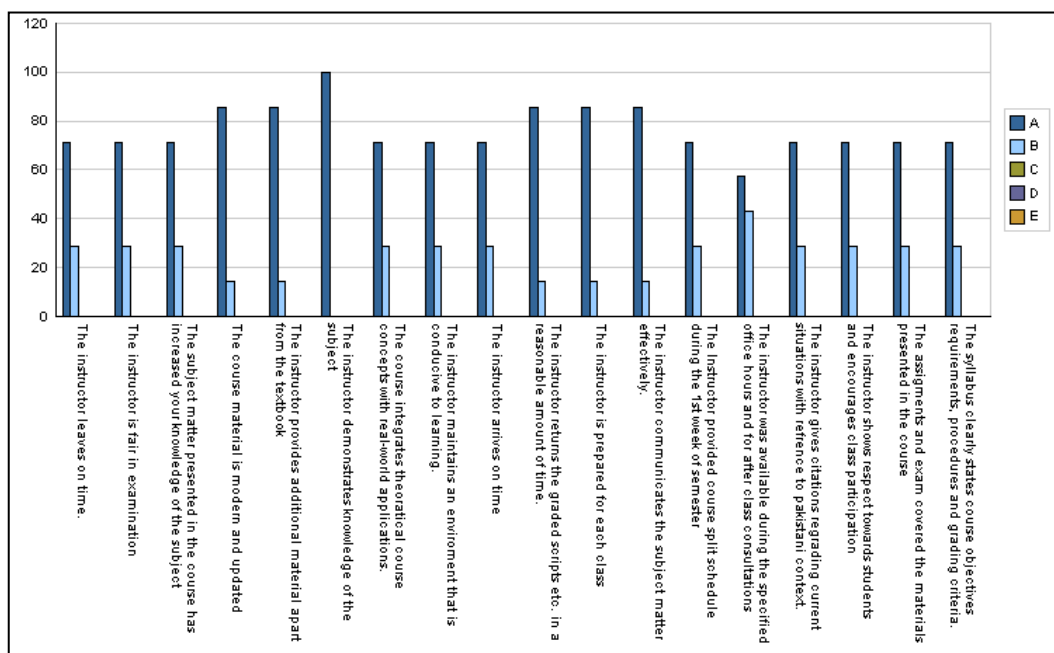
Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

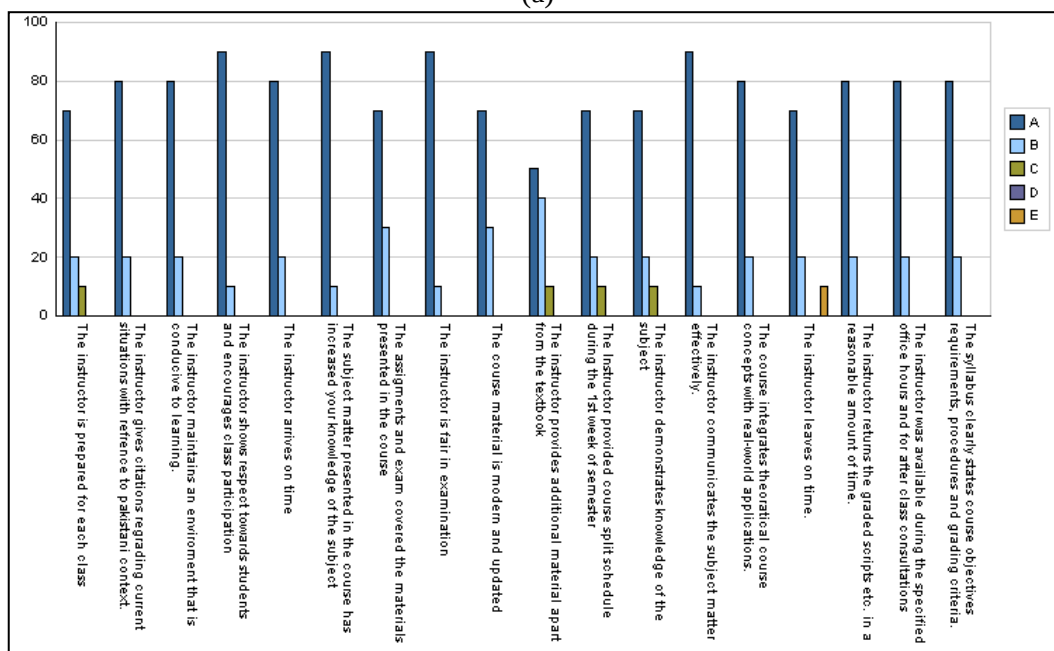
Fig. 3. Teacher Evaluation for Dr. Shamim Akhtar for Course ZOOL-707 (Comparative Endocrinology)

Comments:

Instructor: Teacher is professional, hardworking, caring with an effective teaching method and well-prepared lectures.



(a)



(b)

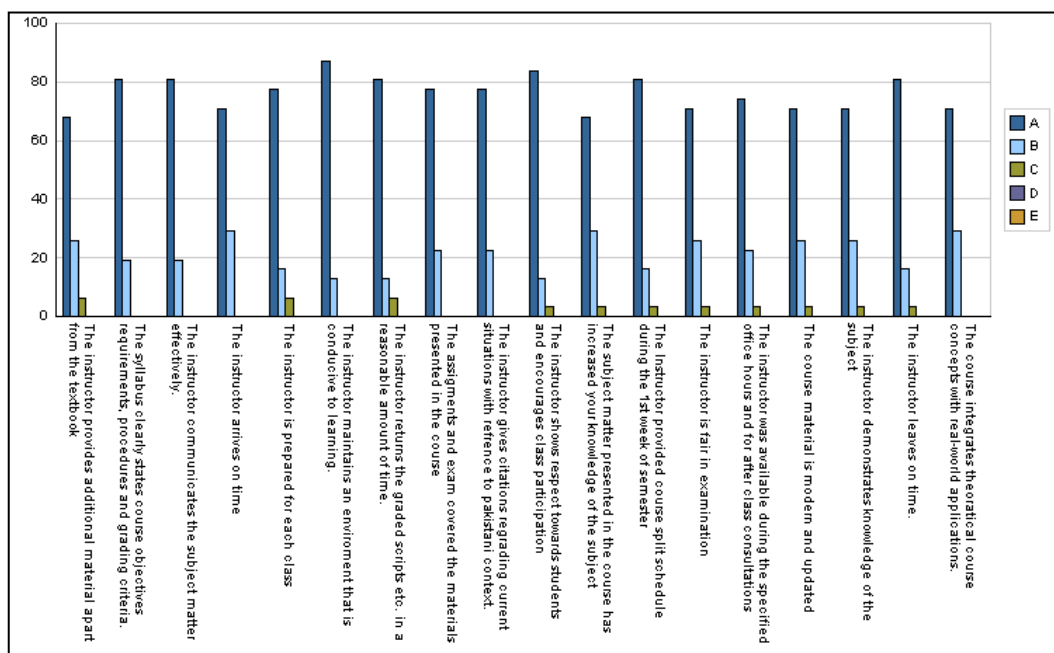
Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

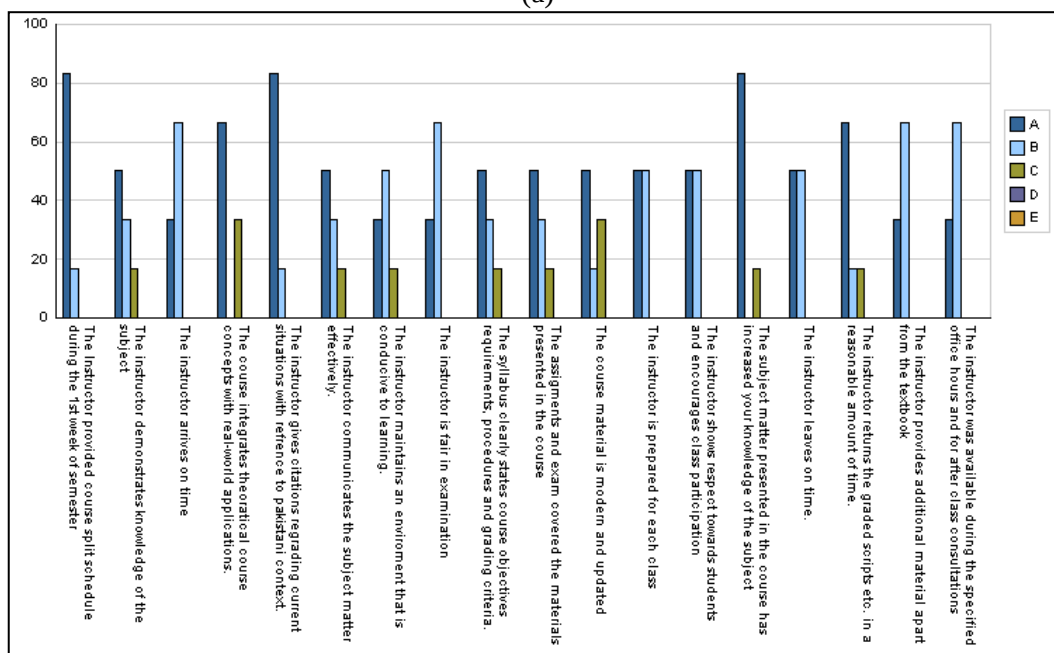
Fig. 4. Teacher Evaluation for Dr. Shamim Akhtar for Course ZOOL-718 (Applied Reproductive Physiology)

Comments:

Instructor: Teacher is professional, hardworking, caring with an effective teaching method and well-prepared lectures.



(a)



Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

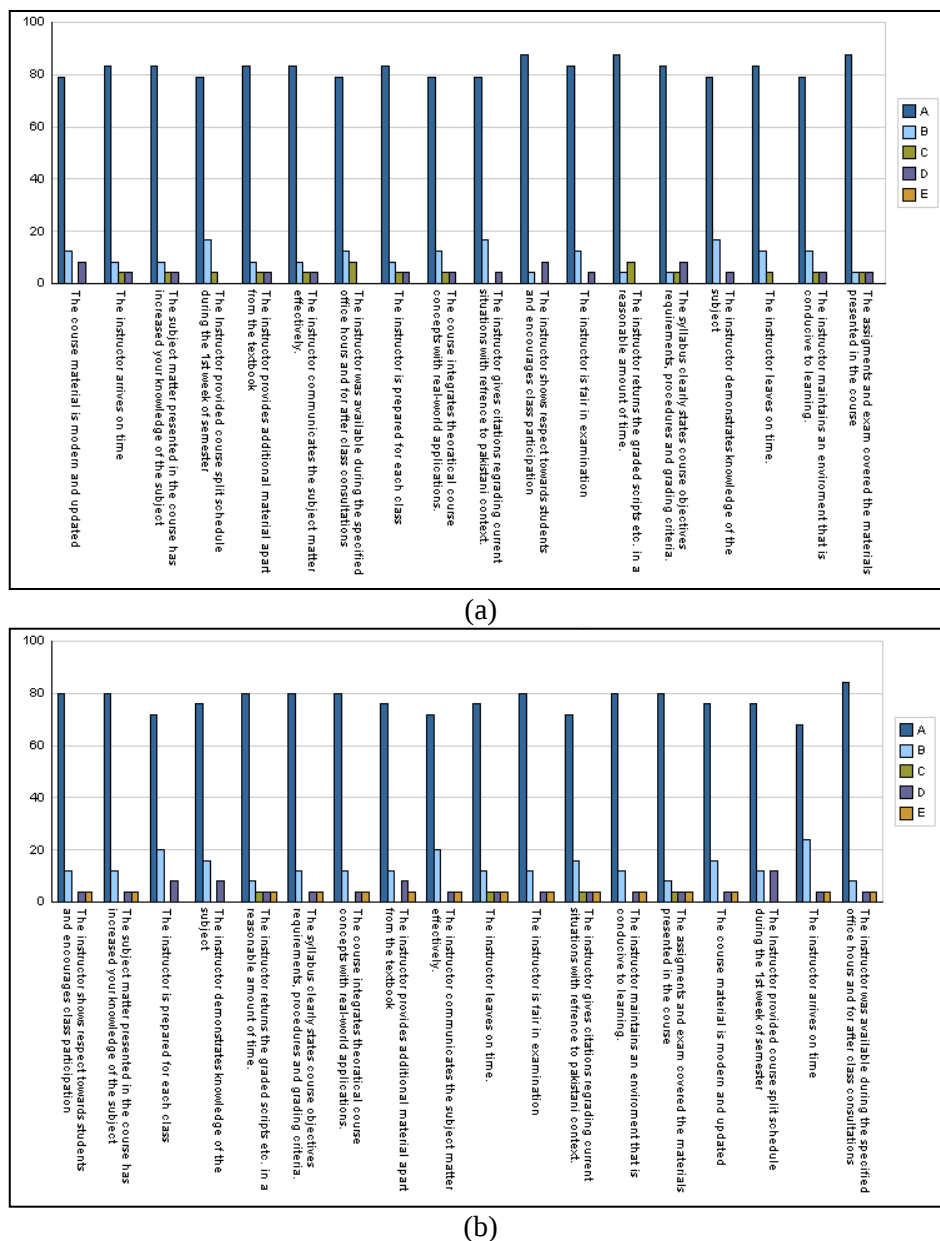
a: Section A; b: Section B

Fig. 5. Teacher Evaluation for Dr. Shamim Akhtar for Course BIOL-725 (Animal Reproductive Biology)

Comments:

Instructor: Teacher is professional, hardworking, caring with an effective teaching method and well-prepared lectures.

3. Evaluation of Dr. Farhana Riaz Ch. for Courses ZOOL-710, ZOOL-727



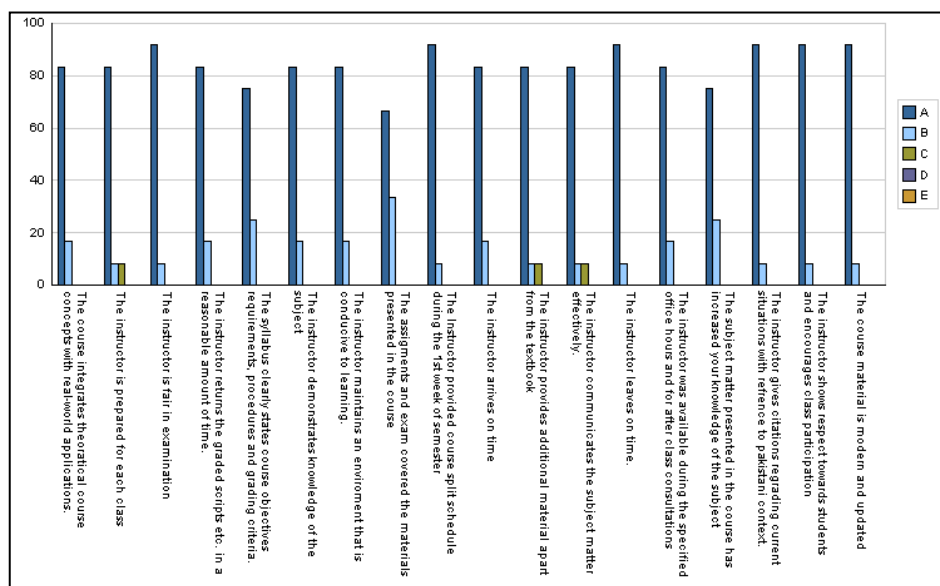
Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

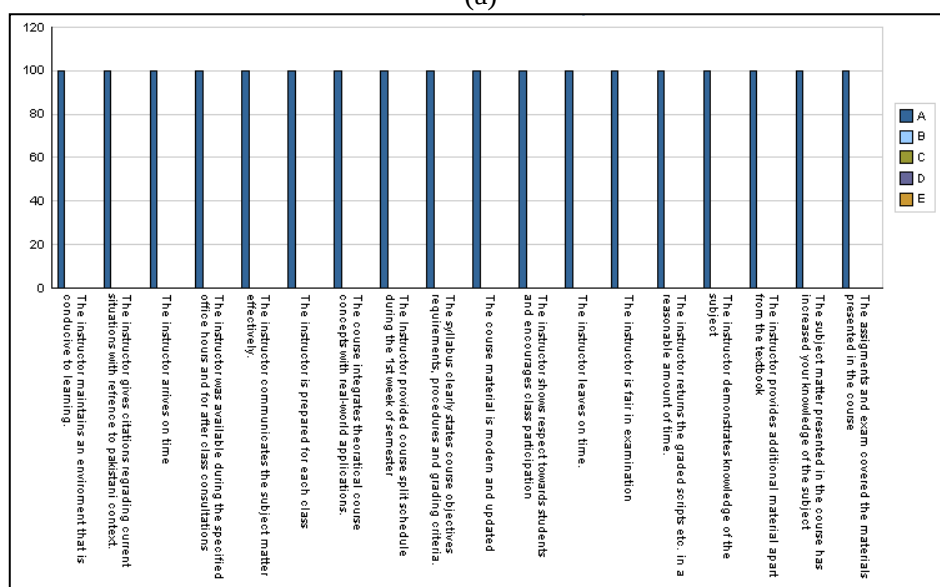
Fig. 6. Teacher Evaluation for Dr. Farhana Riaz Ch for Course ZOOL-710 (Parasitology)

Comments:

Instructor: Teacher is professional, hardworking, caring with an effective teaching method and well-prepared lectures.



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

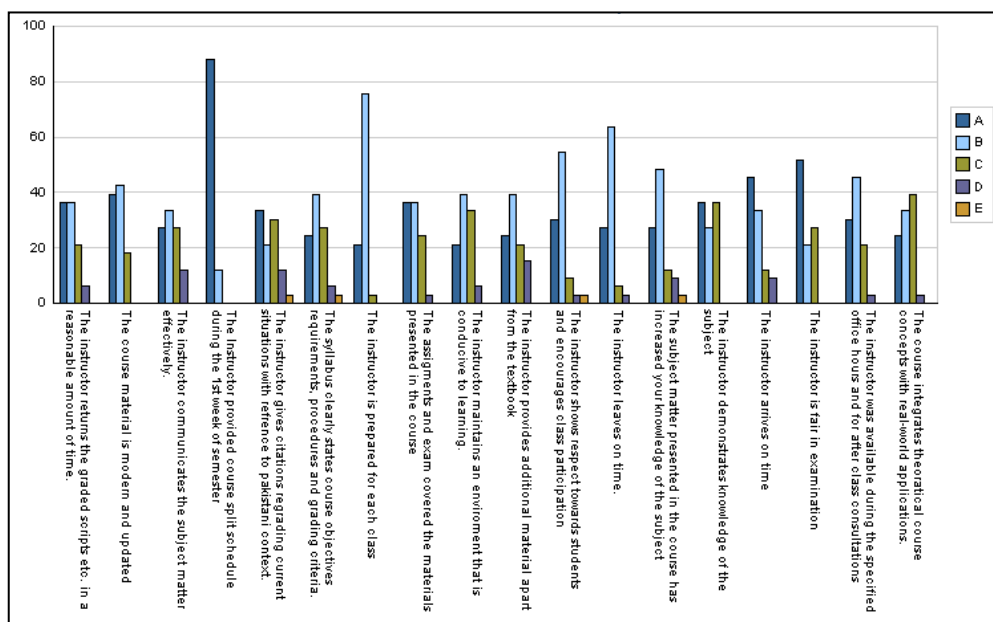
Fig. 7. Teacher Evaluation for Dr. Farhana Riaz Ch for Course ZOOL-727 (Epidemiology of Animal Parasites)

Comments:

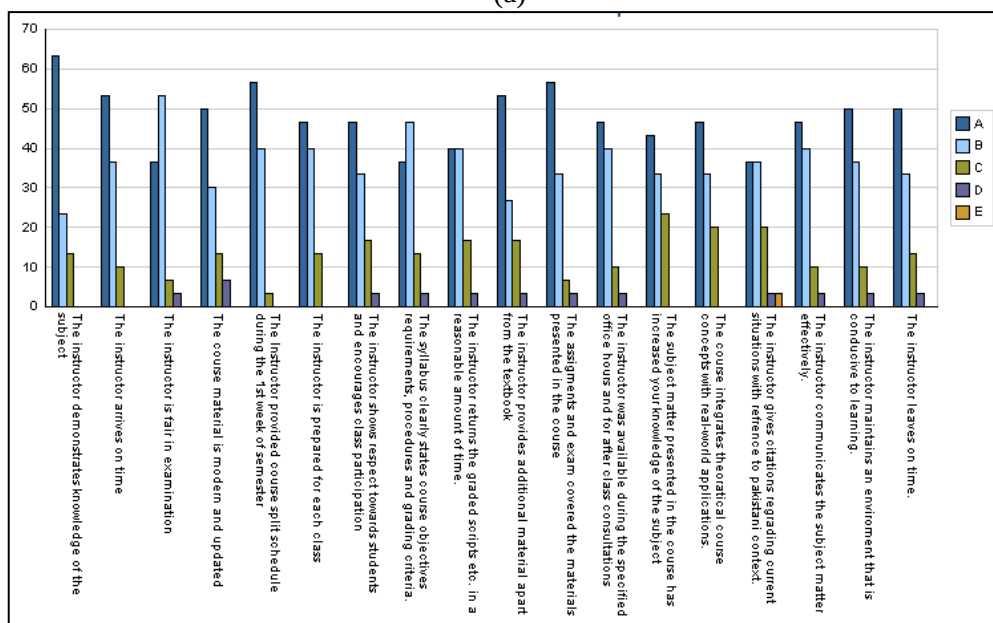
Instructor: Teacher is professional, hardworking, caring with an effective teaching method and well-prepared lectures.

4. Evaluation of Dr. Amjad Rashid Kiyani for Courses BIOL-705, ZOOL-705, ZOOL-

738



(a)



(b)

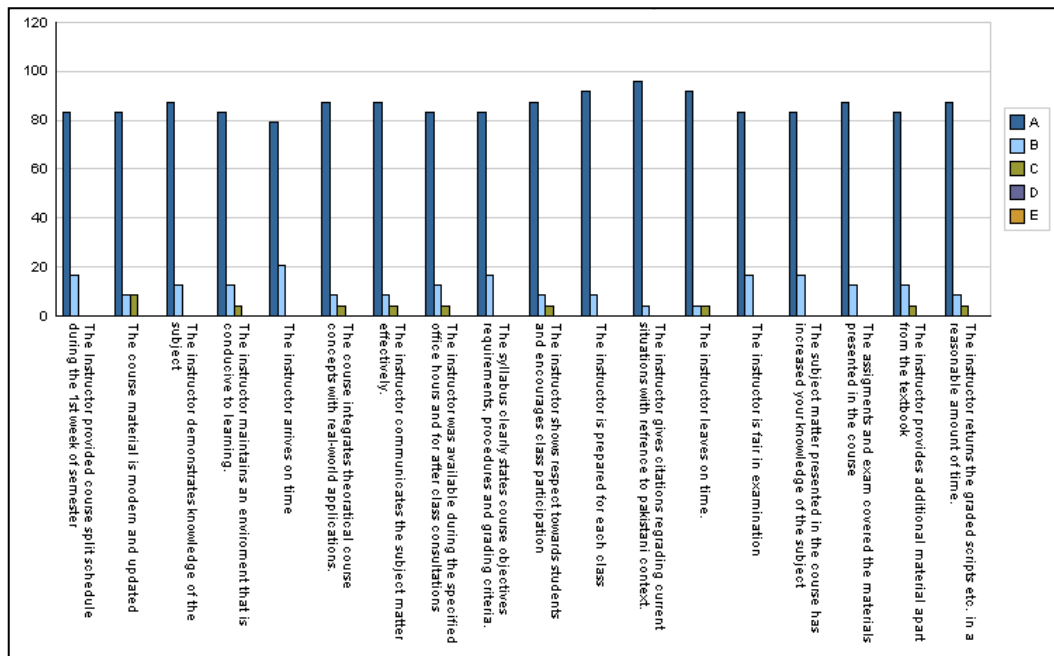
Key: A=Strongly Agree , B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

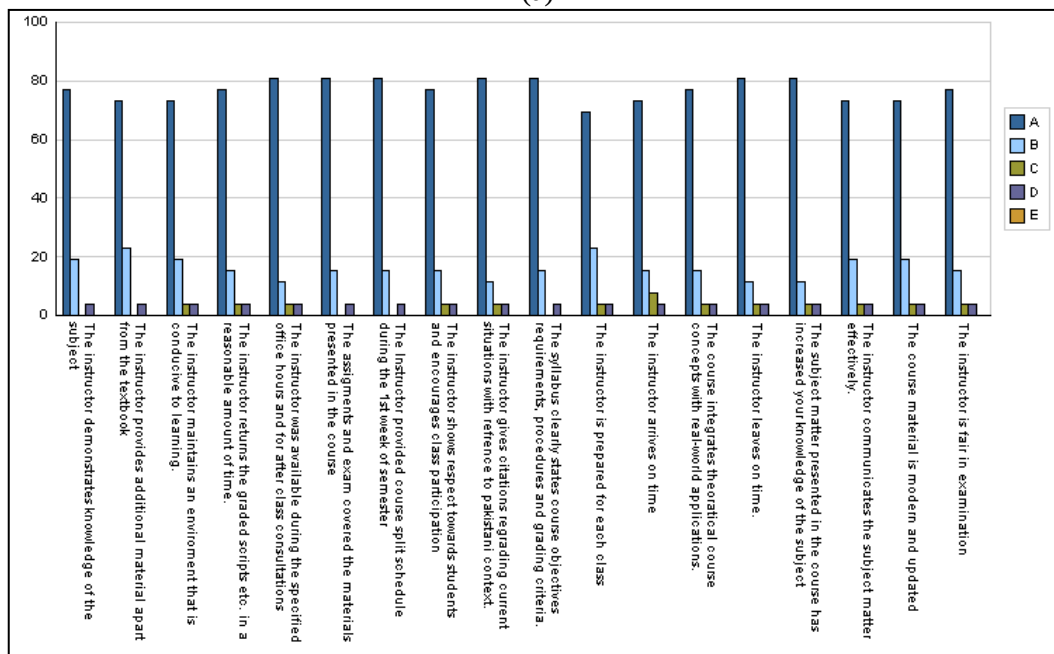
Fig. 8. Teacher Evaluation for Dr. Amjad Rashid Kiyani for Course BIOL-705 (Evolutionary Biology)

Comments:

Instructor: Teaching method good, well prepared for lectures, fair with profession.



(a)



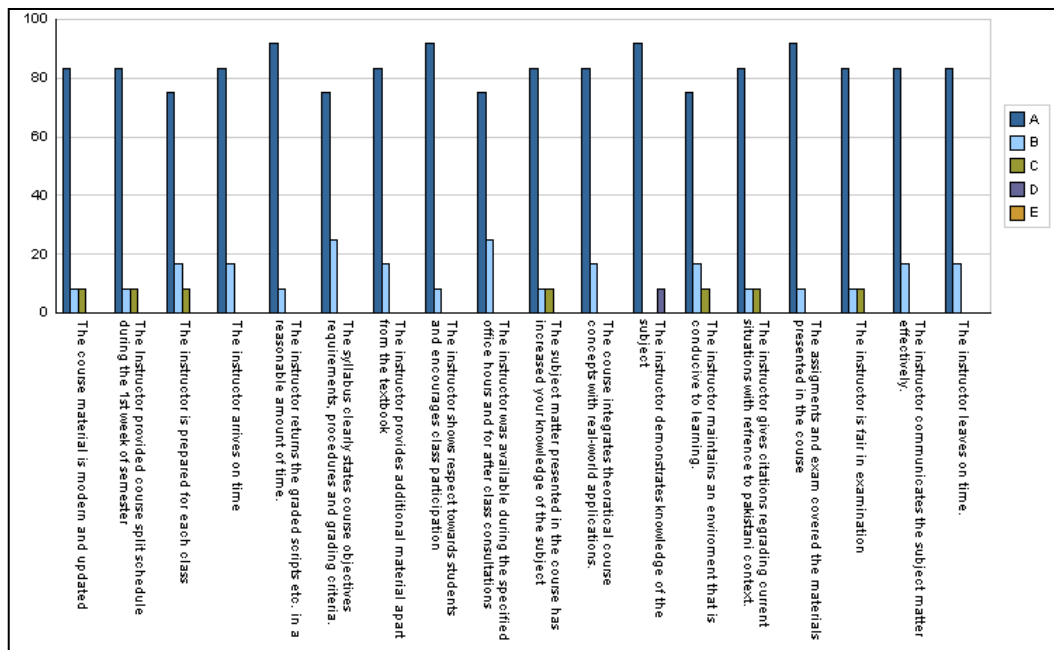
(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree
a: Section A; b: Section B

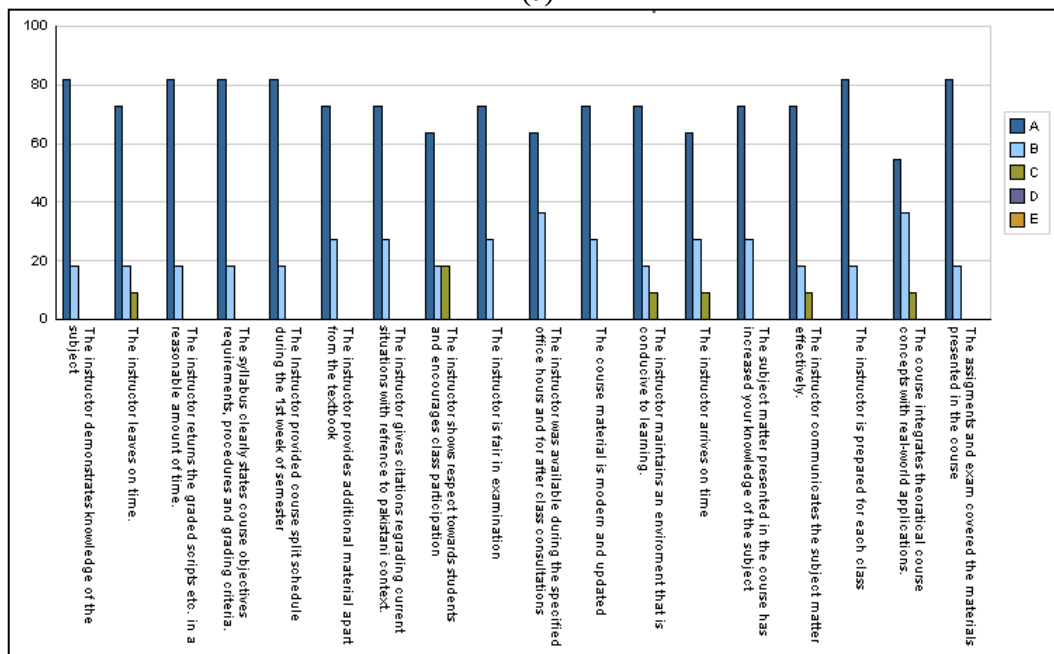
Fig. 9. Teacher Evaluation for Dr. Amjad Rashid Kiyani for Course ZOOL-705 (Animal Behaviour)

Comments:

Instructor: Teaching method good, well prepared for lectures, fair with profession.



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

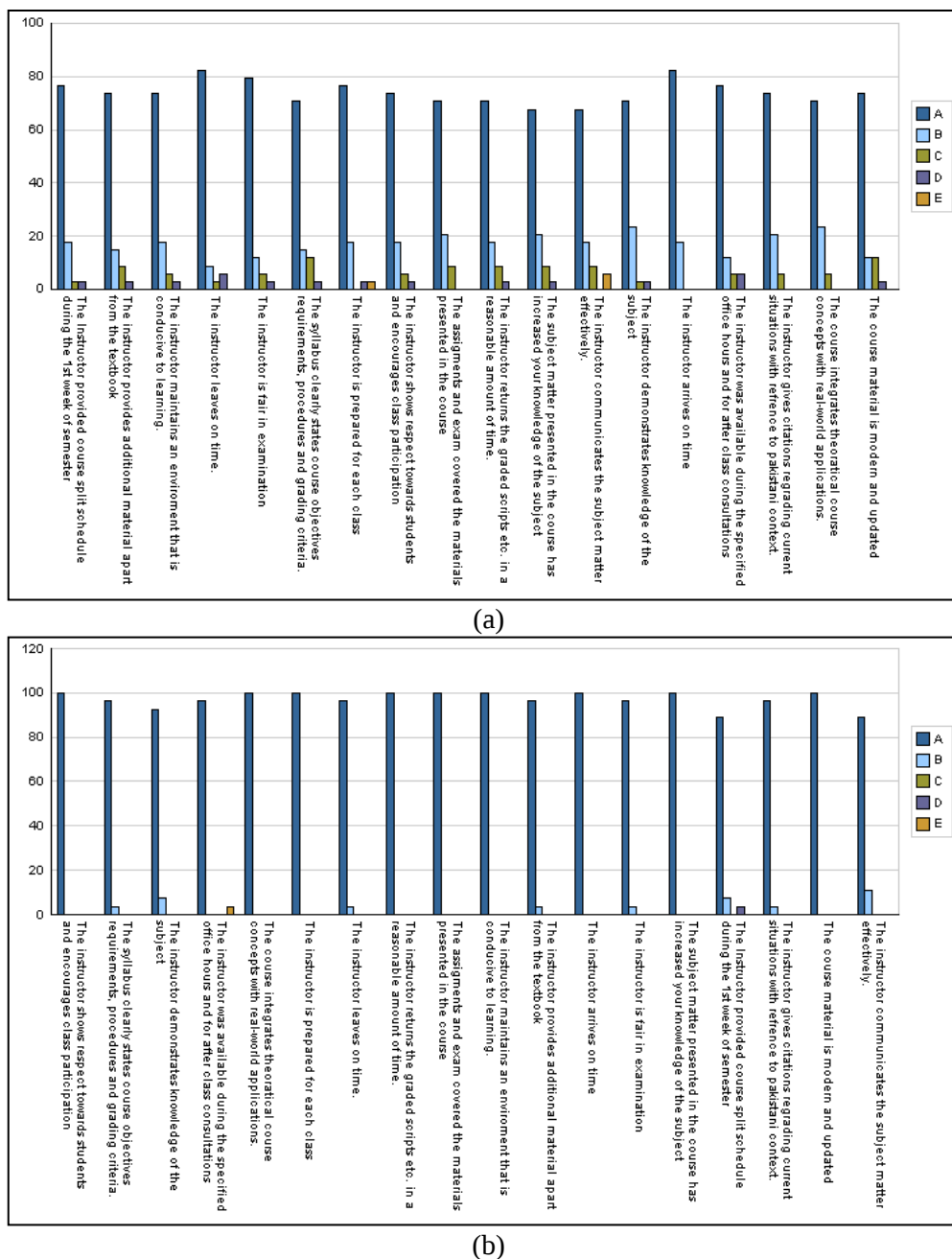
a: Section A; b: Section B

Fig. 10. Teacher Evaluation for Dr. Amjad Rashid Kiyani for Course ZOOL-738 (Wildlife Ecology)

Comments:

Instructor: Teaching method good, well prepared for lectures, fair with profession.

5. Evaluation of Dr. M. Mushtaq for Courses ZOOL-702, ZOOL-722



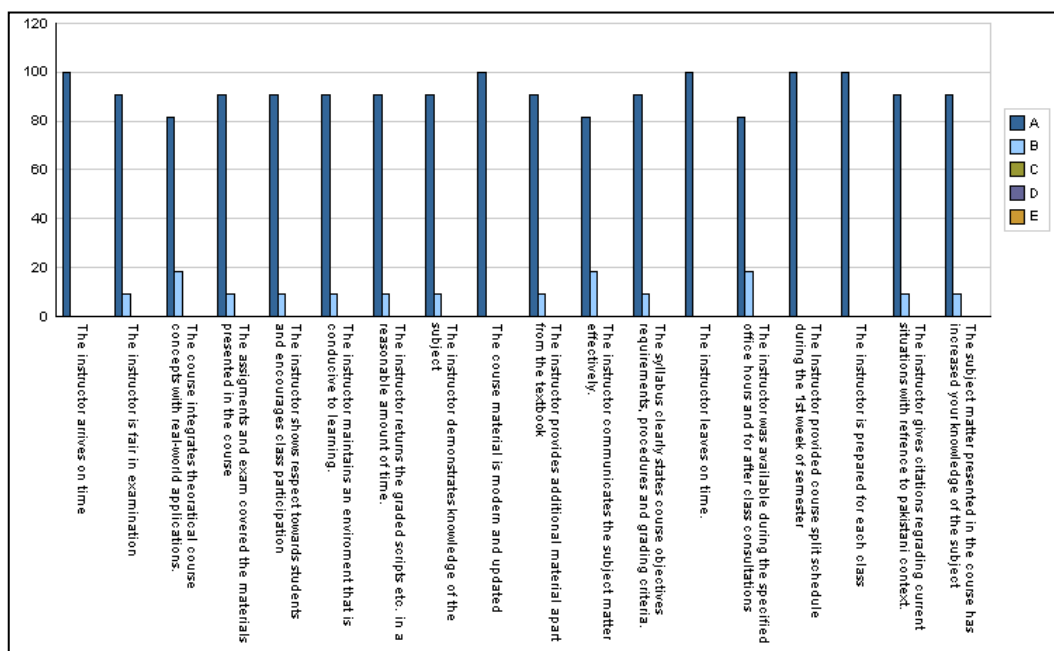
Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

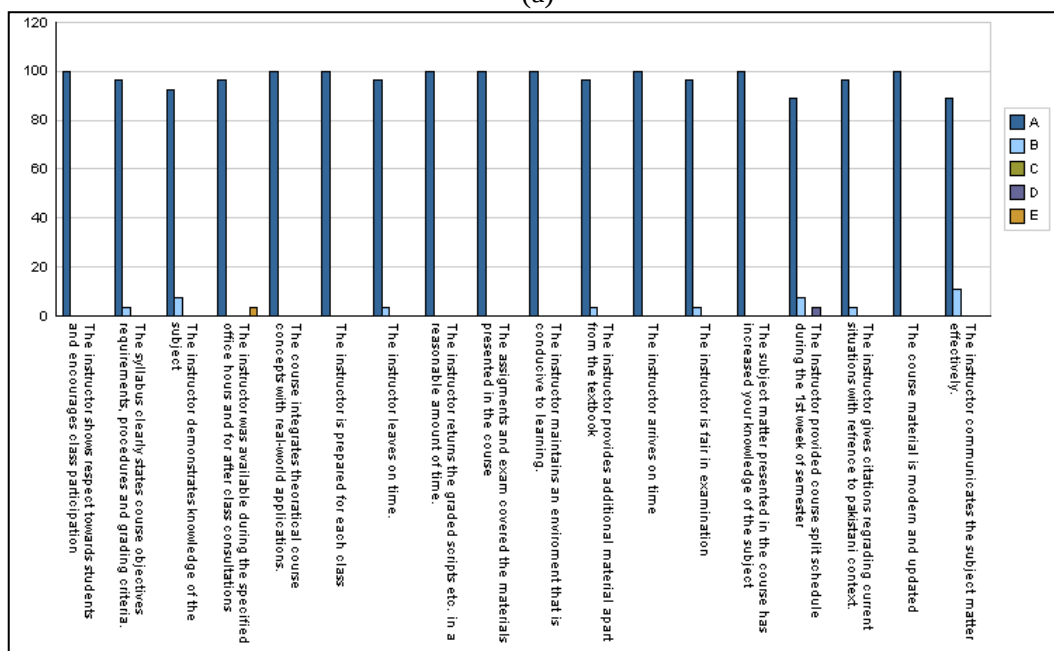
Fig. 11. Teacher Evaluation for Dr. Muhammad Mushtaq for Course ZOOL-702 (Animal Diversity and Zoogeography)

Comments:

Instructor: Cooperative with an effective Teaching method, well-organized and professional, prepared for lectures.



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

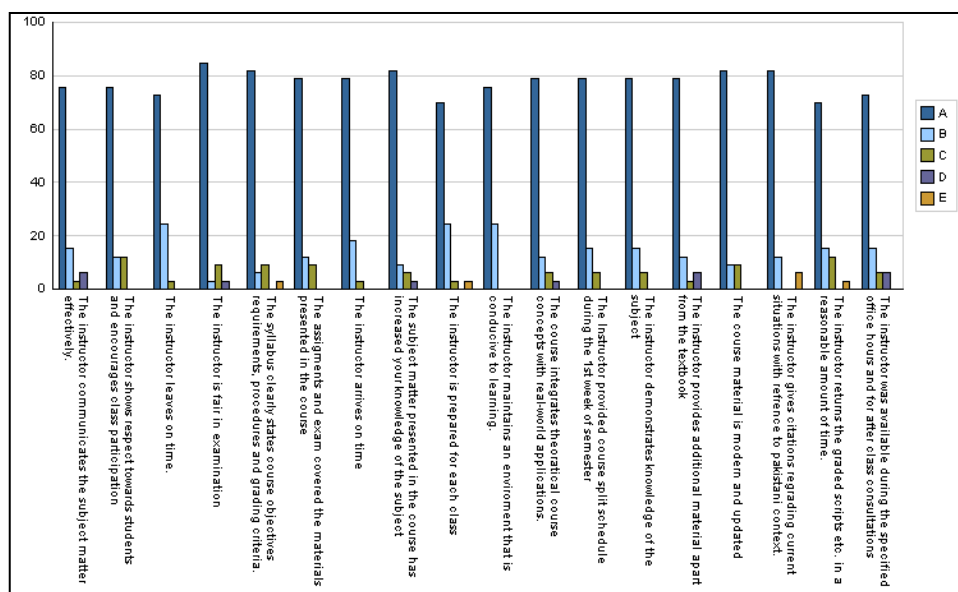
a: Section A; b: Section B

Fig. 12. Teacher Evaluation for Dr. Muhammad Mushtaq for Course ZOOL-722 (Wildlife Conservation and Management)

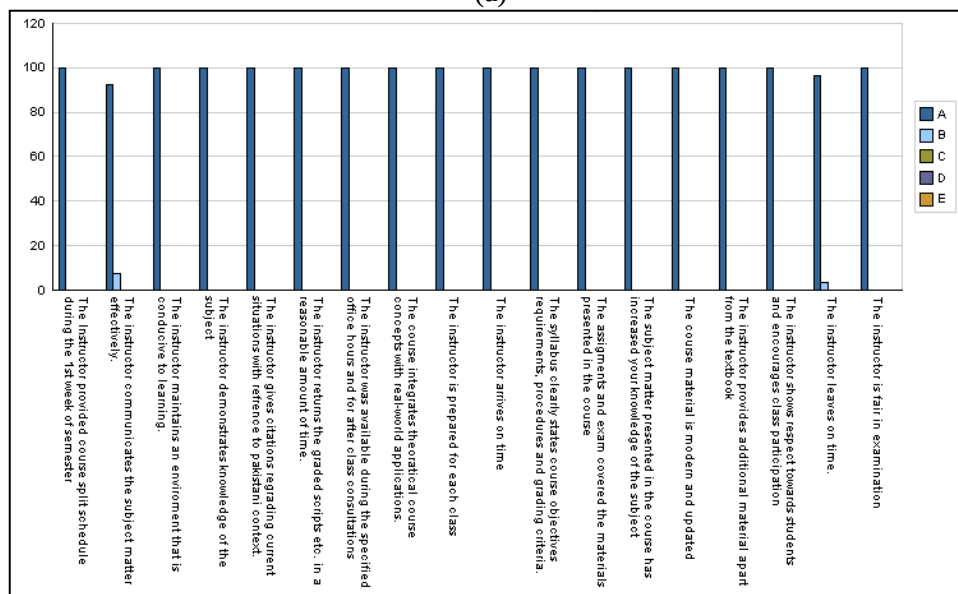
Comments:

Instructor: Cooperative with an effective Teaching method, well-organized and professional, prepared for lectures.

6. Evaluation of Dr. Zubair Anjum for Courses ZOOL-708, ZOOL-723



(a)



(b)

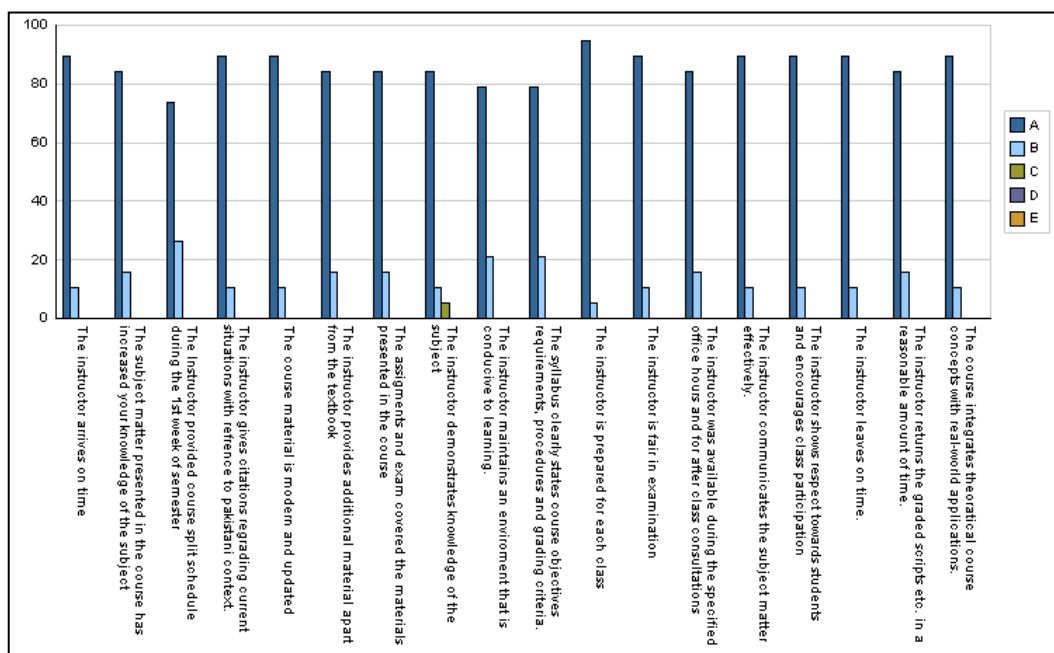
Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

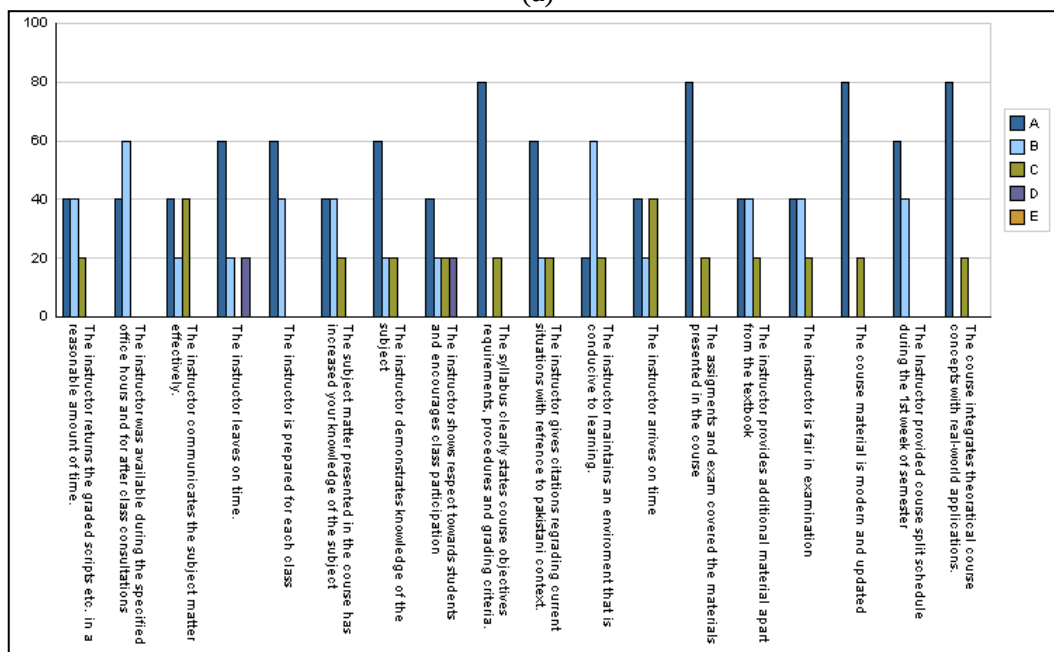
Fig. 13. Teacher Evaluation for Dr. M. Zubair Anjum for Course ZOOL-708 (Aquaculture and Fisheries)

Comments:

Instructor: Cooperative with an effective Teaching method, prepared for lectures, fair with profession.



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

Fig. 14. Teacher Evaluation for Dr. M. Zubair Anjum for Course ZOOL-723 (Aquaculture System Management)

Comments:

Instructor: Cooperative with an effective Teaching method, prepared for lectures, fair with profession.

Course Evaluation

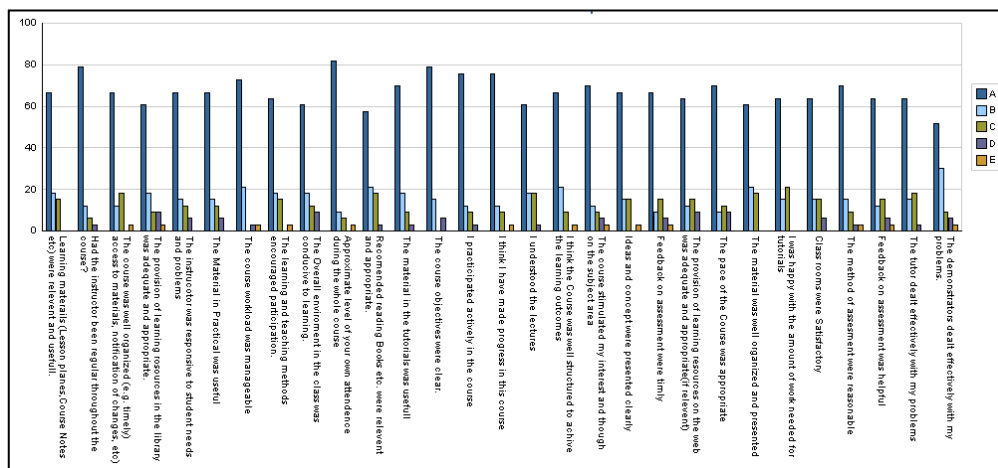
Course evaluation for the courses taught in M.Sc. Program of the Zoology/Biology department was carried out. This evaluation was performed by the students at the end of course completion through the proforma-10 (Annex-I).

List of the courses evaluated for M.Sc. is given below:

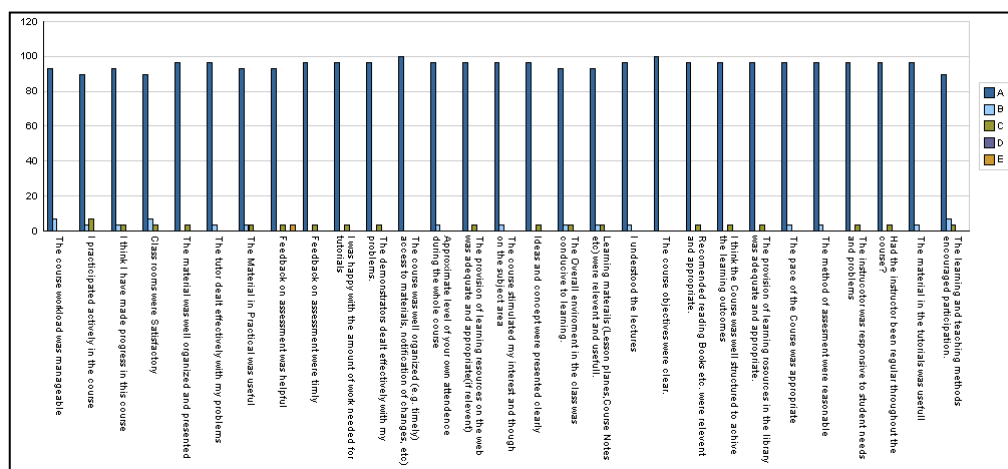
#	Code	Course Title	Teacher
1	ZOOL-702	Animal Diversity and Zoogeography	Dr. Muhammad Mushtaq
2	ZOOL-705	Animal Behavior	Dr. Amjad Rashid Kiyani
3	ZOOL-707	Comparative Endocrinology	Dr. Shamim Akhtar
4	ZOOL-708	Aquaculture and Fisheries	Dr. M. Zubair Anjum
5	ZOOL-710	Parasitology	Dr. Farhana Riaz Ch.
6	ZOOL-713	Clinical Bacteriology	Dr. Mazhar Qayyum
7	ZOOL-718	Applied Reproductive Physiology	Dr. Shamim Akhtar
8	ZOOL-722	Wildlife Conservation and Management	Dr. M. Sajid Nadeem
9	ZOOL-723	Aquaculture System Management	Dr. M. Zubair Anjum
10	ZOOL-727	Epidemiology of Animal Parasites	Dr. Farhana Riaz Ch.
11	ZOOL-738	Wildlife Ecology	Dr. Amjad Rashid Kayani

Evaluation of each course is given in detail in the following sections:

1. Evaluation of Course ZOOL-702



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

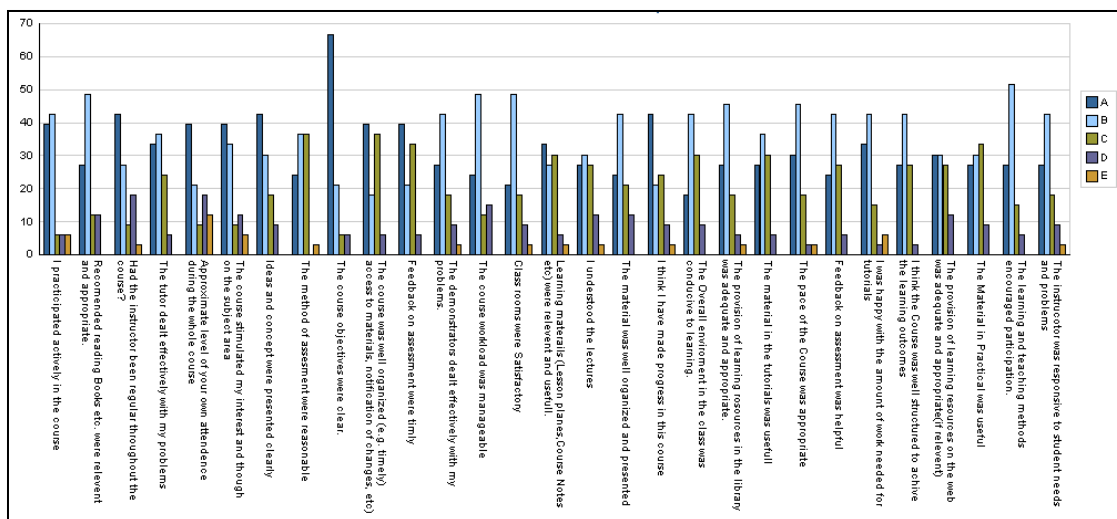
Fig. 15. Course Evaluation of ZOOL-702

General comments about the course: The results showed satisfaction of majority of students for the course.

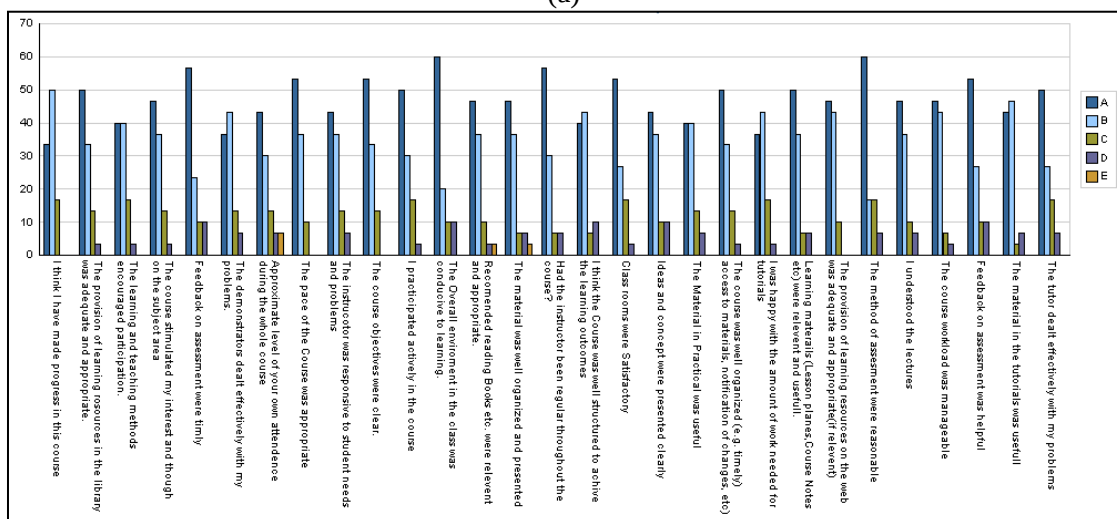
Strengths: The practical, updated, advance knowledge was given.

Weaknesses: Student-teacher interactive discussion into new research insights should be encouraged.

2. Evaluation of Course ZOOL-705



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

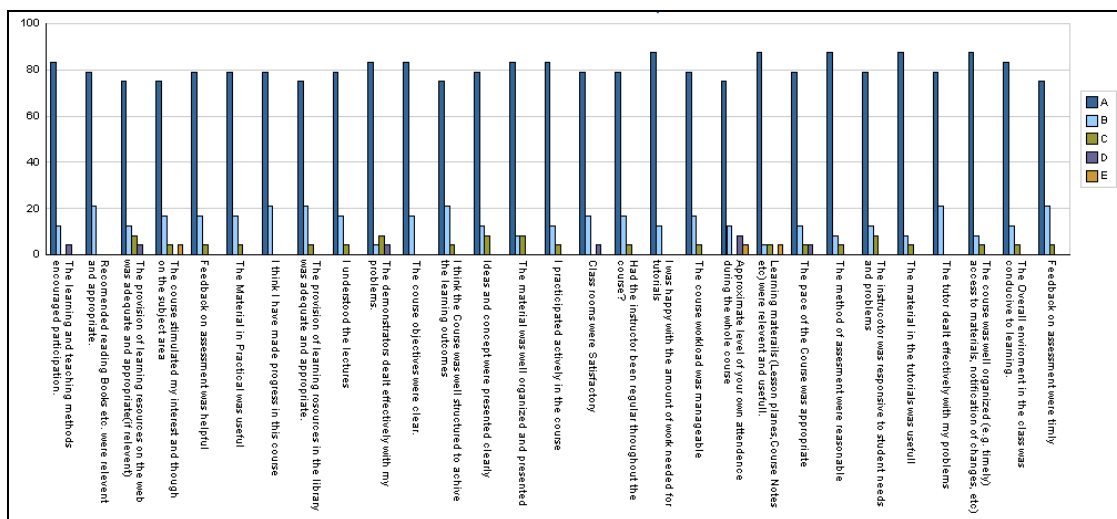
Fig. 16. Course Evaluation of ZOOL-705

General comments about the course: The results showed satisfaction of majority of students for the course.

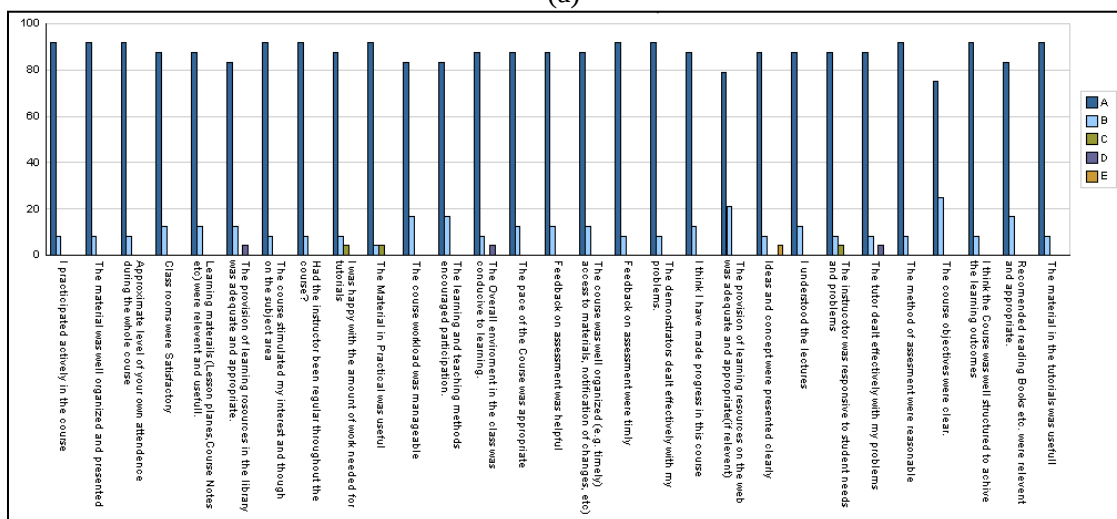
Strengths: Students have found this course to be very interesting.

Weaknesses: Audio-visual aids

3. Evaluation of Course ZOOL-707



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

Fig. 17. Course Evaluation of ZOOL-707

General comments about the course: The results showed satisfaction of majority of students for the course.

Strengths: The course content was well-sequenced and understandable.

Weaknesses: Lack of reference books.

Statement	A	B	C	D	E
The pace of the Course was appropriate	70	18	8	2	2
The course objectives were clear.	88	5	5	0	0
The Material in Practical was useful	79	15	5	1	0
The tutor dealt effectively with my problems	79	8	1	0	0
Idea's and concept were presented clearly	88	5	5	0	0
I was happy with the amount of work needed for tutorials	79	10	5	2	0
The instructor was responsive to student needs and problems	81	10	5	0	0
I understood the lectures	81	10	5	0	0
The method of assessment were reasonable	79	15	5	0	0
Learning materials (Lesson Plan, Notes, etc) were relevant and useful.	79	15	5	0	0
I think I have made progress in this course	84	10	5	0	0
I participated actively in the course	84	10	5	0	0
Appropriate level of your own attendance during the whole course	91	5	2	0	0
The course workload was manageable	73	24	1	0	0
Had the instructor been regular throughout the course?	84	8	5	0	0
The Overall environment in the class was conducive to learning.	79	10	5	0	0
The demonstrators dealt effectively with my problems.	73	18	5	0	0
The material in the tutorials was useful	79	15	5	0	0
The course stimulated my interest and though on the subject area	69	20	5	0	0
The provision of learning resources on the web was adequate and appropriate (if relevant)	79	15	5	0	0
The provision of learning resources in the library was adequate and appropriate.	76	12	5	0	0
Recommended reading Books etc. were relevant and appropriate.	81	10	5	0	0
The learning and teaching methods encouraged participation.	81	10	5	0	0
The course was well organized (e.g. timely access to materials, notification of changes, etc)	71	20	5	0	0
Feedback on assessment was helpful	79	18	3	0	0
Feedback on assessment were timely	73	18	5	0	0
I think the Course was well structured to achieve the learning outcomes	79	15	5	0	0

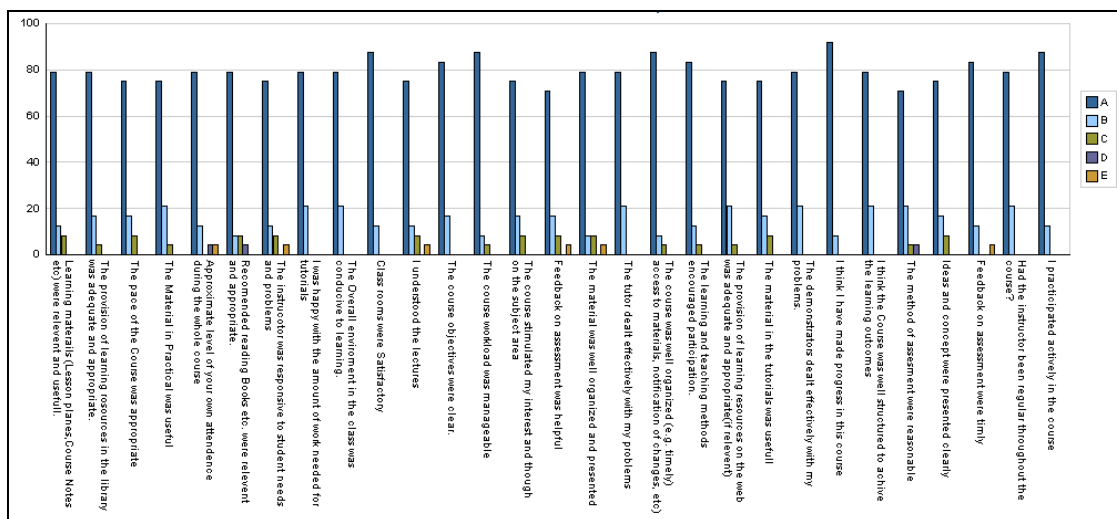
Statement	A (%)	B (%)	C (%)	D (%)	E (%)
The demonstrators dealt effectively with my problems.	100	0	0	0	0
I understood the lectures	95	0	0	0	5
I was happy with the amount of work needed for tutorials	100	0	0	0	0
The instructor was responsive to student needs and problems	98	0	0	0	2
Feedback on assessment was helpful	98	0	0	0	2
The provision of learning resources in the library was adequate and appropriate.	100	0	0	0	0
Class rooms were satisfactory	100	0	0	0	0
The Overall environment in the class was conducive to learning.	98	0	0	0	2
The course was well organized (e.g. timely access to materials, notification of changes, etc)	98	0	0	0	2
The provision of learning resources on the web was adequate and appropriate(If relevant)	98	0	0	0	2
I participated actively in the course	95	0	0	0	5
The course workload was manageable	100	0	0	0	0
The method of assessment was reasonable	88	0	0	0	12
The pace of the Course was appropriate	98	0	0	0	2
I think the Course was well structured to achieve the learning outcomes	95	0	0	0	5
The tutor dealt effectively with my problems	100	0	0	0	0
The material in the tutorials was useful	98	0	0	0	2
Had the instructor been regular throughout the course?	100	0	0	0	0
Learning materials (Lesson Plans,Course Notes etc) were relevant and useful.	98	0	0	0	2
I think I have made progress in this course	95	0	0	0	5
The Material in Practical was useful	100	0	0	0	0
The material was well organized and presented	98	0	0	0	2
Feedback on assessment were timely	92	0	0	0	8
The course objectives were clear.	100	0	0	0	0
Ideas and concepts were presented clearly	95	0	0	0	5
The course stimulated my interest and though on the subject area	100	0	0	0	0
Recommended reading Books etc. were relevant and appropriate	98	0	0	0	2
The learning and teaching methods encouraged participation.	100	0	0	0	0
Approximate level of your own attendance during the whole course	92	0	0	0	8

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree
a: Section A; b: Section B

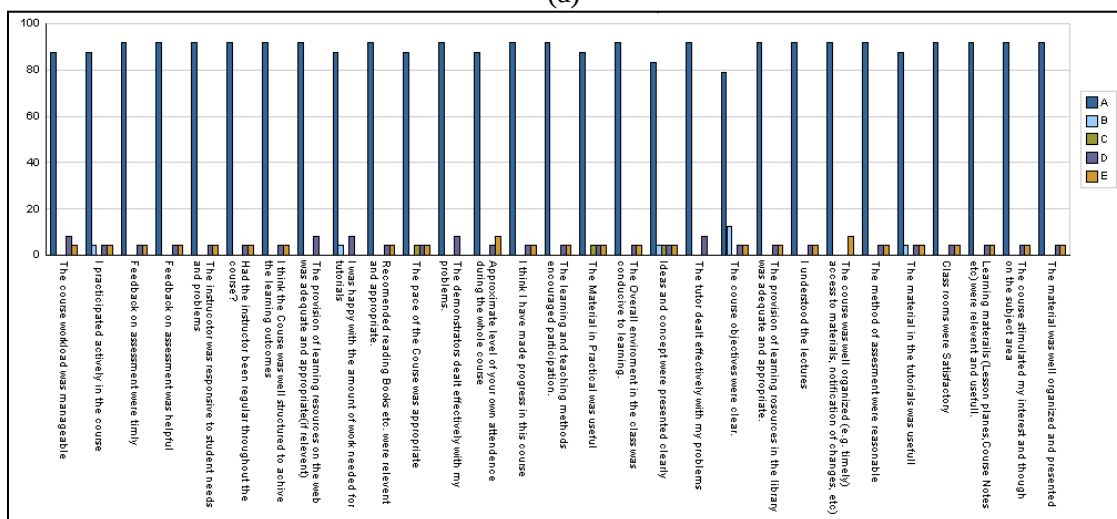
General comments about the course: The results showed satisfaction of majority of students for the course.

Weaknesses: Reference books needed.

5. Evaluation of Course ZOOL-710



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

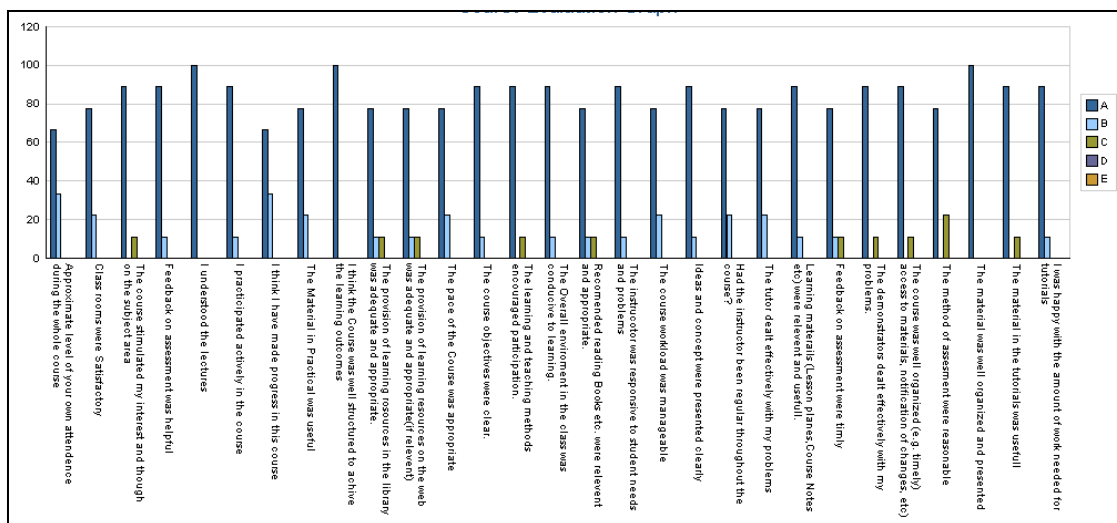
Fig. 19. Course Evaluation of ZOOL-710

General comments about the course: The results showed satisfaction of majority of students for the course.

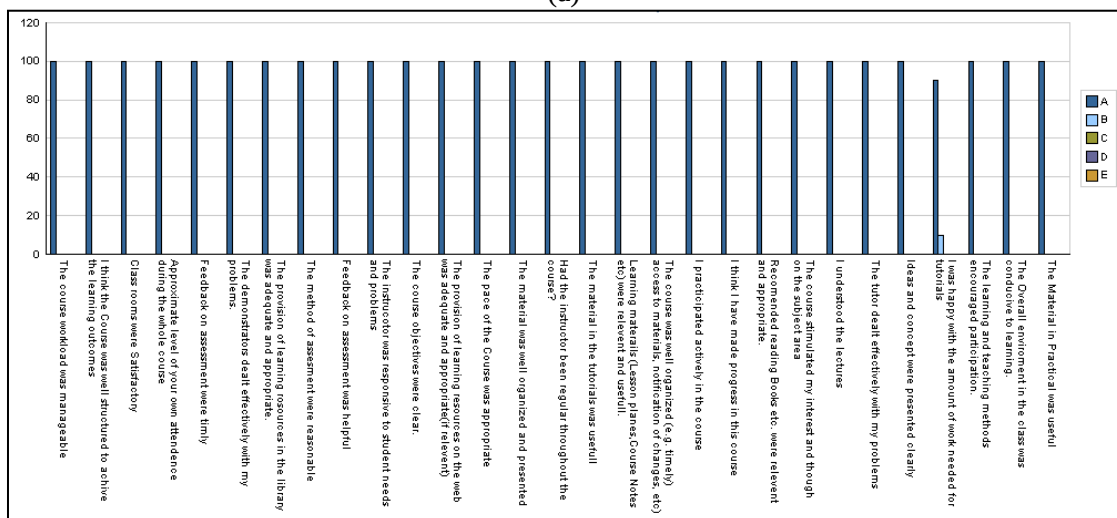
Strengths: Well-defined, organized and knowledgeable.

Weaknesses: Lack of reference books and field work.

6. Evaluation of Course ZOOL-713



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

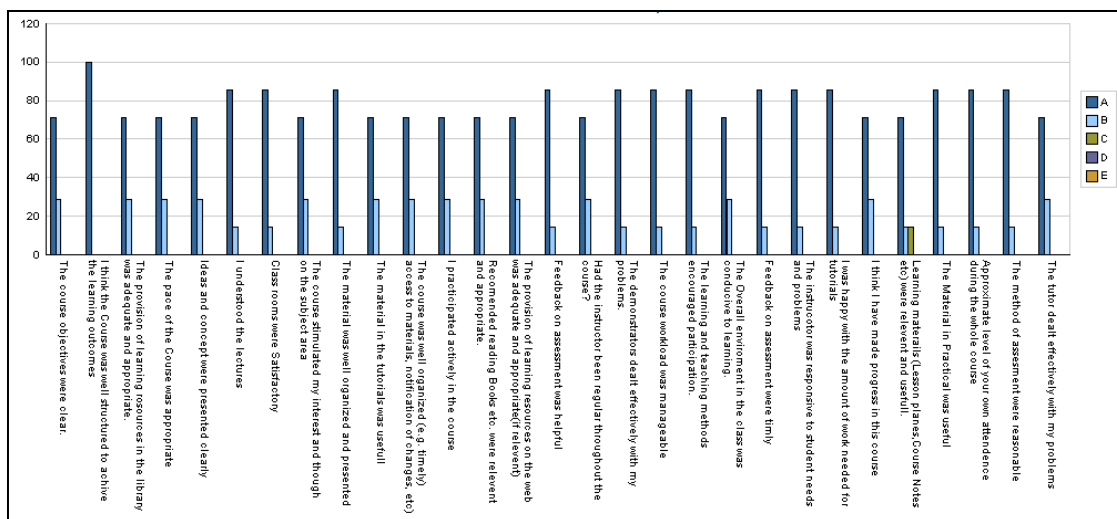
Fig. 20. Course Evaluation of ZOOL-713

General comments about the course: The results showed satisfaction of majority of students for the course.

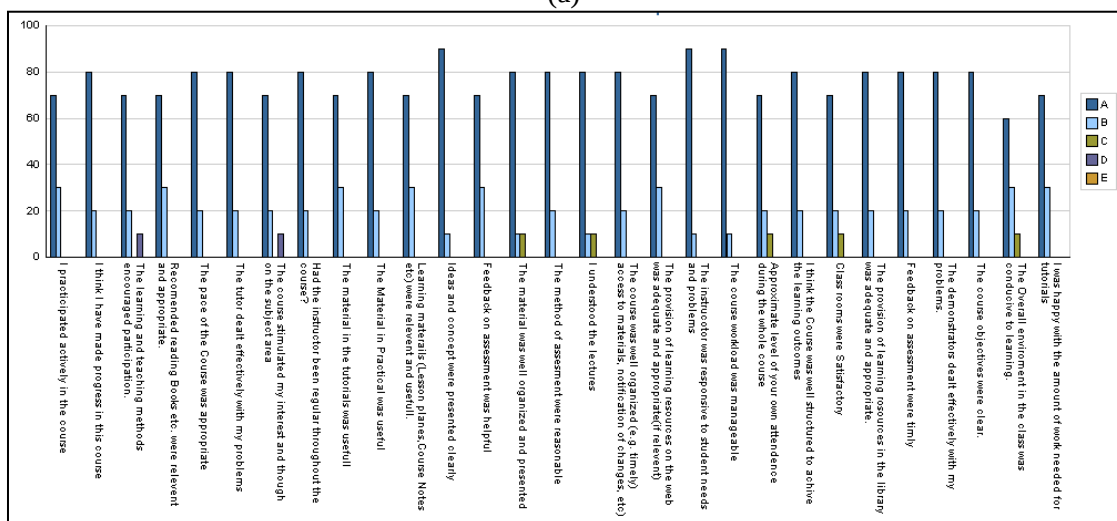
Strengths: Up-to-date course material.

Weaknesses: More practical aspect and student participation is needed.

7. Evaluation of Course ZOOL-718



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

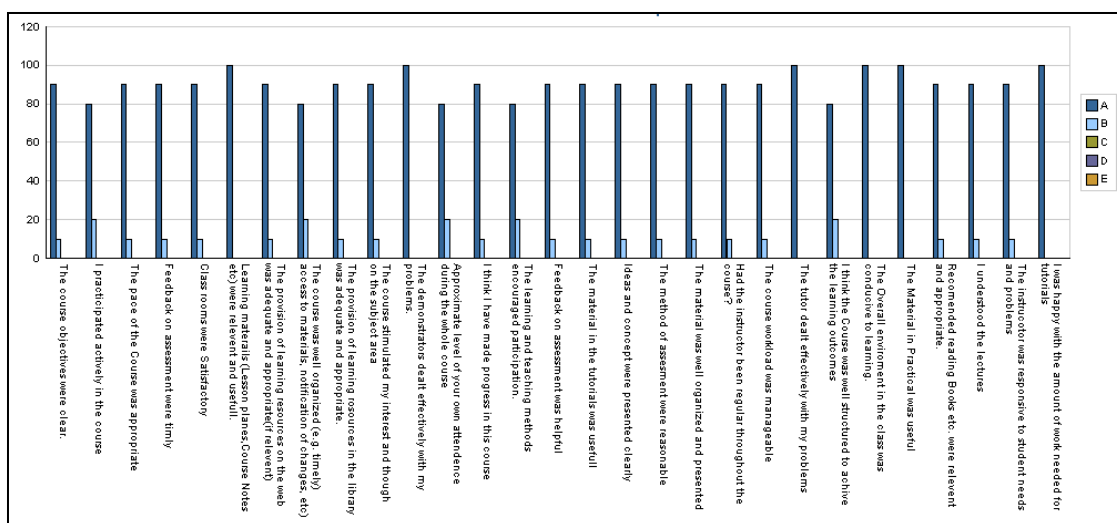
Fig. 21. Course Evaluation of ZOOL-718

General comments about the course: The results showed satisfaction of majority of students for the course.

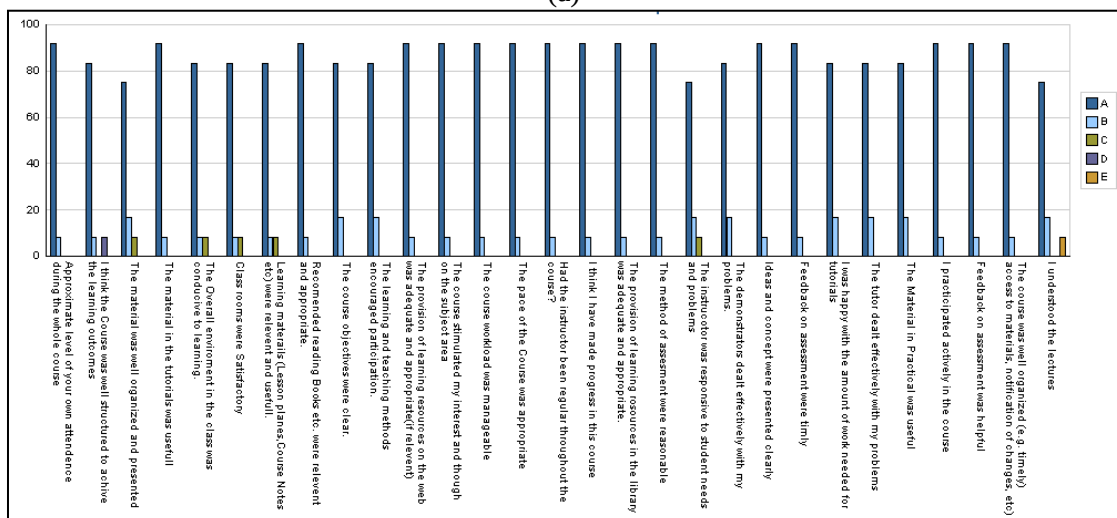
Strengths: The practical, updated, advance knowledge was given.

Weaknesses: More practical aspect should be added

8. Evaluation of Course ZOOL-722



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

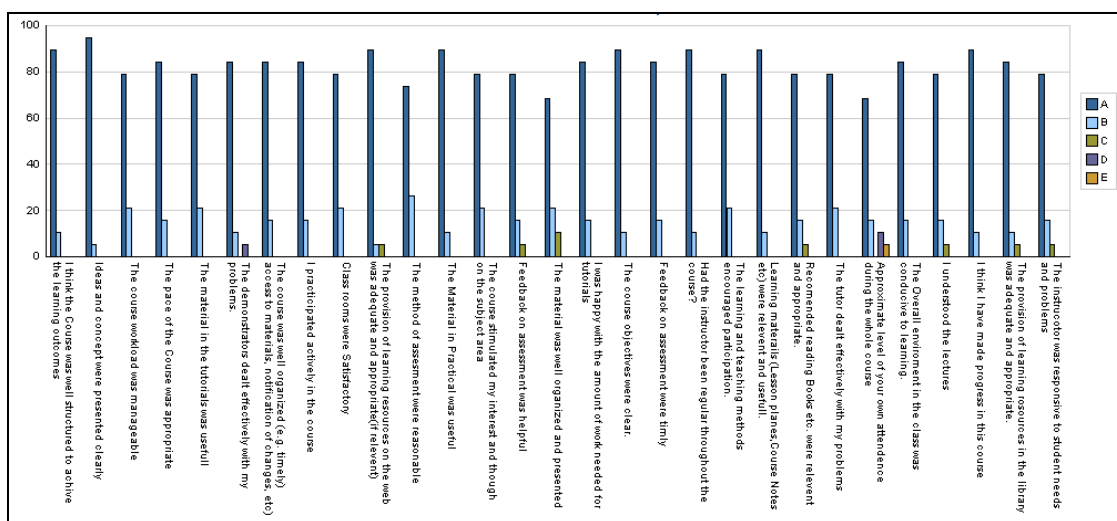
Fig. 22. Course Evaluation of ZOOL-722

General comments about the course: The results showed satisfaction of majority of students for the course.

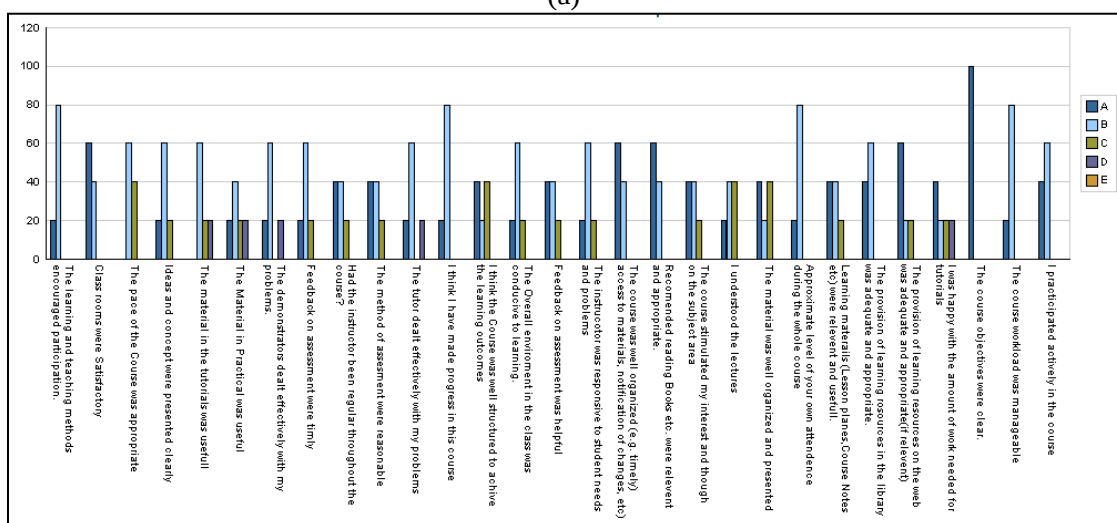
Strengths: The practical, updated, advance knowledge was given.

Weaknesses: Audio-visual aids needed.

9. Evaluation of Course ZOOL-723



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

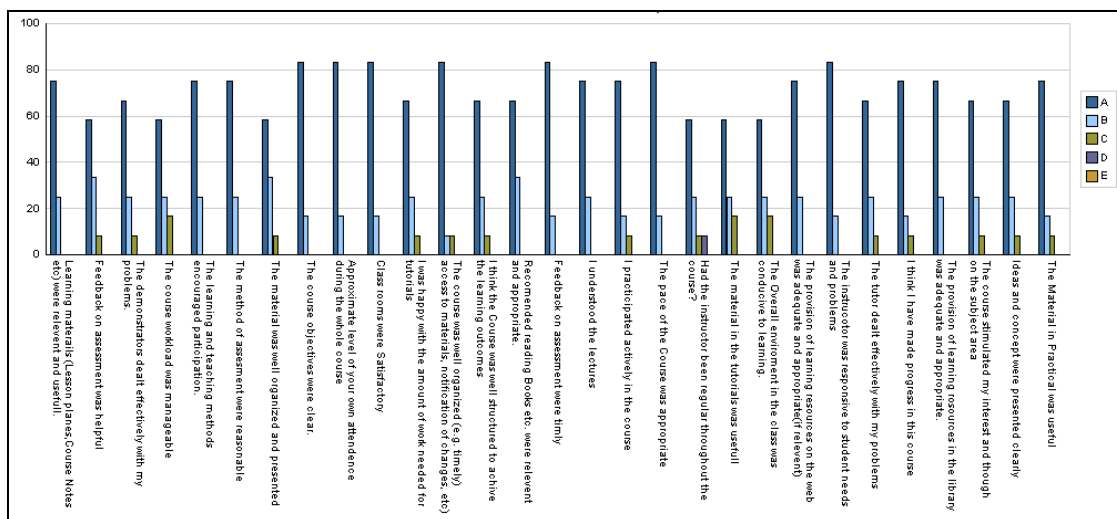
Fig. 23. Course Evaluation of ZOOL-723

General comments about the course: The results showed satisfaction of majority of students for the course.

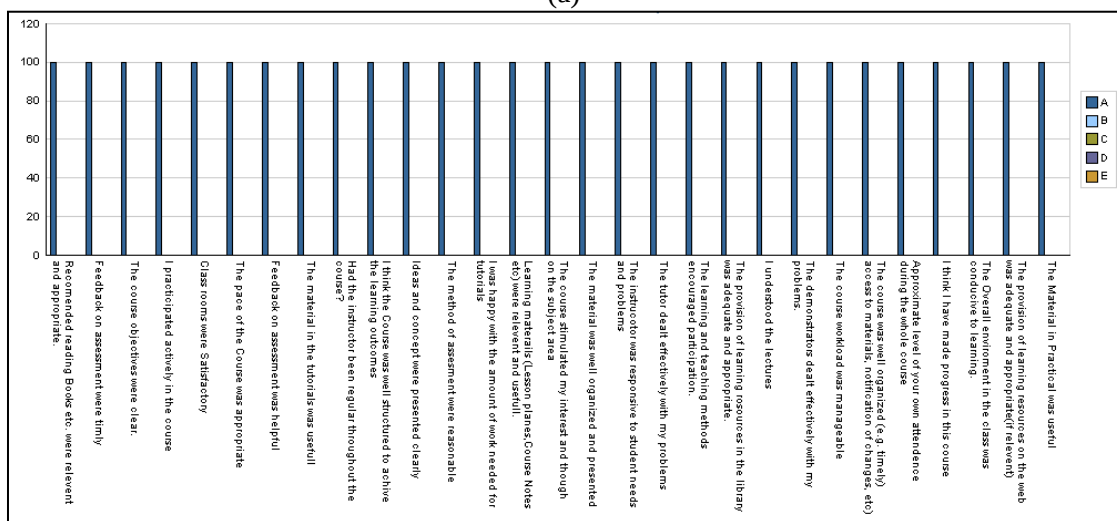
Strengths: Advanced knowledge and well managed.

Weaknesses: More practical aspect and student participation is needed.

10. Evaluation of Course ZOOL-727



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

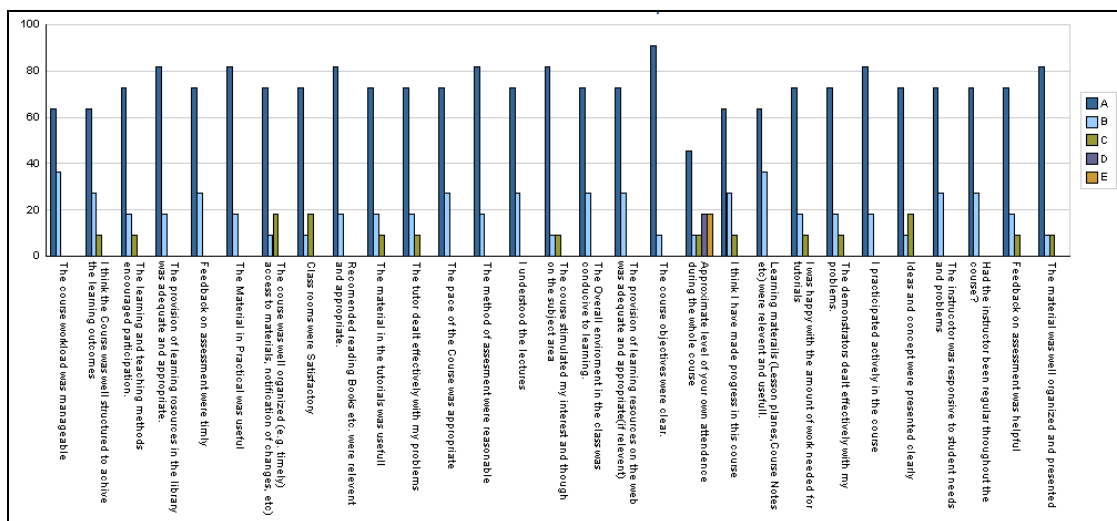
Fig. 24. Course Evaluation of ZOOL-727

General comments about the course: The results showed satisfaction of majority of students for the course.

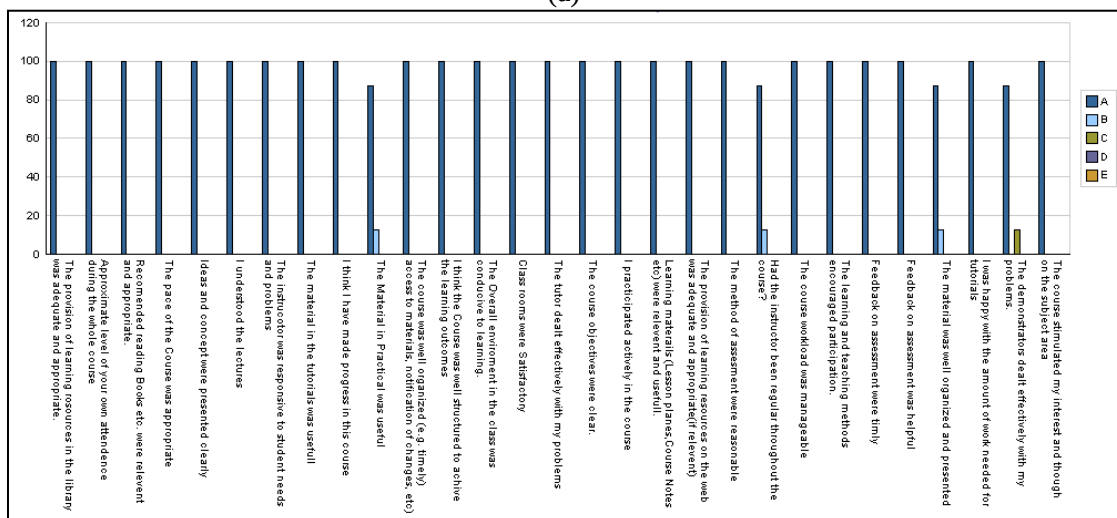
Strengths: The practical, updated, advance knowledge was given.

Weaknesses: More practical aspect and student participation is needed.

11. Evaluation of Course ZOOL-738



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

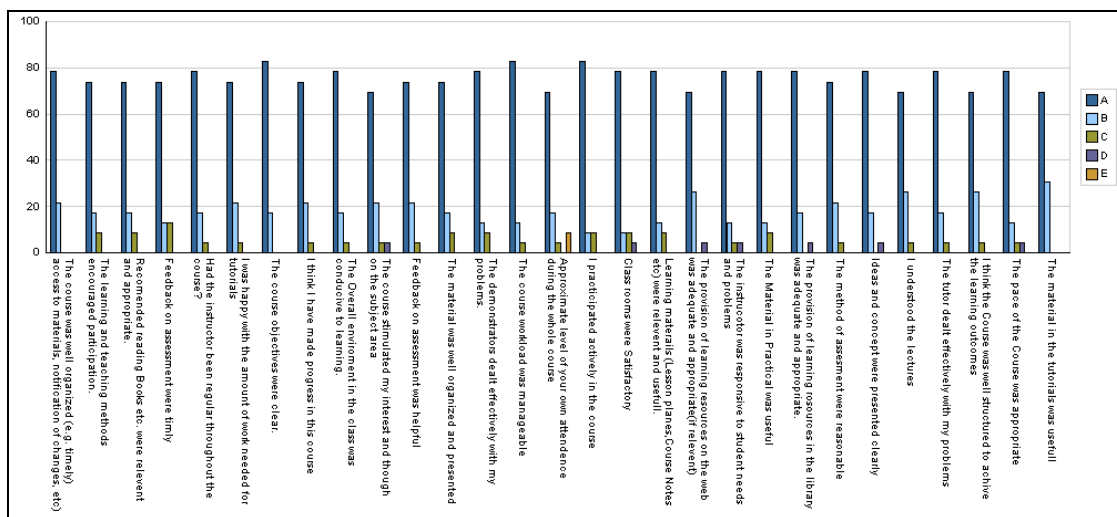
Fig. 25. Course Evaluation of ZOOL-738

General comments about the course: The results showed satisfaction of majority of students for the course.

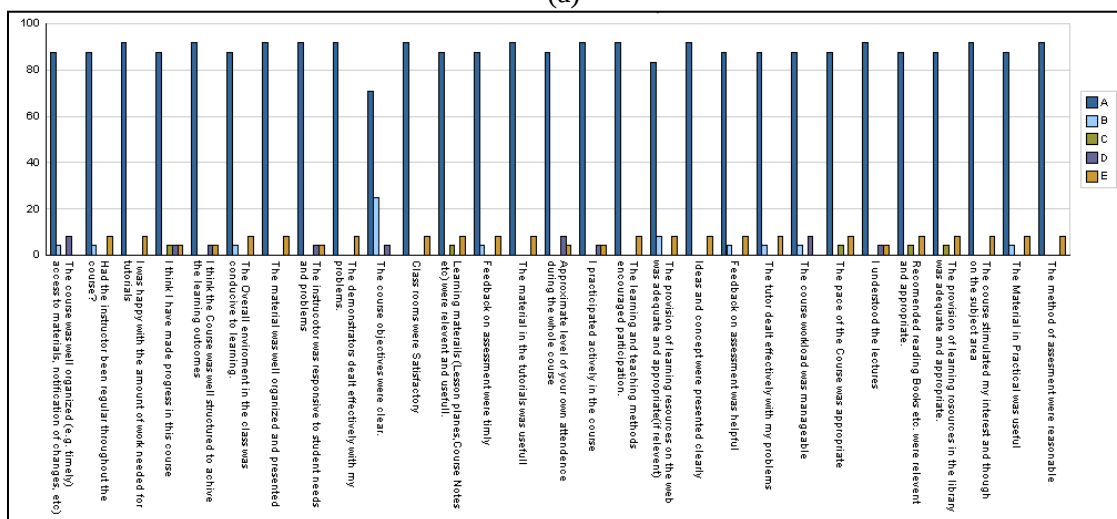
Strengths: The course was practical with clear objectives of the syllabus.

Weaknesses: Student participation and interaction is needed.

12. Evaluation of Course BIOL-705



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

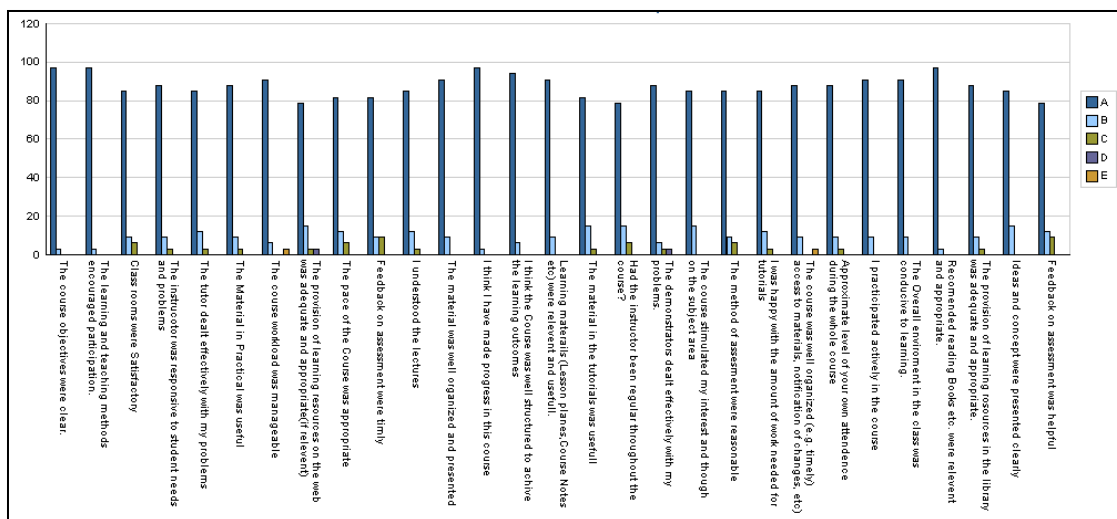
Fig. 26. Course Evaluation of BIOL-705

General comments about the course: The results showed satisfaction of majority of students for the course.

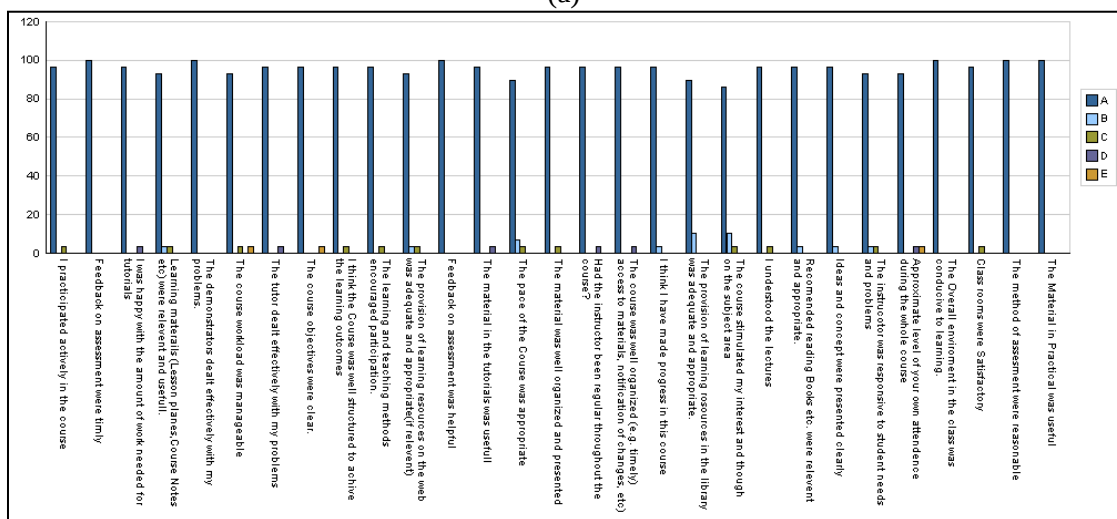
Strengths: Contents were well-prepared and composed.

Weaknesses: Lack of students' class participation.

13. Evaluation of Course BIOL-709



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

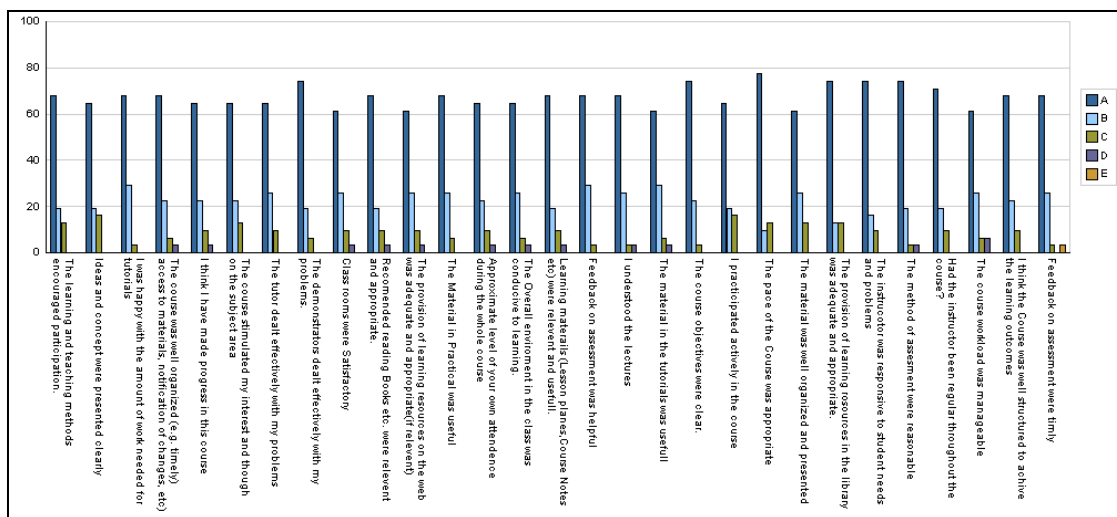
Fig. 27. Course Evaluation of BIOL-709

General comments about the course: The results showed satisfaction of majority of students for the course.

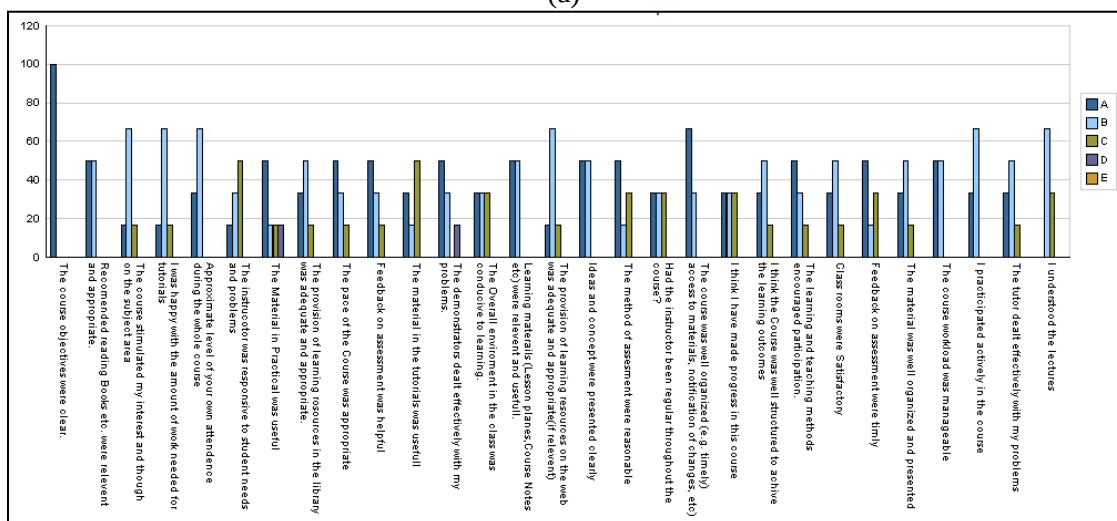
Strengths: The practical, updated, advance knowledge was given.

Weaknesses: More practical aspect and student participation is needed.

14. Evaluation of Course BIOL-725



(a)



(b)

Key: A=Strongly Agree, B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

Fig. 28. Course Evaluation of BIOL-725

General comments about the course: The results showed satisfaction of majority of students for the course.

Strengths: The practical, updated, advance knowledge was given.

Weaknesses: More practical aspect and student participation is needed.

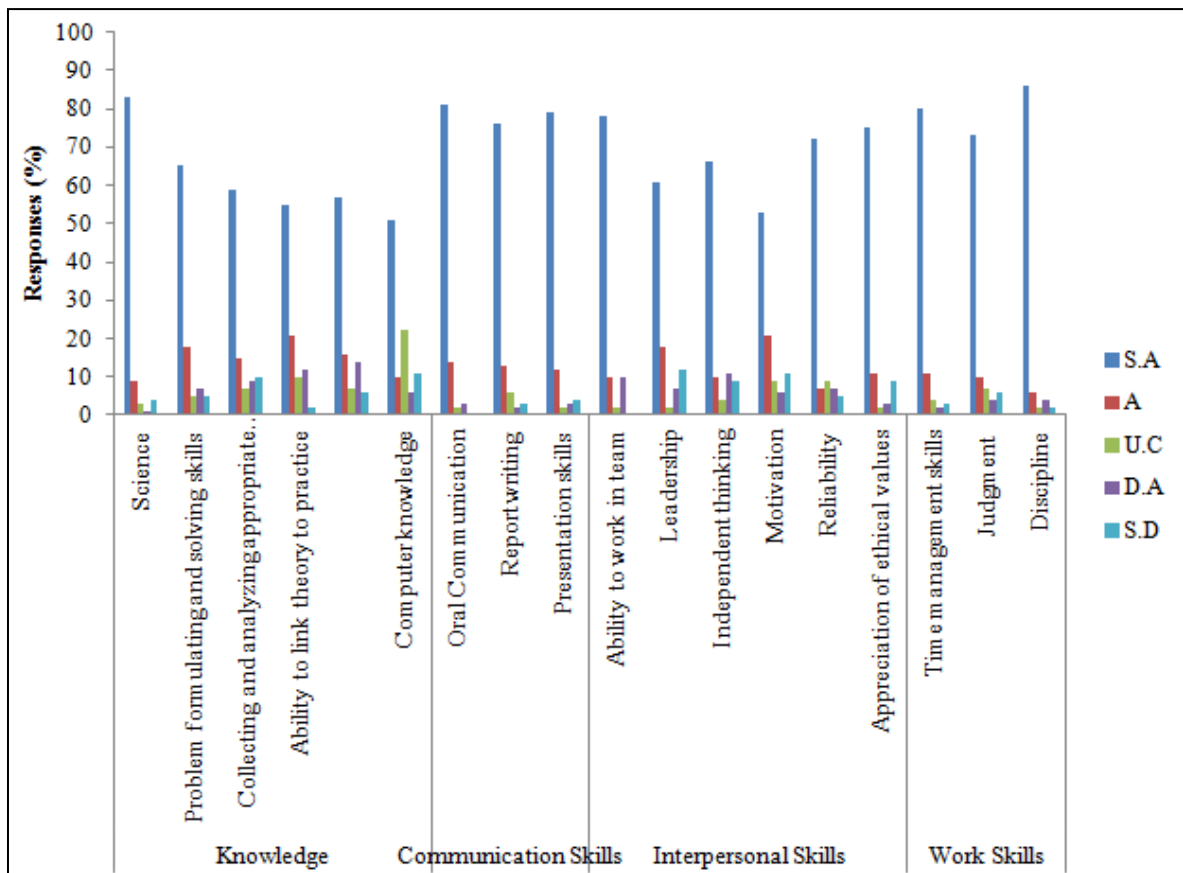
FACULTY COURSE REVIEW

Code	Title	Credit value	Assesment method	No. of Students	Comments on curriculum	Any Change for future in course	Semester	Grades						Teacher
								A	B	C	D	E	F	
ZOOL-702	Animal Diversity and Zoogeography	3(2-2)	Mid/Final Exam	65	Appropriate	Not suggested	Spring	21	66	9	2	2	0	Dr.M. Mushtaq
ZOOL-705	Animal Behavior	3(2-2)	Mid/Final Exam	65	Appropriate	Not suggested	Fall	26	63	7	0	4	0	Dr. Amjad Rashid
ZOOL-707	Comparative Endocrinology	3(2-2)	Mid/Final Exam	65	Appropriate	Not suggested	Fall	33	56	8	0	3	0	Dr. Shamim Akhtar
ZOOL-708	Aquaculture and Fisheries	3(1-4)	Mid/Final Exam	65	Appropriate	Not suggested	Fall	25	67	8	0	0	0	Dr. Zubair Anjum
ZOOL-710	Parasitology	3(2-2)	Mid/Final Exam	65	Appropriate	Not suggested	Fall	22	67	8	3	0	0	Dr. Farhana Riaz Ch.
ZOOL-713	Clinical Bacteriology	3(2-2)	Mid/Final Exam	65	Appropriate	Not suggested	Spring	31	59	10	0	0	0	Dr. Mazhar Qayyum
ZOOL-718	Applied Reproductive Physiology	3(2-2)	Mid/Final Exam	65	Appropriate	Not suggested	Fall	42	48	10	0	0	0	Dr. Shamim Akhtar
ZOOL-722	Wildlife Conservation and Management	3(2-2)	Mid/Final Exam	65	Appropriate	Not suggested	Spring	49	50	1	0	0	0	Dr. M. Sajid Nadeem
ZOOL-723	Aquaculture System Management	3(2-2)	Mid/Final Exam	65	Appropriate	Not suggested	Fall	48	52	0	0	0	0	Dr.Zubair Anjum
ZOOL-727	Epidemiology of Animal Parasites	3(2-2)	Mid/Final Exam	65	Appropriate	Not suggested	Spring	67	33	0	0	0	0	Dr. Farhana Riaz
ZOOL-738	Wildlife Ecology	3(2-2)	Mid/Final Exam	65	Appropriate	Not suggested	Spring	32	68	0	0	0	0	Dr. Amjad Rashid

ALUMNI SURVEY RESULTS

M. Sc. graduated students gave their feed back through Proforma-7 and provided a rating for the knowledge imparted by the department and career opportunities as excellent. Other skills have also got a good score.

Results of the survey are presented below (Fig. 29).



Key: SA=Strongly Agree, A=Agree, UC=Uncertain, D=Disagree, SD=Strongly Disagree

Fig. 29. Alumni Survey Results

SURVEY OF GRADUATING STUDENTS

A Survey of graduating students was performed through Performa 3. The results of this survey have revealed a high degree of students' satisfaction for program effectiveness in

terms of enhancing team work, support for learning, meeting objectives of program and environment conducive for learning. Other aspects of the program have also been rated. They were dissatisfied only with infrastructure of department. The results of the survey are given in Fig. 28.

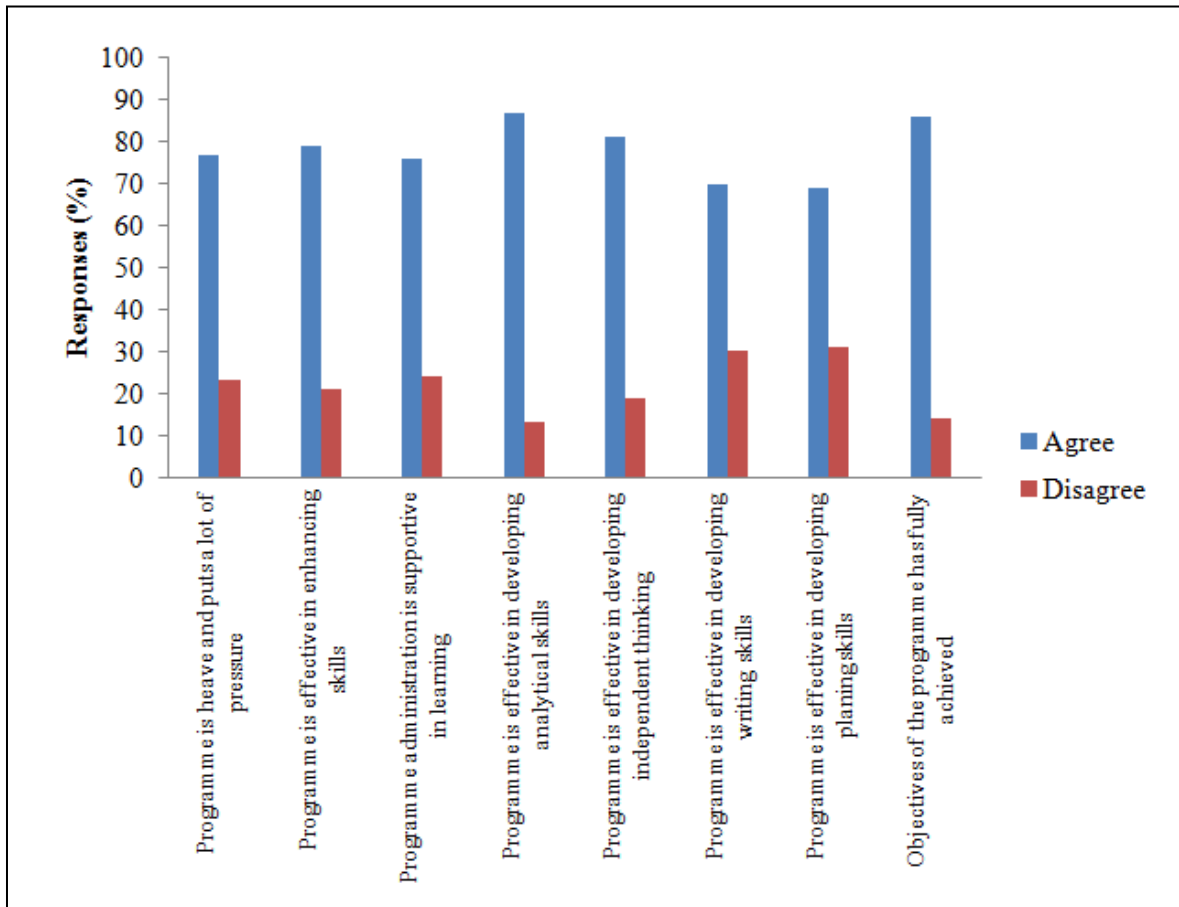


Fig.28. Graduating student's survey results

Best aspects of the Program:

- Development of better working as a team
- Program is conducive and improved learning skills
- Confidence building, field work, research and writing abilities
- Enhanced writing, professional skills of

Aspects of Program in need of improvement:

- More study tours to natural areas
- Trained laboratory and field staff and own transport facility
- More research equipment/facilities in laboratories

RESEARCH STUDENTS PROGRESS REVIEW

As thesis research is not offered to M. Sc. students therefore, survey was not carried out for M.Sc. programme.

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

Equipment such as ELISA reader, PCR machine, Ultra-centrifuge, Gamma Counter etc and multimedia are not available in the Department, therefore difficulties are being faced in advance research. Latest literature and reviews are hardly available. There is need for short teacher training to faculty members. Moreover, museum and animal house are lacking. Practical aspects of the courses are weak.

Major Future Improvement Plans

Practical classes are being taken to enhance practical skills. To develop labs equip fully with modern equipments for the advance research work and extend facilities of museum and animal house.

FACULTY SURVEY

	Dr.M. Mushtaq	Dr. Amjad Rashid	Dr. Shamim Akhtar	Dr. Zubair Anjum	Dr. Farhana Riaz Ch.	Dr. Mazhar Qayyum	Dr. M. Sajid Nadeem
Your mix of research, teaching and community service	Very satisfied	Very satisfied	Satisfied	Satisfied	Very satisfied	Very satisfied	Satisfied
The intellectual stimulation of your work	Very satisfied	Very satisfied	Very satisfied	Satisfied	Satisfied	Satisfied	Very satisfied
Type of teaching / research you currently do	Very satisfied	Very satisfied	Very satisfied	Satisfied	Satisfied	Satisfied	Very satisfied
Your interaction with students.	Very satisfied	Satisfied	Very satisfied	Satisfied	Satisfied	Satisfied	Satisfied
Cooperation you receive from colleagues	Satisfied	Satisfied	Satisfied	Very satisfied	Very satisfied	Satisfied	Satisfied
The mentoring available to you.	Satisfied	Satisfied	Satisfied	Very satisfied	Satisfied	Satisfied	Satisfied
Administrative support from the department	Satisfied	Very satisfied	Satisfied	Satisfied	Satisfied	Satisfied	Satisfied
Providing clarity about the faculty promotion process	Satisfied	Satisfied	Satisfied	Satisfied	Satisfied	Very satisfied	Very satisfied
Your prospects for advancement and progress	Satisfied	Satisfied	Satisfied	Satisfied	Very satisfied	Very satisfied	Satisfied

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

Table-3: Quantitative assessment of the department

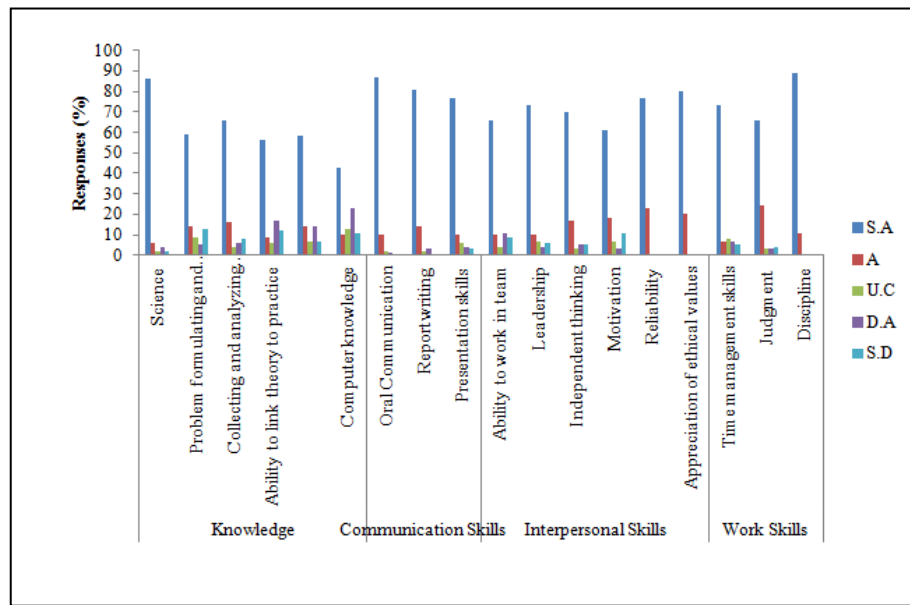
S. No.	Particulars	No.	Remarks
1	M. Sc degree awarded	~280	Every year 140 students get enrolled most of them acquire degree and join different institutes for higher degree while other got employment in various fields. Few are part of the faculty of same university.
4	Students: Faculty (ratio)	40:1	
5	Technical: non technical (ratio)	4:1	
6	Average grade point	4	

Research progress

Name of Faculty Member	Journal Publications	Conference publication	Projects	Short courses
Dr. Mazhar Qayyum	24	-	2	-
Dr. Shamim Akhtar	117	-	4	1
Dr. Muhammad Sajid Nadeem	23	-	3	-
Dr. Farhana Riaz	1	2	1	-
Dr. Amjad Rashid Kiyani	5	-	1	-
Dr. M. Mushtaq	12	-	2	-
Dr. M. Zubair Anjum	7	-	2	-
Dr Abida Arshad	14	-	1	-
Dr Ruqia Mehmood Baig	19	-	1	-
Mr. Muhammad Irfan	11	1	1	-

EMPLOYER SURVEY

This survey has been purposefully performed in order to obtain employers input on the quality of education Department of Zoology is imparting and to ascertain the quality of the academic program. The survey is with regard to University of graduates employed at different organization. According to employers, the students have excellent knowledge of science, employers agreed that candidates have excellent power of problem formulation and solving skills, and have great ability of oral communication and are reliable and ethically sound. Employers showed a severe concern about computer skills of the candidates.



Key: SA=Strongly Agree, A=Agree, UC=Uncertain, D=Disagree, SD=Strongly Disagree
 Fig. 29. Employer's survey

SECTION 2

CRITERION-2: CURRICULUM DESIGN AND ORGANIZATION

Board of Studies is constituted by senior faculty members and subject specialist who is taken from other faculties or from other Universities or research Institutions. Chairman of the Department heads this board. The board gives an approval for curriculum design and update, which afterwards, is initiated by the faculty members of the Department and is then sent to Board of Faculty, headed by the Dean Faculty of Sciences. This Board consist senior faculty members from all the Departments of the faculty and subject specialists. Finally the curriculum is presented before the Academic Council which is comprised of the Professor, Associate Professor, Faculty Representatives and very senior subject specialists.

Degree Title:

M. Sc. Zoology/Biology

Definition of Credit Hour:

One credit hour is one theory lecture or two hours laboratory (practical / week). One credit hour carries 20 marks. A semester is of 18 weeks.

Degree Plan:

M.Sc: Consists of 4 semesters/2 years. 64 credit hours course work.

Pre-requisites

Academic Requirements:

A person holding B.Sc. with Zoology or equivalent degree from any recognized institute with at least second division or 2.5/4CGPA is eligible to get admission. Merit is determined by B. Sc. Marks

Degree Requirements:

Degrees are awarded after completing the required 64 credit hours (courses). Minimum Grade Point Average for obtaining the degree is 2.50/4.00 CGPA.

Examination

In course work, students are evaluated by means of a mid-term examination, assignments/quizzes and a final examination. If a student does not appear in the mid-term examination, he/she is not allowed a make-up examination and is given a zero score in that examination. Secondly, if a student misses the final examination of a course, he/she shall be deemed to have failed in that course. In theory, weightage to each component of examination is as prescribed here under: The qualification marks for each examination is 40%. .

Mid Examination	30%
Assignments	10%
Final Examination	60%

For practical examination (if applicable) 100% is given to practical as scored final examination. A student is eligible to sit for the examination provided that he/she has attended not less than 75% of the classes in theory and practical, separately.

Courses:

M. Sc Biology		
Course No.	Course Title	Credit Hours
Major Courses		
BIOL-701	Cellular Biology	3(2-2)
BIOL-704	Environmental Biology	3(2-2)
BIOL-706	Biosystematics	4(3-2)
BIOL-708	Economic Biology	4(3-2)
BIOL-709	Fundamental of Microbiology and Immunology	3(2-2)
BIOL-711	Research Planning and Report Writing	3(1-4)
BIOL-712	Principles of Biotechnology	3(2-2)
BIOL-720	Seminar-I	1(1-0)
BIOL-725	Animal Reproductive Biology	3(2-2)
BIOL-728	Concept of Genetics	3(2-2)
BIOL-702	Physiological Systems of Animal	3(2-2)
BIOL-703	Plant Physiology	3(2-2)
BIOL-704	Environmental Biology	3(2-2)
BIOL-705	Evolutionary Biology	2(2-0)
BIOL-707	Biodiversity	4(3-2)
BIOL-709	Fundamentals of Microbiology and Immunology	3(2-2)
BIOL-710	Mycology and Plant Pathology	3(2-2)
BIOL-712	Principles of Biotechnology	3(2-2)
BIOL-722	Host/Parasite Interactions in Animals	3(2-2)
BIOL-723	Immunology	3(2-2)
BIOL-726	Pathophysiology	3(2-2)
BIOL-729	General Pharmacology	3(2-2)

M. Sc Zoology		
Course No.	Course Title	Credit Hours
Major Courses		
ZOOL-701	Cell Biology	3(2-2)
ZOOL-703	Principles of Genetics	3(2-2)
ZOOL-706	Developmental Biology	3(2-2)
ZOOL-709	Principles of Animal Systemics	2(1-2)
ZOOL-711	Research Planning and Report Writing	3(1-4)
BIOL-704	Environmental Biology	3(2-2)
BIOL-709	Fundamental of Microbiology and Immunology	3(2-2)
BIOL-712	Principles of Biotechnology	3(2-2)
BIOL-704	Environmental Biology	3(2-2)
ZOOL-702	Animal Diversity and Zoogeography	3(2-2)
ZOOL-704	Comparative Animal Physiology	3(2-2)
ZOOL-705	Animal Behavior	2(2-0)
ZOOL-706	Developmental Biology	3(2-2)
ZOOL-707	Comparative Endocrinology	3(2-2)
ZOOL-708	Aquaculture and Fisheries	3(2-2)
ZOOL-710	Parasitology	2(2-0)

ZOOL-713	Clinical Bacteriology	3(2-2)
ZOOL-714	Medical Virology	3(2-2)
ZOOL-715	Faunal Biodiversity of Pakistan	3(2-2)
ZOOL-718	Applied Reproductive Physiology	3(2-2)
ZOOL-720	Seminar	1(1-0)
ZOOL-733	Ornithology	3(2-2)
ZOOL-751	Project Planning,, Monitoring + and Evaluation	3(3-0)

STANDARD 2-1: The curriculum must be consistent and supports the program's documented objectives

Courses	Objectives	
	1	2
BIOL-712	*	*
BIOL-704	***	***
ZOOL-702	*	*
ZOOL-704	***	**
ZOOL-705	***	**
ZOOL-706	***	**
ZOOL-707	***	***
ZOOL-708	*	*
ZOOL-710	***	***
ZOOL-713	***	**
ZOOL-714	***	**
ZOOL-715	***	***
ZOOL-718	***	**
ZOOL-720	***	***
ZOOL-733	*	*
ZOOL-751	***	***

Highly Satisfactory

Satisfactory

**

Not satisfactory

*

STANDARD 2-2: ELEMENTS VS COURSES

Elements	Zoology/Biology Courses
Theoretical background	BIOL – 701, BIOL – 702, BIOL – 703, BIOL – 704, BIOL – 705, BIOL – 706, BIOL – 707, BIOL – 708, BIOL – 709, BIOL – 710, , BIOL – 712, BIOL – 713, BIOL – 714, BIOL – 715, BIOL – 716, BIOL – 717, BIOL – 718, , BIOL – 720, BIOL – 721, BIOL – 722,BIOL – 723, BIOL – 724, BIOL – 725, BIOL – 726,BIOL – 727,BIOL – 728, BIOL – 729, ZOOL-102, ZOOL-501, ZOOL-701, ZOOL-702, ZOOL-703, ZOOL-704, ZOOL-705, ZOOL-706, ZOOL-707, ZOOL-708, ZOOL-709, ZOOL-710, ZOOL-712, ZOOL-713, ZOOL-714, ZOOL-715, ZOOL-716, ZOOL-717, ZOOL-718, ZOOL-721, ZOOL-722, ZOOL-723, ZOOL-724, ZOOL-725, ZOOL-726, ZOOL-727, ZOOL-728, ZOOL-729, ZOOL-731, ZOOL-732, ZOOL-733, ZOOL-734, ZOOL-735, ZOOL-736, ZOOL-737, ZOOL-738, ZOOL-739, ZOOL-740, ZOOL-741
Problem analysis	BIOL -711, BIOL – 720, BIOL – 719, ZOOL-719, ZOOL-720,
Solution Design	BIOL -711, ZOOL-730,

STANDARD 2-3:

The curriculum is designed and offered in accordance to the requisites determined by the HEC. There are compulsory basic and advance courses as well as an applied course of statistics. A minimum of 64 credit hours courses is must for students.

STANDARD 2-4:

Higher Education Commission (HEC) course work of 64 credit hours

Program	Credit hours/semester	Total Credit hours	Theory	Practical
M. Sc.	16	64	40	24

STANDARD 2-5:

Courses being offered are highly informative and fulfilling the requirements but most of the courses are of basic nature and only one or two are applied.

STANDARD 2-6:

Although, there are no particularly information technology related courses, however, some activities and courses in program usefully gives basic knowledge and training of computer use.

S. No.	Course No.	How applied and integrated through out the program
1	BIOL-711, ZOOL-711	Research planning and report writing need the basic knowledge of computer sciences. It gives an incentive to the students to go for learn basic knowledge of computer use.
2	ZOOL-720, BIOL-720	Seminar preparation needs the basic knowledge of computer sciences. It gives an incentive to the students to go for learn basic knowledge of computer use.
Note: Programs include some minor courses of statistics (STAT-700, STAT-701, STAT-702), which improves the skills to make use of statistical software.		

STANDARD 2-7:

Two seminars of one credit hour each are compulsory at the M.Sc. level. Moreover, students have to defend their research report. Assignments are given to M.Sc. students on specific titles (part of the course) which are presented orally and given as written report (assignments) by the students which have increased their oral and written communication skills.

S. No.	Course No.	How applied and integrated through out the program
1	ZOOL-720	A seminars of one credit hour each are compulsory at the M.Sc. level during course work
2	Courses presentations/assignments	During course work a presentation/assignment is obligatory for each course
3	Synopsis formation	Before commencing research in open forum
4	Poster presentation	After report writing in open forum

SECTION-3

CRITERION-3: LABORATORIES AND COMPUTING FACILITIES

Laboratory Title:

1. Microbiology and Parasitology lab
2. Reproductive Physiology/Endocrinology
3. Wildlife & Biodiversity
4. Animal Physiology
5. General lab

Location and Area:

Faculty of Sciences, D-Block, 2nd Floor, New Academic Block and area of each laboratory is 450 square feet

Objectives:

Laboratories are used for:

1. Demonstrations of practical exercise to graduate students in their introductory and major courses
2. Execution of practical exercise by the graduate students in their introductory and major courses
3. Performance of research work by the Post-graduate students
4. Execution of the projects funded by the University, HEC, PSF, PARC and other agencies.
5. Laboratories are well specious and adequate.

Major apparatus viz equipments:

Microscopes, autoclave, incubator, deep freezer, refrigerators, laminar flow cabinet, pH meter, elective balance, slide and overhead projectors, shaker, hitter, pipettes are present but some are out dated and out of order. Centrifuge (slow and ultra), PAG-Electrophoresis apparition, PCR Spectrophotometer. Moreover, department requires an animal house and a museum

Safely Regulations:

Safety measures are not available against fire (Extinguishers), minor hazards and accidents, injuries (First Aid Kit). However, the University maintains a Medical Center for such incidents.

STANDARD-3.1: LABORATORY MANUALS:

- Laboratory manuals of each subject (Microbiology and Parasitology, Reproductive Physiology, Wildlife & Biodiversity, Animal Physiology) are not available. There is no library in the department. However, individual teachers have their books.

STANDARD-3.2: SUPPORT/LABORATORY PERSONAL FOR MAINTENANCE OF LABORATORY

A lab assistant is available for maintenance of laboratories (equipment, glassware, chemicals, material etc). A laboratory attendant is there to provide necessary assistance to the students in executing their practical exercises, cleaning and washing.

STANDARD-3.3: COMPUTING INFRASTRUCTURE AND FACILITIES

- **Computer facilities:** Not a/available to all faculty members and the post graduate students

- ***Safety arrangements:*** The labs have no exhaust fan. No first aid kits/facilities provided in the laboratories/department.

SECTION-4

CRITERION 4: STUDENT SUPPORT AND ADVISING

The university organizes support programs and provide information regarding admission, scholarship schemes etc. Department in its own capacity arrange orientation and guided tours of department.

STANDARD-4.1: FREQUENCY OF COURSES

- Courses are taught as per criteria developed by HEC.
- Courses are offered in accordance to the scheme of study approved by Academic Council and courses and as per the availability and expertise of the teachers.
- Elective courses are offered in line with the policy of the university.
- For postgraduate programs, various courses are offered in accordance to demand of the profession.

STANDARD-4.2: STRUCTURE OF THE COURSES

Designing of the courses is made by keeping focus on their theoretical as well as practical aspects. Theoretical problems are explained and activities are also assigned to the students. Practical are performed in the labs as well as in the field. Field visits to related research organizations are also organized for the awareness of the students about the latest developments in the area and to provoke them for discussion and teacher/student interaction.

- Board of Studies approved the course contents
- Faculty members interact frequently to the students to solve their problems. Students are always welcome to ask questions in class rooms and teachers are also available even after the classes.

STANDARD-4.3: GUIDANCE TO THE STUDENTS

Following steps have been taken for the guidance of the students:

1. Students are facilitated with the necessary information about requirements of the program through the office of the head of the department.
2. Students can personally communicate and interact with the teachers for guidance.
3. Students can also contact with relevant teachers whenever they face any professional problem.
4. Students can interact with the teachers/scientists in the universities or research organization according to their requirement and there is open option for the students to get the membership in the professional societies like Pakistan Zoological Society and other relevant professional societies.

SECTION-5

CRITERION-5: PROCESS CONTROL

It comprises of student admission, their registration, faculty requirement activities which are dealt by various statutory bodies and the university administration.

STANDARD-5.1: PROGRAM ADMISSION CRITERIA

- The office of Registrar advertises the notice of admission in the National Papers. The criteria and rules of the admission are followed set by the University.
- PhD admission is based on the recommendations of supervisory committee
- Admission criteria is revised every year before the announcement of admissions

STANDARD-5.2: PROCESS OF REGISTRATION

- The student's name, after completion of the admission process, is forwarded to the Registrar Office for proper registration in the specific program and the registration numbers are issued to the students.
- Students are evaluated through Mid, Final and Practical exams and through assignments
- Registration is done for one time for each degree but evaluation is done through the result of each semester. If the students fulfill the criteria of the university they are promoted to the next semester.
- In general, the students are registered on competition bases keeping in view the academic and research standards.

STANDARD-5.3: RECRUITING PROCESS FOR FACULTY

Recruitment policy developed by the university is according to HEC rules.

Induction of all posts is done as per rule:

- Vacant and newly created positions are advertised in the National newspapers, applications are received by the Registrar office, call letters are issued to the

short –listed candidates on the basis of experience, qualification, publications and other qualities/activities as per rules of the university

- The candidates are interviewed by the University Selection Board, principal and alternate candidates are selected.
- Selection of candidates is further approved by the Syndicate and then candidates are invited to join the university within a specified period.
- Induction of new candidates depends upon the number of approved vacancies.
- At present, no procedure exists for retaining highly qualified faculty members. However, the revised pay scales of structure is quite attractive
- HEC also supports appointments of highly qualified members as foreign faculty Professors, National Professors and deputes them in various departments of the university.

STANDARD-5.4: TEACHING AND DELIVERY OF COURSE MATERIAL

- The department revises the curriculum time to time depending upon the requirements, innovations and new technology to enhance the high quality teaching.
- With the emergence of new fields, new courses are designed and included in the scheme of study
- Students usually purchase low price editions books. Very few related books are also available in the university library, where documentation, copying and internet facilities are available.
- Some teachers also provides notes to the students
- Most of the lectures are supplemented by overhead, slides and pictures
- All efforts are made that courses and knowledge imparted meet the objectives and outcome. The progress is regularly reviewed in the staff meetings.

STANDARD-5.5: COMPLETION OF PROGRAM REQUIREMENTS

The controller of examinations announces the date of commencement of examination. After ~20-30 days of the examinations, the controller office notifies the results of the students. The evaluation procedure consists of mid and final examinations, practical formulas, assignments and reports, oral and technical presentations. Candidates who secure 80% or more marks are awarded grade A. Gold medals are awarded to the students who secure highest marks. Degrees are awarded to the students on the annual convocation that is held every year.

SECTION-6

CRITERION-6: FACULTY: Standard 6.1: Full Time Faculty
Table: 4.6

Name	Designation	Qualification	Country Awarding Degree	Date of Birth	E-mail Address
Dr. Mazhar Qayyum	Associate Professor	Ph.D.	Pakistan	7.6.1963	Mazhar_dr@yahoo.com
Dr. Shamim Akhtar	Assistant Professor	Ph. D	Pakistan	13.06.1964	sashraf1993@yahoo.com
Dr. Muhammad Sajid Nadeem	Assistant Professor	Ph. D	Pakistan	04.04.1970	sajidnm@hotmail.com
Dr. Farhana Riaz	Assistant Professor	Ph. D	Pakistan	25.07.1972	Farhana_ahmer@yahoo.com
Dr. Amjad Rashid Kiyani	Assistant Professor	Ph. D	UK	28-3-1966	ark120106@yahoo.co.uk
Dr. Muhammad Mushtaq	Assistant Professor	Ph. D	Pakistan	10.12.1970	mushtaq@uaar.edu.pk
Dr. M. Zubair Anjum	Assistant Professor	Ph. D	Austria	9-3-1978	zubair.anjum@uaar.edu.pk
Dr. Abida Arshad	Assistant Professor	Ph. D	China		
Dr. Ruqia Mehmood Baig	Lecturer	Ph. D	Pakistan	7-8-1983	
Mr. Muhammad Irfan	Lecturer	Ph. D. student	Pakistan	16.02.1984	Muhammadirfan11@gmail.com

Table.4.7 Faculty Distribution by Program Areas in Zoology/Biology

Program area of specialization	Courses in the area and average number sections per year	Number of faculty members in each area	Number of faculty with Ph. D degree
Microbiology/Parasitology	7	2	2
Wildlife	6	2	2
Biodiversity	2	1	-
Reproductive physiology	2	1	1
Endocrinology	2	1	-

STANDARD 6.2: EFFECTIVE PROGRAMS FOR FACULTY DEVELOPMENT

1. Professional training and availability of adequate research and academic facilities are not provided according to the faculty members
2. Library facility is insufficient as no latest subject books are available.

STANDARD-6.3: FACULTY MEMBER MOTIVATION

- Time to time provision of enthusiasm to the young faculty by the senior faculty members.

SECTION-7

CRITERION-7: INSTITUTIONAL FACILITIES

INSTITUTIONAL FACILITIES

The institution must have the infrastructure to support new trends in learning such as e-learning

- Electronic library books and journals are not available for learning purpose.
- Insufficient facilities regarding the infrastructure to support new trends in learning or prevalent

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

- Insufficient library's technical collection of books
- Recommended books, relevant journals of the programs are not available to the students.
- However, this aspect needs to be strengthening of discipline.

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

STANDARD-7.1: INFRASTRUCTURE

The faculty doesn't have computers to access internet and to e-library which is very helpful for the high quality education and producing research of international standard.

The department has the following shortcomings/problems:

- Majority of the faculty members do not have access to the PCs as department have only one computers provided by the university and three are by projects and HEC scholars
- Telephone sets/connections are not present.

STANDARD-7.2: LIBRARY FACILITIES

The university Central Library has very limited number of books, journals and periodicals. It's a small library in term of space and facilities with no catalogue systems. It does not meet the standards of a university library. Department itself does not have a library.

STANDARD-7.3: CLASS ROOM AND FACULTY OFFICES

Two class rooms are available without any multimedia. Two to three teachers are sharing rooms. Common room for students is also missing. No heater and air conditioner is installed in class rooms, labs and offices.

SECTION-8

CRITERION-8: INSTITUTIONAL SUPPORT

The university administration is trying to provide all the possible facilities to the departments and has been struggling hard for the up gradation of departments and establishing new faculties and institutes. The university is also trying to attract highly qualified faculty.

INTSTITUTIONAL SUPPORT:

- Faculty offices are inadequate and therefore two or three teachers have one office. The department at present avails all the human resources assigned

STANDARD-8-1: SUPPORT AND FINANCIAL RESOURCES

The department has limited funds and Individual research grants for students and faculty are mainly supporting the departmental research activities. There is a dire need for increasing the financial resources allocated to the department to establish a library, animal house, laboratories and computer facilities

STANDARD-8-2: HIGH QUALITY RESEARCH SCHOLARS

Research Assistants	Ph.D. Students
4	26

Faculty to Ph.D. student's ratio is 1:1.1

STANDARD-8-3: FINANCIAL RESOURCES

Total budget of the department of Zoology and Biology for the financial year 2009-10 is Rs. 450,000 which does not fulfills the departmental needs particularly for the purchase of equipment, chemicals etc.

SUMMARY

The Department of Zoology/Biology has been offering M. Sc degree since 1996. The admissions are offered on merit and students have to fulfill certain prerequisite criteria for admission in M. Sc. The programs tend to impart basic knowledge of classical as well as modern Zoology. The courses include elements of microbiology, genetics and biochemistry on basic and advanced levels as well. Graduates get equipped with key concepts of modern Zoology, and get aware of the scope and limitations of the subject. Graduates acquire a general biological and scientific background as well as gain experience in problem solving and develop the communication, numerical and computer skills required for a wide range of careers. In order to assess whether department is fulfilling its objectives or not, surveys on various aspects such as course evaluation, teacher evaluation, alumni survey, research/graduating students surveys and faculty survey etc. have been conducted by the departmental members of the program team. The data were collected on prescribed proformae and later on analyzed and presented in the form of graphs and tables. The data revealed that students are satisfied with the subject approach of faculty members, their fairness in examination, and level of knowledge. Course evaluation survey showed that students are satisfied with workload and value of knowledge provided to them. According to research student survey, access to various scientific journals is limited. Similarly, department has limited budget for research purposes which cannot support laboratories and research activities. According to employer students are good at job but they have very basic knowledge of information technology and computer skills. Faculty members are satisfied with their salaries but they have severe concerns about the workload as most of them are agreed that they have very less time for themselves. The performance of the department may be further improved considering; a) Laboratory needs new equipments, b) Faculty members have pointed that in their workload research students should also be considered, c) At present there is no departmental library.

Annex-1

List of courses offered

M. Sc Biology		
Course No.	Course Title	Credit Hours
Major Courses		
BIOL-701	Cellular Biology	3(2-2)
BIOL-704	Environmental Biology	3(2-2)
BIOL-706	Biosystematics	4(3-2)
BIOL-708	Economic Biology	4(3-2)
BIOL-709	Fundamental of Microbiology and Immunology	3(2-2)
BIOL-711	Research Planning and Report Writing	3(1-4)
BIOL-712	Principles of Biotechnology	3(2-2)
BIOL-720	Seminar-I	1(1-0)
BIOL-725	Animal Reproductive Biology	3(2-2)
BIOL-728	Concept of Genetics	3(2-2)
BIOL-702	Physiological Systems of Animal	3(2-2)
BIOL-703	Plant Physiology	3(2-2)
BIOL-704	Environmental Biology	3(2-2)
BIOL-705	Evolutionary Biology	2(2-0)
BIOL-707	Biodiversity	4(3-2)
BIOL-709	Fundamentals of Microbiology and Immunology	3(2-2)
BIOL-710	Mycology and Plant Pathology	3(2-2)
BIOL-712	Principles of Biotechnology	3(2-2)
BIOL-722	Host/Parasite Interactions in Animals	3(2-2)
BIOL-723	Immunology	3(2-2)
BIOL-726	Pathophysiology	3(2-2)
BIOL-729	General Pharmacology	3(2-2)

M. Sc Zoology		
Course No.	Course Title	Credit Hours
Major Courses		
ZOOL-701	Cell Biology	3(2-2)
ZOOL-703	Principles of Genetics	3(2-2)
ZOOL-706	Developmental Biology	3(2-2)
ZOOL-709	Principles of Animal Systemics	2(1-2)
ZOOL-711	Research Planning and Report Writing	3(1-4)
BIOL-704	Environmental Biology	3(2-2)
BIOL-709	Fundamental of Microbiology and Immunology	3(2-2)
BIOL-712	Principles of Biotechnology	3(2-2)
BIOL-704	Environmental Biology	3(2-2)
ZOOL-702	Animal Diversity and Zoogeography	3(2-2)
ZOOL-704	Comparative Animal Physiology	3(2-2)
ZOOL-705	Animal Behavior	2(2-0)
ZOOL-706	Developmental Biology	3(2-2)
ZOOL-707	Comparative Endocrinology	3(2-2)
ZOOL-708	Aquaculture and Fisheries	3(2-2)
ZOOL-710	Parasitology	2(2-0)
ZOOL-713	Clinical Bacteriology	3(2-2)
ZOOL-714	Medical Virology	3(2-2)
ZOOL-715	Faunal Biodiversity of Pakistan	3(2-2)
ZOOL-718	Applied Reproductive Physiology	3(2-2)

ZOOL-720	Seminar	1(1-0)
ZOOL-733	Ornithology	3(2-2)
ZOOL-751	Project Planning,, Monitoring + and Evaluation	3(3-0)

FACULTY RESUMES

1. CURRICULUM VITAE

1. Personal Data

Name: Dr. Mazhar Qayyum

Present Address: Professor,
Department of Zoology, Pir Mehr Ali Shah Arid Agriculture
University, Murree road, Rawalpindi, Pakistan.

Telephone 051-9062267

E-mail mazhar_dr@yahoo.com

2. Academic Qualification

DEGREE	YEAR	SUBJECTS	INSTITUTIONS
Post Doctorate	2003	Parasitology	Louisiana State University, USA
Ph.D	1997	Parasitology	Quaid-I-Azam University, Islamabad, Pakistan
M.Phil	1991	Parasitology	Quaid-I-Azam University, Islamabad, Pakistan
M.Sc	1989	Biology (Animal Sciences)	Quaid-I-Azam University (Animal Sciences), Islamabad, Pakistan

3. Area of Specialization: Parasitology

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 19 years

6. Fellowship/Membership of Professional Associations/Societies: 03

7. Research Projects; Completed=04

8. Participation in Conferences/Workshops: 20

9. Supervision of Post-Graduate Theses: a) Ph.D.:10; b) M.Phil.: 23.; M. Sc. 13

10. Publications

Papers Published in Peer Reviewed Journals: 47

a.

Publications during reported period (2010-2012)

1. MUHAMMAD BILAL ANWAR, RODNEY JACKSON, MUHAMMAD SAJID

- NADEEM, JAN E. JANECKA, SHAFQAT HUSSAIN, MIRZA AZHAR BEG, GHULAM MUHAMMAD, **MAZHAR QAYYUM**, 2011. Food habits of the snow leopard *Panthera uncia* (Schreber, 1775) in Baltistan, Northern Pakistan. **Eur J Wildl Res**, DOI 10.1007/s10344-011-0521-2
2. ATIF KAMAL, **MAZHAR QAYYUM**, IQBAL U CHEEMA AND AUDIL RASHID, 2011. Biological Monitoring of Blood Naphthalene Levels as a Marker of Occupational Exposure to PAHs among Auto-Mechanics and Spray Painters in Rawalpindi. Kamal et al. **BMC Public Health** 2011, 11:467
 3. IRFAN, M., RAJA, G. K., MURTAZA, S., MANSOOR, R., **QAYYUM, M.** AND RIZVI, S.S.R. Physical stress may result in growth suppression and pubertal delay in working boys. **J. Med. Hypotheses Ideas**. 5(25): 2011.
 4. HAROON AHMED, BUSHRA MIRZA, QASIM KHAN, WASEEM SAFDAR AND **MAZHAR QAYYUM**. Seroprevalence of hypodermosis (*Hypoderma lineatum*) in the cattle of potohar region, Pakistan. **International Journal of Cell and Molecular Biology** 2(2):497-510, 2011.
 5. HAROON AHMED, RIAZ KHAN, ROSARIO PANADERO-FONTAN, CEFERINO LOPEZ SANDES, MUHAMMAD FAROOQ IQBAL, SYED MUHAMMAD SQLAN NAQVI, **MAZHAR QAYYUM**, 2012. Geographical Distribution of Hypodermosis (*Hypoderma* sp.) in Northern Punjab, Pakistan. **Kafkas Univ. Vet. Fak. Derg** 18(suppl-A) A215-A219, 2012.
 6. NAUSHEEN IRSHAD, **M.QAYYUM**, M.HUSSAIN AND M.QASIM KHAN, 2010. Prevalence of Tick Infestation and Theileriosis in Sheep and Goats. *Pak Vet J*, 30(3): 178-180.
 7. SAIRA MUFTI, M. MAQBOOL AHMAD, YUSUF ZAFAR AND **MAZHAR QAYYUM**, 2011. Phenotypic Analysis of Adult *Fasciola* spp. From Potohar Region of Northern Punjab, Pakistan. *Pakistan J. Zool.*, vol. 43(6), pp. 1069-1077, 2011
 8. MUHAMMAD BILAL ANWAR, MUHAMMAD SAJID NADEEM, AMJAD RASHID KAYANI AND **MAZHAR QAYYUM**, 2011. Is Mammalian Hair Fiber Analysis by Optical Fiber Diameter Analyzer Helpful to Identify Prey from Scats of Carnivores? *Pakistan J. Zool.*, vol. 43(6), pp. 1218-1220, 2011.
 9. Z. S. MIRZA, M. S. NADEEM, M. A. BEG AND **MAZHAR QAYYUM**, 2012. Population Status and Biological Characteristics of Common Carp, *Cyprinus Carpio*, in Mangla Reservoir (Pakistan). *The Journal of Animal & Plant Sciences*, 22(4):2012, Page: 933-938.

2. CURRICULUM VITAE

1. Personal Data

Name: Dr. Shamim Akhtar

Present Address: Associate Professor,

Department of Zoology, Pir Mehr Ali Shah Arid Agriculture University, Murree road, Rawalpindi, Pakistan.

Telephone:

E-mail

sashraf1993@gmail.com

2. Academic Qualification

1.	Ph.D. (Zoology)	University of Arid Agriculture, Rawalpindi	2006
2	M.Phil. (Zoology)	University of Agriculture, Faisalabad.	1991
3	M.Sc. (Zoology)	University of Agriculture, Faisalabad.	1987
4	B.Sc (Zool, Bot, Chem)	University of the Punjab, Lahore	1985
	Post Doctoral Fellowship	Commonwealth Post Doctoral Fellowship at “The Royal Veterinary College, University of London, UK. 2009	

3. Area of Specialization: Reproductive Physiology

4. HEC approved supervisor

5. **Professional Experience** (Research and Teaching): 15 years

6. **Fellowship/Membership** of Professional Associations/Societies: 02

7. **Research Projects**; Completed=06; ongoing=01

8. **Participation in Conferences/Workshops**: 20

9. **Supervision of Post-Graduate Theses**: a) Ph.D.:1; b) M.Phil.: 23; M.Sc. 20.

10: **International collaborations** = **Three institutes/universities**

11. Publications

Papers Published in Peer Reviewed Journals: 50

Publications during reported period (2010-2012)

1. Ansari, M. S., B. A. Rakha, S. M.H. Andrabi, N.Ullah, R. Iqbal, W. V. Holt, **Shamim Akhter**. 2012. Glutathione-supplemented tris-citric acid extender improves the post-thaw quality and in vivo fertility of buffalo (*Bubalus bubalis*) bull spermatozoa. Reproductive Biology, 12: 271-276. (Impact factor: 1.222)

- 2. Shamim Akhter**, M. S. Ansari, B. A. Rakha, N. Ullah, S. M. H. Andrabi and M. Khalid. 2012. *In vitro* evaluation of liquid-stored buffalo semen at 5°C diluted in soya lecithin based extender (Bioxcell®), tris-citric egg yolk, skim milk and egg yolk-citrate extenders. *Reproduction in Domestic Animals*, 46(1): 45-49. (*Impact factor: 1.392*)
- 3. Shamim Akhter**, M. S. Ansari, S. M. H. Andrabi, B. A. Rakha, N. Ullah, M. Khalid. 2011. Soya-lecithin in extender improves the freezability and fertility of buffalo (*Bubalus bubalis*) bull spermatozoa. *Reproduction in Domestic Animals*, 47: 815-819. (*Impact factor: 1.392*)
- 4. Shamim Akhter**, M. S. Ansari, B. A. Rakha, S. M. H. Andrabi, N. Ullah and M. Khalid. 2011. Effect of low density lipoproteins in extender on freezability and fertility of buffalo (*Bubalus bubalis*) bull semen. *Theriogenology*, 76(4): 759-764. (*Impact Factor: 2.082*)
- 5.** Ansari, M. S., B. A. Rakha, S. M. H. Andrabi and **Shamim Akhter**. 2011. Effect of straw size and thawing time on quality of cryopreserved buffalo (*Bubalus bubalis*) semen. *Reproductive Biology*, 11(1): 49-54. (*Impact factor: 1.222*)
- 6. Shamim Akhter**, M. S. Ansari, B. A. Rakha, S. M. H. Andrabi and N. Ullah. 2010. Cryopreservation of buffalo (*Bubalus bubalis*) semen in Bioxcell® extender. *Theriogenology*, 74: 951-955. (*Impact Factor: 2.082*)
- 7.** Ansari, M. S., B. A. Rakha, N. Ullah, S. M. H. Andrabi, S. Iqbal, M. Khalid and **Shamim Akhter**. 2010. Effect of exogenous glutathione in extender on the freezability of Nili-Ravi buffalo (*Bubalus bubalis*) bull spermatozoa. *Animal Science Papers and Reports*, 28: 235-244. (*Impact factor: 0.918*)
- 8.** Ansari, M. S., B. A. Rakha and **Shamim Akhter**. 2011. Effect of L-cysteine in extender on post-thaw quality of Sahiwal bull semen. *Animal Science Papers and Reports*, 29: 197-203. (*Impact factor: 0.918*)
- 9.** Ansari, M. S., B. A. Rakha, S. M. H. Andrabi and **Shamim Akhter**. 2010. Usefulness of powdered and fresh egg yolk for cryopreservation of Zebu bull spermatozoa. *Reproductive Biology*, 10(3): 235-240. (*Impact factor: 1.222*)
- 10. Shamim Akhter**, B. A. Rakha, M. S. Ansari. 2010. Comparison of egg yolks from three avian species in extender for cryopreservation of Sahiwal bull epididymal spermatozoa. *Animal Science Papers and Reports*, 29: 131-138 (*Impact factor: 0.918*)

- 11.** Batool, K. Mehboob, S. Qadeer, M. S. Ansari, B. A. Rakha, N. Ullah, S. M. H. Andrabi, **Shamim Akhter**. 2012. Effect of α -tocopherol acetate and ascorbic acid in extender on quality of Zebu bull spermatozoa. Pakistan Journal of Zoology, 44 (6): 1487-1491. (*Impact Factor: 0.309*)
- 12.** N. A. Qureshi, M. S. Ansari, **Shamim Akhter**, A. A. Khan, I. Hussain and B. A. Rakha. 2012. Feeding Habits of Common Quail (*Coturnix coturnix*) migrating through Rawalpindi, Pakistan. Pakistan Journal of Zoology, 44 (6): 1760-1762. (*Impact Factor: 0.309*)
- 13.** Mehmood, A., M. S. Ansari, **Shamim Akhter**, A. A. Khan, I. Hussain, Shams-ul-Hassan, T. Z. Qureshi and B. A. Rakha. 2012. Occurrence of Pathogenic bacteria in small mammals-inhabiting poultry farms of Rawalpindi/Islamabad, Pakistan. Pakistan Journal of Zoology, 44(4): 1185-1187. (*Impact Factor: 0.309*)
- 14.** Mehmood, A., M. S. Ansari, T. Hussain, **Shamim Akhter**, S. A. Khan, S. Hassan, A. A. Khan and B. A. Rakha. 2012. Common shrew (*Suncus murinus*): A potential reservoir of pathogenic bacteria at poultry farms, Rawalpindi, Pakistan. Pakistan Journal of Zoology, 44(3): 879-880. (*Impact Factor: 0.309*)
- 15.** Atiq, N., N. Ullah, S. M. H. Andrabi and **Shamim Akhter**. 2011. Comparison of Photometer with Improved Neubauer Hemocytometer and Makler Counting Chamber for Sperm Concentration Measurement in Cattle. Pak Vet J, 31(1): 83-84. (*Impact Factor: 1.365*)
- 16.** Ansari M. S., B. A. Rakha, **Shamim Akhter**. 2011. Effect of butylated hydroxytoluene in extender on motility, plasmalemma and viability of Sahiwal Bull Spermatozoa. Pakistan Journal of Zoology, 43: 311-314. (*Impact Factor: 0.309*)
- 17.** Ansari, M. S., B. A. Rakha, N. Ullah, S. M. H. Andrabi and **Shamim Akhter**. 2011. Glutathione addition in *tris*-egg yolk extender improves the quality of cooled buffalo (*Bubalus bubalis*) bull semen. Pakistan Journal of Zoology, 43: 46-55. (*Impact Factor: 0.309*)
- 18.** Ansari, M. S., B. A. Rakha, N. Ullah, S. M. H. Andrabi, M. Khalid and **Shamim Akhter**. 2011. Effect of L-cysteine in *tris*-citric egg yolk extender on post thaw

quality of Nili-Ravi buffalo (*Bubals bubalis*) bull spermatozoa. Pakistan Journal of Zoology, 43: 41-47. (Impact Factor: 0.309)

19. Shamim Akhter, B. A. Rakha, M. S. Ansari, S. M. H. Andrabi and N. Ullah. 2011. Effect of glucose supplementation in skim milk diluter on motility, plasma membrane and acrosomal integrity of Nili-Ravi buffalo bull spermatozoa stored at 5°C. Pakistan Journal of Zoology, 43(1): 291-294. (Impact Factor: 0.309)

20. Shamim Akhter, B. A. Rakha, M. S. Ansari, S. M. H. Andrabi and N. Ullah. 2011. Storage of Nili-Ravi Buffalo (*Bubalus bubalis*) Semen in Skim Milk Extender Supplemented with Ascorbic Acid and α -Tocopherol. Pakistan Journal of Zoology, 43(1): 273-277. (Impact Factor: 0.309)

21. Mehmood, A., M. S. Ansari, T. Hussain, **Shamim Akhter**, S. A. Khan, S. Hassan, A. A. Khan and B. A. Rakha. 2011. Bandicoot rat (*Bandicota bengalensis*): A novel reservoir of pathogenic bacteria at poultry farms, Rawalpindi/Islamabad, Pakistan. Pakistan Journal of Zoology, 43(1): 201-202. (Impact Factor: 0.309)

22. Shamim Akhter, M. S. Ansari, B. A. Rakha, S. M. H. Andrabi M. Anwar and N. Ullah. 2010. Effect of fructose addition in skim milk extender on the quality of liquid Nili-Ravi buffalo (*Bubalus bubalis*) semen. Pakistan Journal of Zoology, 42: 227-231. (Impact Factor: 0.309)

23. Begum I, A Azim, S Akhter, MI Anjum and M Afzal, 2010. Mineral dynamics of blood and milk in dairy buffaloes fed on calcium and phosphorus supplementation. Pakistan Veterinary Journal, 30(2): 105-109. (Impact Factor: 1.365)

24. Ansari, M. S., B. A. Rakha, S. M. H. Andrabi, N. Ullah and **Shamim Akhter**. 2010. Cryopreservation of Sahiwal bull epididymal spermatozoa. Pakistan Journal of Zoology, 42: 241-243. (Impact Factor: 0.309)

3. CURRICULUM VITAE

1. Personal Data

Name:	Dr. Muhammad Mushtaq
Present Address:	Assistant Professor, Department of Zoology, Pir Mehr Ali Shah Arid Agriculture University, Murree road, Rawalpindi, Pakistan.
Telephone	0300-9867892

E-mail mushtaq@uaar.edu.pk,

2. Academic Qualification

Ph. D.	2009	Zoology (Rodent Pest Management) PMAS Arid Agriculture University, Rawalpindi
M. Sc.	1995	Zoology (Specialization in Entomology) Punjab University, Lahore
B. Sc.	1991	Zoology, Botany, Psychology Punjab University, Lahore

3. Area of Specialization: Integrated Pest Management

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 18 years

6. Fellowship/Membership of Professional Associations/Societies: 02

7. Research Projects; Completed=01; ongoing=01

8. Participation in Conferences/Workshops: 10

9. Supervision of Post-Graduate Theses: M.Phil.: 4.

10. Publications

Papers Published in Peer Reviewed Journals: 06

Publications during reported period (2010-2012)

1. **Mushtaq, M.**, I. Hussain and A. Mian. **2012**. Effectiveness of Groundnut – Maize Bait as Carrier of Coumatetralyl Against Indian Crested Porcupine, *Hystrix indica* Kerr. **Pakistan J. Zool.**, 44(2): 579 – 581. (IF = **0.309**)
2. Anwar, M. B., M. S. Nadeem, S. I., Shah, A. R. Kayani and **M. Mushtaq**. **2012**. A Note on the Diet of Indian Wolf (*Canis lupus*) in Baltistan, Pakistan. **Pakistan J. Zool.**, 44(2): 588 – 591. (IF = **0.309**).

3. **Mushtaq, M.**, A. Mian, I. Hussain, S. Munir, I. Ahmed and A. A. Khan. **2010**. Field evaluation of different fresh food baits against Indian crested porcupine, *Hystrix indica*. **Pakistan J. Zool.**, 42(5): 507 – 513. (IF = **0.309**)

4. CURRICULUM VITAE

1. Personal Data

Name: **Dr. Farhana Riaz Chaudhry**

Present Address: Assistant Professor,
Department of Zoology, Pir Mehr Ali Shah Arid Agriculture
University, Murree road, Rawalpindi, Pakistan.

Telephone 03008505505

E-mail farhana_ahmer@yahoo.com

2. Academic Qualification

Year	Degree/Diploma	Institute
2007	Ph.D (Zoology)	University of Arid Agriculture, Rawalpindi-Pakistan
1996	M.Sc.(Zoology)	Punjab University, Lahore-Pakistan
1994	B.Sc. (Pre-medical)	Punjab University, Lahore-Pakistan

3. Area of Specialization: Parasitology

4. HEC approved supervisor

5. **Professional Experience** (Research and Teaching): 06 years

6. **Fellowship/Membership** of Professional Associations/Societies: 02

7. **Research Projects**; Completed=02; On-going =01

8. **Participation in Conferences/Workshops**: 10

9. **Supervision of Post-Graduate Theses**: M.Phil.: 18.

10. Publications

Papers Published in Peer Reviewed Journals: 04

Publications during reported period (2010-2012)

1. Rubaba, M. Inam, M. Ismail and **F. R. Chaudhry**. (2012). Group 10 allergens

(tropomyosin) from house dust mites may cause covariation of sensitization to allergens from other invertebrates. European Journal of Allergy and Clinical Immunology.

5. CURRICULUM VITAE

1. Personal Data

Name: Dr. Muhammad Sajid Nadeem

Present Address: Assistant Professor,
Department of Zoology, Pir Mehr Ali Shah Arid Agriculture
University, Murree road, Rawalpindi, Pakistan.

Telephone 0300-8539455

E-mail sajidnm@uaar.edu.pk

2. Academic Qualification

- Ph. D. in Zoology from University of the Punjab, specializing in wildlife. (Year 2005)
Thesis: Ecology of Houbara Bustard (*Chlamydotis undulata macqueenii*) in Punjab Nag Valley (Balochistan) and Uzbekistan.
- Master of Science in Zoology from University of The Punjab, specializing in wildlife research and fieldwork (year 1994).
Thesis: Behavioural patterns of Blue Peafowl (*Pavo cristatus*) in Changa Manga Wildlife Sanctuary.
- Bachelor of Science with Botany, Geography and Zoology from Islamia University Bahawalpur. (Year 1990)

3. Area of Specialization: Wildlife / ecology / conservation

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 15 years

6. Fellowship/Membership of Professional Associations/Societies: 05

7. Research Projects; Completed=02; ongoing=01

8. Participation in Conferences/Workshops: 22

9. Supervision of Post-Graduate Theses: a) Ph.D.:2; b)M.Phil.: 14.

10. Publications

- b. Papers Published in Peer Reviewed Journals: 50
- c. Books / proceedings: 02
- d. Research/Technical Reports (Unpublished): 13

Publications during reported period (2010-2012)

- 1) Anwar, M.B; Jackson, R; **Nadeem, M. S**; Janečka, J. E; Hussain, S; Beg, M. A; Muhammad, G. and Qayyum, M. 2011. Food Habits of Snow Leopard *Panthera unica* (Schreber, 1775) in Baltistan, Northern Pakistan. *European Journal of Wildlife Research*. 57 (5): 1077-1083.
- 2) **Nadeem, M. S**; Imran, S. M. K; Mahmood, T; Kayani, A. R; and Shah, S. I. 2012. A Comparative Study of the Diets of Barn Owl (*Tyto alba*) and Spotted Owlet (*Athene brama*) Inhabiting Ahmadpur East, Southern Punjab, Pakistan. *Animal Biology*, 62(1): 13-28.
- 3) Mahmood-ul-Hassan, M; Javid, A; **Nadeem, M. S**; and Ashraf, S. 2012. An extralimital record of the Egyptian tomb bat *Taphozous perforatus* from Pakistan. *Mammalia*, 76(2):227-229.
- 4) **Nadeem, M. S**; Naz, R; Shah, S. I; Beg, M. A; Kayani, A. R; Mushtaq, M; and Mahmood, T. 2012. Season and locality related changes in the diet of Asiatic jackal (*Canis aureus*) in Potohar, Pakistan. *Turk. J. Zool.* 36(6):798-805.
- 5) Mahmood, S; Mahmood, T; Rais, M; Qureshi, I. Z; and **Nadeem, M. S**. 2010. A comparative study on the populations and habitats of the Grey Francolin *Francolinus pondicerianus* and Black Francolin *Francolinus francolinus* in Lehri Nature Park, Punjab, Pakistan. *Podoces* 5(1):42-53.
- 6) **Nadeem, M. S**; Mahmood, T; and Asif, M; 2010. Wintering Population of Houbara Bustard in Punjab, Pakistan (2002-2003). *Berkut*. Vol. 19 (1):133-140.
- 7) Bilal, S; Rais, M; Anwar, M; Mahmood, T; Hussain, I; and **Nadeem, M. S**. 2011. Trends in the diversity of migratory ducks at Rawal Lake, Islamabad. *Berkut*. Vol. 20 (2):65-69.
- 8) Beg, M. A; Mushtaq-ul-Hassan, M; Durr-i-Shahwar, and **Nadeem, M. S**. 2010. The Dynamics of Rats and Mice Populations Inhabiting Wheat-Sugarcane based croplands in Central Punjab (Pakistan). *Pak. J. Zool.* 42(3):311-323.
- 9) Mahmood, T; Hussain, I; and **Nadeem, M. S**. 2011. Population estimate, Habitat preference and the diet of Small Indian Mongoose (*Herpestes javanicus*) in Potohar Plateau, Pakistan. *Pak. J. Zool.* 43(1):103-111.
- 10) **Nadeem, M. S**; Mahmood, T; Asif, M; and Mahmood-ul-Hassan, M. 2011. Annual Reproductive Success of the Hoopoe Lark *Alaemon alaudipes* in Nag Valley (1999-2001), Kharan, Pakistan. *Pak. J. Zool.* 43(2):279-284.

- 11) Anwar, M. B; **Nadeem, M. S**; Kayani, A. R; and Qayyum, M. 2011. Is mammalian hair fiber analysis by optical fiber diameter analyzer (OFDA) helpful to identify prey in scats of carnivores? *Pak. J. Zool.* 43(6): 1218-1220.
- 12) Mahmood, T; Shah, S.M.A; Rais, M; **Nadeem, M.S.** 2011. An investigation of animal species trade at pet shops of Rawalpindi and Multan cities. *J. Anim. Plant Sci.* 21(4): 822-829.
- 13) Anwar, M. B; **Nadeem, M. S**; Shah, S.I; Kayani, A. R; and Mushtaq, M. 2012. A Note on the diet of Indian Wolf (*Canis lupus*) in Baltistan, Pakistan. *Pak. J. Zool.* 44(2):588-591.
- 14) Mahmood, T; Hussain, R; Rais, M; Hussain, I; and **Nadeem, M.S.** 2012. Habitat analysis and population estimates of three falcon species, Red-headed Merlin (*Falco chicquera*), Common Kestrel (*Falco tinnunculus*) and Saker Falcon (*Falco cherrug*), inhabiting District Chakwal, Pakistan. *Pak. J. Zool.* 44(3):787-798.
- 15) Anwar, M. B; **Nadeem, M. S**; Beg, M.A; Kayani, A. R; and Muhammad, G. 2012. A Photographic Key for the Identification of Mammalian Hairs of Prey Species in Snow Leopard (*Panthera uncia*) Habitats of Gilgit-Baltistan Province of Pakistan. *Pak. J. Zool.* 44(3):737-743.
- 16) Mahmood, T; Siddiq, M. K; Rais, M; and **Nadeem, M. S.** 2012. Distribution and Relative Abundance of Freshwater Turtles in Korang River Islamabad- Rawalpindi, Pakistan. *Pak. J. Zool.* 44(3):889-893.
- 17) Javid, A; Mahmood-ul-Hassan, M; **Nadeem, M. S**; Rana, N; and Khan, N. 2012. First record of the Lesser Mouse-tailed Bat *Rhinopoma hardwickii* (Rhinopomatidae:Chiroptera) from southern Punjab, Pakistan. *J. Anim. Plant Sci.* 22 (2):278-282.
- 18) Mahmood, T; Hussain, R; Irshad, N; Akrim, F; and **Nadeem, M. S.** 2012. Illegal mass killing of Indian Pangolin (*Manis crassicaudata*) in Potohar Region, Pakistan. *Pak. J. Zool.* 44(5):1457-1461.
- 19) Mirza, Z.S; **Nadeem, M. S**; Mirza, M. A; and Qayyum. 2012. Population status and biological characteristics of Common Carp *Cyprinus carpio* in Mangla Reservoir. *J. Anim. Plant Sci.* 22 (4):933-938.
- 20) Javid, A; Mahmood-ul-Hassan, M; Afzal, M; **Nadeem, M. S**; Hussain, S. M. 2012. Recent record of least pipistrelle (*pipistrellus tenuis*) (vespertilionidae: chiroptera) from Islamabad. *J. Anim. Plant Sci.* 22 (4):1042-1047.

6. CURRICULUM VITAE

1. Personal Data

Name: Dr. Muhammad Zubair Anjum

Present Address: Assistant Professor,
Department of Zoology, Pir Mehr Ali Shah Arid Agriculture
University, Murree road, Rawalpindi, Pakistan.

Telephone 0333-6512381

E-mail zubair.anjum@uaar.edu.pk

2. Academic Qualification

Ph.D. _ Ecology (2009)
Institute of Zoology, Department of Integrative Biology and Biodiversity Research.
Universität für Bodenkultur Wien, Austria.

M.Sc. _ Zoology (2004)
University of Agriculture, Faisalabad, Pakistan.

B.Sc. _ Zoology, Botany & Geography (2002)
University of Punjab, Lahore, Pakistan.

3. Area of Specialization: Fisheries / ecology

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 07 years

6. Fellowship/Membership of Professional Associations/Societies: 02

7. Research Projects; Completed=02; ongoing=01

8. Participation in Conferences/Workshops: 13

9. Supervision of Post-Graduate Theses: a) M.Phil: 14.

10. Publications Abstract = 04

Anjum-Zubair, M., Schmidt-Entling, M.H., Querner, P. & Frank, T. (2010). Influence of within-field position and adjoining habitat on carabid beetle assemblages in winter wheat. *Agricultural and Forest Entomology*. 12, 301-306.

7. CURRICULUM VITAE

1. Personal Data

Name: Dr. Amjad Rashid Kayani

Present Address: Assistant Professor,
Department of Zoology, Pir Mehr Ali Shah Arid Agriculture
University, Murree road, Rawalpindi, Pakistan.

Telephone 0332- 5268134

E-mail ark120106@yahoo.co.uk

2. Academic Qualification

- **Ph.D.** (Zoology) 2006 The University of Reading, UK
- **M.Sc.** (Zoology) 1988 University of Agriculture, Faisalabad
(Marks obtained 751 out of 920; 83%; **Ist Div.**; **CGPA 3.93**)
- **B.Sc.** (Zoology, Botany & Geography) 1985 Govt. Postgraduate
College Jhelum, The University of Punjab, Lahore
(Marks obtained 496 out of 800; 62%; **Ist Div.**)

3. Area of Specialization: Animal and reproductive ecology

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 23 years

6. Fellowship/Membership of Professional Associations/Societies: 03

7. Research Projects; Completed=01; ongoing=01

8. Participation in Conferences/Workshops: 08

9. Supervision of Post-Graduate Theses: a) Ph.D.:2 (in progress); b) M .Phil.: 08.

10. Publications

Papers Published in Peer Reviewed Journals: 10

Publications during reported period (2010-2012)

- 1) **Nadeem, M. S;** Imran, S. M. K; Mahmood, T; Kayani, A. R; and Shah, S. I. 2012. A Comparative Study of the Diets of Barn Owl (*Tyto alba*) and Spotted Owlet (*Athene brama*) Inhabiting Ahmadpur East, Southern Punjab, Pakistan. *Animal Biology*, 62(1): 13-28.

- 2) **Nadeem, M. S**; Naz, R; Shah, S. I; Beg, M. A; Kayani, A. R; Mushtaq, M; and Mahmood, T. 2012. Season and locality related changes in the diet of Asiatic jackal (*Canis aureus*) in Potohar, Pakistan. *Turk. J. Zool.* 36(6):798-805.
- 3) Anwar, M. B; **Nadeem, M. S**; Kayani, A. R; and Qayyum, M. 2011. Is mammalian hair fiber analysis by optical fiber diameter analyzer (OFDA) helpful to identify prey in scats of carnivores? *Pak. J. Zool.* 43(6): 1218-1220.
- 4) Anwar, M. B; **Nadeem, M. S**; Shah, S.I; Kayani, A. R; and Mushtaq, M. 2012. A Note on the diet of Indian Wolf (*Canis lupus*) in Baltistan, Pakistan. *Pak. J. Zool.* 44(2):588-591.
- 5) Anwar, M. B; **Nadeem, M. S**; Beg, M.A; Kayani, A. R; and Muhammad, G. 2012. A Photographic Key for the Identification of Mammalian Hairs of Prey Species in Snow Leopard (*Panthera uncia*) Habitats of Gilgit-Baltistan Province of Pakistan. *Pak. J. Zool.* 44(3):737-743.

8. CURRICULUM VITAE

Dr. Ruqia Mehmood Baig

D/O Mirza Saeed Mehmood Baig

Phone no: 0313-5400921/ 0300-5400921

ruqiamehmood@gmail.com

- **Objective:** I aspire to execute qualitative research and effective knowledge transfer.
- **Education**
 - **PhD**, Biosciences, COMSATS Institute of Information Technology, Islamabad, 2013. Thesis title “*Studying the Genetic Basis of Sporadic Breast Cancer Metastasis*”
 - **Mphil**, Cell Biology, Quaid-i-Azam University, Islamabad, 2008. Thesis title “*Isolation and Identification of Nematodes Associated to Shisham (Dalbergia Sissoo Roxb.) Dieback.*”

- **M.Sc., Zoology, Government College University, Lahore, 2004. Thesis title “*Effect of Fluoride Intoxification on Some Humoral and Histological Changes in Albino Mice*”**

➤ **Research Skills**

- Genomic DNA and RNA extraction/ isolation and from variety of fresh/ frozen samples including blood, cells, tissues and tissue sections.
- DNA, RNA and protein quantification.
- DNA mutation detection techniques (Single Stranded Conformational Polymorphism, PCR-SSCP and Restriction Fragment Length Polymorphism, PCR-RFLP) and sequencing data analysis.
- cDNA synthesis
- Analysis of expressional pattern of different genes at mRNA transcriptional level via Semi Quantitative and Quantitative real time PCR.
- Immunohistochemistry
- SDS-PAGE and Western Blotting
- Cloning and related experimentation including isolation of plasmid, orientation confirmation
- Cell culturing
- Expressional analysis of desired gene via a range of *in vitro* assays including Growth Assay, Matrigel Adhesion Assay, Bead Assay, Electric Cell-Substrate Impedance Sensing Analysis of cells attachment and Migration (Electrical wound-healing assay for cells in vitro) and Matrigel Invasion Assay.
- Isolation and Identification of Nematodes
- Training of graduate students and project designing in Lab.

➤ **Statistics and softwares**

- Microsoft Excel, Graph Pad Prism, SPSS, MS-OFFICE, BioEdit and Invitrogen Vector NTI for sequencing analysis, ImageJ, Data Assist software for Real Time PCR data analysis, ECIS modeling software to determine barrier function, cell membrane

capacitance as well as the spacing between the cell basal membrane and electrode in *in vitro* analysis, alamut biosoftware for mutational analysis and other Bioinformatics tools (BLAST, primer3, ClustalW).

➤ **Subject/ Courses Studied**

- Advances in Bioscience Research, Advances in Molecular Biology, Advances in Microbiology, Research Techniques, Advance in Molecular Genetics, Medical Microbiology, Pollution, Plant Tissue Culture, Advances in Biology of Reproduction, General Biochemistry, Molecular Cell Biology, Physiology and Animal Behavior, Genetics and Biometry, Developmental Biology, Animal Biodiversity, Environmental Biology and Wild life, Economic Zoology and Taxonomy, Evolution, Paleontology and Zoogeography, Basic Principles of Biotechnology, Immunology and Hematology. Applied Psychology.

➤ **Subject/ Courses taught**

- Physiological Systems of Animals, Genetics, Comparative Animal Physiology, Human Genetics, Molecular Biology

➤ **Research & Work Experience**

- Principal Investigator “***Contribution of Genetic Alterations in patients with Thyroid cancer***” funded by Higher Education Commission (HEC).
- Assistant Professor (IPFP, HEC Program) (January 2014 – January 2015), Department of Zoology/ Biology, PMAS Arid Agriculture University, Rawalpindi.
- Research Supervisor, 5 Mphil Students (Continue), Department of Zoology/ Biology, PMAS Arid Agriculture University, Rawalpindi.
- Research scholar (April 2012 - June 2013)

Cancer Genetics Lab, Department of Biosciences, COMSATS Institute of Information Technology, Islamabad.

- Research Fellow (October 2011- March 2012)
Metastasis and Angiogenesis Research group (MARG), Department of Surgery, University Hospital Wales, Cardiff, UK.
- Research fellow (2007-2008)
Cell Biology Lab, Quaid-i-Azam University, Islamabad
- Research fellow (2003-2004)
Immunology Lab, Zoology, Government College University, Lahore.
- Teacher (July 2008- September 2008)
Federal Directorate of Education Islamabad, Islamabad.
- Project In charge (Jhelum (March 2005-March 2006)
National Center for Rehabilitation of Child labor, NCRCL,
- One year honorary lectureship in Govt. College for Women, (2004-2005)
GCW Jhelum.

➤ **Professional Certificate/ Education**

- **Bachelors in Education** (B.Ed), Science group, 2007. Allama Iqbal Open University, Islamabad.
- **Professional Certificate in Information Technology** (PCIT), 2007. Quaid-i-Azam University, Islamabad.

➤ **Achievements**

- Won Governor Scholarship 2002-2003, for Masters program (part1)
- Won Chief Minister Scholarship 2003-2004, for Masters program (part2)

- Won Quaid e Azam University Semester Scholarship for 1st position in M.phil, Department of Plant Sciences (2006).
- Won HEC Indigenous Scholarship, Batch IV, MPhil leading to PhD (2008-2012).
- Won International Research Support Initiative Programme (IRSIP) Scholarship (2011-2012).
- Won Research productivity award 2011, COMSATS Institute of Information Technology Islamabad, Pakistan.
- Won Research productivity award 2012, COMSATS Institute of Information Technology Islamabad, Pakistan.
- Won Research productivity award 2013, COMSATS Institute of Information Technology Islamabad, Pakistan.

➤ **Membership**

- Biological Society, Govt. College University Lahore, (2002-2004) Vice President.
- Member of Pakistan Botanical Society Pakistan.
- Member Maintenance Committee, Girls Hostel Government College University, Lahore, (2002-2004)

➤ **Conferences and Workshops**

Member Organizing Committee (Student), Seminar Series COMSATS Institute of Information Technology, Pak China Business forum, 23-26 March, 2013.

Presentation in Winter Meeting of Metastasis and Angiogenesis Research group (MARG), Department of Surgery, University Hospital Wales, Cardiff, UK. (16th Dec., 2011).

Workshop on Analysis of Research Data using SPSS, COMSATS Institute of Information Technology, Islamabad, (July 11- July 15, 2011)

Poster presented at 2nd Annual Biosciences Poster Exhibition and Competition (BIOPEC), CIIT- Islamabad. (April, 2011).

Poster presented at 1st Annual Biosciences Poster Exhibition and Competition (BIOPEC), CIIT- Islamabad. (May, 2010).

Poster presented at BICMAPE Science Conference, CIIT, Abbottabad. (July 28-29, 2009)

Sixth International Biennial Conferences of Microbiology, March 18-21, 2007, Quaid-i-Azam University, Islamabad.

National Training Seminar on “Biosafety and Biosecurity Initiatives”, June 18-19, 2007, PARC, Islamabad

National Seminar on “Effect of Pollution on Water Quality and Aquatic Life”, NARC, June 26-27, 2007

2nd National Conference of Biology. GCU Lahore (April 22-24, 2004)

➤ **List of Publications**

▪ **2015**

Wazir U, Sanders AJ, Wazir A, **Baig RM**, Jiang WG, Ster IC, Sharma AK, Mokbel K. Effect of the knockdown of death-associated protein 1 expression on cell adhesion, growth and migration in breast cancer cells. *Oncology Reports* 33(3):1450-8.2015.

▪ **2014**

Sabir M, **Baig RM**, Ali K, Mahjabeen I, Saeed M, Kayani MA. Retinoblastoma (RB1) pocket domain mutations and promoter 5 hyper-methylation in head and neck cancer. *Cellular Oncology*, 37 (3), 203-213. 2014

Ali K, Mahjabeen I, Sabir M, **Baig RM**, Zafeer M, Faheem M, Kayani MA. Germline Variations of Apurinic/Apyrimidinic Endonuclease 1 (APEX1) Detected in Female Breast Cancer Patients. *Asian Pac J Cancer Prev*, 15(18), 7589-95. 2014

Qureshi Z, Mahjabeen I, **Baig RM**, Kayani MA. Correlation between Selected XRCC2, XRCC3 and RAD51 Gene Polymorphisms and Primary Breast Cancer in Women in Pakistan. *Asian Pac J Cancer Prev*, 15(23): 10225-9. 2014

Kayani MA, Khan S, **Baig RM**, Mahjabeen I. Association of RAD 51 135 G/C, 172 G/T and XRCC3 Thr241Met Gene Polymorphisms with Increased Risk of Head and Neck Cancer. Asian Pac J Cancer Prev, 15 (23), 10457-10462. 2014

▪ **2013**

Baig RM, Mahjabeen I, Sabir M, Masood N, Ali K, Malik FA, Kayani M.A. Mutational spectrum of Gelsolin and Its down regulation is associated with breast cancer. Disease Marker 34 (2), 71–80. 2013.

Wahid M, Mahjabeen I, **Baig RM**, Kayani MA. Expression of CYP1A1 and GSTP1 in Human Brain Tumor Tissues in Pakistan. Asian Pac J Cancer Prev, 14 (12), 7187-7191. 2013

Mahjabeen I, **Baig RM**, Sabir M, Kayani M.A. Genetic and expressional variations of APEX1 are associated with increased risk of head and neck cancer. Mutagenesis 28(2), 213-8. 2013.

Sabir M, **Baig RM**, Mahjabeen I, Kayani MA. Significance of Cyclin D1 polymorphisms in patients with head and neck cancer. Int J Biol Markers 28(1), 49-55. 2013.

Mahjabeen I, **Baig RM**, Masood N, Sabir M, Inayat U, Malik FA, Kayani MA. Genetic variations in XRCC1 gene in sporadic head and neck cancer (HNC) patients. Pathology Oncology Research, ISSN 1219-4956. 19(2), 183-8. 2013.

▪ **2012**

Baig RM, Sanders AJ, Kayani MA and Jiang WG. Association of Differentiation-Related Gene-1 (DRG1) with Breast Cancer Survival and *in vitro* Impact of DRG1 Suppression. Cancers, 4, (3), 658-672. 2012

Mahjabeen I, **Baig RM**, Masood N, Sabir M, Inayat U, Malik FA, Kayani MA. Novel mutations of OGG1 base excision repair pathway gene in laryngeal cancer patients. Familial Cancer 11(4):587-93. 2012

Sabir M, **Baig RM**, Mahjabeen I, Kayani MA. Novel germline CDK4 mutations in patients with head and neck cancer. *Hereditary cancer in clinical practice* 10:11. 2012.

Sabir M, **Baig RM**, Mahjabeen I, Saeed M, Malik FA, Kayani MA. Rb1/105 gene alterations and head and neck carcinogenesis. *Molecular biology reports* 39(10): 9573-81. 2012

- **2011**

Baig RM, Mahjabeen I, Sabir M, Masood N, Hafeez S, Malik FA, Kayani MA. Genetic Changes in PTEN Gene and their Association with Breast Cancer in Pakistan. *Asian Pacific Journal of Cancer Prevention*, Vol 12, 2365-2370. 2011.

Mahjabeen I, **Baig RM**, Masood N, Sabir M, Malik FA, Kayani MA. OGG1 Gene Sequence Variation in Head and Neck Cancer Patients in Pakistan. *Asian Pacific J Cancer Prev*, 12, 2779-2783, 2011.

Masood N, Malik FA, Mahjabeen I, **Baig RM**, Kayani MA. A novel CYP1A1 gene polymorphism and the risk of head and neck cancer in Pakistani population. *African Journal of Biotechnology*; 10 (27) 5273-5280. 2011

Masood N, Kayani MA, Malik FA, Mahjabeen I, **Baig RM**, Faryal R. Genetic Variations in Carcinogen Metabolizing Genes Associated with Oral Cancer in Pakistani Population. *Asian Pacific Journal of Cancer Prevention*;12 491-495.2011.

- **2010**

Masood N, Mahjabeen I, Malik FA, **Baig RM**, Kayani MA. Association of GSTM1 and GSTT1 gene deletions with risk of head and neck cancer in Pakistan: a case control study. *Asian Pacific Journal of Cancer Prevention*; 11(4): 881-5. 2010.

➤ **References**

- Dr M.A.Kayani, Associate Professor, Department of Biosciences. COMSATS Institute of Information Technology, Park Road, Chak Shehzad, Islamabad. mkayani@comsats.edu.pk.
- Professor Wen G. Jiang, MB, BCh, MD. Metastasis & Angiogenesis Research Group (MARG). Department of Surgery, University Hospital Wales, Cardiff, UK. jiangw@cf.ac.uk.
- Dr. Rani Faryal, Associate Professor, Department of Microbiology. Quaid e Azam University, Islamabad. ranifaryal@gmail.com.
- Dr. M. Faraz A. Malik, Assistant Professor. Department of Biosciences. COMSATS Institute of Information Technology, Park Road, Chak Shehzad, Islamabad. famalik@comsats.edu.pk.

9. CURRICULUM VITAE

Dr. ABIDA ARSHAD

PERSONAL PROFILE

Current Status:	Assistant Professor
Husband's Name:	Muhammad Arshad
Date of Birth:	March 23, 1977
Current Address:	Department of Biology, PMAS-Arid Agriculture University Rawalpindi, Pakistan.
Contact No.:	0092-3334191470
Email Address:	abida.arshad6@gmail.com

EDUCATIONAL QUALIFICATION

Degree	Session	Institutes	Marks Obtained/Total Marks	Major Subject(s)

PhD	2008-2012	Beijing Institute of Technology Beijing, China	519/600 First Class Marks 87%	Biosciences (Biochemical Engineering)
M.Sc.	1998-2000	Department of Zoology, University of the Punjab Lahore, Pakistan	807/1200 First Class Marks 67%	Zoology
B.Ed	2001-2002	Allama Iqbal Open University, Islamabad	570/900 First Class Marks 63%	Education
B.Sc.	1996-1998	Government College for women Mianwali, University of the Punjab Lahore, Pakistan	495/800 First Class Marks 61%	Zoology, Botany, Chemistry
H.S.S.C	1994-1996	Government College for women S/town Rawalpindi, Rawalpindi Board	740/1100 First Class Marks 67%	Biology, Physics, Chemistry
S.S.C	1992-1994	Govt. Girls High School Iskanderabad (Mianwali). Sargodha Board	686/850 First Class Marks 81%	Biology, Maths, Physics, Chemistry

RESEARCH PUBLICATIONS

International Publications

1. **Abida Arshad**, Xuechai Chen, Zhenzhen Cong, Hong Qing, and Yulin Deng. TRPC1 protects dopaminergic SH-SY5Y cells from MPP1, salsolinol, and N-methyl-(R)-salsolinol-induced cytotoxicity. *Acta Biochimica et Biophysica sinica (Oxford Journal)* 2013. DOI: 10.1093/ab s/gmt127.

2. **Abida Arshad**, Xiaofeng Gu, and Muhammad Arshad. RNF13 protein regulates endoplasmic reticulum stress induced apoptosis in dopaminergic SH-SY5Y cells by enhancing IRE1a stability. *Journal of receptor and signal transduction* 2013. DOI:10.3109/10799893.2013.863920.
3. Zhengxin Ying, Fankai Lin, Weihong Gu, Yang Su, **Abida Arshad**, Hong Qing, Yulin Deng. Alpha-synuclein increases U251 cells vulnerability to Hydrogen Peroxide by Disrupting Calcium Homeostasis. *J Neural Transm* 2011. 118:1165-1172.
4. Chen Xue Chai, Wang Rui, **Abida Arshad**, Yu-Lin Deng. *Pictet-Spenglerases* and their related biological properties. *Chemistry* 2010. 2011-03.
5. Xue-Chai Chen, **Abida Arshad**, Hong Qing, Rui Wang, Jian-Qing Lu, Yu-Lin Deng. Enzymatic condensation of dopamine and acetaldehyde: a salsolinol synthase from rat brain. *Biologia* 2011 (66)6: 1183-1188.
6. **Abida Arshad** Xue-Chai Chen, Yi Chen, Sheng-Ping Dai, Yu-Lin Deng. Characterization of salsolinol synthase from rat brain. *IEEE/ICME International Conference on Complex Medical Engineering-CME2011*.
7. Xue-Chai Chen, **Abida Arshad**, Xiaoyin Lin, Yi Chen, Jin Shen, Yongqian Zhang, Yu-Lin Deng. Preliminary purification of salsolinol synthase from rat brain. *IEEE/ICME International Conference on Complex Medical Engineering-CME2011*.
8. *In silico analysis of mutations in PITX3 gene*. 2014 The 8th International Conference on Systems Biology (ISB) 978-1-4799-7294-4/14/\$31.00 ©2014 IEEE

National Publications

9. Hazrat Hussain, **Abida Arshad**, Ijaz Ali, Muhammad Arshad, Muhammad Saad Ahmed, Mukhtar Alam, Ahmad ur Rehman Saljoqi, Aqeel Javed, Naeem ud Din Ahmad, Zahoor Ahmad Swati. Evaluation of Genetic Diversity in Peafowl Color Mutants. *Science International* 2012. 25(1), 107-110.
10. Arshad, M., **Abida Arshad**, Rauf, A., Murtaza, G., Akhtar, M., and Nayyer, A.Q. "Dental Morphological Studies of *Cormohipparion theobaldi*". *Science International* 2003. 15(2): 157-160.
11. **Abida Arshad**, Arshad M, Pervaiz R, Farzana, Javed A, Ahmad NUD, Ali I, Saljoqi AUR. Prevalence of active Hepatitis C infection in the general population of District Mardan, KPK, Pakistan. *J Pub Health Biol Sci*. 2012; 1(1):3-8.
12. **Abida Arshad**, Habib Ullah Khan, Farzana, Mehwish Saba Aslam, Tayyab Rehman, Muhammad Arshad,*Muhammad Saad Ahmed, Ijaz Ali and Ahmad Ur Rehman Saljoqi "Seropositivity and Active HCV Infection in Patients from Peshawar Division of Khyber Pakhtunkhwa Province, Pakistan.

13. **Abida Arshad**, Khaleeq-Uz-Zaman, Ijaz Ali, 4Muhammad Arshad, Muhammad Saad Ahmed 5Mukhtar Alam, Ahmad ur Rehman Saljoqi, Aqeel Javed, Naeemud Din Ahmadan Zahoor Ahmad Swati “Development of Duplex PCR Assay for the Detection of Mycoplasma Gallisepticum and Mycoplasma Synoviae Prevalence in Pakistan.
14. Usman Waheed, Abida Arshad, Muhammad Arshad Malik, Hasan Abbas Zaheer “The Evolution of Medical Laboratory Technology in Pakistan.

1.

TEACHING EXPERIENCE

1. **Assistant Professor Biology, Arid Agriculture University Rawalpindi**
After completion of PhD, joined Department of Biology at PMAS-AAUR since October 2012 till date. Engaged in teaching Neurobiology and Neurochemistry, and Human Genetics to M.Phil students. Also involved in laboratory practicals at M.Phil Level. Currently supervising 2 M.Phil students in their research work.
2. **Principal Muhammadan Educomplex**
I have worked as owner and Principal at Muhammadan Educomplex Chah Kalalan wala (Kasur) October 2004 - August 2008. Job description included teaching Biology, Physics and Chemistry to SSC classes and to deal with all academic and administrative affairs of this private secondary institute.
3. **Lecturer at Pakistan International School Taif, Kingdome of Saudi Arabia**
I worked as lecturer Biology at Pakistan International School Taif, Saudi Arabia during the period of Sep. 2003-Sep. 2004. I taught Biology to SSC and HSSC classes.
4. **Teaching Experience at DPS Khushab:**
I worked as a science teacher at District Public School Khushab (Jauharabad) from Dec. 2000 to Feb. 2003. I used to teach Science and Mathematics at elementary level.

SCHOLARSHIPS AND AWARDS

1. Higher Education Commission Partial Support Award for PhD Studies 2011.
2. China Scholarship Council PhD Award, 2008-2012.
3. President Talent Farming Scheme Award for M.Sc. 1998- 2000.
4. Merit Scholarship for Matric (S.S.C.) Sargodha Board, 1995-1996.

RESEARCH PROJECTS

1. Received an HEC research grant of amount Rs. 0.5 Million for Project “Investigating the potential genetic risk factors for Parkinson’s Disease in Pakistani Population”.
2. Completed a project with a proposal entitled “Purification and Characterization of Salsolinol synthase” by China Science Foundation worth 85,000 Chinese RMB during 2009-2011.
3. Completed a project name with proposal entitled “Cytoprotective Role of TRPC1 protein in endogenous neurotoxins based neurotoxicity” of worth 50,000 Chinese RMB funded by National Natural Science Foundation of China 2008-2010.

SUBJECTS STUDIED DURING Ph.D.

Biotechnology, Biology Analysis, Chemical Engineering and Technology Preview, Chemical Experiments, Chinese Language, Chinese Culture.

SUBJECTS STUDIED DURING M.Sc.

Cell Biology, Biochemistry, Genetics, Developmental Biology, Biostatistics, Animal Physiology, Environmental Biology, Evolution and Taxonomy, Wild Life, Mammology, Evolutionary Biology, Zoogeography and Paleontology.

REFERENCES

1. Professor Yulin Deng, Dean and Chairman, School of Life Sciences, Beijing Institute of Technology Beijing China. deng@bit.edu.cn
2. Prof. Dr. Muhammad Akhtar, Chairman, Department of Zoology, University of the Punjab Lahore, Pakistan. 54590. E-mail: drakhtarfdrc.zool@pu.edu.pk
3. Prof. Dr. Nadeem Abbasi, Chairman Horticulture Department, PMAS-Arid Agriculture University Rawalpindi, Pakistan. nadeem.abbasi@uaar.edu.pk