

**PirMehr Ali Shah
ARID AGRICULTURE UNIVERSITY
RAWALPINDI**

DEPARTMENT OF ZOOLOGY

(M. Sc. Programme)



Self Assessment Report

7th Cycle (2018-2020)

Program Team

Dr. MazharQayyum (Coordinator)

Dr. Muhammad SajidNadeem (Member)

Dr. Muhammad Irfan (Member)

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DEPARTMENT OF ZOOLOGY/BIOLOGY

1. INTRODUCTION

The Department of Zoology was established in 1997 and started 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

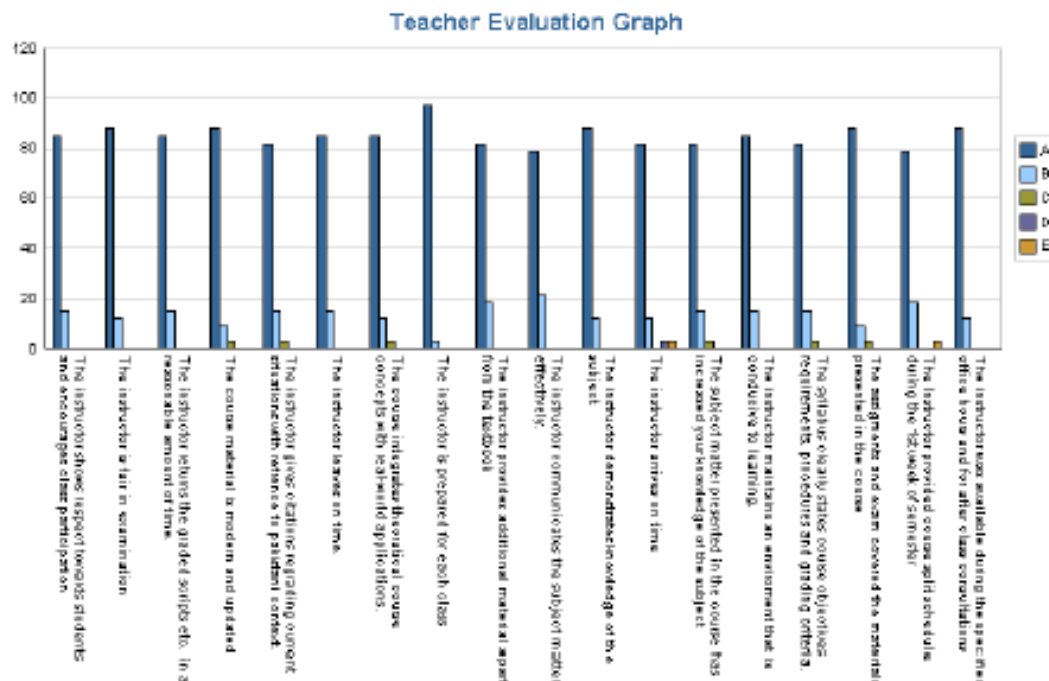
Teacher evaluation for the teachers of the Zoology/Biology department was carried out. The teachers were evaluated by the students at the end of course completion through the proforma-10 (Annex-II).

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

1. Evaluation of Dr. MazharQayyum

Course Name: Cell Biology

Section: A M/E: M Semester#: 1

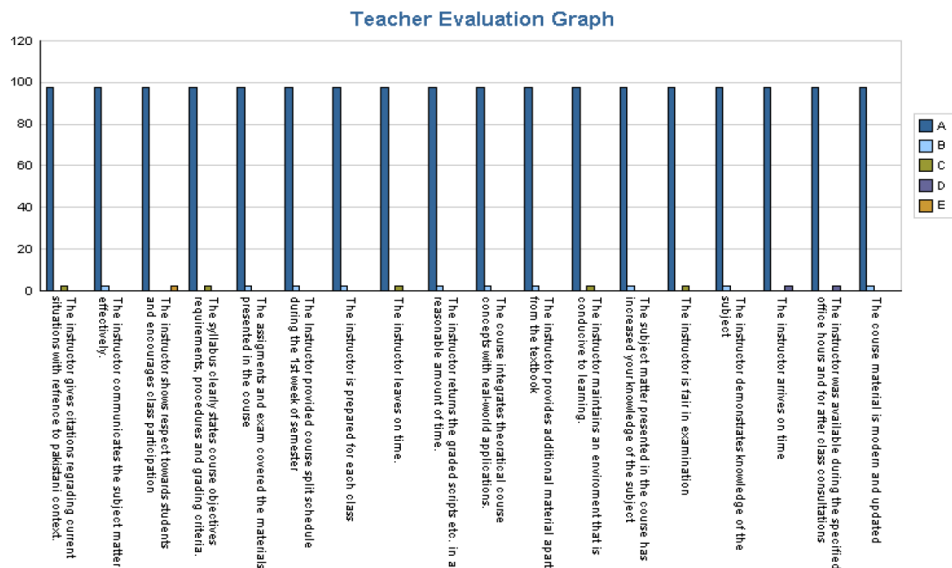


Course Name: Cell Biology

Section: B

M/E: E

Semester#: 1

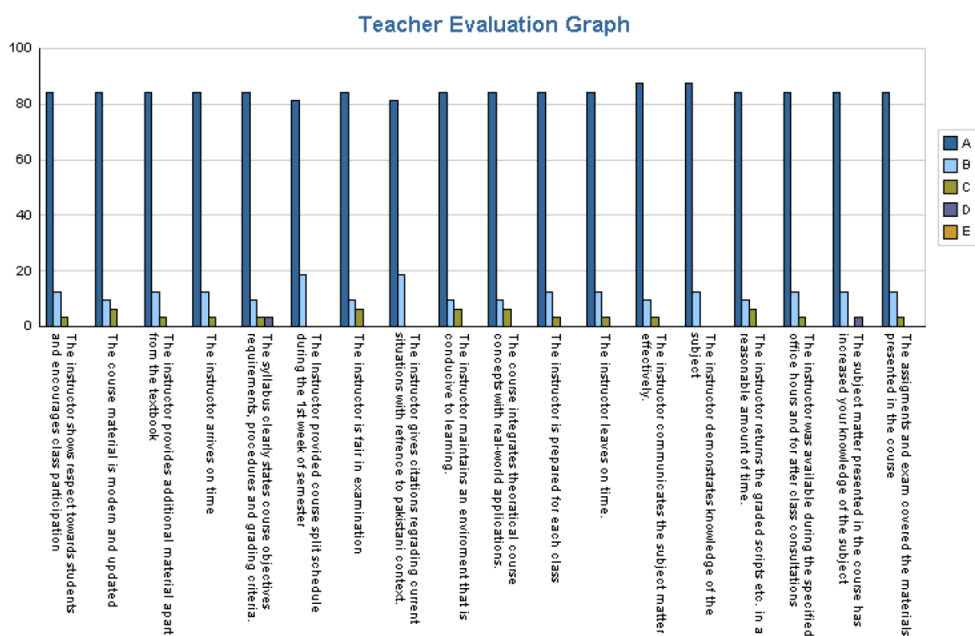


Course Name: Fundamentals of Microbiology and Immunology

Section: A

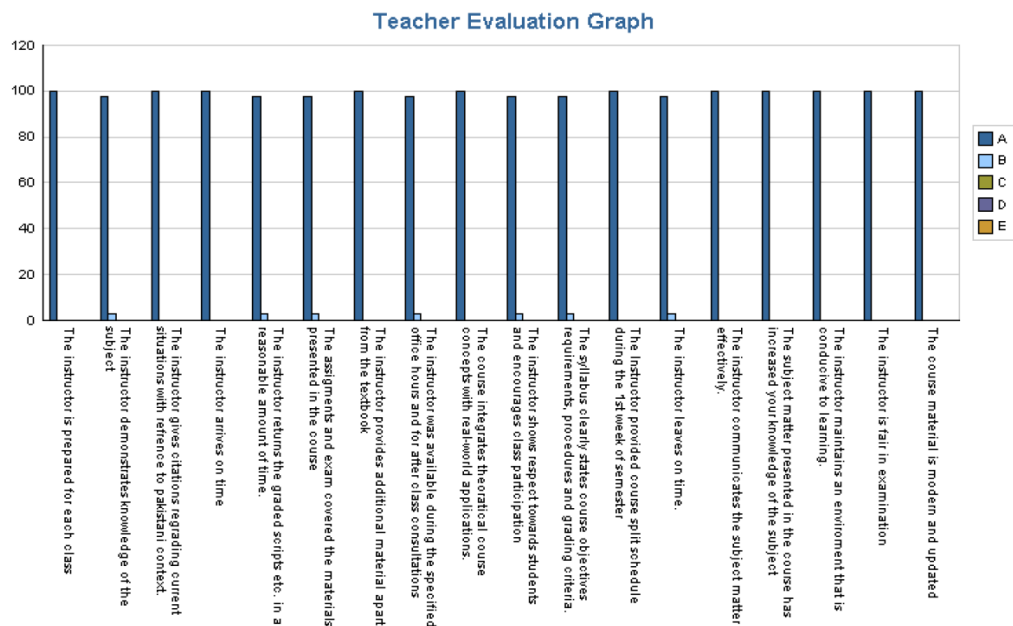
M/E: M

Semester#: 2



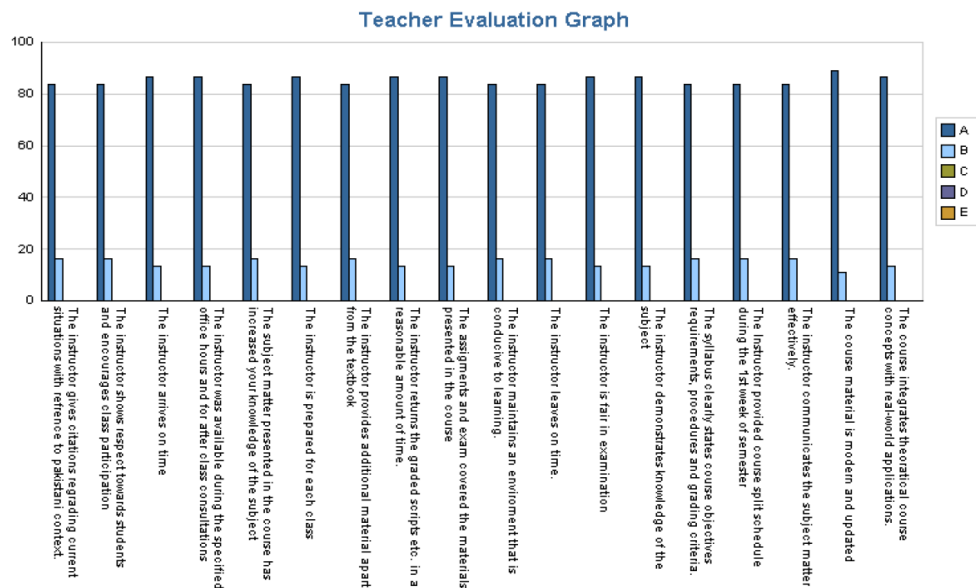
Course Name: Fundamentals of Microbiology and Immunology

Section: B M/E: E Semester#: 2



Course Name: Medical Virology

Section: A M/E: M Semester#: 4



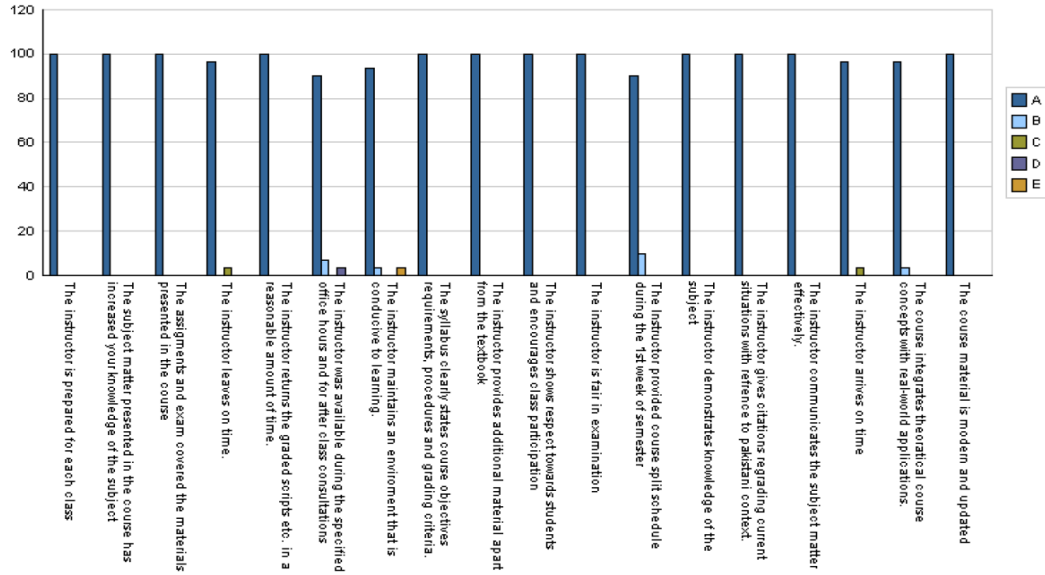
Course Name: Medical Virology

Section: B

M/E: E

Semester#: 4

Teacher Evaluation Graph



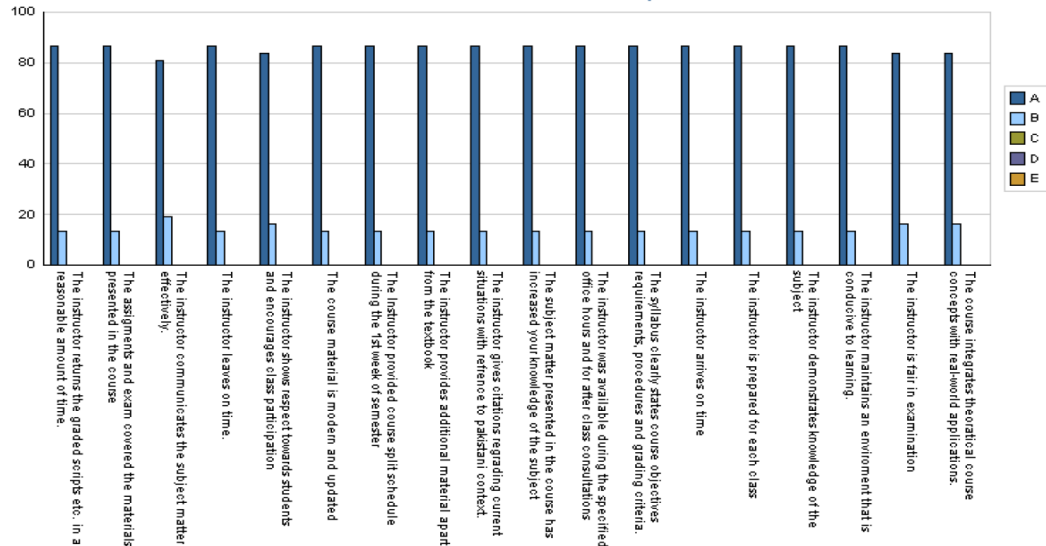
Course Name: Parasitology

Section: A

M/E: M

Semester#: 4

Teacher Evaluation Graph

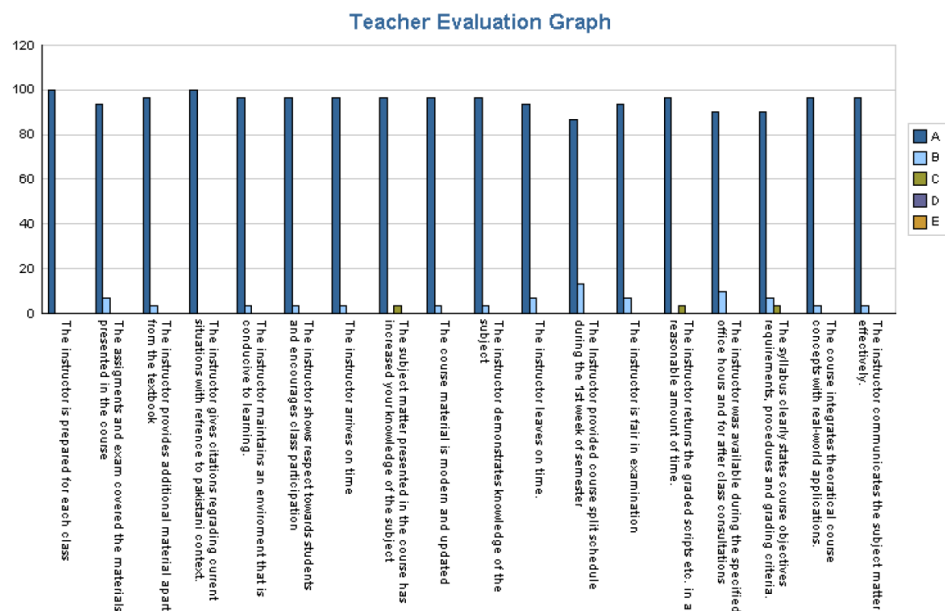


Course Name: Parasitology

Section: B

M/E: E

Semester#: 4



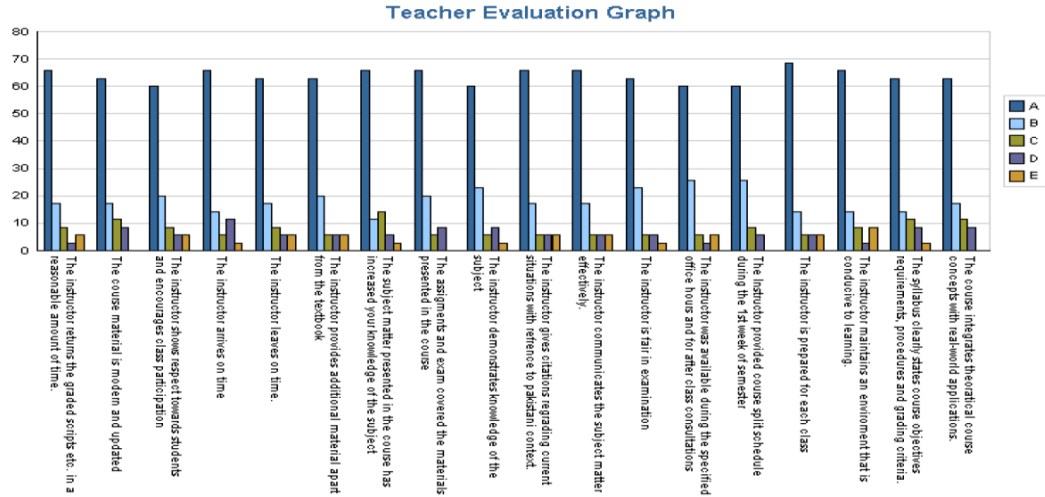
Key: A=Strongly Agree , B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree

a: Section A; b: Section B

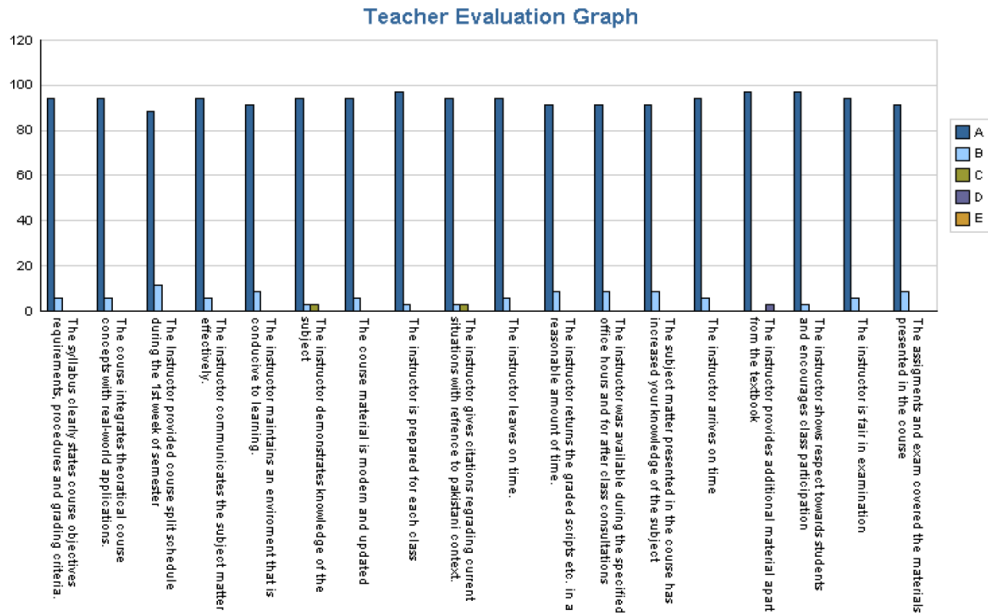
Comments:Teacher is prepared for class, punctual, and well-organized with an effective teaching method.

2. Evaluation of Dr. ShamimAkhtar

Course Name: Research Planning and Report Writing
 Section: A M/E: M Semester#: 3



Course Name: Research Planning and Report Writing
 Section: B M/E: B Semester#: 3



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

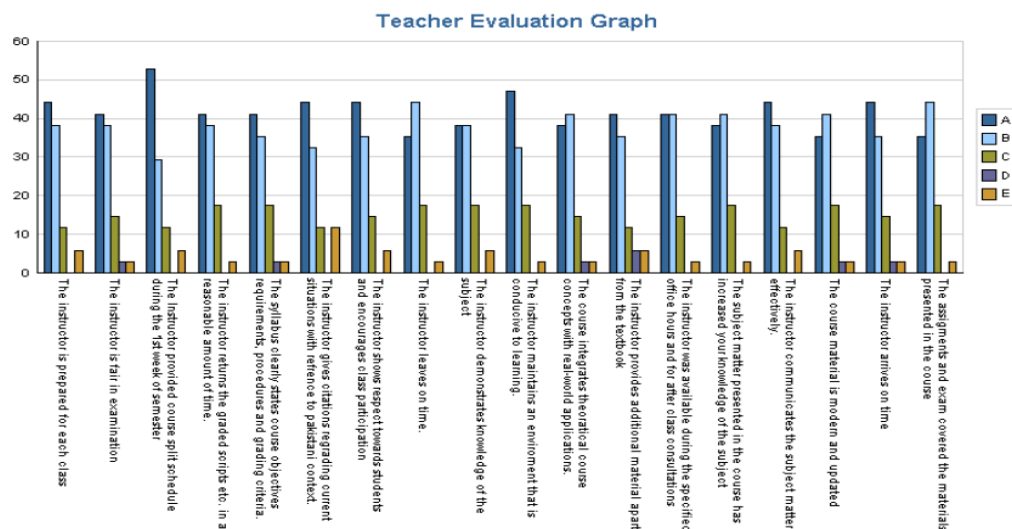
a: Section A; b: Section B

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

3. Evaluation of Dr. Amjad Rashid Kiyani

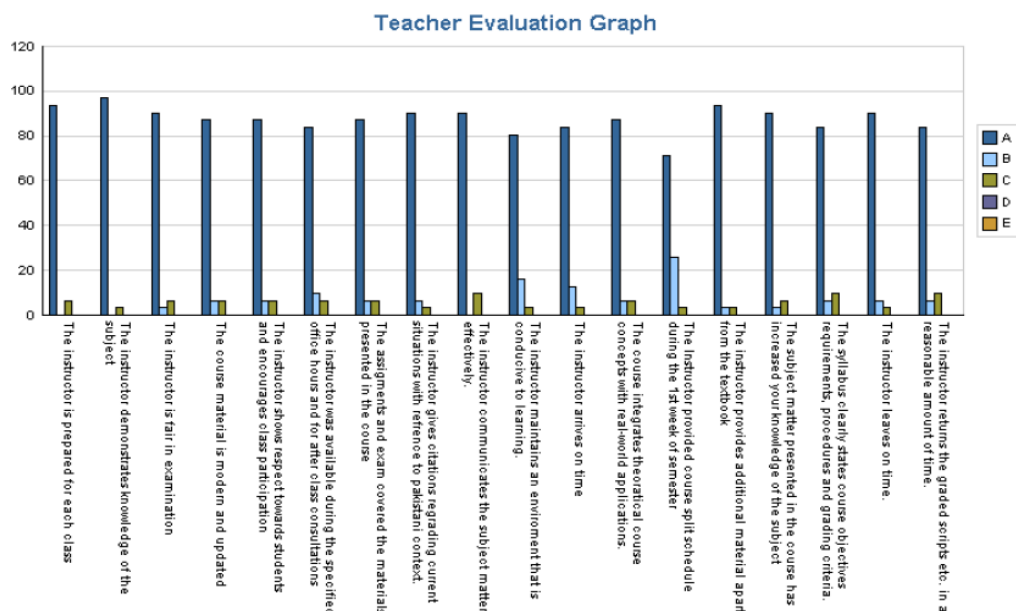
Course Name: Animal Behavior

Section: A M/E: M Semester#: 3



Course Name: Animal Behavior

Section: B M/E: E Semester#: 3



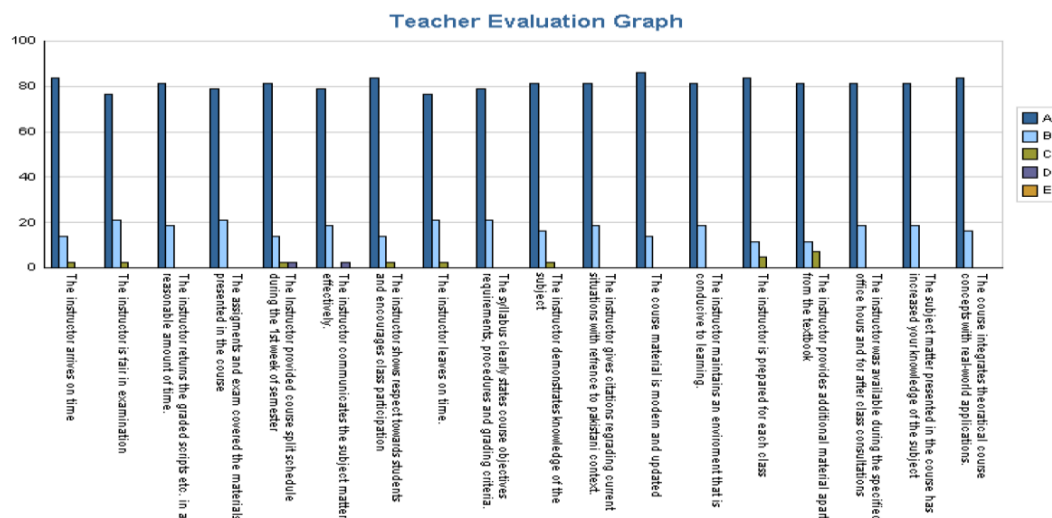
Key: A=Strongly Agree , B=Agree, C=Uncertain, D=Disagree, E=Strongly Disagree
a: Section A; b: Section B

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

4. Evaluation of Dr. M. Mushtaq

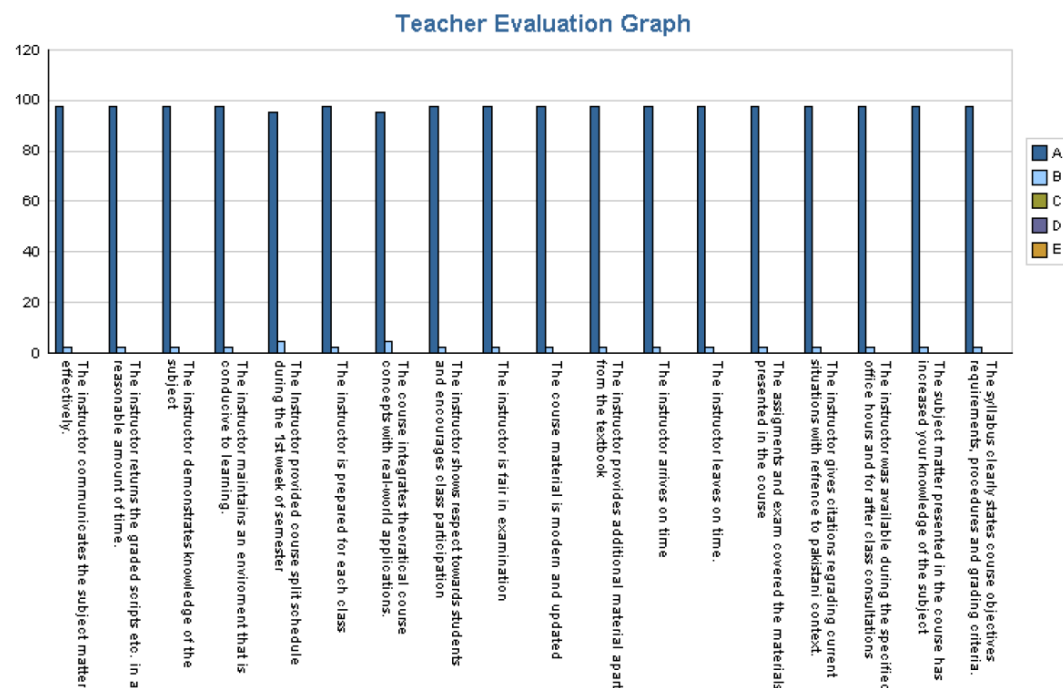
Course Name: Principles of Animal Systematics

Section: A M/E: M Semester#: 1



Course Name: Principles of Animal Systematics

Section: B M/E: B Semester#: 1

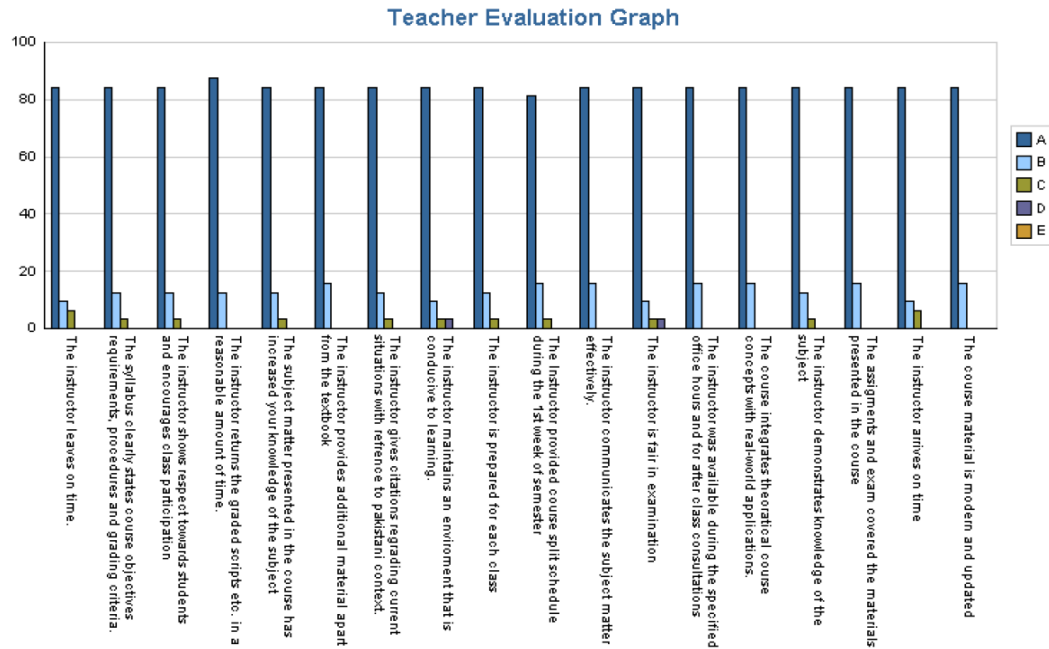


Course Name: Animal Diversity and Zoogeography

Section: A

M/E: M

Semester#: 2

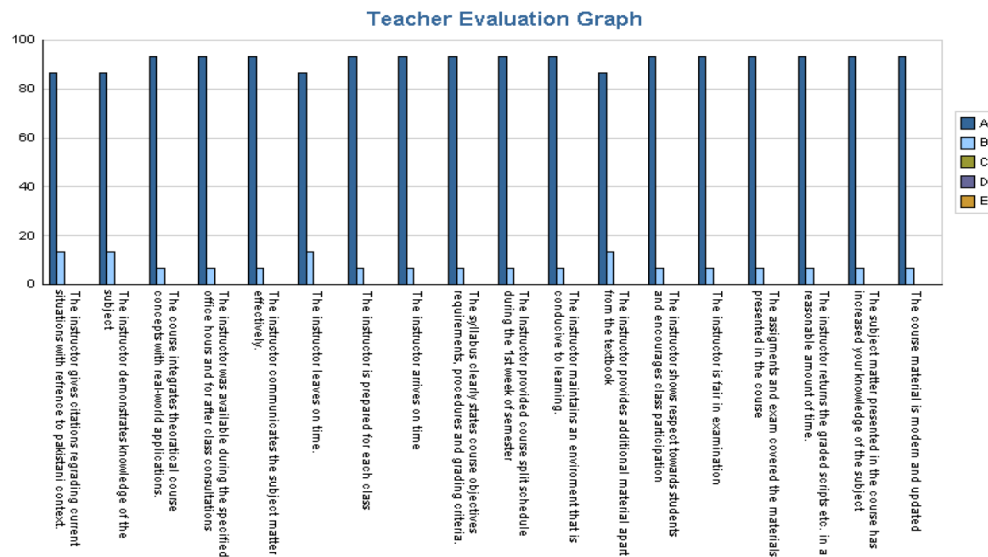


Course Name: Wildlife Conservation and Management

Section: A

M/E: M

Semester#: 4



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

a: Section A; b: Section B

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

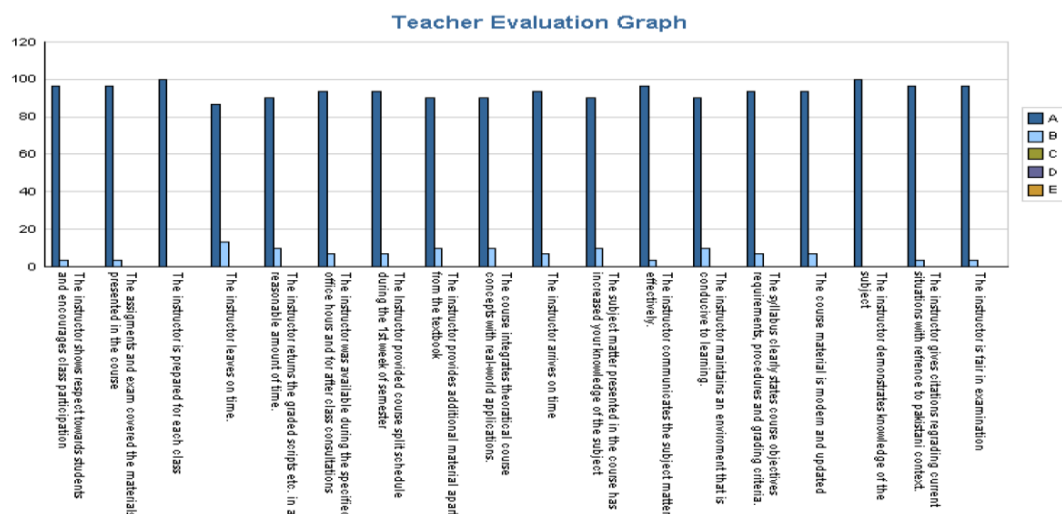
6. Evaluation of Dr. ZubairAnjum

Course Name: Aquaculture and Fisheries

Section: A

M/E: M

Semester#: 2

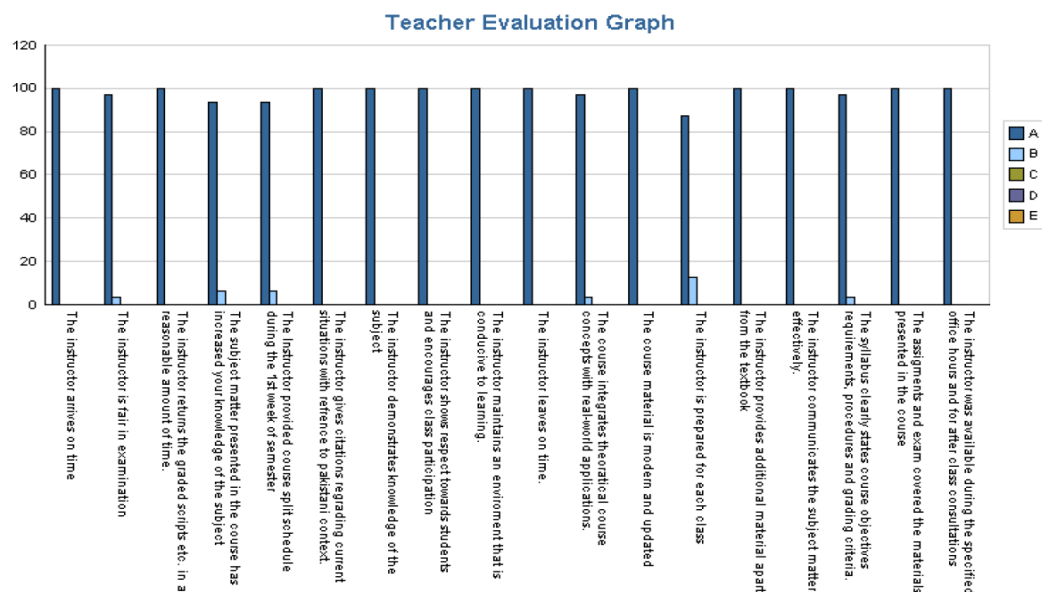


Course Name: Aquaculture and Fisheries

Section: B

M/E: B

Semester#: 2



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

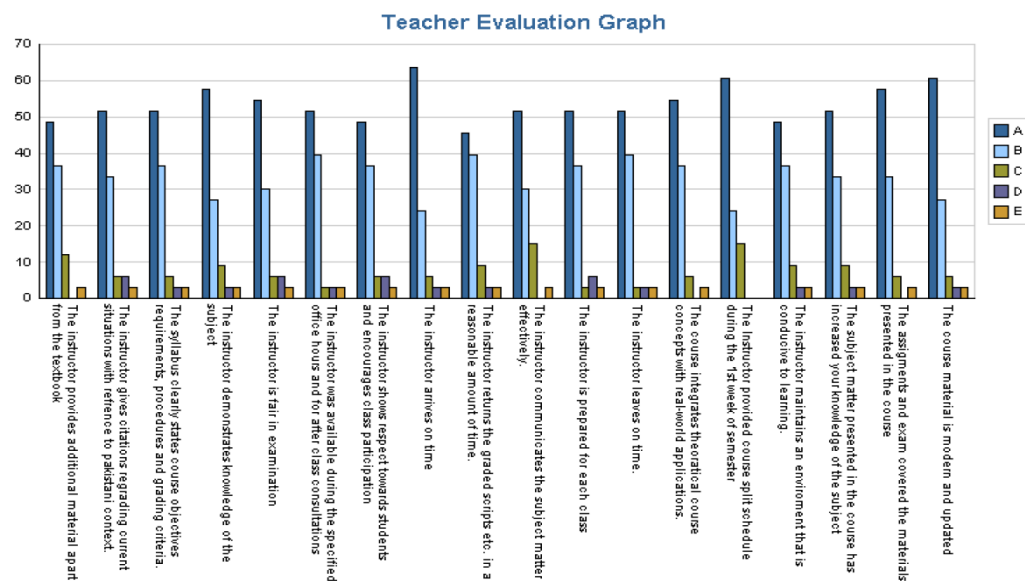
a: Section A; b: Section B

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

7. Evaluation of M. SajidNadeem

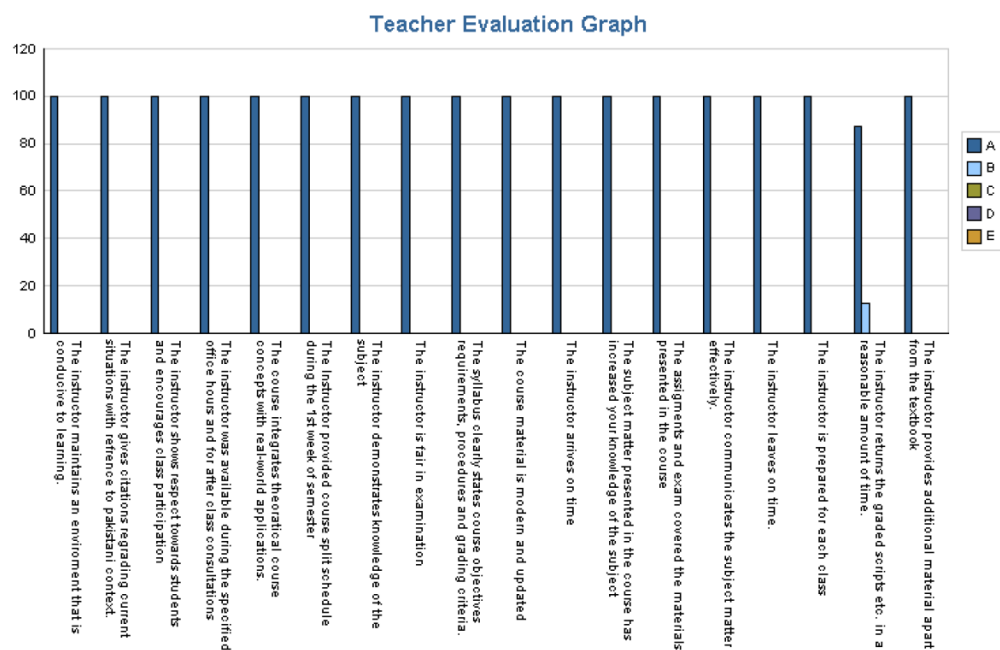
Course Name: Developmental Biology

Section: A M/E: M Semester#: 4



Course Name: Faunal Biodiversity of Pakistan

Section: A M/E: M Semester#: 4

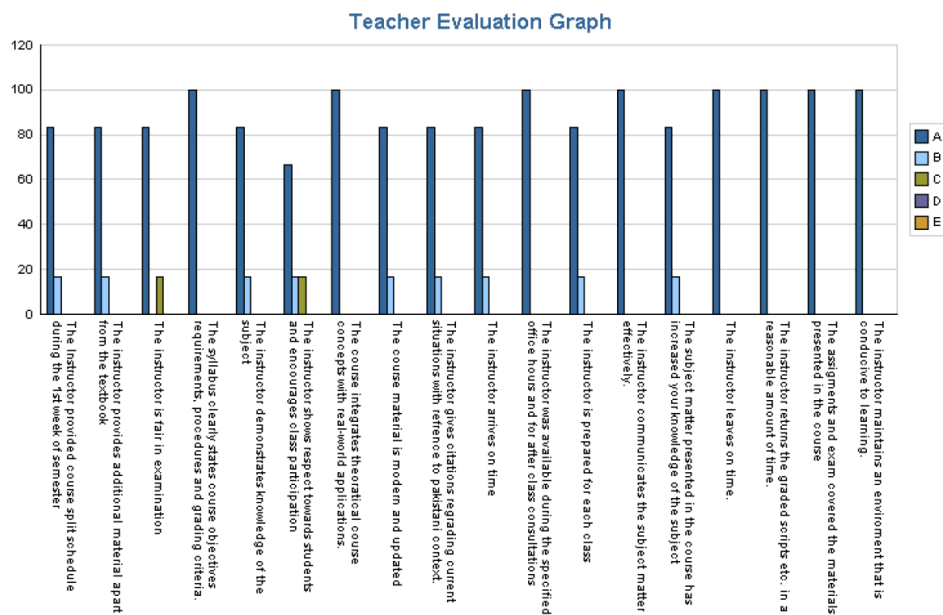


Course Name: Faunal Biodiversity of Pakistan

Section: B

M/E: E

Semester#: 4



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

a: Section A; b: Section B

Comments: Teacher is regular and punctual, effective teaching method, prepared for lectures, fair with profession.

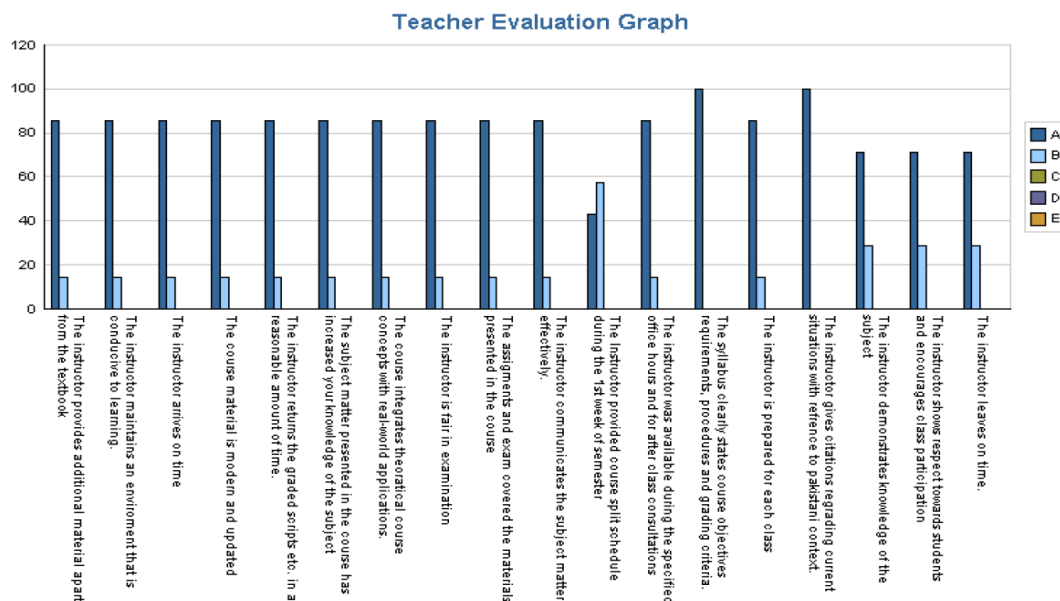
8. Evaluation of Dr. AbidaArshad

Course Name: Principles of Genetics

Section: A

M/E: M

Semester#: 1

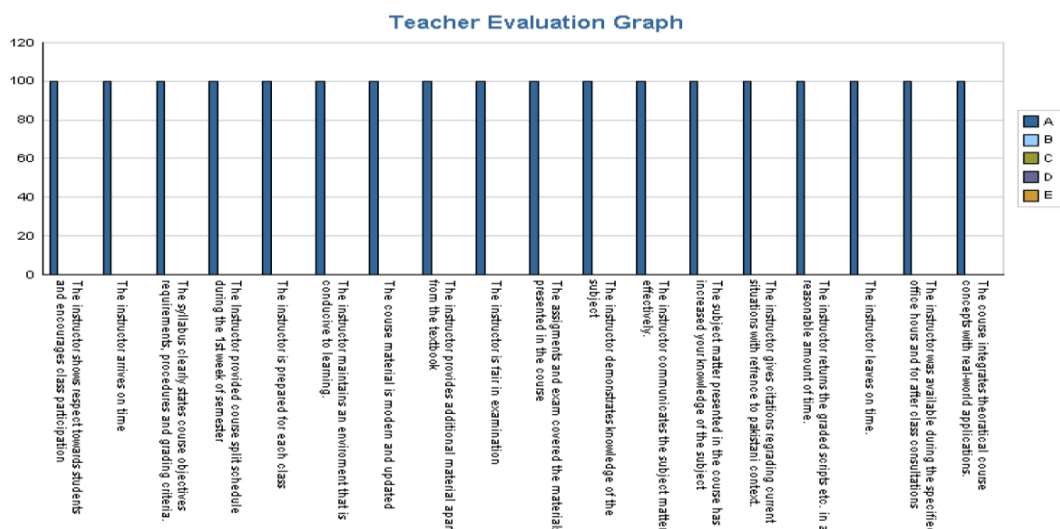


Course Name: Principles of Genetics

Section: B

M/E: E

Semester#: 1



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

a: Section A; b: Section B

Comments: Teacher is prepared for class, cooperative and fair in marking

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-701	Cell Biology	Dr. MazharQayyum
6	ZOOL-702	Animal Diversity and Zoogeography	Dr. MuhammdMushtaq
2	ZOOL-703	Principles of Genetics	Dr. AbidaArshad
8	ZOOL-705	Animal Behavior	Dr. AmjadKayani
4	ZOOL-706	Developmental Biology	Dr. M. SajidNadeem
7	ZOOL-708	Aquaculture and Fisheries	Dr. M. ZubairAnjum
3	ZOOL-709	Principles of Animal Systematics	Dr. M. Mushtaq
9	ZOOL-710	Parasitology	Dr. MazharQayyum
5	ZOOL-711	Research Planning and Report Writing	Dr. ShamimAkhter
10	ZOOL-714	Medical Virology	Dr. MazharQayyum
11	ZOOL-715	Faunal Biodiversity of Pakistan	Dr. M. SajidNadeem
12	ZOOL-722	Wildlife Conservation and Management	Dr. Muhammad Mushtaq

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

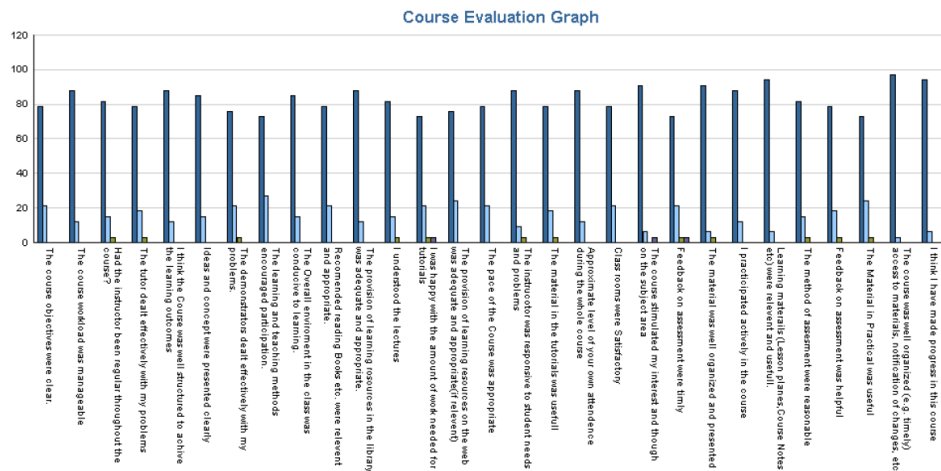
1. Evaluation of Course ZOOL-702

Teacher Name: Mazhar Qayyum

Course Name: Cell Biology

Section: A M/E: M Semester# 1

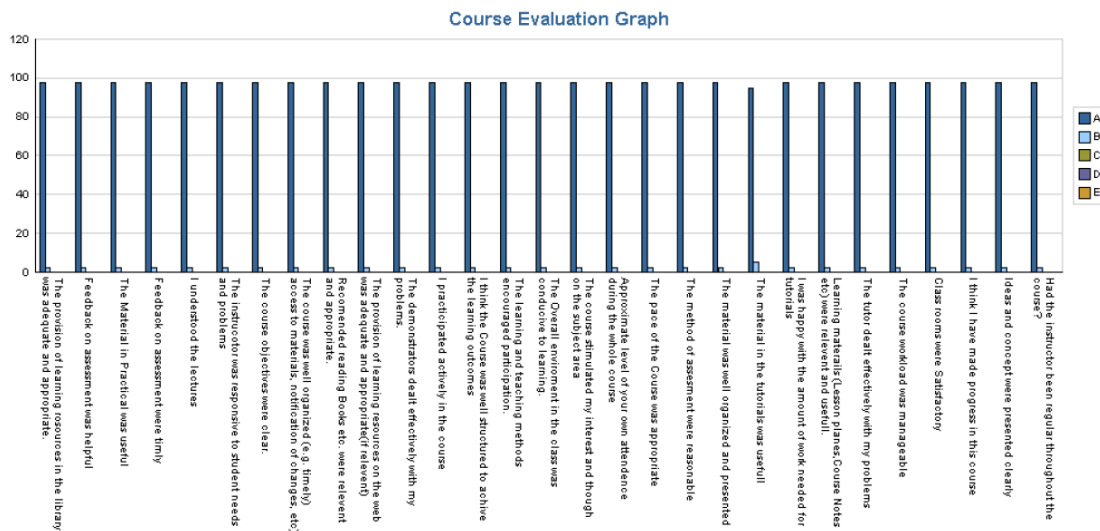
Class: M.Sc (Zoology)



Course Name: Cell Biology

Section: B M/E: E Semester# 1

Class: M.Sc (Zoology)



2. Evaluation of Course ZOOL-702

Teacher Name: Muhammad Mushtaq

Course Name: Animal Diversity and Zoogeography

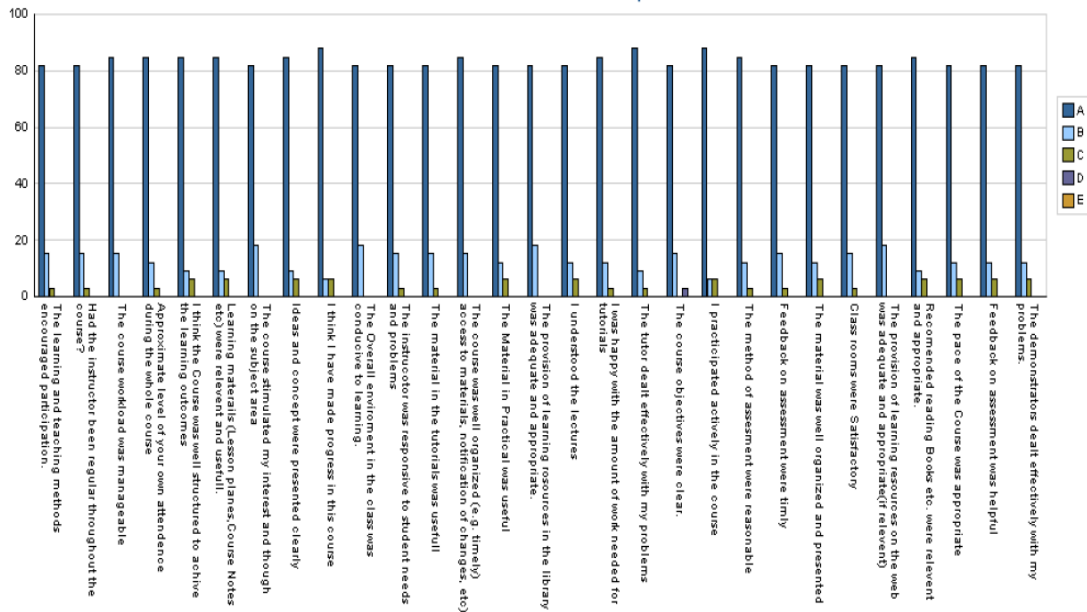
Section: A

M/E: M

Semester# 2

Class: M.Sc (Zoology)

Course Evaluation Graph



Course Name: Animal Diversity and Zoogeography

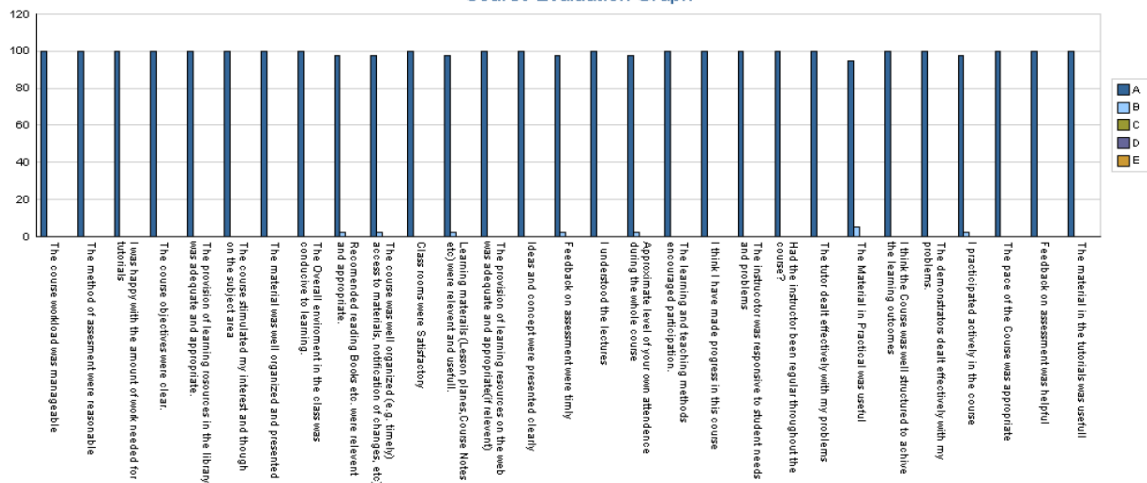
Section: B

M/E: E

Semester# 2

Class: M.Sc (Zoology)

Course Evaluation Graph



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.

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

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

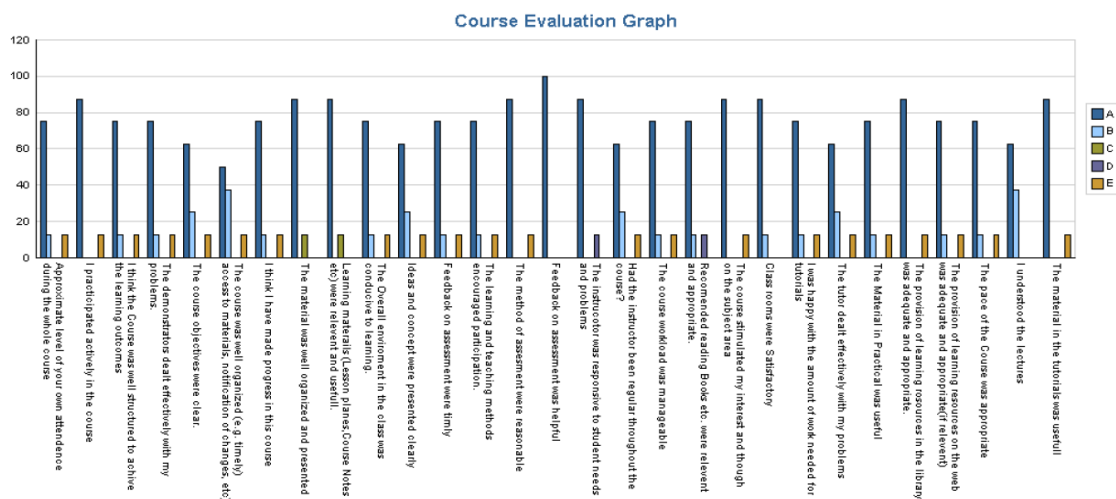
3. Evaluation of Course ZOOL-703

Teacher Name: Abida Arshad

Course Name: Principles of Genetics

Section: A M/E: M Semester# 1

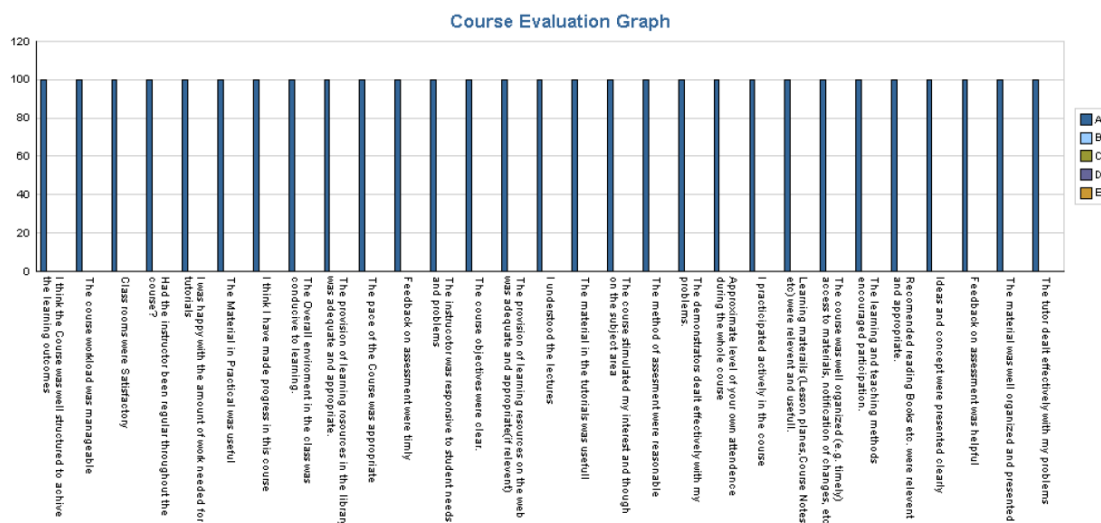
Class: M.Sc (Zoology)



Course Name: Principles of Genetics

Section: B M/E: E Semester# 1

Class: M.Sc (Zoology)



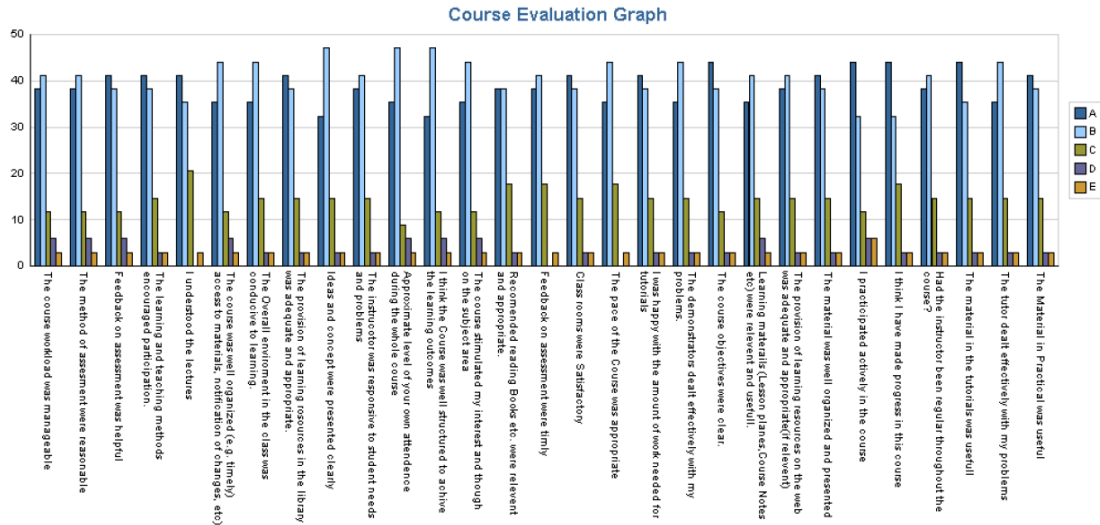
4. Evaluation of Course ZOOL-705

Teacher Name: Amjad Rashid Kayani

Course Name: Animal Behavior

Section: A M/E: M Semester# 3

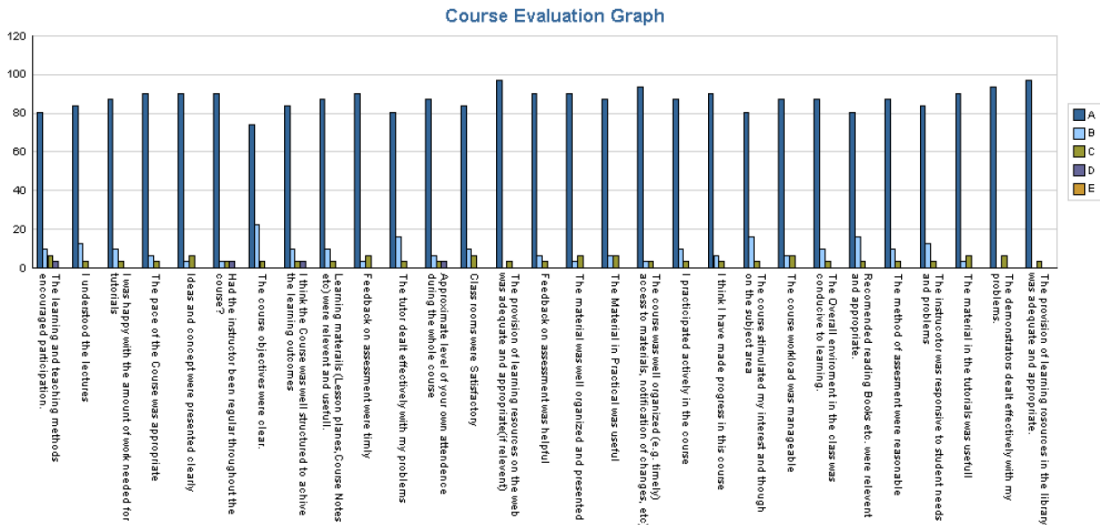
Class: M.Sc (Zoology)



Course Name: Animal Behavior

Section: B M/E: E Semester# 3

Class: M.Sc (Zoology)



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

a: Section A; b: Section B

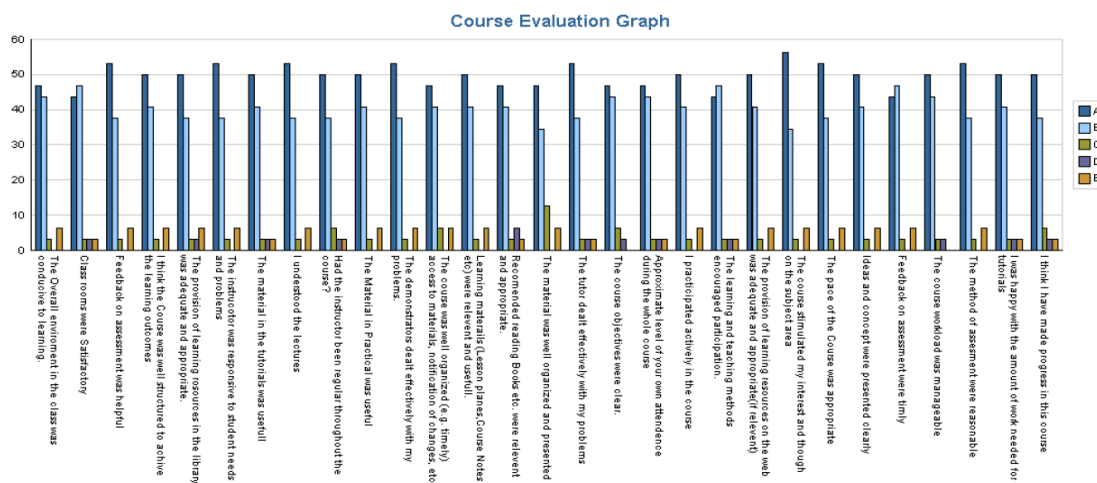
General comments about the course: The results showed satisfaction of majority of students for the course.

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

Weaknesses: Audio-visual aids

5. Evaluation of Course ZOOL-706

Teacher Name: Muhammad Sajid Nadeem
 Course Name: Developmental Biology
 Section: A M/E: M Semester# 4
 Class: M.Sc (Zoology)



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.

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

Weaknesses: Lack of reference books.

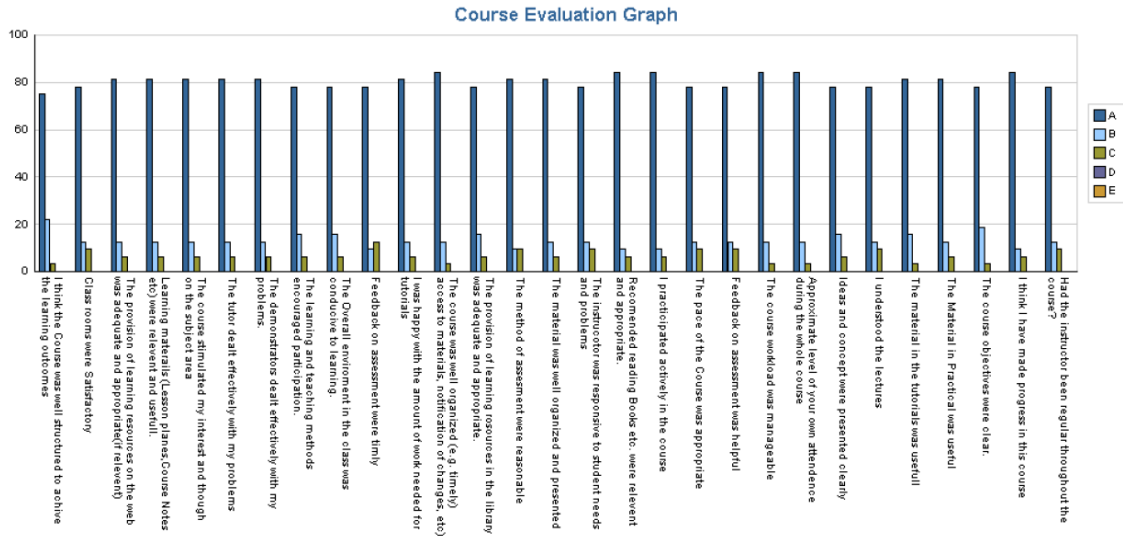
6. Evaluation of Course ZOOL-708

Teacher Name: Muhammad Zubair Anjum

Course Name: Aquaculture and Fisheries

Section: A M/E: M Semester# 2

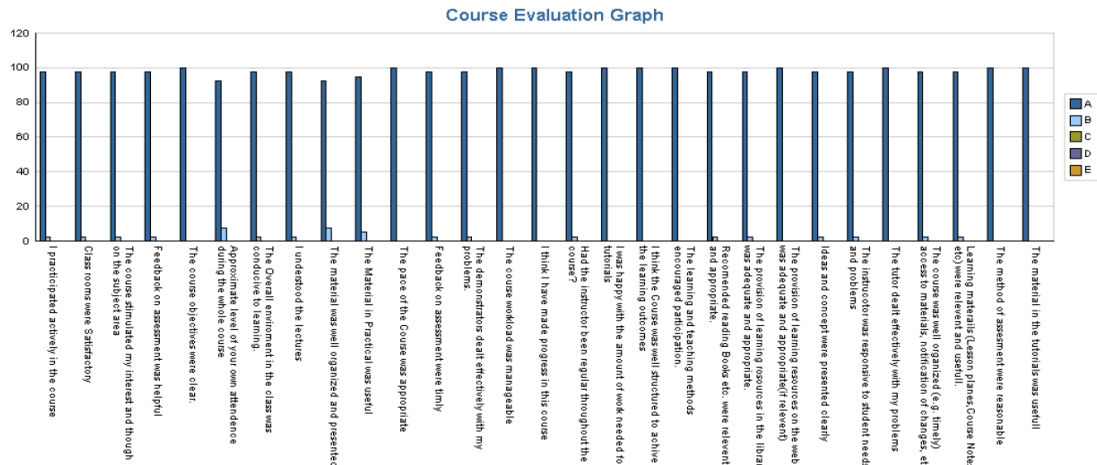
Class: M.Sc (Zoology)



Course Name: Aquaculture and Fisheries

Section: B M/E: E Semester# 2

Class: M.Sc (Zoology)



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.

Strengths: Knowledge on and course contents were interesting and informative.

Weaknesses: Reference books needed.

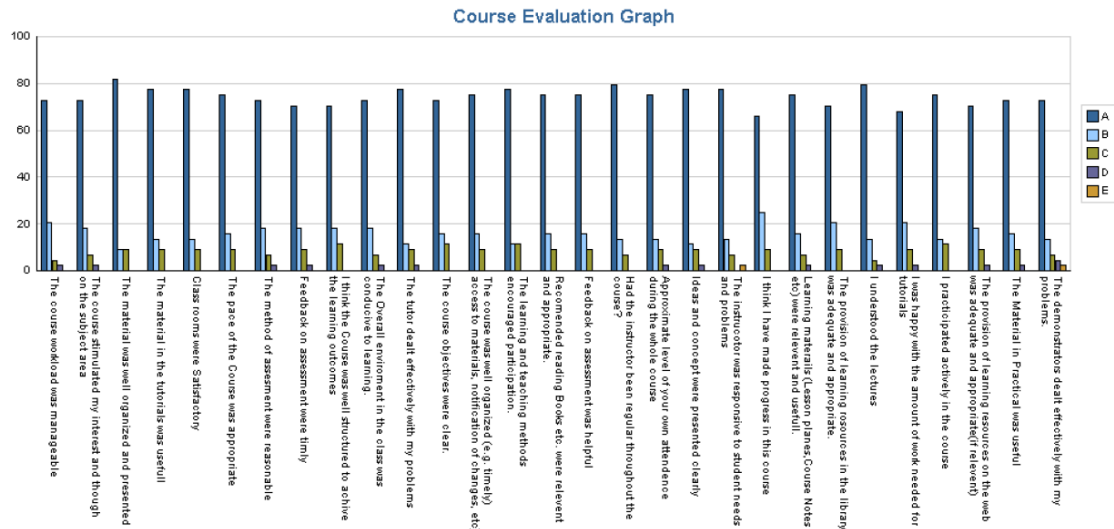
7. Evaluation of Course ZOOL-709

Teacher Name: Muhammad Mushtaq

Course Name: Principles of Animal Systematics

Section: A M/E: M Semester# 1

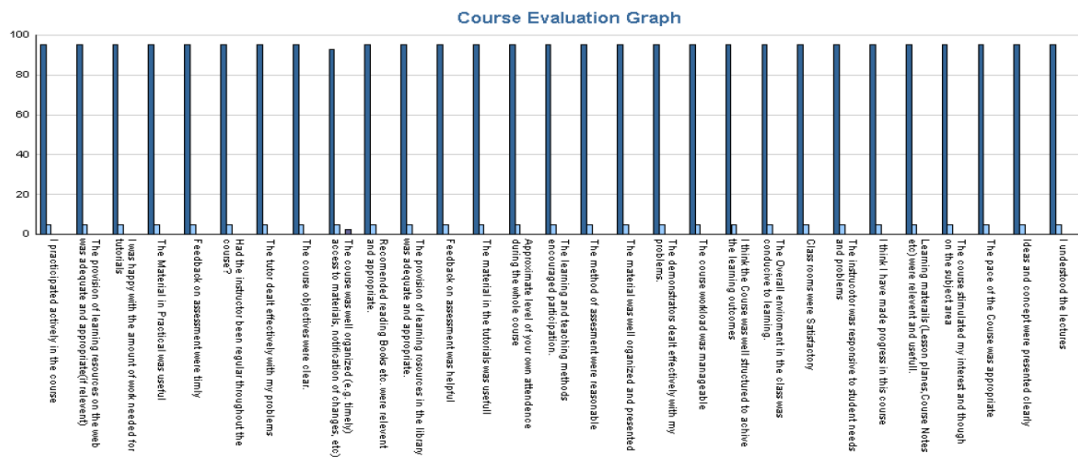
Class: M.Sc (Zoology)



Course Name: Principles of Animal Systematics

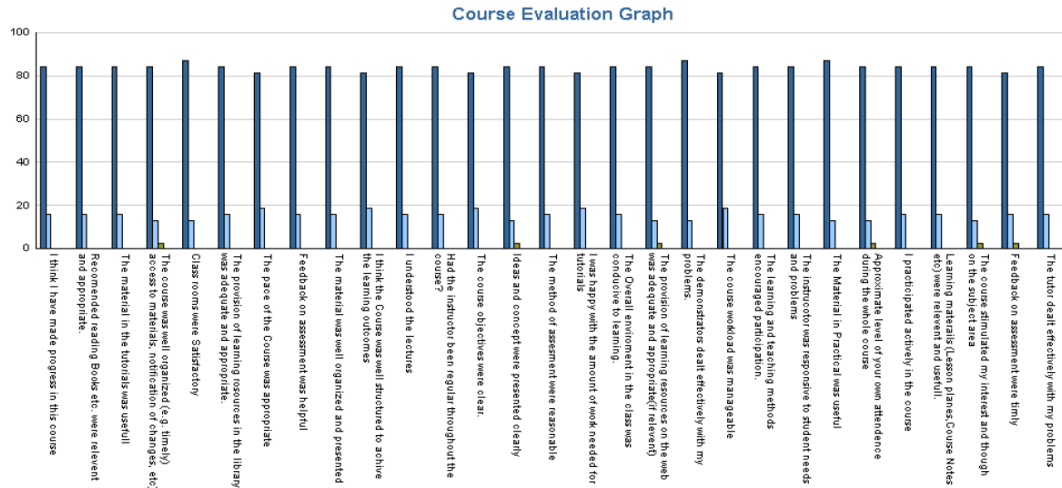
Section: B M/E: E Semester# 1

Class: M.Sc (Zoology)

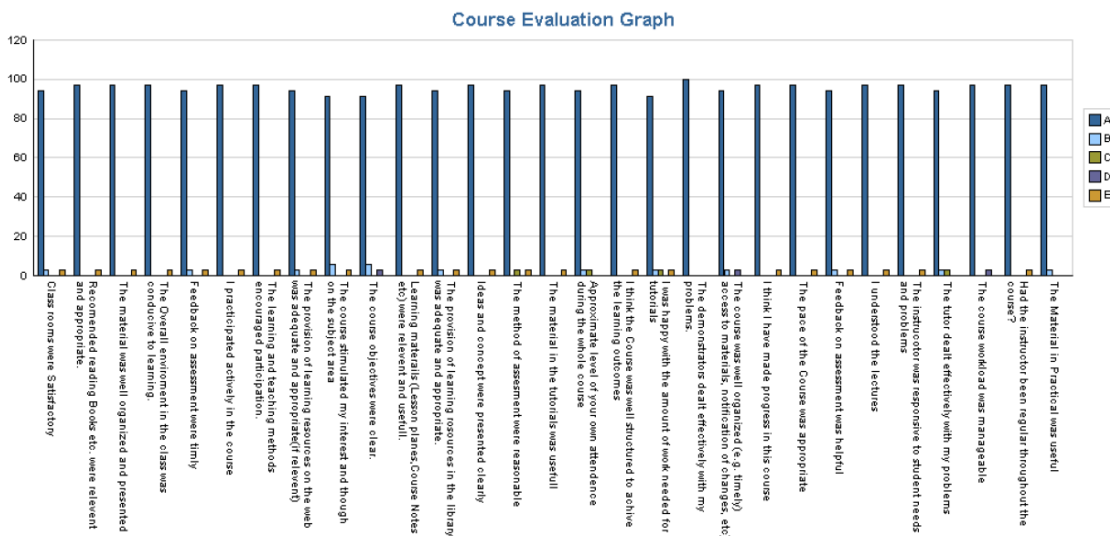


8. Evaluation of Course ZOOL-710

Teacher Name: Mazhar Qayyum
 Course Name: Parasitology
 Section: A M/E: M Semester# 4
 Class: M.Sc (Zoology)



Course Name: Parasitology
 Section: B M/E: B Semester# 4
 Class: M.Sc (Zoology)



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.

Strengths: Well-defined, organized and knowledgeable.

Weaknesses: Lack of reference books and field work.

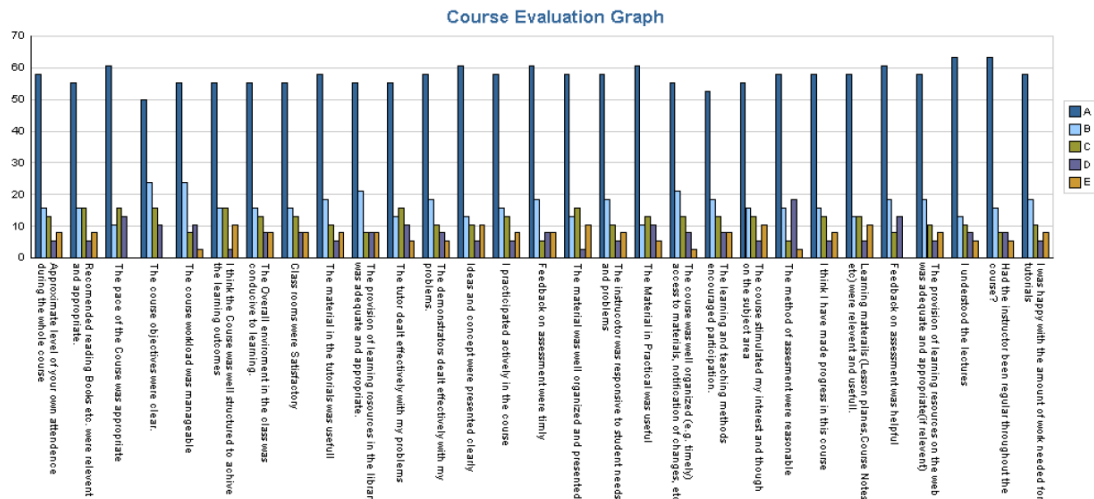
9. Evaluation of Course ZOOL-711

Teacher Name: Shamim Akhtar

Course Name: Research Planning and Report Writing

Section: A M/E: M Semester# 3

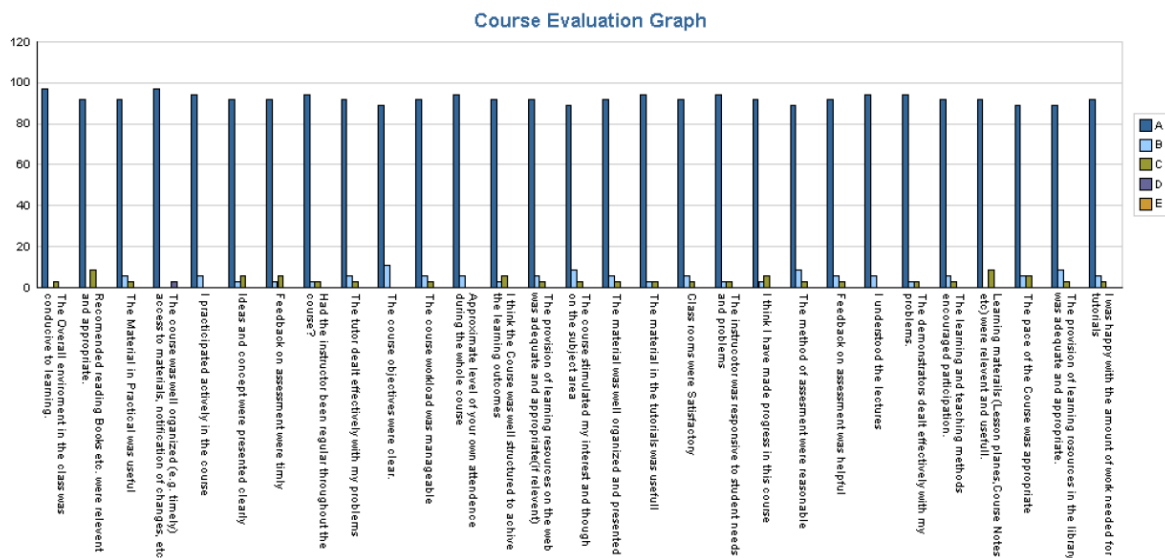
Class: M.Sc (Zoology)



Course Name: Research Planning and Report Writing

Section: B M/E: E Semester# 3

Class: M.Sc (Zoology)



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.

Strengths: Up-to-date course material.

Weaknesses: More practical aspect and student participation is needed.

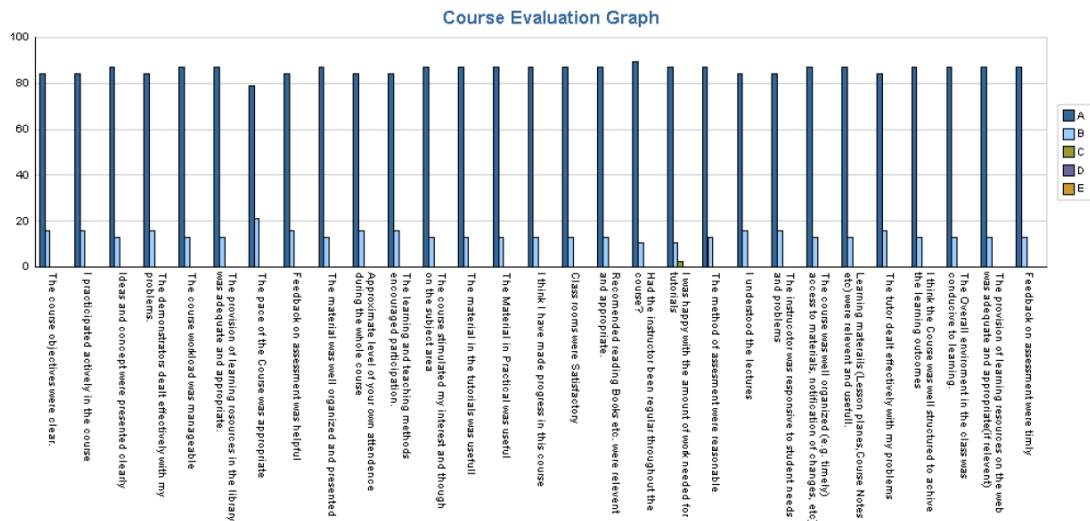
10. Evaluation of Course ZOO-714

Teacher Name: Mazhar Qayyum

Course Name: Medical Virology

Section: A M/E: M Semester# 4

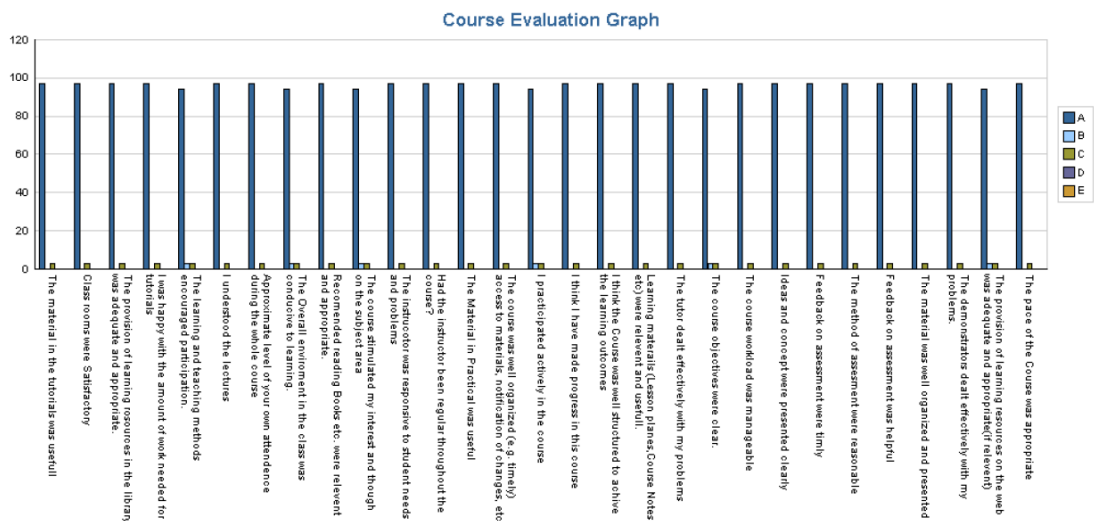
Class: M.Sc (Zoology)



Course Name: Medical Virology

Section: B M/E: E Semester# 4

Class: M.Sc (Zoology)



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.

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

Weaknesses: More practical aspect should be added

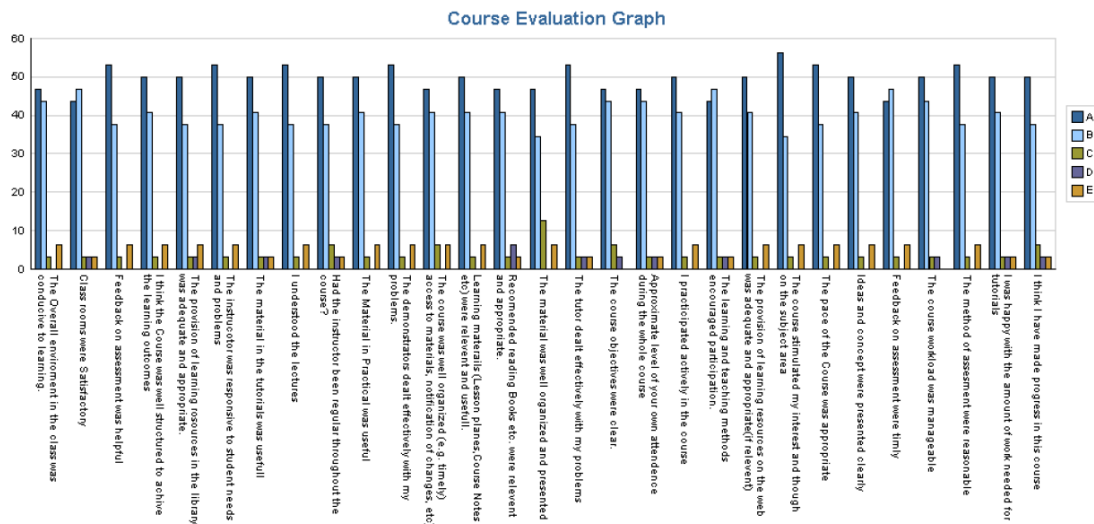
11. Evaluation of Course ZOOL-715

Teacher Name: Muhammad Saïd Nadeem

Course Name: Developmental Biology

Section: A M/E: M Semester# 4

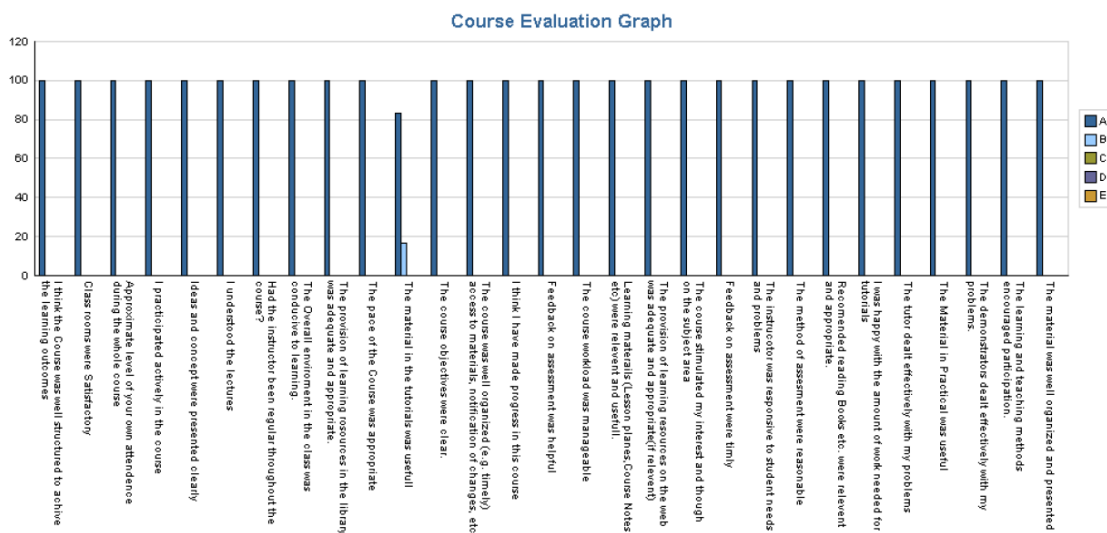
Class: M.Sc (Zoology)



Course Name: Faunal Biodiversity of Pakistan

Section: B M/E: E Semester# 4

Class: M.Sc (Zoology)



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.

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

Weaknesses: Audio-visual aids needed.

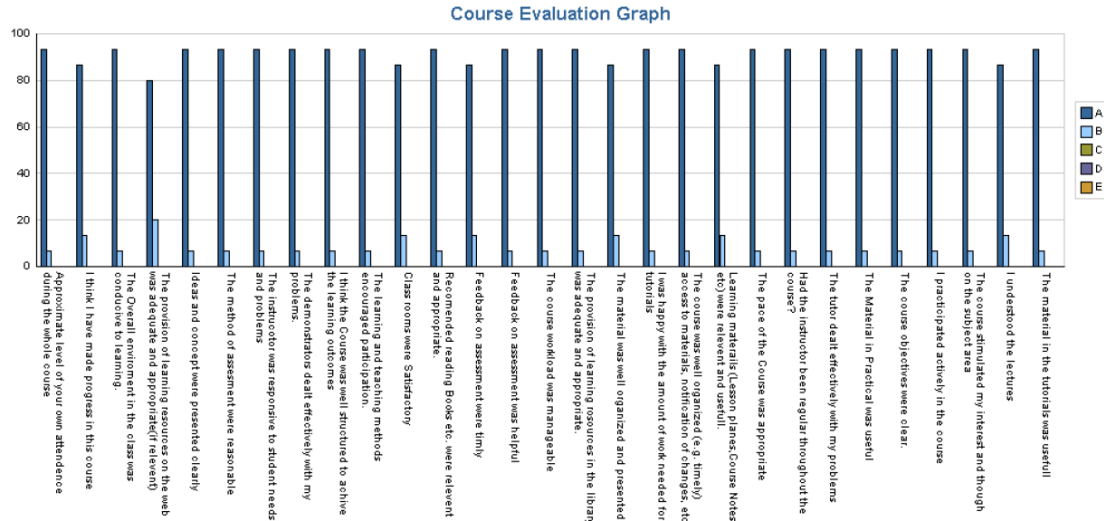
12. Evaluation of Course ZOOL-722

Teacher Name: Muhammad Mushtaq

Course Name: Wildlife Conservation and Management

Section: A M/E: M Semester# 4

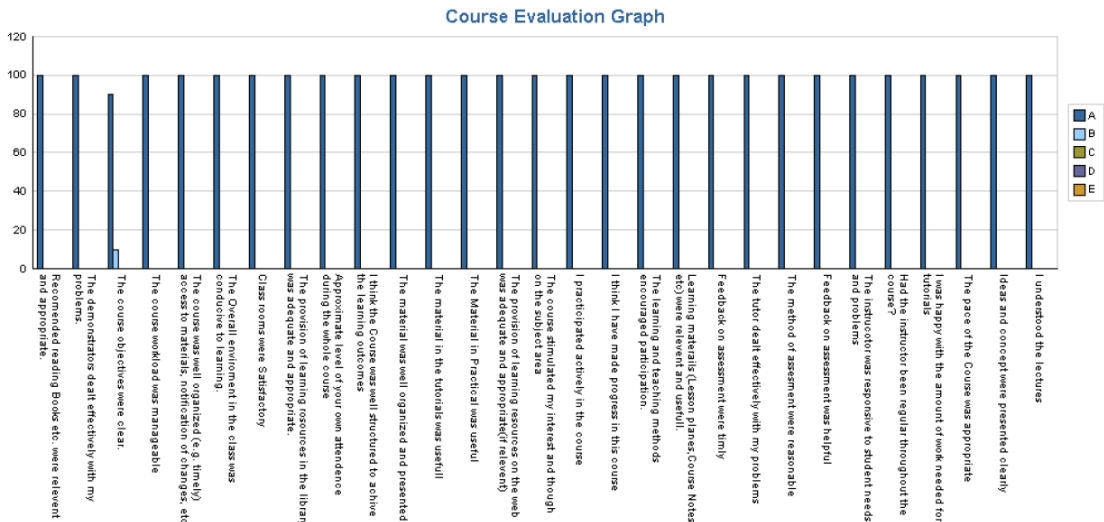
Class: M.Sc (Zoology)



Course Name: Wildlife Conservation and Management

Section: B M/E: E Semester# 4

Class: M.Sc (Zoology)



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

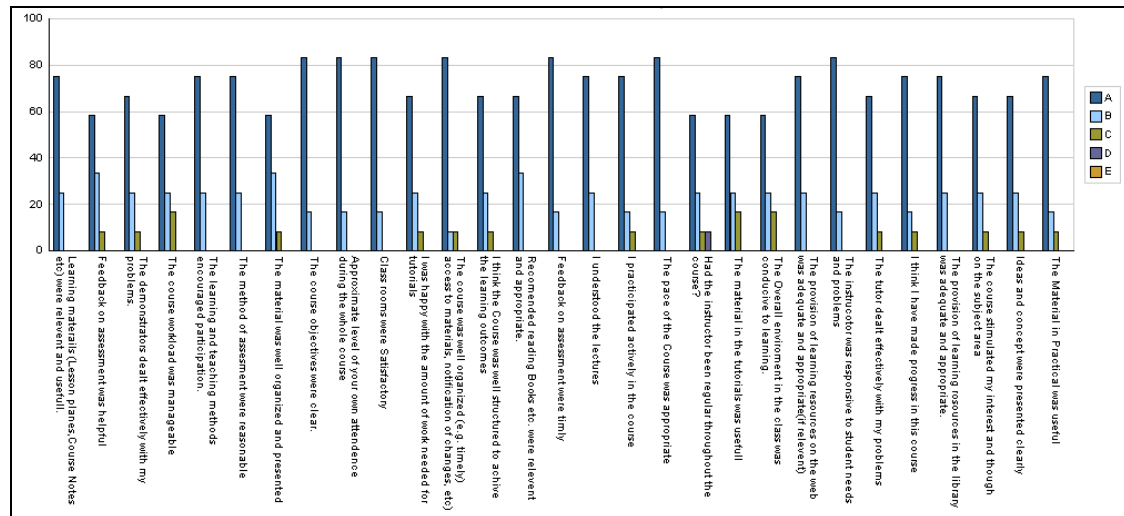
a: Section A; b: Section B

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

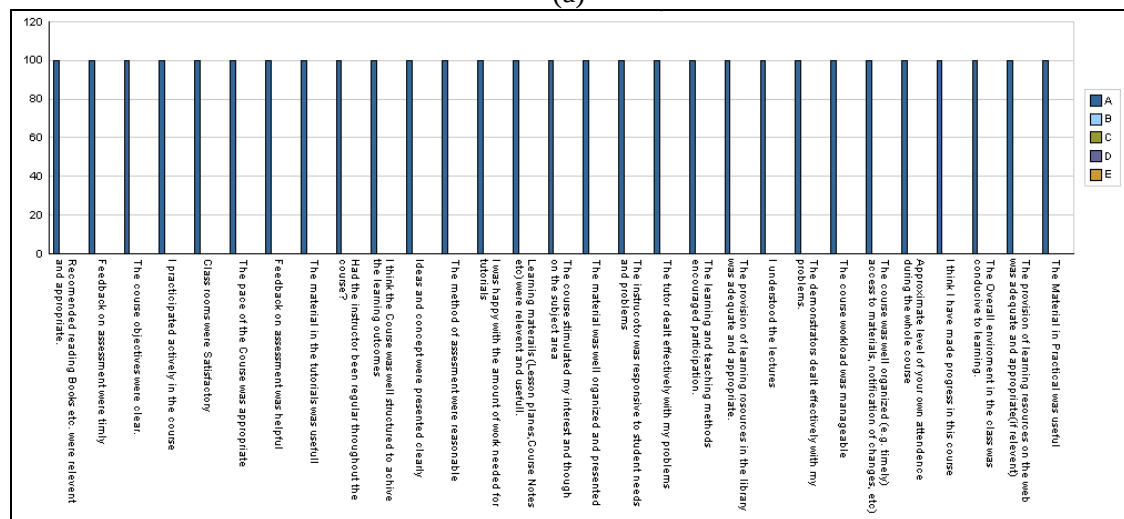
Strengths: Advanced knowledge and well managed.

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

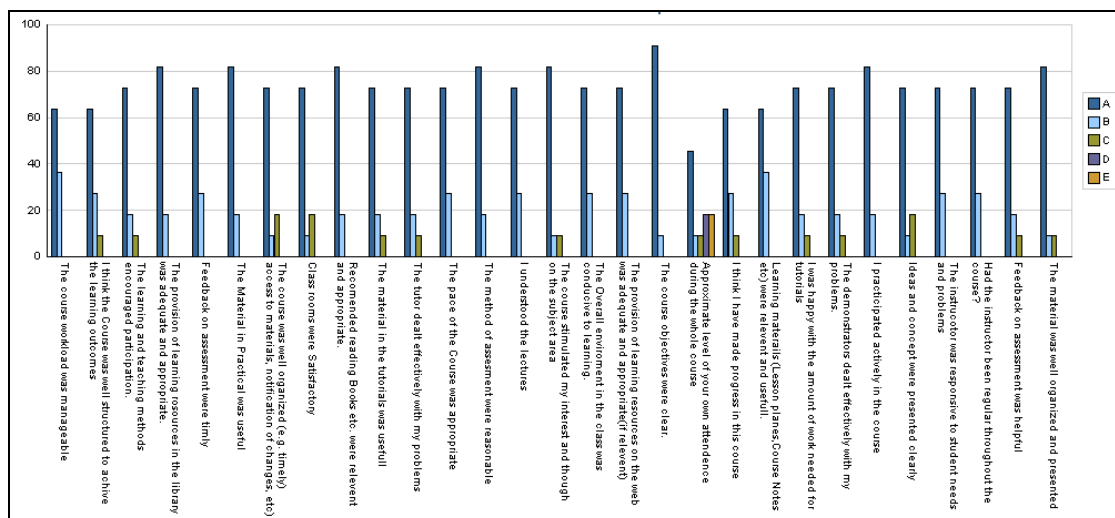
Fig. 24. Course Evaluation of ZOOL-727

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

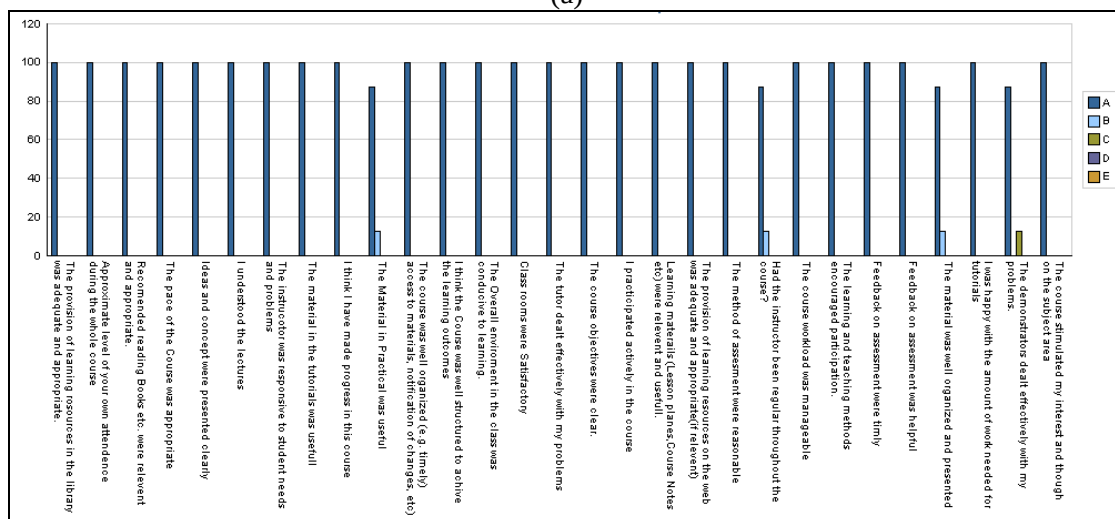
Strengths: The practical, updated, advance knowledge was given.

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

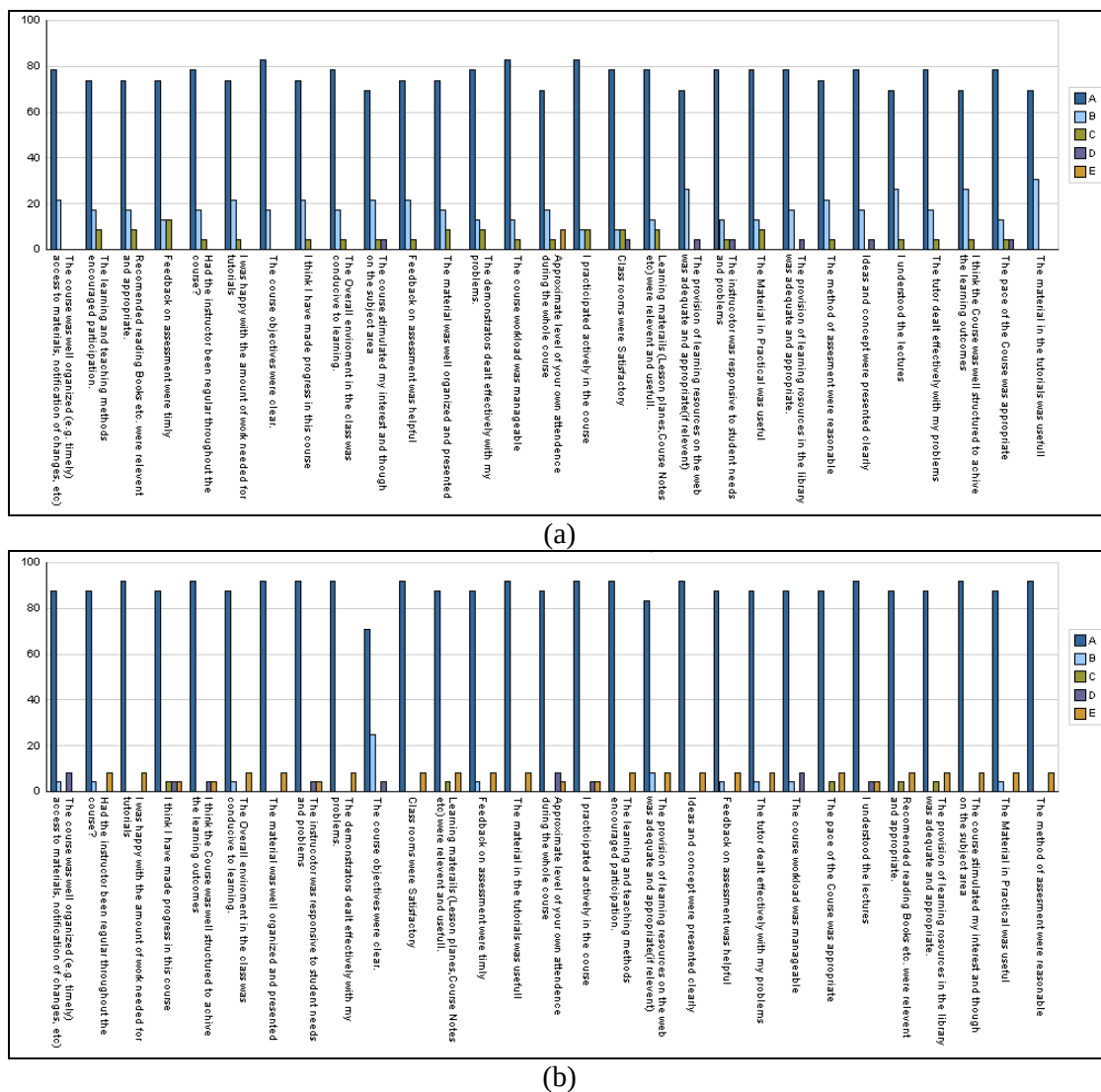
Fig. 25. Course Evaluation of ZOOL-738

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



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

a: Section A; b: Section B

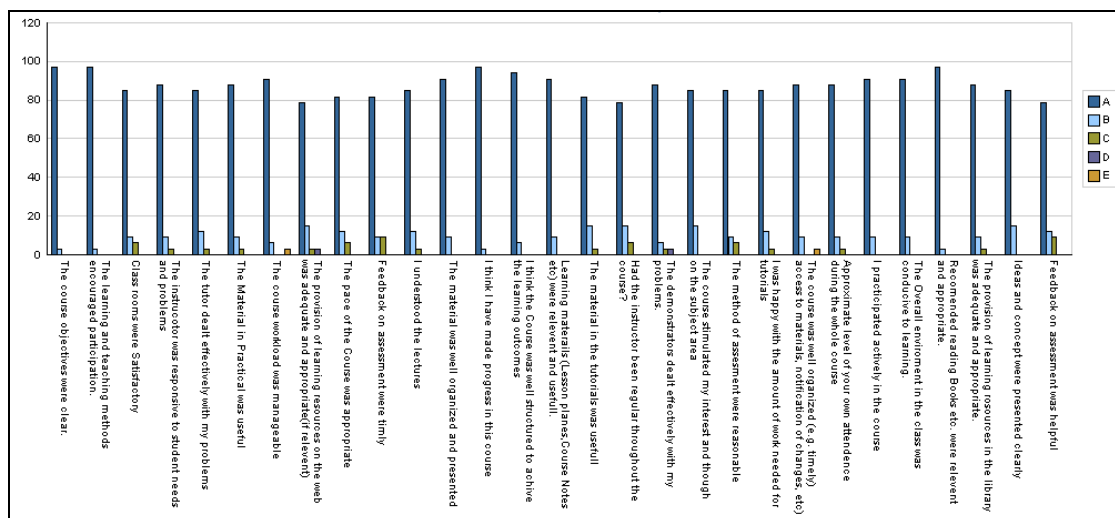
Fig. 26. Course Evaluation of BIOL-705

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

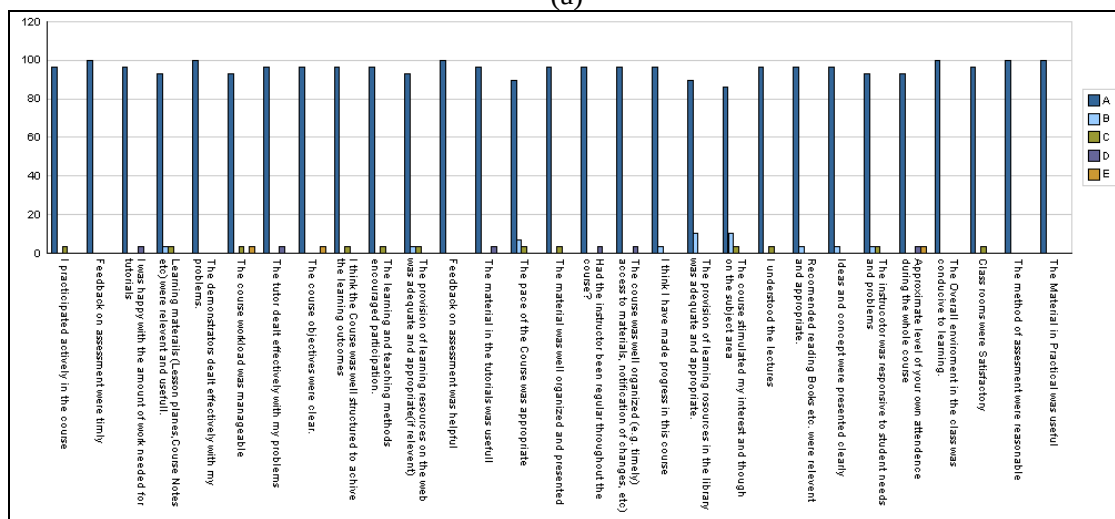
Strengths: Contents were well-prepared and composed.

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

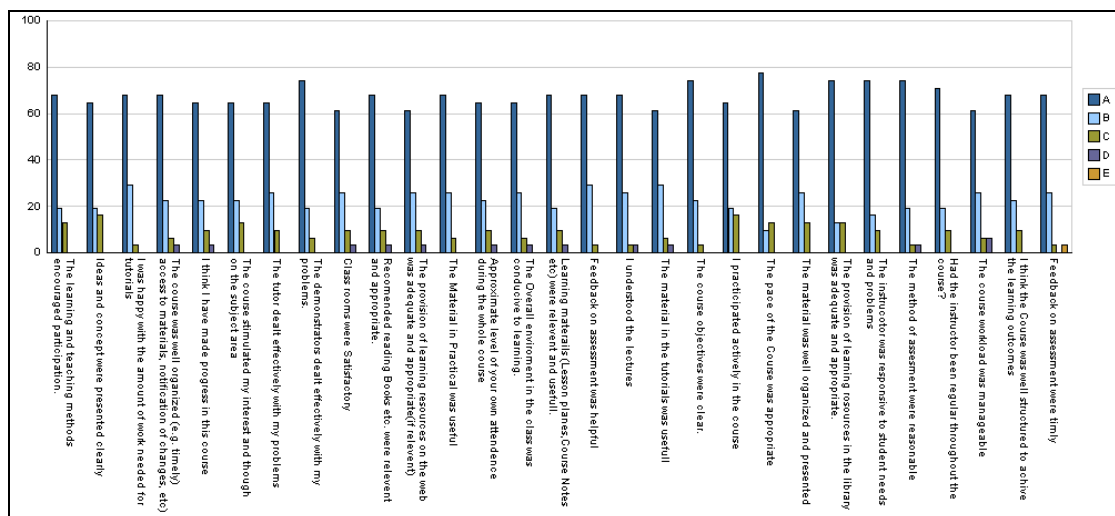
Fig. 27. Course Evaluation of BIOL-709

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

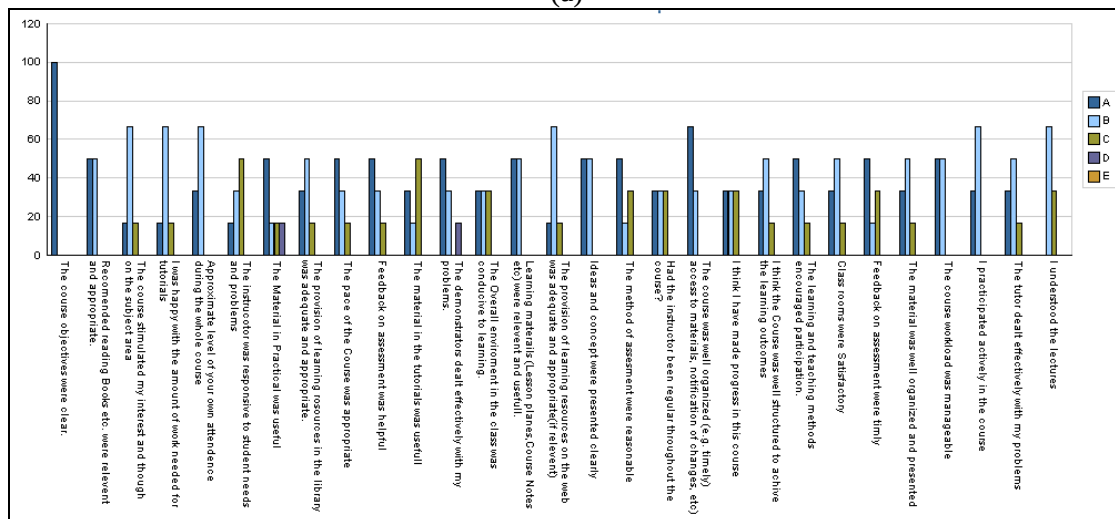
Strengths: The practical, updated, advance knowledge was given.

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.

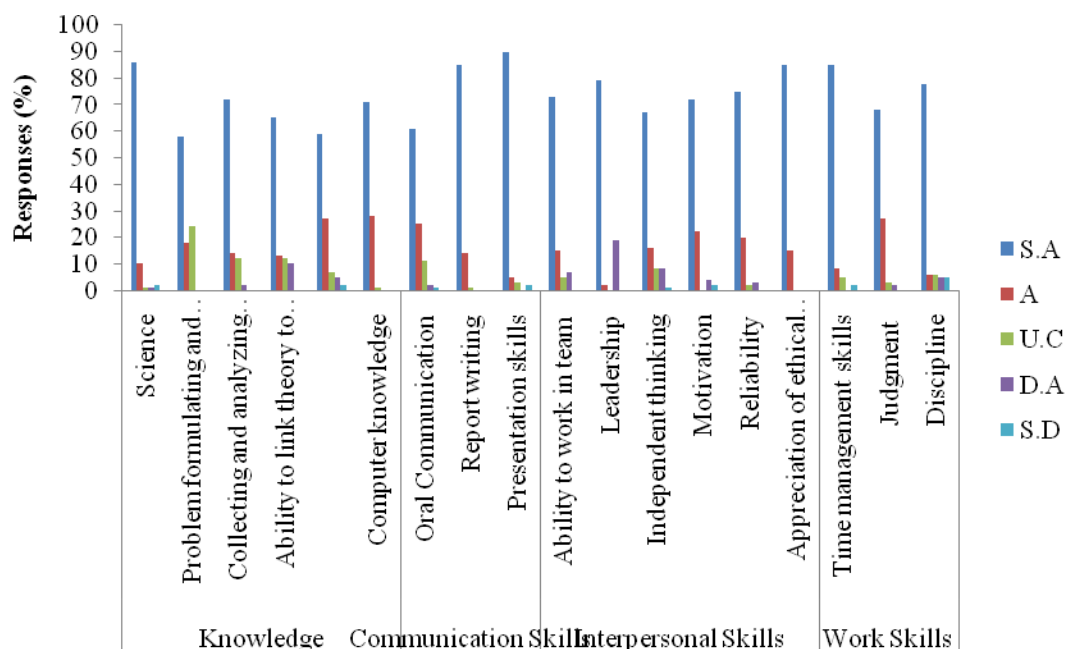
FACULTY COURSE REVIEW

Code	Title	Credit value	Assesment method	No. of Students	Comments on curriculum	Any Change for future in course	Sem	Grades						Teacher
								A	B	C	D	E	F	
ZOOL-701	Cell Biology	3(2-2)	Mid/Final Exam	68	Appropriate	Not suggested	Fall	26	63	7	0	4	0	Dr. MazharQayyum
ZOOL-702	Animal Diversity and Zoogeography	3(2-2)	Mid/Final Exam	68	Appropriate	Not suggested	Spring	33	56	8	0	3	0	Dr. MuhammdMushtaq
ZOOL-703	Principles of Genetics	3(2-2)	Mid/Final Exam	68	Appropriate	Not suggested	Fall	25	67	8	0	0	0	Dr. AbidaArshad
ZOOL-705	Animal Behavior	2(2-0)	Mid/Final Exam	68	Appropriate	Not suggested	Spring	31	59	10	0	0	0	Dr. AmjadKayani
ZOOL-706	Developmental Biology	3(2-2)	Mid/Final Exam	67	Appropriate	Not suggested	Spring	42	48	10	0	0	0	Dr. M. SajidNadeem
ZOOL-708	Aquaculture and Fisheries	3(2-2)	Mid/Final Exam	67	Appropriate	Not suggested	Spring	49	50	1	0	0	0	Dr. M. ZubairAnjum
ZOOL-709	Principles of Animal Systematics	2(1-2)	Mid/Final Exam	67	Appropriate	Not suggested	Fall	48	52	0	0	0	0	Dr. M. Mushtaq
ZOOL-710	Parasitology	2(2-0)	Mid/Final Exam	68	Appropriate	Not suggested	Spring	67	33	0	0	0	0	Dr. MazharQayyum
ZOOL-711	Research Planning and Report Writing	3(1-4)	Mid/Final Exam	68	Appropriate	Not suggested	Fall	32	68	0	0	0	0	Dr. ShamimAkhter
ZOOL-714	Medical Virology	3(2-2)	Mid/Final Exam	68	Appropriate	Not suggested	Fall	21	66	9	2	2	0	Dr. MazharQayyum
ZOOL-715	Faunal Biodiversity of Pakistan	3(2-2)	Mid/Final Exam	67	Appropriate	Not suggested	Fall	22	67	8	3	0	0	Dr. M. SajidNadeem
ZOOL-722	Wildlife Conservation and Management	3(2-2)	Mid/Final Exam	67	Appropriate	Not suggested	Spring	41	40	19	0	0	0	Dr. Muhammad Mushtaq

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.

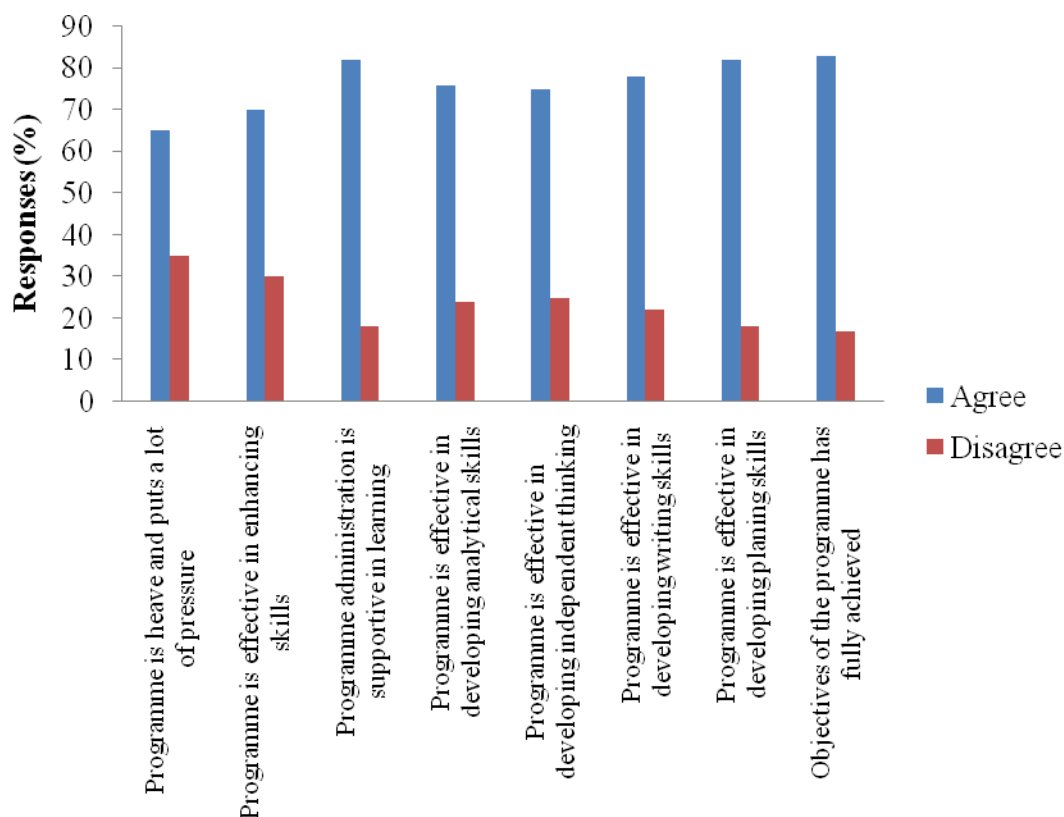


Key: SA=Strongly Agree, A=Agree, UC=Uncertain, D=Disagree, SD=Strongly Disagree

Fig. . 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 figure below.



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

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

Table-3: Quantitative assessment of the department

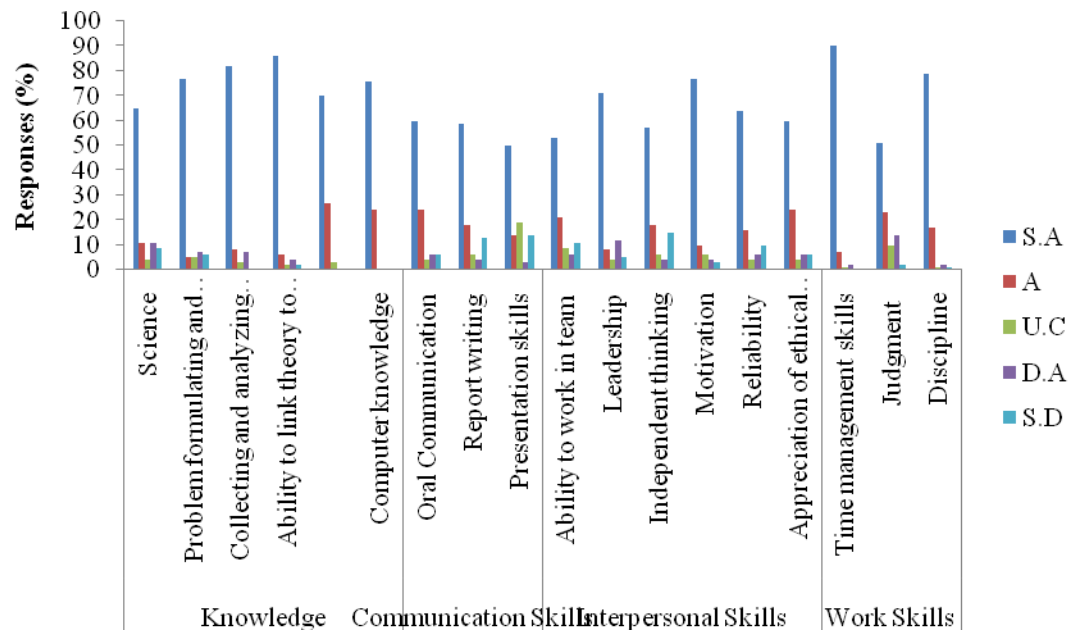
S. No.	Particulars	No.	Remarks
1	M. Sc degree awarded	~280	Every year 140 students get enrolled most of them acquire degree and join different institutes for higher degree while other got employment in various fields. Few are part of the faculty of same university.
4	Students: Faculty (ratio)	40:1	
5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

Research progress

Name of Faculty Member	Journal Publications	Conference publication	Projects
Dr. Mazhar Qayyum	8	2	0
Dr. Shamim Akhtar	36	4	1
Dr. Muhammad Sajid Nadeem	12	2	1
Dr. Amjad Rashid Kiyani	4	-	0
Dr. M. Mushtaq	8	-	0
Dr. Abida Arshad	4	1	1
Dr. M. Zubair Anjum	4	5	1
Dr. Ruqia Mehmood Baig	7	1	2
Dr. Muhammad Irfan	14	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
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
ZOOL-701	*	*
ZOOL-702	***	***
ZOOL-703	*	*
ZOOL-705	***	**
ZOOL-706	***	**
ZOOL-708	***	**
ZOOL-709	***	***
ZOOL-710	*	*
ZOOL-711	***	***
ZOOL-714	***	**
ZOOL-715	***	**
ZOOL-722	***	***
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 vizequipments:

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. MazharQayyum	Professor	Ph.D.	Pakistan	7.6.1963	Mazhar_dr@yahoo.com
Dr. ShamimAkhtar	Professor	Ph. D	Pakistan	13.06.1964	sashraf1993@yahoo.com
Dr. Muhammad SajidNadeem	Associate Professor	Ph. D	Pakistan	04.04.1970	sajidnm@hotmail.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. ZubairAnjum	Assistant Professor	Ph. D	Austria	9-3-1978	zubair.anjum@uaar.edu.pk
Dr. AbidaArshad	Assistant Professor	Ph. D	China	23-03-1977	abida.arshad6@gmail.com
Dr. RuqiaMehmoodBaig	Lecturer	Ph. D	Pakistan	7-8-1983	dr.ruqia@uaar.edu.pk
Dr. Muhammad Irfan	Assistant Professor	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	1
Reproductive physiology	2	1	1
Endocrinology/Genetics	4	3	2

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 M.Sc. student's ratio is 1:20

STANDARD-8-3: FINANCIAL RESOURCES

Total budget of the department of Zoology and Biology does not fulfills the departmental needs particularly for the purchase of equipment, chemicals etc.

SUMMARY

The Department of Zoology/Biology was established in 1996 and has been offering M. Sc degree in Zoology since then. Department opens merit based admissions annually. The students must have B.Sc. degree with Zoology as one of the major subjects. The program aims to set the theoretical and practical base of the Zoology. The students are pushed to learn solution of theoretical as well as practical problems in the science particularly in the Zoology. Graduates get equipped with key concepts of modern Zoology, and get aware of the scope and limitations of the subject. The department and university are keen to maintain the quality of education and research. In this regard, the performance of departmental staff and evaluation of programs run by department is done on semester basis. The data showed that the students are satisfied with the quality of teaching, knowledge level of teachers, teachers unbiased behaviour and workload. According to survey, 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; laboratory needs new equipments for practicals and provision of multimedia in the classes.

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. Shamim Akhtar

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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:

36

Publications during reported period (2018-2020)

PUBLICATIONS IN JOURNALS (INTERNATIONAL)

1. R. Ishaq, M. S. Ansari, B. A. Rakha, S. Qadeer, S. Akhter. 2019. Evaluation of Enrofloxacin for Use in Cryopreservation of Zebu Bull (*Bos indicus*) Semen. BIOPRESERVATION AND BIOBANKING. DOI: 10.1089/bio.2018.0133
2. Ansari, M.S., B. A. Rakha, S. Akhter, E. Blesbois, and J. Santiago-Moreno. 2019. Effect of Cryopreservation on Lipid Peroxidation, Antioxidant Potential, Chromatin Integrity, and Mitochondrial Activity of Indian Red Jungle Fowl (*Gallus gallus murghi*) Semen. BIOPRESERVATION AND BIOBANKING. DOI: 10.1089/bio.2018.0111
3. Rakha, B. A., M. S. Ansari, S. Akhter, S. Moreno, E. Blesbois. 2018. Use of dimethylsulfoxide for semen cryopreservation of Indian red jungle fowl (*Gallus gallus murghi*). *Theriogenology*, 122:61-67.
4. Akhter, S., B.A. Rakha, M.S. Ansari, S. Iqbal, M. Khalid. 2018. Evaluation of pigeon egg yolk for post thaw quality, enzyme leakage and fertility of buffalo (*Bubalus bubalis*) bull spermatozoa. *Theriogenology*, 119:137-142
5. Rakha, B. A., M. S. Ansari, Shamim Akhter, E. Blesbois. 2018. Cryoprotectant effects of egg yolk on Indian red jungle fowl (*Gallus gallus murghi*) sperm. *Theriogenology*. 119:150-155
6. Awan, M. A., S. Akhter A. U. Husna, M. S. Ansari, B. A. Rakha, A. Azam, S. Qadeer. 2018. Antioxidant activity of *Nigella sativa* Seeds Aqueous Extract and its use for Cryopreservation of Buffalo Spermatozoa. *Andrologia*. DOI: 10.1111/and.13020
7. Rakha, B. A., M. S. Ansari, Shamim Akhter, E. Blesbois. 2018. Cryoprotective effect of glycerol concentrations on Indian red jungle fowl (*Gallus gallus murghi*) spermatozoa. *Avian Biology Research*. 11: 80-88.
8. Khan, M.Q., M. Z. Anjum, S. Akhter, I. Khattak, M. Adnan & A. Ali. Diet Composition and Seasonal Fluctuations in the Feeding Habit of Snow Barbel (*Schizothorax plagiostomus*) in River Indus, Pakistan. *Acta Scientiae Veterinariae*, 2018. 46: 1550.
9. Shafique, R.H., S. Akhter, S. Abbas, M. Ismail. 2018. Sensitivity to house dust mite allergens and prevalence of allergy causing house dust mite species in Pothwar, Pakistan. *Exp Appl Acarol*, 74:415-426

10. Majeed Z. Ajab Z, Zuberi A, Akther S, Muhammad A. 2018. Meristic variations and skeletal deformities in natural population of mahseer fish, *Tor putitora* (Hamilton, 1822), Iranian Journal of Fisheries Sciences, 17: 208-216.

2. CURRICULUM VITAE

1. Personal Data

Name: Dr. Mazhar Qayyum

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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: 8

Publications during reported period (2018-2020)

KIRAN AFSHAN, SARWAT JAHAN AND MAZHAR QAYYUM. 2017. Assessing the Validity of Fasciola hepatica ELISA Test for Immunodiagnosis of Small Ruminant Fasciolosis in Pothwar Region, Pakistan. Pakistan J. Zoology. 49 (2): 1-5.

REHANA BIBI, KIRAN AFSHAN, IMTIAZ AHMAD KHAN, ZUBARIA IQBAL, AMJAD RASHID KAYAN, MUHAMMAD MUSHTAQ, MUHAMMAD IRFAN, MAZHAR QAYYUM AND MOHAMMAD FAROOQUE HASSAN. 2017. Phenotyping and Prevalence of *Haemonchus contortus* (Nematoda: Trichostrongylidae) in Ruminants from Endemic Areas of Pakistan: Influence of Host Species and Geographical Area on Phenotypic Traits of Worms. Pakistan. Pak. Vet. J. 37(2): 170-174. (IF=1.3).

SADAF IJAZ MALIK, KIRAN AFSHAN AND MAZHAR QAYYUM. 2017. Phenotyping of Amphiostomes, and Pathological, Hematological and Bile Biochemical Response to *Gigantocotyle explanatum* Infection in Buffaloes. Pakistan J. Zoology. 49 (2): 979-987.

MISBAH RIAZ, QAISER MANSOOR, MALEEHA AKRAM, MUHAMMAD ISMAIL, PARVEEN AKHTAR, SHAKEEL MIRZA, MAZHAR QAYYUM, AFZAAL AHMED NASEEM, FAHEEM TAHIR AND SYED SHAKEEL RAZA RIZVI. 2017. A novel mutation Ser34Phe in GNRHR causes hypogonadotropichypogonadism during pubertal development in boys. Pakistan J. Zoology. 49 (1): 211-217.

AFZAAL AHMAD NASEEM, MALEEHA AKRAM, SARWAT JAHAN, KIRAN AFSHAN, ZUBARIA IQBAL, FAHEEM TAHIR, MAZHAR QAYYUM AND SYED SHAKEEL RAZA RIZVI. 2017. Age and developmental stage dependent changes in plasma concentrations of growth hormone and testosterone and linear growth velocity in boys between the age of 1 and 20 years. Pakistan J. Zoology. 49 (1): 8-12

ULFAT IKHLAK, MUHAMMAD IRFAN, SHAHZAD ALI, ASFA ASHRAF, SHIWEI XIAO, MAZHAR QAYYUM. 2016. Prevalence of Dengue in Students of Arid Agriculture University Rawalpindi. PSM Microbiol., 01(2): 62-65

IFTIKHAR AHMAD, KIRAN AFSHAN, MUHAMMAD RAMZAN, SIKANDER HAYAT, SYED SHAKEEL RAZA RIZVI AND MAZHAR QAYYUM. 2016. Effect of water quality parameters on isopod parasites *Alitropistypus* (Aegidae) of ectoderms in Chashmalake, Pakistan. Pakistan J. Zoology. 48(3): 769-779.

MAJID MAHMOOD, ABIDA RAZA, MUHAMMAD ASIM, MAZHAR QAYYUM, NASIB ZAMAN, AZRA KHANUM AND MIRZA AZHAR BEG. 2016. Analysis of complete and partial genome sequences of Hepatitis B virus and determination of its genotype and sub-genotypes from Pakistan. Pakistan J. zoology. 48(3): 747-753.

RAFIQUE S., SIDDIQUE, N., MAZHAR QAYYUM, ABBAS, M. A., ALI, A., YASEEN, S AND NAEEM K., 2015. In Ovo vaccination against avian influenza virus subtype H9N2. Pakistan Vet. J., 35 (3): 299-302.

SAIRA, M., K. AFSHAN, I. A. KHAN, S. IRUM, I. Z. QURESHI, S. S. R. RIZVI, M. MUKHTAR, M. MUSHTAQ, Z. IQBAL AND MAZHAR QAYYUM, 2015. Serological and Coprological Studies of Bovine Fasciolosis in the Pothwar Region, Pakistan. Pak. Vet. J. 35(2): 178-182. (IF=1.3).

3. CURRICULUM VITAE

1. Personal Data

Name: Dr. Muhammad Sajid Nadeem

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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: 23

9. Supervision of Post-Graduate Theses: a) Ph.D.:3; b)M.Phil.: 17.

10. Publications

a. Papers Published in Peer Reviewed Journals: 12

Publications during reported period (2018-2020)

1. 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.

2. Anwar, M.B; Jackson, R; Nadeem, M. S; Janecka, 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.
3. Bibi, S; Nadeem, M. S; Anwar, M. B; Shah, S. I; Kayani, A. R; Mushtaq, M; Beg, M. A; and Mahmood, T. 2019. First record of *Mus cookii* (Cook's Mouse) from Pothwar, Pakistan; A probable case of range extension?. *Mammalia*, 83(2): 198-202
4. Bibi, S; Nadeem, M. S; Wiewel, A. S; Beg, M. A; Hameed, K; Jabeen, M; and Raja, G. K. 2017. Mitochondrial Genetic Diversity and Phylogeography of *Mus musculus castaneus* in Northern Punjab, Pakistan. *Zoological Science* 35 (6): 490-497
5. Irshad, N; Mahmood, T; Hussain, R. and Nadeem, M. S. 2015. Distribution, abundance and diet of Indian Pangolin (*Manis crassicaudata*) *Animal Biology*, 65(1):57-71.
6. 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.
7. Nadeem, M. S; Mahmood, T; and Mahmood-ul-Hassan, M. 2014. Breeding success of Stone Curlew *Burhinus oedicephalus* in Nag Valley (1999-2001), Kharan, Pakistan. *Turk. J. Zool.* 38(4): 510-514.
8. 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.
9. Nighat, S; Nadeem, M. S; Shah, S. I; Bhati, R.Z; Akhter, N; Mahmood, T; Aihetasham, A. Asif, M. and Javid, A. 2019. Estimation of Heavy Metals (Cd, Cu, Pb, Zn) from six species of Vesper Bats. *J. Anim. Plant Sci.* 29 (2):619-624.
10. Zangi, I; Mahmood, T; Akrim, F; and Nadeem, M. S; 2019. Spatial distribution and Population estimates of three vulture species in and around Pir Lasura National Park, north-eastern Himalayan region, Pakistan. *J. Raptor Res.* 53(2): 164-171.

4. CURRICULUM VITAE

1. Personal Data

Name: Dr. Amjad Rashid Kayani

Present Address: Assistant Professor
Department of Zoology, Pir Mehr Ali Shah Arid Agriculture
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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 ecology, behavior and reproductive biology

4. HEC approved supervisor: Yes

5. Professional Experience (Research and Teaching): 25 years

6. Fellowship/Membership of Professional Associations/Societies: 01

7. Research Projects; Completed=02

8. Participation in Conferences/Workshops: 06

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

Distinctions:

- **University Distinction:** Stood first in the order of merit among all students who qualified for M.Sc. Zoology during calendar year 1988, The University of Agriculture, Faisalabad

- **University Merit Scholarship**, The University of Agriculture Faisalabad, 1986-87 and 1987-88
- **TROSS Scholarship** from Ministry of Science & Technology, Government of Pakistan (2001) for PhD study in UK

10. Publications

Papers Published in Peer Reviewed Journals:

2

Publications during reported period (2018-2020)

1. Ahmad, N., Khan, I.A., Iqbal, Z., Naseem, A.A., Kayani, A.R., Afshan, K. and Qayyum, M. 2019. Seroepidemiology of toxoplasmosis in human population with reference to its zoonotic potential in Sub-Tropical areas of Pakistan. Pak. Vet. J. 39(2): 211-215.
2. Bibi, S., Nadeem, M.S., Anwar, M.B., Shah, S.I., Kayani, A.R., Mushtraq, M., Beg, M.A. and Mehmood, T. 2018. First record of *Mus cookii* (Cook's mouse) from Pothwar, Pakistan: a probable case of range extension. Mammalia

5. 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.

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2. Academic Qualification

DEGREE	YEAR	SUBJECTS	INSTITUTIONS
Ph.D	2009	Zoology	Pir Mehr Ali Shah Arid Agriculture University, Murree road, Rawalpindi
M.Sc	1995	Zoology	University of the Punjab

3. Area of Specialization: Pest control

4. Professional Experience (Research and Teaching): 21 years

5. Research Projects; Completed=01

6. Participation in Conferences/Workshops: 2

9. Supervision of Post-Graduate Theses: a) M.Phil.: 12 b) 1

10. Publications

Papers Published in Peer Reviewed Journals:

8

Publications during reported period (2018-2020)

1. Bibi, S., M. S. Nadeem, M. B. Anwar, S. I. Shah, A. R. Kayani, M. Mushtaq, M. A. Beg and T. Mahmood. 2019. First Record of Mus cookie (Cook's mouse) from Pothwar, Pakistan: A Probable Case of Range Extension? Mammalia. 83(2): 198-202. (IF = 0.714)
2. Fiaz, M., K. Munawar, M. Mushtaq, M. Ahmad, M. A. Chaudhry, M. Aslam, T. Ahamd and Nasrullah. 2017. Evaluating Varying Calf Milk Replacers on Optimum Growth Performance in Salt Range Lambs. Pakistan J. Zool. 49(5): 1925-1928. (IF: 0.547)
3. Khanam, S. M. Mushtaq, A. R. Kayani, M. S. Nadeem and M. A. Beg. 2017. Small Mammal Community Composition and Abundance in Rural Human Habitations of Pothwar, Pakistan. Trop. Ecol. 58(3): 515-524.
4. Khanam, S. M. Mushtaq, M. S. Nadeem and A. R. Kayani 2017. Population Ecology of the House Mouse (Mus musculus) in Rural Human Habitations of Pothwar, Pakistan. Zool. Ecol. 27(2): 106-113.

5. Sami-ur-Rehman, S. M. F. Nasir, M. Naeem, A.Mehmood and M. Mushtaq. 2017. Fauna of *Culex* (Culicidae: Diptera) mosquitoes in tehsil Pind Dadan Khan, Jhelum, Punjab, Pakistan. *Int. J. Mosq. Res.* 4(5): 28-31.
6. Akber, M., M. Mushtaq, M. S. Nadeem, A. R. Kayani and N. Nisa. 2017. Reproductive Patterns of the Norway Rat (*Rattus norvegicus*) in Urban Rawalpindi, Pakistan. *Pakistan. J. Zool.* 49(3): 1131--1134. (IF: 0.547)

6. CURRICULUM VITAE

1. Personal Data

Name: Dr. Muhammad Zubair Anjum

Present Address: Assistant Professor,
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University, Murree road, Rawalpindi, Pakistan.

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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=03; ongoing=01

8. Participation in Conferences/Workshops: 14

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

10. Publications = 08 Abstract = 05

1. Abid Ali, Muhammad Qayash Khan, Muhammad Zubair Anjum, Muhammad Adnan, Abbas khan, Sher Zaman Safi, Hafsa Zahid, Javed Nawab, Muhammad Ishaq Ali Shah and Atif Kamil (2020) Genetic diversity of Schizothorax, Tor, and Mystus spp. in Khyber Pakhtunkhwa, Pakistan: Species of economic importance. Pakistan Journal of Zoology 53(3): 1099-1109.
2. Daniel S. Karp, Rebecca Chaplin-Kramer, Timothy D. Meehan [et al., including Muhammad Zubair Anjum] (2018) Crop pests and predators exhibit inconsistent responses to surrounding landscape composition. PNAS Latest Articles 155 (33): E7863- E7870.

3. Emily A. Martin, Matteo Dainese, Yann Clough [et al., including Muhammad Zubair Anjum] (2019) The interplay of landscape composition and configuration: new pathways to manage functional biodiversity and agroecosystem services across Europe. *Ecology Letters* 22: 1083-1094.
4. Farman Ali, Muhammad Qayash Khan, Muhammad Zubair Anjum and Irfan Khattak. (2018) Toxic effect of Atrazine herbicide on the hematological indices of Snow Carp (*Schizothorax plagiostomus*): An indigenous fish species of economic importance. *Fresenius Environmental Bulletin* 27(5): 3075-3080.
5. Kalim Ullah, Arslan Emmanuel and Muhammad Zubair Anjum (2018) Effect of stocking density on growth performance of Indus Mahseer (*Tor macrolepis*). *International Journal of Fisheries and Aquatic Studies* 6 (3): 49-52.
6. Muhammad Qayash Khan, Muhammad Zubair Anjum, Shamim Akhter, Irfan Khattak, Muhammad Adnan and Abid Ali (2018) Diet composition and seasonal fluctuations in the feeding habit of Snow Barbel (*Schizothorax plagiostomus*) in River Indus, Pakistan. *Acta Scientiae Veterinariae* 46: 1550.
7. Pasha, R.H., M. Z. Anjum, I. Ullah, M.A. Khan, A. Ali, S. Rehman, S. Batool and A. Emmanuel. (2019). Seasonal variation in the microscopic anatomy of gonads and gonadosmotic index of *Clupisoma garua*. *Pakistan Journal of Agricultural Research*, 32(4):670-674.
8. Sana Urooj, Aroosa Qayyum, Muhammad Arfan Hadyait, Shaista Razzaq, Dr. Zubair Anjum (2018) Comparison of Spawning Response of Silver carp (*Hypophthalmichthys molitrix*) and Grass carp (*Ctenopharyngodon idella*). *International Journal of Research* 5 (22): 302-306.

7.CURRICULUM VITAE

1. Personal Data

Name: Dr. Abida Arshad

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2. Academic Qualification

DEGREE	YEAR	SUBJECTS	INSTITUTIONS
Ph.D	2012	Neurobiology	Quaid-I-Azam University, Islamabad, Pakistan
M.Sc	2000	Zoology	Quaid-I-Azam University (Animal Sciences), Islamabad, Pakistan

3. Area of Specialization: Neurobiology

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 3 years

7. Research Projects; Completed=02

8. Participation in Conferences/Workshops: 2

9. Supervision of Post-Graduate Theses: a) M.Phil.: 5.

10. Publications

Papers Published in Peer Reviewed Journals:

4

Publications during reported period (2018-2020)

1. Ahmad Farooq, Usman Waheed, Hasan Abbas Zaheer, Abdul Rauf, Abida Arshad, and Muhammad Arshad. Incidence of Hepatitis B and C Viruses in Thalassaemia Major Patients. Pakistan Journal of Zoology. (2018) 50(3), 1-4.
2. Feroz Khan, Abida Arshad, Ayesha Isani Majeed, Asmat Ullah, Wasim Ahmad. A novel frameshift variant in BHLHA9 underlies mesoaxial synostotic syndactyly associated with postaxial polydactyly. European Journal of Medical Genetics (2019) 62(8), 103688.
3. Muhammad Hassan Raza, Kamni Gul, Abida Arshad, Naveeda Riaz, Usman Waheed, Abdul Rauf, Fahad Aldakheel, Shatha Alduraywish, Maqbool Ur Rehman, Muhammad Abdullah, Muhammad Arshad. Microbiota in cancer

development and treatment. *Journal of Cancer Research and Clinical Oncology* (2019) 145(1), 49-63.

4. Waheed U, Arshad M, Sultan S, Saeed M, Arshad A, Irfan SM, Zaheer HA. Iron deficiency and iron deficiency anemia in blood donors at a tertiary care hospital in Islamabad, Pakistan. *Global Journal of Transfusion Medicine* (2018); 3: 17-20.

8.CURRICULUM VITAE

1. Personal Data

Name: Dr. Ruqia Mehmood Baig

Present Address: Lecturer,
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University, Murree road, Rawalpindi, Pakistan.

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2. Academic Qualification

DEGREE	YEAR	SUBJECTS	INSTITUTIONS
MSc	2004	Zoology	Quaid-I-Azam University, Islamabad, Pakistan
M.Phil	2008	Cell Biology	Quaid-I-Azam University (Animal Sciences), Islamabad, Pakistan
Ph.D	2013	Biosciences	COMSATS Institute of Information Technology, Islamabad

3. Area of Specialization: Genetics

4. HEC approved supervisor

5. Professional Experience (Research and Teaching): 3 years

7. Research Projects; Completed=02

8. Participation in Conferences/Workshops: 2

9. Supervision of Post-Graduate Theses: a) M.Phil.: 5.

10. Publications

Papers Published in Peer Reviewed Journals:

7

Publications during reported period (2018-2020)

1. Hassan MU, Iqbal MF, Riaz A, Zafar MA, Shamim A, Rehman SU, Kayani MFA, Baig RM. Prevalence and Chemotherapy of Warble Fly Infestation in Goat Population of District Khushab, Pakistan. Pakistan Journal of Science. Volume 68 (Issue No. 2) June 2016. 128-132.
2. Banaras F, Abbas F, Awan MA, Riaz A, Khan IA, Ahmad Z, Mengal MA, Banaras S, Hassan M, Zafar MA, Baig RM. Molecular Survey on the Prevalence of Caprine mycoplasma in the Goats of Quetta City of Pakistan. International Journal of Veterinary Science. 2016, 5(3): 158-163.

3. 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.
4. 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
5. 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
6. 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.
7. 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.

10.CURRICULUM VITAE

1. Personal Data

Name: Dr. Muhammad Irfan

Present Address: Assistant Professor

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

E-mail: muhammadirfan@uaar.edu.pk

2. Academic Qualification

DEGREE	YEAR	SUBJECTS	INSTITUTIONS
Ph.D	Cont..	Neurobiology	Pir Mehr Ali Shah Arid Agriculture University, Murree road, Rawalpindi
M.Phil.	2008	Zoology	Pir Mehr Ali Shah Arid Agriculture University, Murree road, Rawalpindi
M.Sc	2006	Zoology	Pir Mehr Ali Shah Arid Agriculture University, Murree road, Rawalpindi

3. Area of Specialization: Reproductive Endocrinology and Genetics

4. Professional Experience (Research and Teaching): 9 years

5. Research Projects; Completed=01

6. Participation in Conferences/Workshops: 3

9. Supervision of Post-Graduate Theses: a) M.Phil.: 11.

10. Publications

Papers Published in Peer Reviewed Journals:

14

Publications during reported period (2018-2020)

1. **Irfan, M.,** Ismail, S. B., Noor, N. M., & Hussain, N. (2020). Efficacy of Aspirin for Vasculogenic Erectile Dysfunction in Men: A Meta-Analysis of Randomized Control Trials. American journal of men's health, 14(5), 1557988320969082. <https://doi.org/10.1177/1557988320969082>. (IF: 1.605).
2. **Irfan, M.,** Hussain, N. H. N., Noor, N. M., Mohamed, M., Sidi, H., & Ismail, S. B. (2020). Epidemiology of Male Sexual Dysfunction in Asian and European Regions: A Systematic Review. American Journal of Men's Health. <https://doi.org/10.1177/1557988320937200>. (IF: 1.605).
3. **Irfan, M.,** Hussain N. H. N., Noor N. M., Mohamed, M., Ismail S. B. Sexual Abstinence and Associated Factors among Young and Middle-Aged Men.

- (2020) A Systematic Review. *The Journal of Sexual Medicine*. 17(3): 412-430. (IF: 3.23)
4. Ismail S. B., Noor N. M., Hussain N. H. N., SulaimanZ.,Shamsudin, M. A., **Irfan, M.** (2019). Angiotensin receptor blockers for erectile dysfunction in hypertensive men: A brief meta-analysis of randomized control trials.*American Journal of Men's Health*, doi.org/10.1177/1557988319892735. (IF: 1.605).
 5. Moez, S., Khalid, Z., Jalil, F., **Irfan, M.**, Ismail M., Ari. M. A., Niazi, R., & Khalid, S. (2019) Effects of SLC22A2 (rs201919874) and SLC47A2 (rs138244461) genetic variants on Metformin Pharmacokinetics in Pakistani T2DM patients. *Journal of Pakistan Medical Association*. 69 (2): 155-163. (IF: 0.642)
 6. Qayyum, A., Najmi, M. H., Mansoor, Q., **Irfan, M.**, Naveed, A. K., Hanif, A., Ismail, M. (2018). Frequency of Common VKORC1 Polymorphisms and Their Impact on Warfarin Dose Requirement in Pakistani Population. *Clin Appl ThrombHemost*, 24(2), 323-329. doi:10.1177/1076029616680478 (IF: 1.85)