

Pir Mehr Ali Shah
Arid Agriculture University, Rawalpindi



Self-Assessment Report (2019-20)

Department of Botany

(M.Sc. Botany)

Program Self-Assessment Team

- **Prof. Dr. Abida Akram(Coordinator)**
- **Dr. Khafsa Malik (Member)**
- **Dr. Noshin Ilyas (Member)**

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Introduction

The Barani Agriculture College established in 1980 and botany is being taught different semesters since then. These supported B.Sc. Agriculture strand till 1996. The College was upgraded to a university status in 1995. Since then, Botany subjects were offered at Masters level. The discipline of Botany in PMAS-AAUR was introduced as a separate Department in 1995. The main Program at initial level was M.Sc started in 1996. Since then, now Botany subjects are offered in M.Sc., M.Phil. and Ph.D. degree programs. Post graduate classes for M.Sc are taken both in morning and evening session.

About 449 students have done their M.Sc. from this department and number of passed out students are 1259 for M.Sc. Department has a broad curriculum and 1/3 courses are also contributed for M.Sc Biology besides B.Sc (Hons.), Agriculture, MBA (Agri-Business), Department of Forestry and Range Management. The graduates of this department are ranked amongst the best of country. Our faculty is currently composed of 9 faculty members all are Ph.D. and the other are M.Phil degree holders and near completion of their Ph.D. The faculty members are specialized in various fields of Botany i.e. plant physiology, taxonomy, ecology ethonobotany, plant pathology, Ecotoxicology, and environmental pollution and gene transformation

An extensive scheme of studies has been developed for post graduate degree program in the field of Botany including all major aspects such as ecology, genetics, physiology, taxonomy, anatomy, molecular biology of plants and biochemistry. These classes are taught by faculty who enjoy teaching and have a commitment to education. Besides teaching faculty members also ensures students participation in laboratory exercises, practical's as well as field sites. The department of Botany is featured by a highly competent teaching group in plant sciences. Members of the faculty are working in many specialized fields of plant sciences and are endeavoring to enhance our knowledge of the plant world.

Schemes of studies are being constantly reviewed and updated as per HEC's recommendations. The department offers a variety of study programs to enhance students' professional training and career opportunities. It regularly holds national and international training workshop, seminars to exchange knowledge and views. The faculty is actively engaged in a number of research

projects; some of which are internationally collaborated and funded. Department of Botany prepares students for careers in industry, government agencies and teaching jobs.

SECTION 1

Components of Self-Assessment Process:

This Self-Assessment has been prescribed on the cradle of the eight criteria described in self-Assessment Manual. The Self-Assessment Report (SAR) contains eight sections. The first section outlines the program mission and objectives. Section 2 provides information about the curriculum development. Section 3 enlists the laboratories and other relevant information followed by student support and guidance. The last four sections provide information about student support, process control, faculty characteristics and institutional facilities and support provided by the university.

Criterion-1: Program Mission, Objectives and Outcomes

Introduction

The department of Botany is dynamically tangled in education of diversity of courses and worth exploration programs to lift and settle the M.Sc students' expert proficiency level.

Standards 1-1: Documented measurable objectives

Mission of the Program:

Our Mission is to regulate, recommend, and conduct acquaintance regarding basic plant biology and fetch supremacy in the botanical sciences.

Objectives:

1. To develop the discipline of teaching and research for the students.
2. To impart basic and practical knowledge and scientific skills in the concerned field.
3. To train the students for Integration of multidimensional field.
4. Anticipation of new teaching/researchable areas.

Outcomes:

1. Strengthening of the Department was carried out on modern lines for basic education.
2. The students were imparted basic theoretical and practical knowledge.
3. To inculcate scientific skills and knowledge.

4. Anticipation of new teaching areas was achieved through updation of the curricula.

Sr. #	Objectives	How Measured	When Measured	Improvement Identified	Improvement Made
1.	Strengthening of discipline	On the basis of SAR and conductance of examination	During the conductance of examination and SAR in each semester	Teaching methodology and course updation needed to be improved	Teaching method have been revised in order to make them more attractive and understandable
2.	To impart basic and applied knowledge to the undergraduates students	knowledge of students was measured through conducting exams during the semester	After the conductance of exams	Some new courses need to be included in the curriculum	Curricula is regularly updated
3.	Integration of multidimensional field	Different new courses	At the end of semester	Related subject to be recommended or studied	Enhancement of knowledge and vision
4.	Anticipation of new teaching areas	With the need of current advancement in the relevant areas	Continuous activity	New topics to be included in lectures.	Updation of courses.

+ = Moderately satisfactory, ++ = Satisfactory, +++ = Highly satisfactory

Program objectives

Outcomes	Objectives			
	1	2	3	4
1	+++	++	+++	++
2	++	++	++	+++
3	+++	++	++	+++
4	+++	+++	+++	++

Meeting Standards 1-2: Program Outcome Measurement

A number of assessments based on the SAR questionnaires were commenced to assess the Program outcomes/ graduates of the department and teacher's evaluation. Maximum students filled the survey forms.

Program Assessment Results:

The outcomes of Program assessment by the SAR are presented in graphical method. However, the inclusive outcomes show that the students are contented with the Program and method of teaching.

Student Course Evaluation

Maximum of the students favor almost the course contents of each course, their prospect and applications in daily life beside with the presentation by the concerned tutor. The results of this survey are presented graphically.

Standards 1-3: Emphasis on student involvement in class activity/teacher interaction. More emphasis on practical.

Strength of program

Updated course, curriculum in accordance with HEC criteria overall student satisfaction.

Weakness of program

Practicals should be more emphasized.

Future development

Improvement in class, infrastructure e.g lecture halls, multimedia, chair.

Standard 1-4:

- Number of students enrolled are 160.
- Student faculty ratio 1:20.
- Average grade point as per university policy.
- Employ were 80% satisfy.
- Student evaluation was good.
- Not applicable to M.SC.
- Seed certification, plant identification, soil fertility.
- All are well satisfied.

**STUDENTS
COURSE & TEACHER
EVALUATION
PROFORMA**

SPRING 2019
M.Sc. MORNING
COURSE EVALUATION



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: Abida Akram
Course Name: Mycology and Plant Pathology
Section: A M/E: M Semester# 4
Class: M.Sc (Biology)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: MUHAMMAD ARSHAD
Course Name: Phytosociology
Section: A M/E: M Semester# 2
Class: M.Sc (Botany)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: MUHAMMAD ARSHAD

Course Name: Ethnobotany

Section: A M/E: M Semester# 1

Class: M.Sc (Botany)

No Record Available

SPRING 2019
M.Sc. EVENING
COURSE EVALUATION



**Pir Mehr Ali Shah
Arid Agriculture University**
Performa 1

Print Date: Aug 22, 2021

Session Name: SPRING-19

Teacher Name: Abida Akram

Course Name: Environmental Biology

Section: B M/E: E Semester# 2

Class: M.Sc (Biology)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Abida Akram

Course Name: Mycology and Plant Pathology

Section: B M/E: E Semester# 4

Class: M.Sc (Biology)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Abida Akram

Course Name: Mycology and Plant Pathology

Section: B M/E: E Semester# 1

Class: M.Sc (Biology)

No Record Available



**Pir Mehr Ali Shah
Arid Agriculture University**
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: MUHAMMAD ARSHAD

Course Name: Ethnobotany

Section: A M/E: E Semester# 4

Class: M.Sc (Botany)

No Record Available



**Pir Mehr Ali Shah
Arid Agriculture University**

Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Saira Asif

Course Name: Environmental Pollution

Section: A M/E: E Semester# 4

Class: M.Sc (Botany)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University

Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Noshin Ilyas

Course Name: Plant Physiology

Section: C M/E: M Semester# 2

Class: M.Sc (Biology)

No Record Available



**Pir Mehr Ali Shah
Arid Agriculture University**
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: Noshin Ilyas
Course Name: Plant Physiology
Section: E M/E: E Semester# 2
Class: M.Sc (Biology)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Noshin Ilyas

Course Name: Plant Physiology

Section: A M/E: M Semester# 2

Class: M.Sc (Biology)

No Record Available



**Pir Mehr Ali Shah
Arid Agriculture University**
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: Noshin Ilyas
Course Name: Plant Physiology
Section: D **M/E:** E **Semester#** 2
Class: M.Sc (Biology)

No Record Available



**Pir Mehr Ali Shah
Arid Agriculture University**
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: Saira Asif
Course Name: Environmental Pollution
Section: A M/E: M Semester# 4
Class: M.Sc (Botany)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: YAMIN BIBI
Course Name: Plant-microbe Interactions
Section: A M/E: M Semester# 4
Class: M.Sc (Botany)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: YAMIN BIBI
Course Name: Plant-microbe Interactions
Section: A M/E: E Semester# 4
Class: M.Sc (Botany)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: M. Naveed Iqbal
Course Name: Principles of Genome Analysis and Genomics
Section: A M/E: M Semester# 4
Class: M.Sc (Botany)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: M. Naveed Iqbal
Course Name: Seminar-I
Section: A M/E: E Semester# 4
Class: M.Sc (Botany)

No Record Available



**Pir Mehr Ali Shah
Arid Agriculture University**
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: M. Naveed Iqbal
Course Name: Principles of Genome Analysis and Genomics
Section: A M/E: E Semester# 1
Class: M.Sc (Botany)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: M. Naveed Iqbal
Course Name: Seminar-I
Section: A M/E: M Semester# 1
Class: M.Sc (Botany)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: M. Naveed Iqbal
Course Name: Plant and Cell Physiology-II
Section: A M/E: M Semester# 2
Class: M.Sc (Botany)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: Zia ur Rehman Mashwani
Course Name: General Pharmacognosy
Section: A M/E: M Semester# 2
Class: M.Sc (Biology)

No Record Available



**Pir Mehr Ali Shah
Arid Agriculture University**
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: Zia ur Rehman Mashwani
Course Name: Diversity in Vascular Plants
Section: A M/E: E Semester# 4
Class: M.Sc (Botany)

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: Zia ur Rehman Mashwani
Course Name: General Pharmacognosy
Section: B M/E: E Semester# 2
Class: M.Sc (Biology)

No Record Available



**Pir Mehr Ali Shah
Arid Agriculture University**
Performa 1

Print Date: Aug. 22, 2021

Session Name: SPRING-19
Teacher Name: Zia ur Rehman Mashwani
Course Name: Diversity in Vascular Plants
Section: A M/E: M Semester# 4
Class: M.Sc (Botany)

No Record Available

**SPRING 2019
M.Sc. MORNING
TEACHER EVALUATION**



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name:	<u>SPRING-19</u>		
Teacher Name:	<u>Abida Akram</u>		
Course Name:	<u>Mycology and Plant Pathology</u>		
Section:	<u>A</u>	M/E: <u>M</u>	Semester#: <u>4</u>

No Record Available



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Abida Akram

Course Name: Environmental Biology

Section: A **M/E:** M **Semester#:** 2

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: MUHAMMAD ARSHAD

Course Name: Phytosociology

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: MUHAMMAD ARSHAD

Course Name: Ethnobotany

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Saira Asif

Course Name: Environmental Pollution

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Noshin Ilyas

Course Name: Plant Physiology

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

No Record Available



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Noshin Ilyas

Course Name: Plant Physiology

Section: A **M/E:** M **Semester#:** 2

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: YAMIN BIBI

Course Name: Plant-microbe Interactions

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

No Record Available



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: M. Naveed Iqbal

Course Name: Principles of Genome Analysis and Genomics

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: M. Naveed Iqbal

Course Name: Plant and Cell Physiology-II

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: General Pharmacognosy

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Diversity in Vascular Plants

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

No Record Available

SPRING 2019
M.Sc. EVENING
TEACHER EVALUATION



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Abida Akram

Course Name: Environmental Biology

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Abida Akram

Course Name: Mycology and Plant Pathology

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: MUHAMMAD ARSHAD

Course Name: Ethnobotany

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Saira Asif

Course Name: Environmental Pollution

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Noshin Ilyas

Course Name: Plant Physiology

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Noshin Ilyas

Course Name: Plant Physiology

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: YAMIN BIBI

Course Name: Plant-microbe Interactions

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: M. Naveed Iqbal

Course Name: Seminar-I

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

No Record Available



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: M. Naveed Iqbal

Course Name: Principles of Genome Analysis and Genomics

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Diversity in Vascular Plants

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

No Record Available



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

Session Name: SPRING-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: General Pharmacognosy

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

No Record Available

FALL 2019
M.Sc. MORNING
COURSE EVALUATION



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 21, 2021

Session Name: FALL-19

Teacher Name: Abida Akram

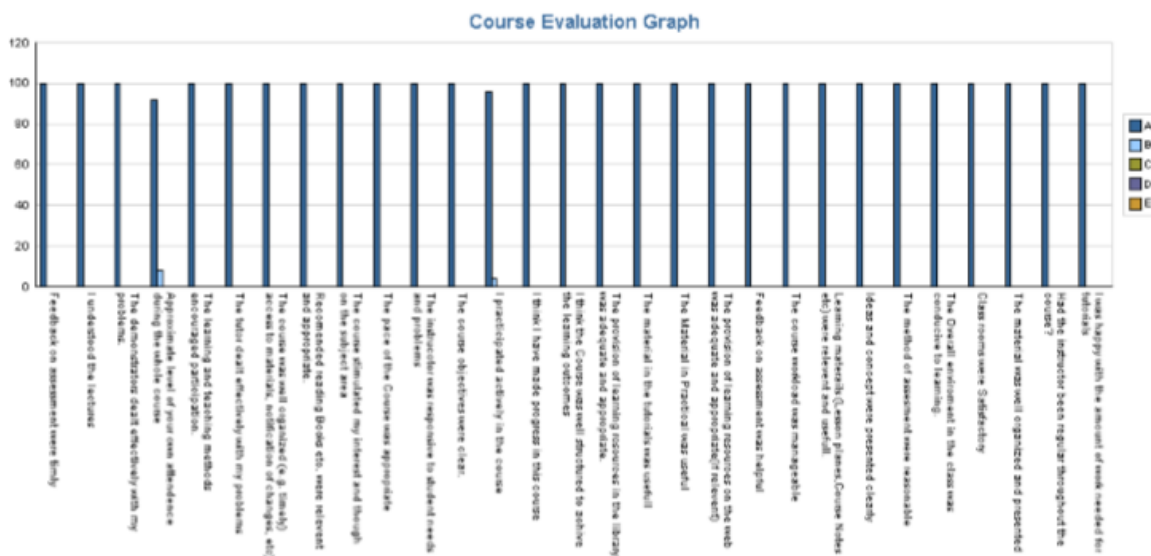
Course Name: Mycology and Plant Pathology

Section: A

M/E: M

Semester# 3

Class: M.Sc (Botany)



General Comments of the Students about this Course

Weaknesses: No weakness was observed.

Strengths: The tutor was delivered lectures effectively and well prepared for each class. Workload was practicable. She remained regular and quick. The tutor showed statement skill and reasonable conduct, confirmed involvement of students in class discussion, included new materials in course subjects.



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: FALL-19

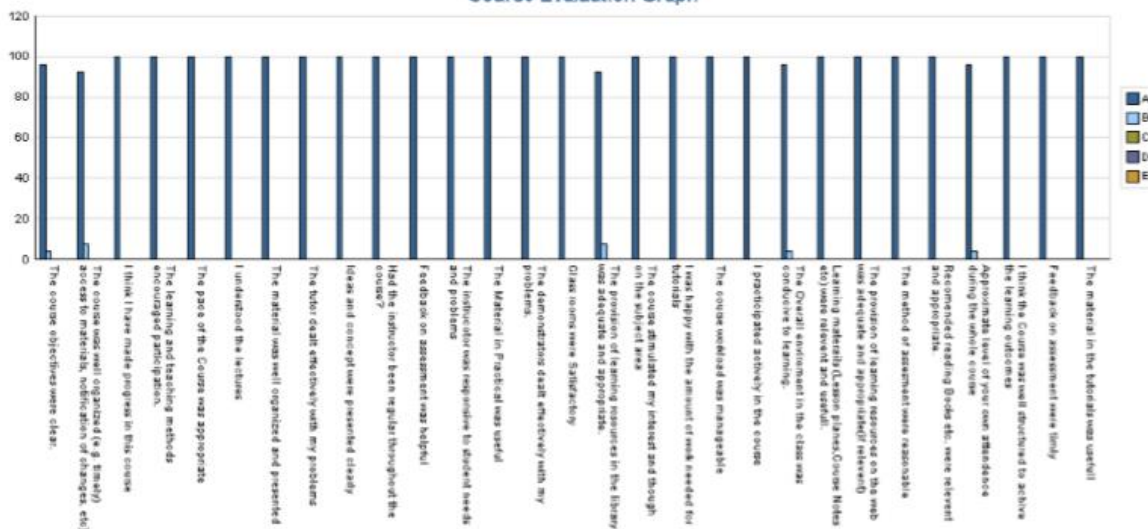
Teacher Name: MUHAMMAD ARSHAD

Course Name: Plant Taxonomy and Embryology

Section: A M/E: M Semester# 3

Class: M.Sc (Botany)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No weakness was indicated by students.

Strengths: Students played active role in the course. The instructor presented reasonable conduct and statement skill, confirm participation of students in class discussions, include recent materials in the course subjects. The environment of class was good for learning



Pir Mehr Ali Shah
Arid Agriculture University

Performa 1

Print Date: Aug. 22, 2021

Session Name: FALL-19

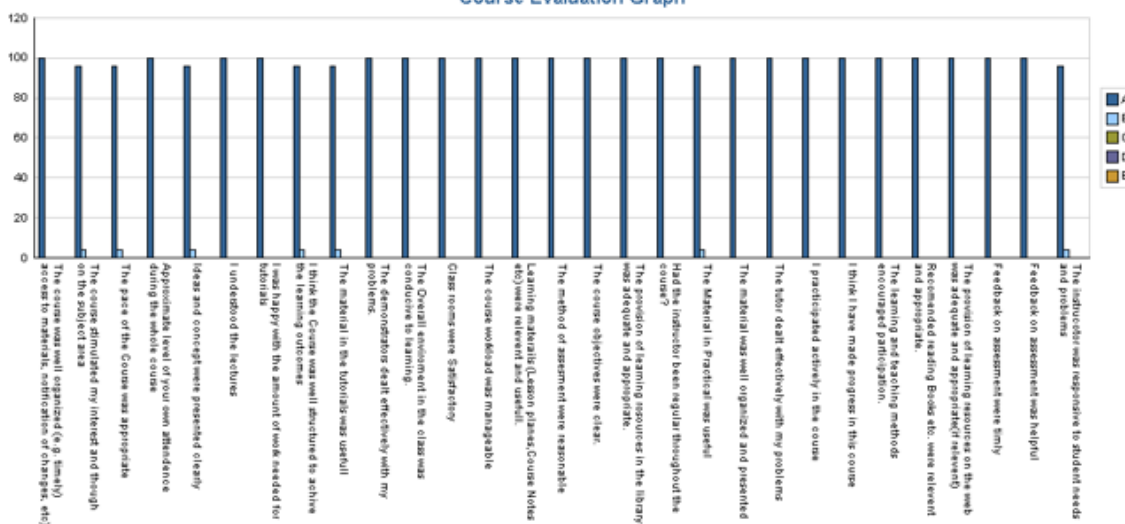
Teacher Name: Ghulam Yaseen - IPFP

Course Name: Research Planning and Report Writing

Section: A M/E: M Semester# 3

Class: M.Sc. (Botany)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No weakness was observed in the course

Strengths: The objective of the course was clear. Course structure and organization was excellent. Activities of courses were interesting. Good communication skills. Course was informative and relevant. The material in the tutorial was valuable.



Pir Mehr Ali Shah
Arid Agriculture University

Performa 1

Print Date: Aug. 22, 2021

Session Name: FALL-19

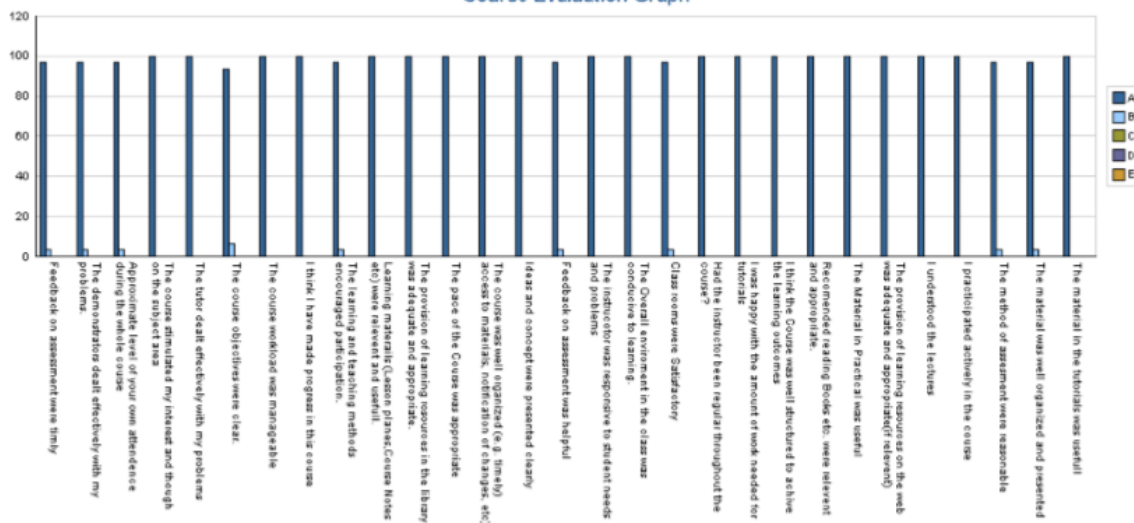
Teacher Name: Noshin Ilyas

Course Name: Plant Physiology

Section: A M/E: M Semester# 5

Class: BS (Biochemistry)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No weakness was observed.

Strengths: Lectures were delivered in good manner. Feedback of assessment was timely and helpful. The tutor assured contribution of students in class discussion. The course stimulated the interest in the subject area.



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

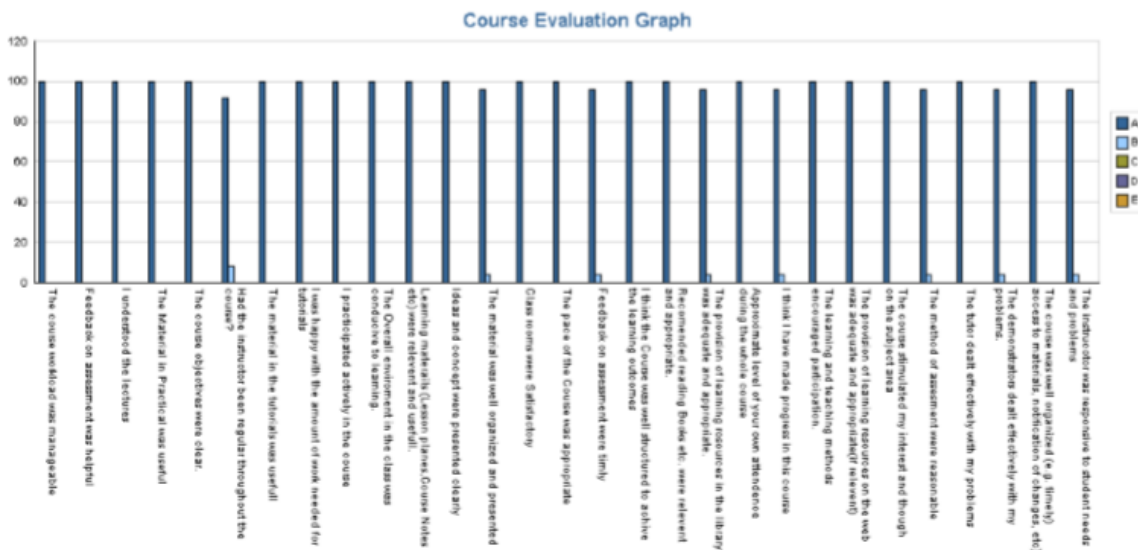
Session Name: FALL-19

Teacher Name: M. Naveed Iqbal

Course Name: Principles of Biotechnology

Section: A M/E: M Semester# 3

Class: M.Sc (Botany)



General Comments of the Students about this Course

Weaknesses: No major weakness was observed in the study

Strengths: Class room environment was satisfactory. Students actively participated in the classes. Demonstrator dealt effectively with student's problems and objectives of courses were clear.



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 21, 2021

Session Name: FALL-19

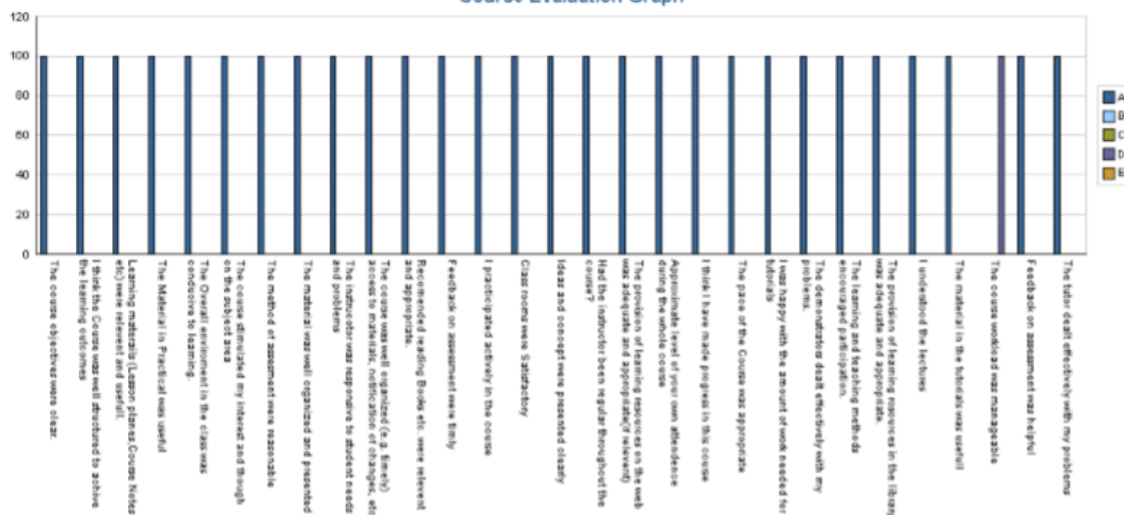
Teacher Name: Abdul Waheed

Course Name: Cellular Biology

Section: A M/E: M Semester# 1

Class: M.Sc (Biology)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No weakness indicated.

Strengths: The pace of the course was appropriate. Tutor was well prepared for each class and delivered lectures effectively. Workload was practicable. He remained quick and regular. The tutor showed reasonable conduct and statement skill, confirmed participation of students in class discussion, included recent materials in the course subjects.

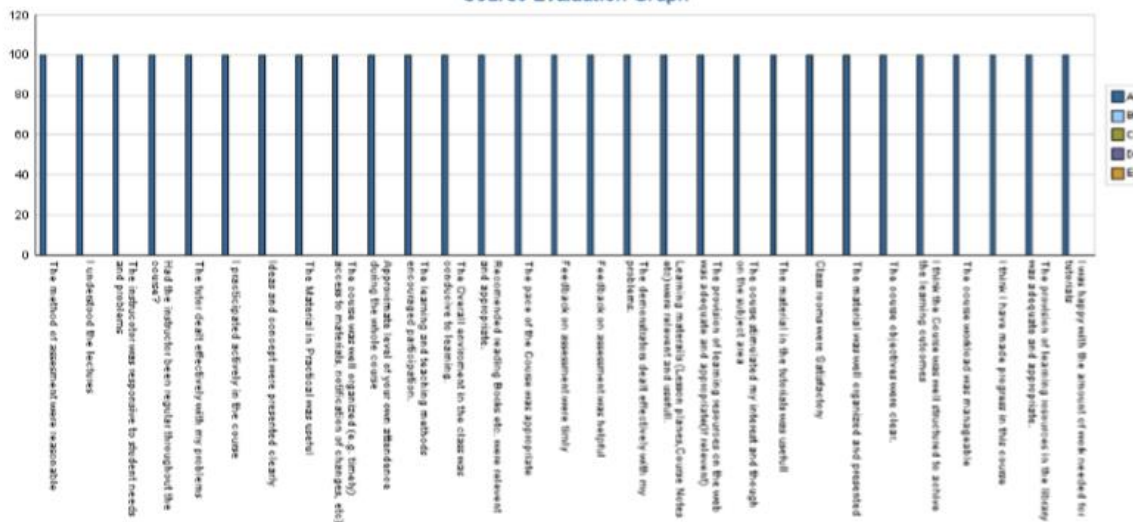


**Pir Mehr Ali Shah
Arid Agriculture University**
Performa 1

Print Date: Aug. 21, 2021

Session Name: FALL-19
Teacher Name: Abdul Waheed
Course Name: Plant and Cell Physiology-I
Section: A M/E: M Semester# 1
Class: M.Sc (Botany)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No weakness was recorded.

Strengths: Tutor was well prepared for each class and delivered lectures effectively. He remained quick and regular. The tutor showed reasonable conduct and statement skill, confirmed participation of students in class. Workload was practicable



Pir Mehr Ali Shah
Arid Agriculture University

Performa 1

Print Date: Aug. 22, 2021

Session Name: FALL-19

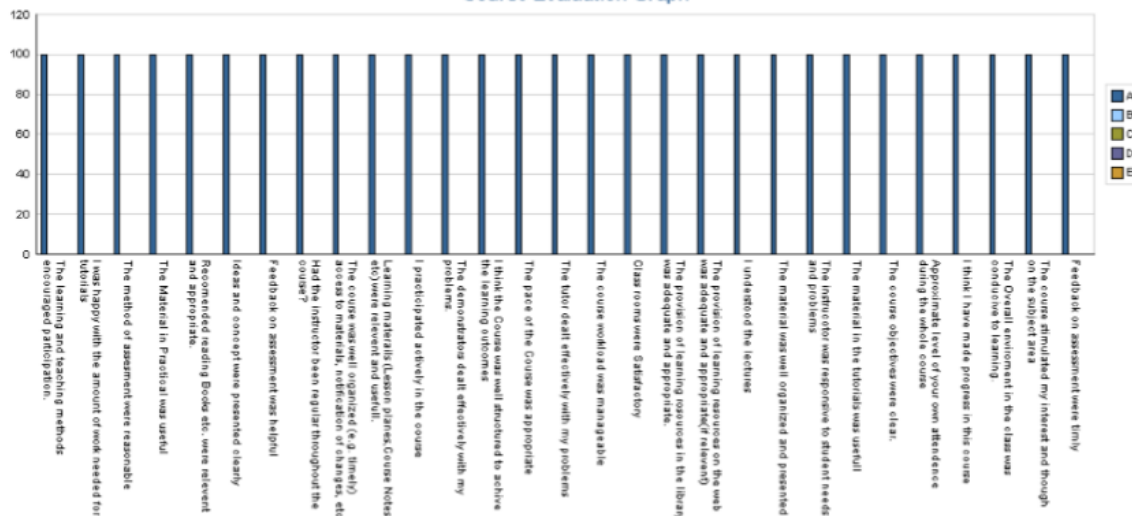
Teacher Name: YAMIN BIBI

Course Name: Plant Ecology

Section: A M/E: M Semester# 1

Class: M.Sc (Botany)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No weakness was showed from data.

Strengths: Concepts and ideas were delivered clearly. Students understood the lectures. Tutor established contribution of students in class discussion, included recent materials in the subject.



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 202

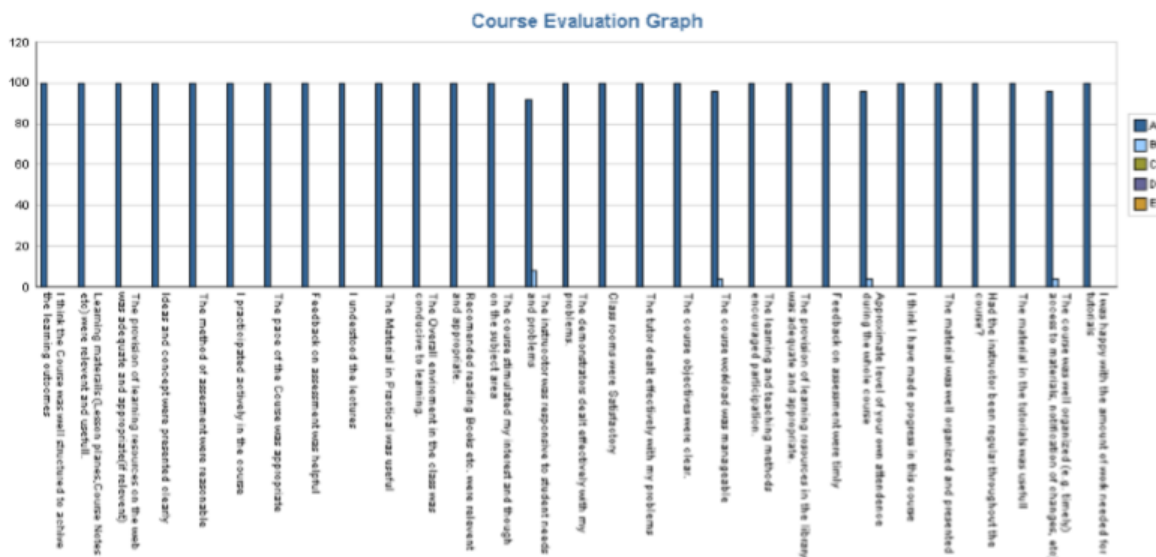
Session Name: FALL-19

Teacher Name: Sia ur Rehman Mashwani

Course Name: Concepts of Genetics

Section: A M/E: M Semester# 3

Class: M.Sc (Botany)



General Comments of the Students about this Course

Weaknesses: No weakness was recorded from figure.

Strengths: Course objectives were clear and instructor dealt effectively with the student problem. The instructor presented good communication skills, comprised recent material in the course subject, and remained regular.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 1**

Print Date: Aug. 22, 2021

Session Name: FALL-19

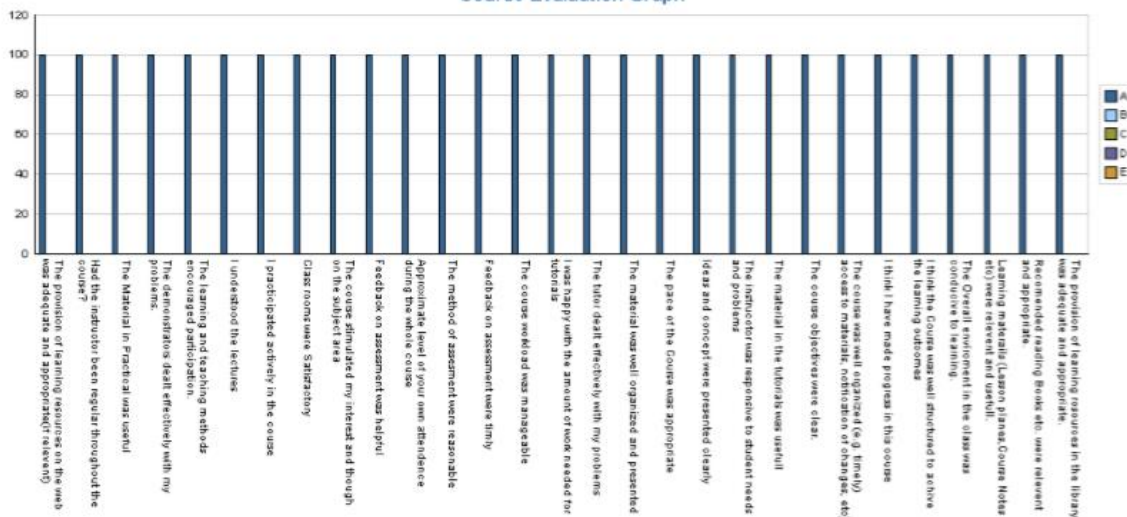
Teacher Name: Zia ur Rehman Mashwani

Course Name: Concepts of Genetics

Section: A M/E: M Semester# 1

Class: M.Sc (Biology)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No weakness was recorded from the course.

Strengths: Tutor established contribution of students in class discussion, included recent material in the course. Subject objectives were clear and teacher dealt effectively with problems of students.

FALL 2019
M.Sc. MORNING
TEACHER EVALUATION



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

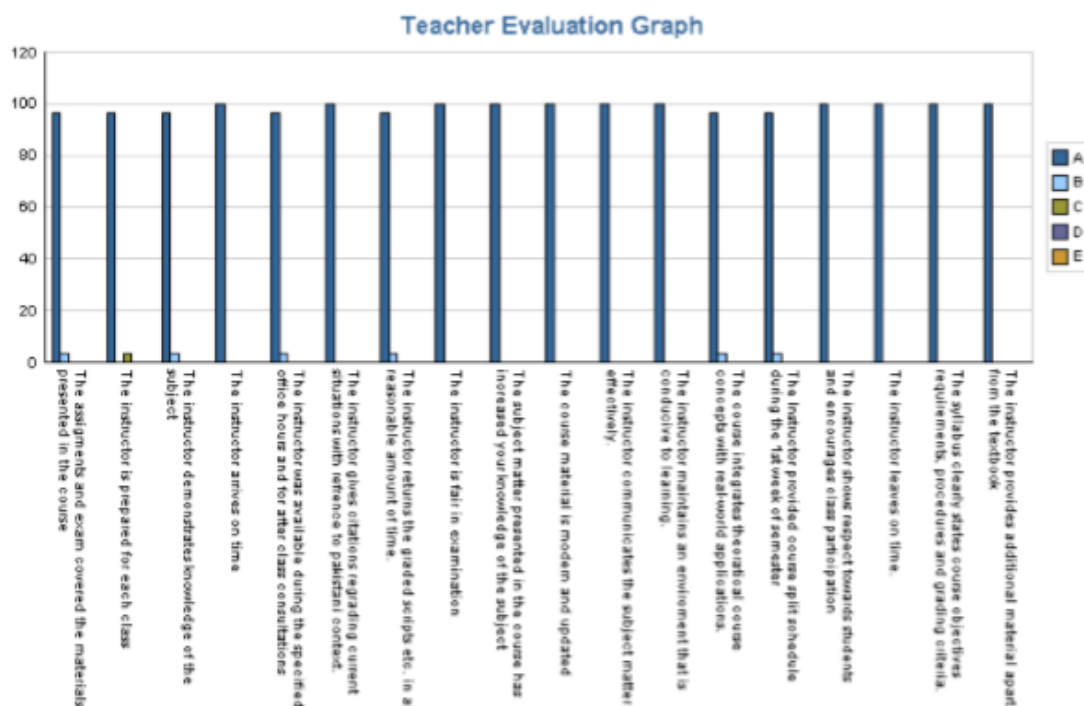
Print Date: Aug. 21, 2021

Session Name: FALL-19

Teacher Name: Abida Akram

Course Name: Mycology and Plant Pathology

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



General Comments of the Students about this Teacher

Weaknesses: In this subject students presented good response to the teacher

Strengths: Concepts and ideas were delivered clearly. The tutor showed reasonable conduct and skill, confirmed participation of students in discussion of class, includes recent materials in the course subjects, remained quick and regular.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

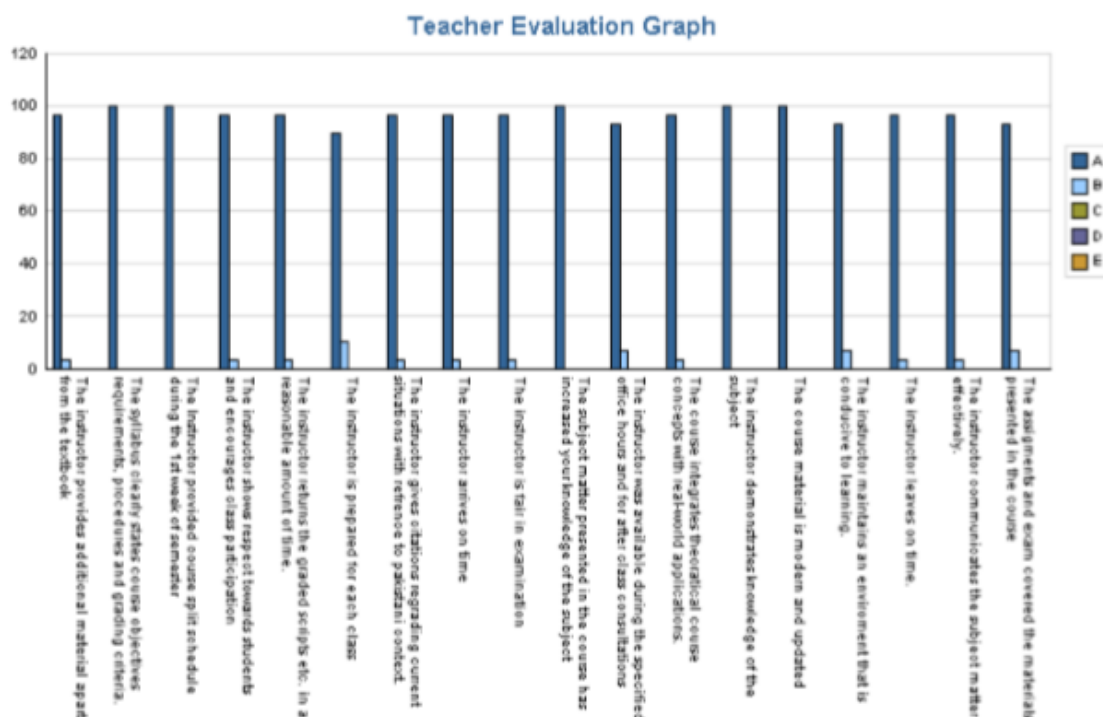
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Ghulam Yaseen - IPFP

Course Name: Research Planning and Report Writing

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



General Comments of the Students about this Teacher

Weaknesses: No weakness was recorded

Strengths: The instructor communicated subject matter very clearly. Students understood the lectures. The tutor showed reasonable conduct and skill, confirmed participation of students in discussion of class, includes recent materials in the course subjects, remained quick and regular.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

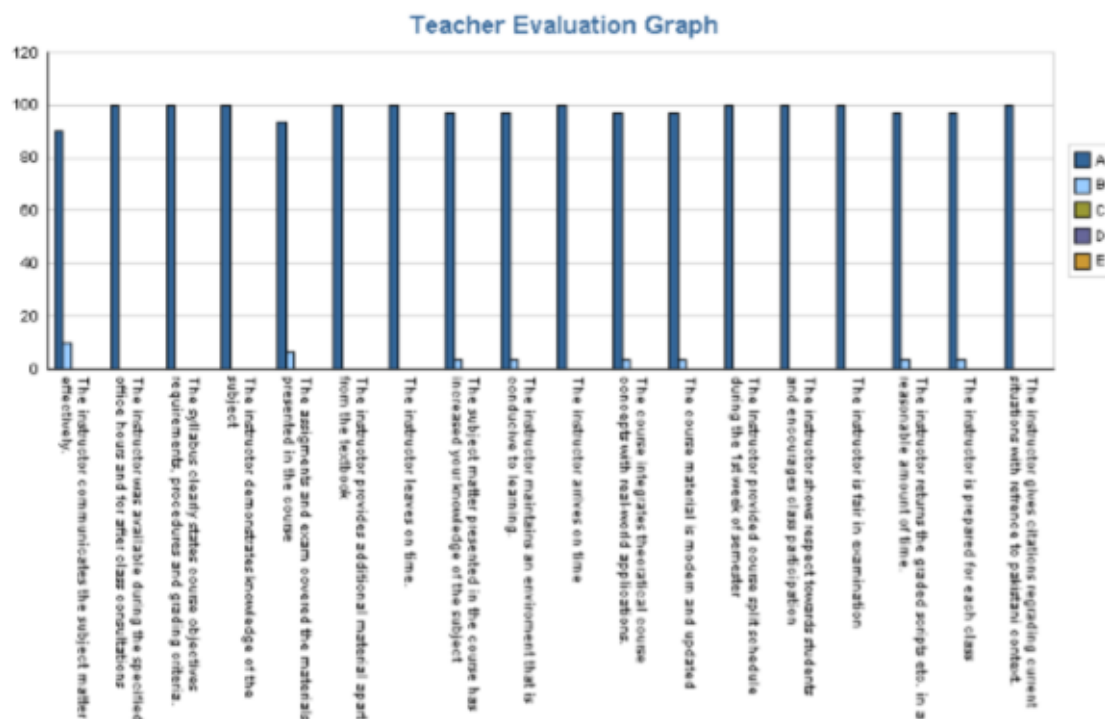
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Noshin Ilyas

Course Name: Plant Physiology

Section: A M/E: M Semester#: 5



General Comments of the Students about this Teacher

Weaknesses: No major weakness was observed

Strengths: Instructor was prepared for each class and presented the subject matter in a admirable way. The course material was updated and modern. Students were happy with the amount of course organization and work load. The tutor simplified the course objectives



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

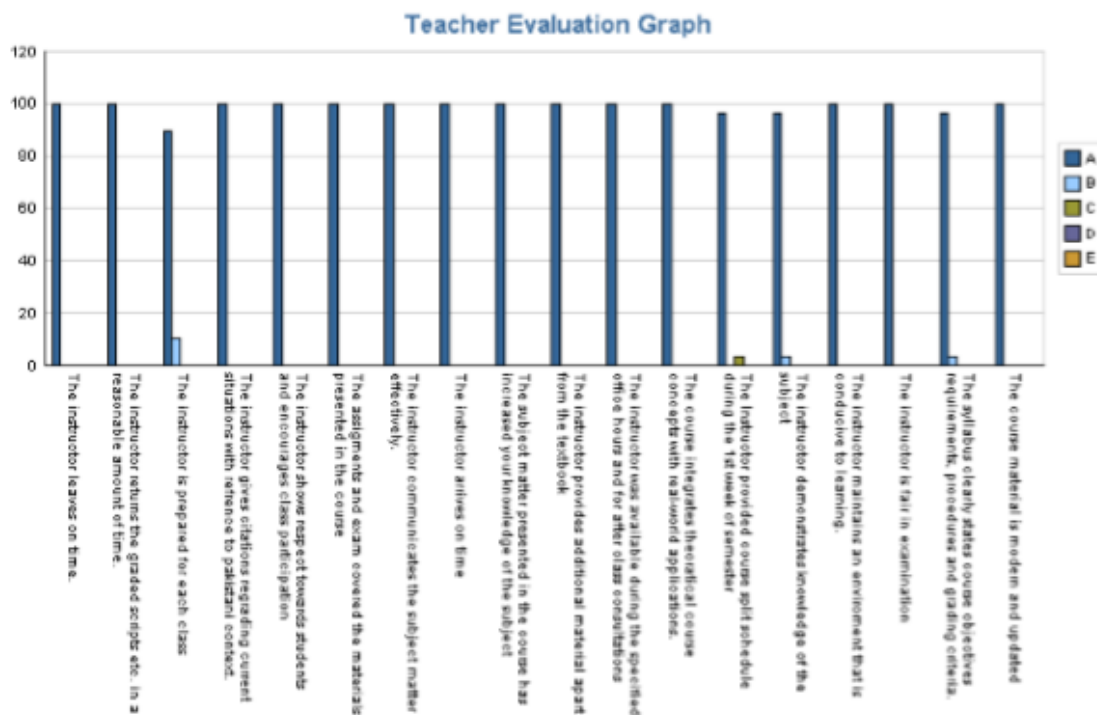
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: M. Naveed Iqbal

Course Name: Principles of Biotechnology

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



General Comments of the Students about this Teacher

Weaknesses: No weakness was recorded

Strengths: The course material was updated and modern. Students were happy with the amount of course organization and work load. The tutor simplified the course objectives. He arrives on times.



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 21, 2021

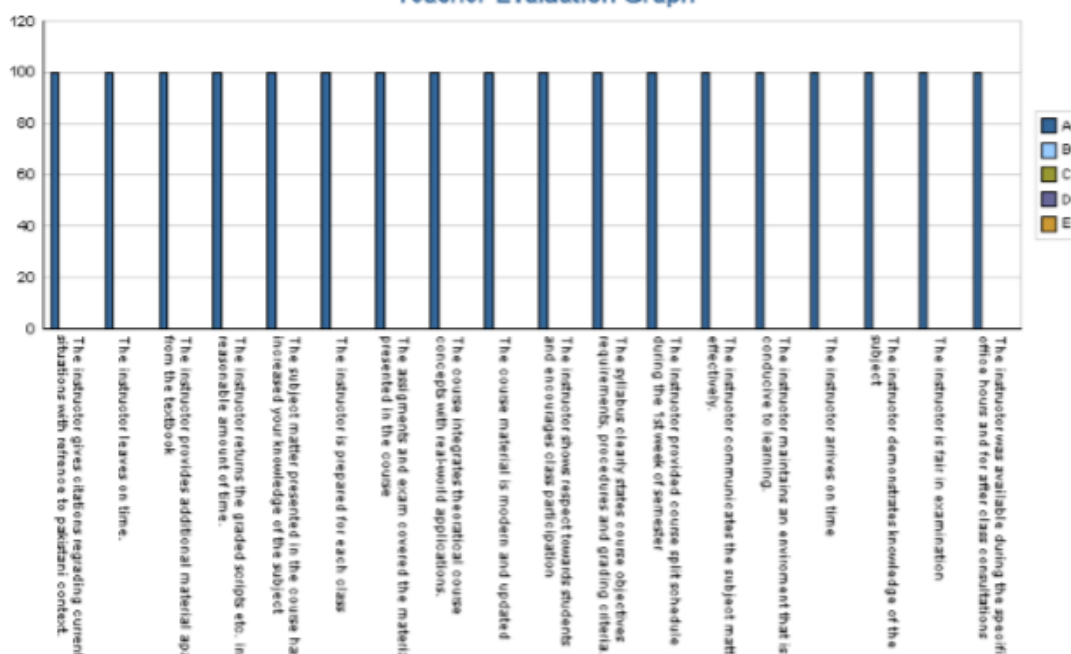
Session Name: FALL-19

Teacher Name: Abdul Waheed

Course Name: Cellular Biology

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: No weakness was showed

Strengths: Tutor was fair in examination. The tutor showed reasonable attitude and communication skill, established contribution of students in class discussion. He was prepared for each class and presented the subject matter admirably.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 21, 2021

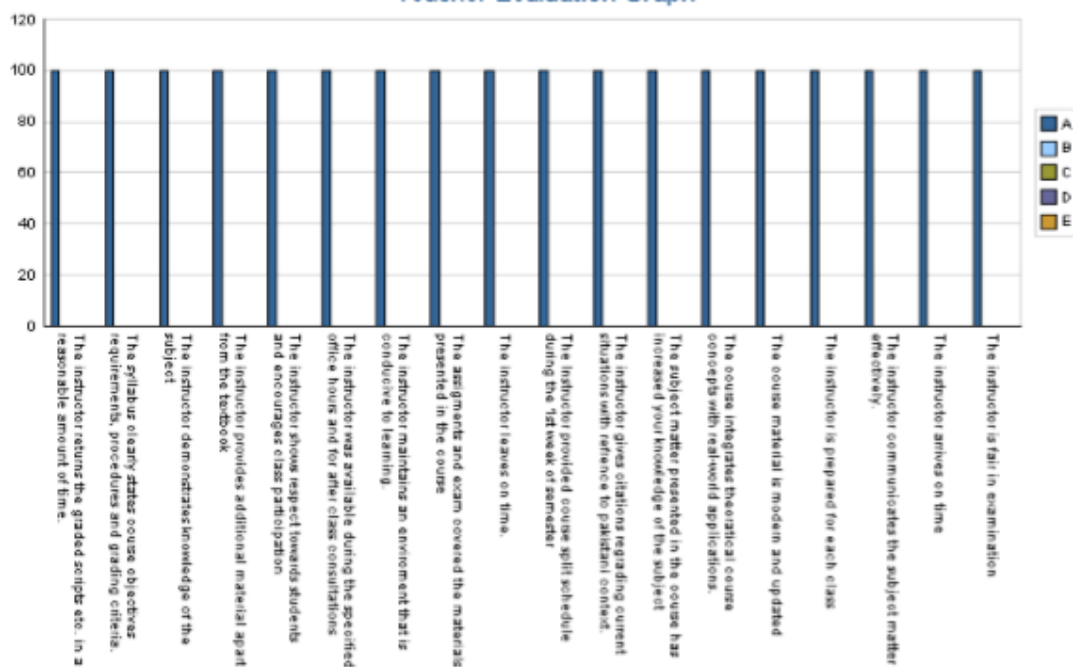
Session Name: FALL-19

Teacher Name: Abdul Waheed

Course Name: Cellular Biology

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: No weakness displayed from the figure.

Strengths:. The instructor provided updated material apart from text books. Assessment feedback was timely and helpful. Lectures were excellently delivered. The teacher included recent materials in the course subjects, and remained regular.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

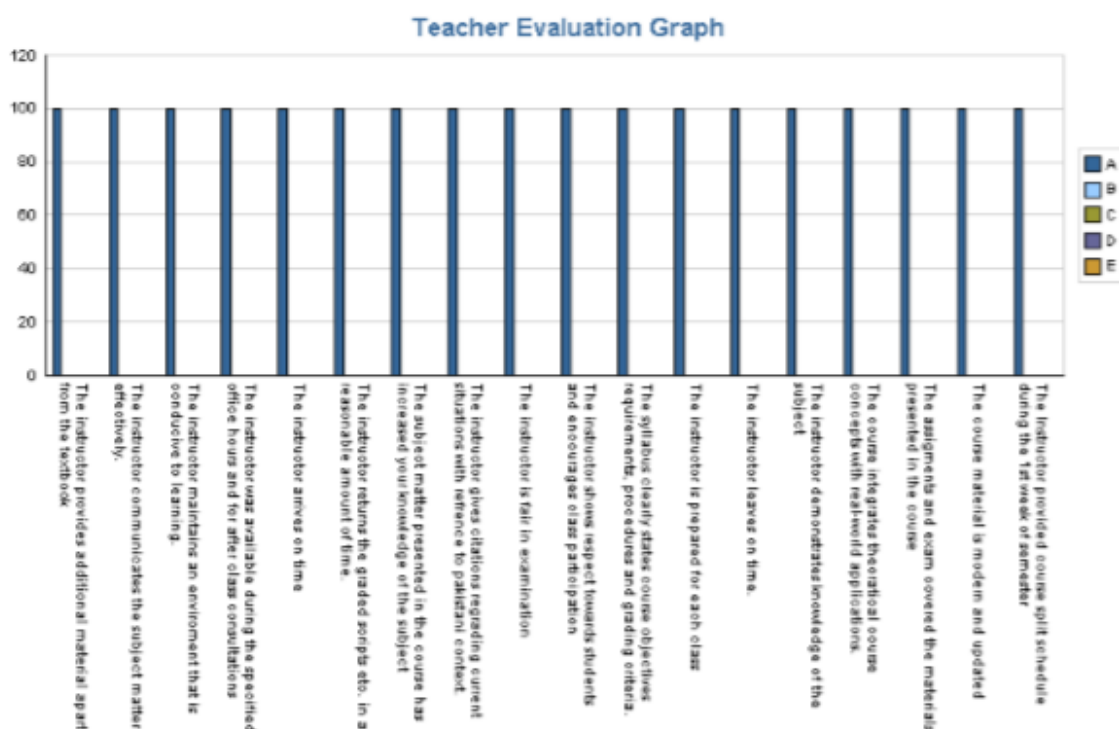
Print Date: Aug. 21, 2022

Session Name: FALL-19

Teacher Name: Abdul Waheed

Course Name: Plant and Cell Physiology-I

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



General Comments of the Students about this Course

Weaknesses: No weakness indicated.

Strengths: The assignments and exams covered the materials presented in the course. Tutor established contribution of students in class discussion, included recent materials. Instructor clearly explained the course objectives clear and demonstrator dealt effectively with student's problems.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 22, 2021

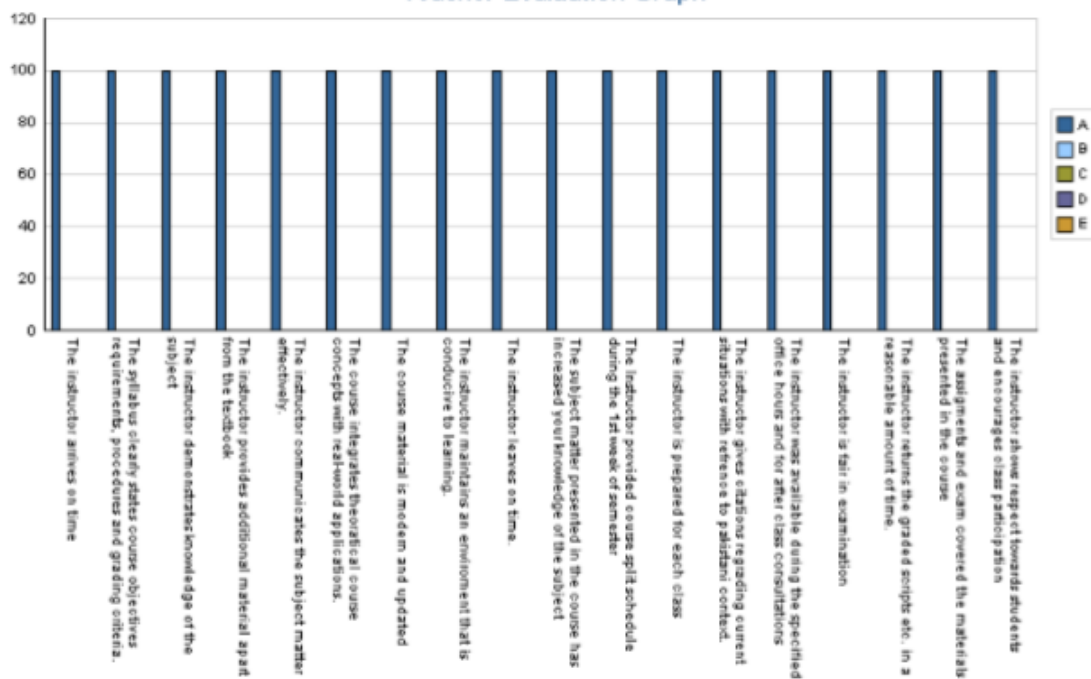
Session Name: FALL-19

Teacher Name: YAMIN BIBI

Course Name: Plant Ecology

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: No weakness was observed.

Strengths: Instructor was capable to communicate this course in a respectable routine, with all characteristics of contribution, including modern concepts, punctuality, communication skill, behavior training etc.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

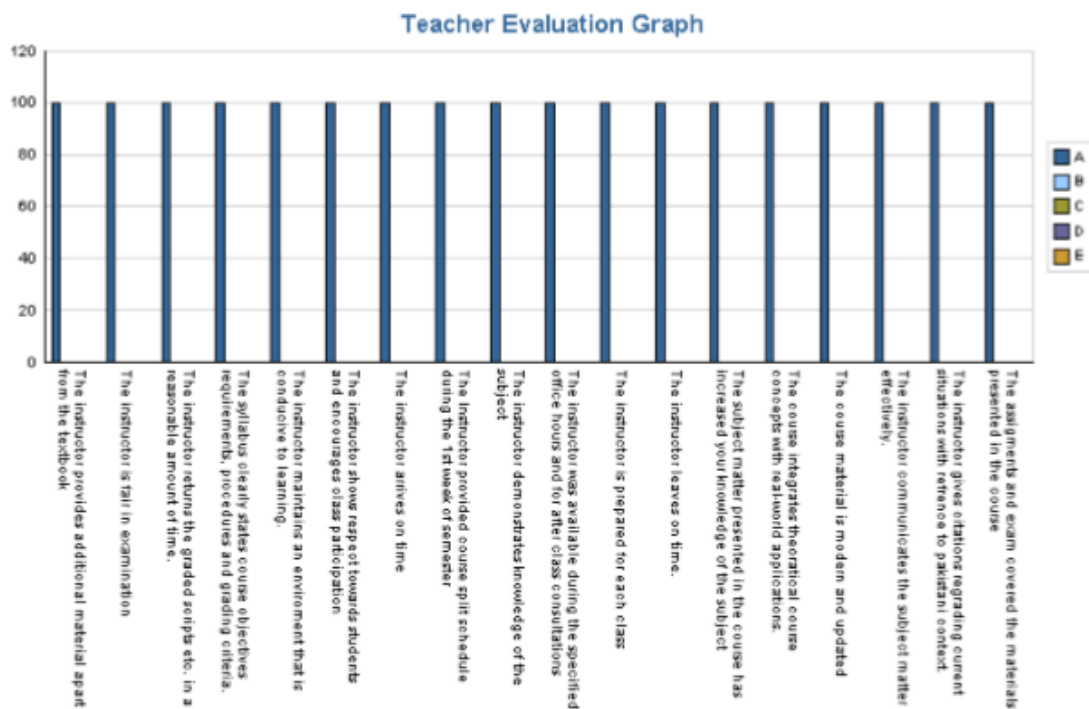
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Diversity in Non- Vascular Plants

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



General Comments of the Students about this Teacher

Weaknesses: No weakness was observed

Strengths: Learning resources in library were sufficient. Instructor was able to teach the course in a good way, with good communication skills, including modern, recent concept, participation, s etc.



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: FALL-19

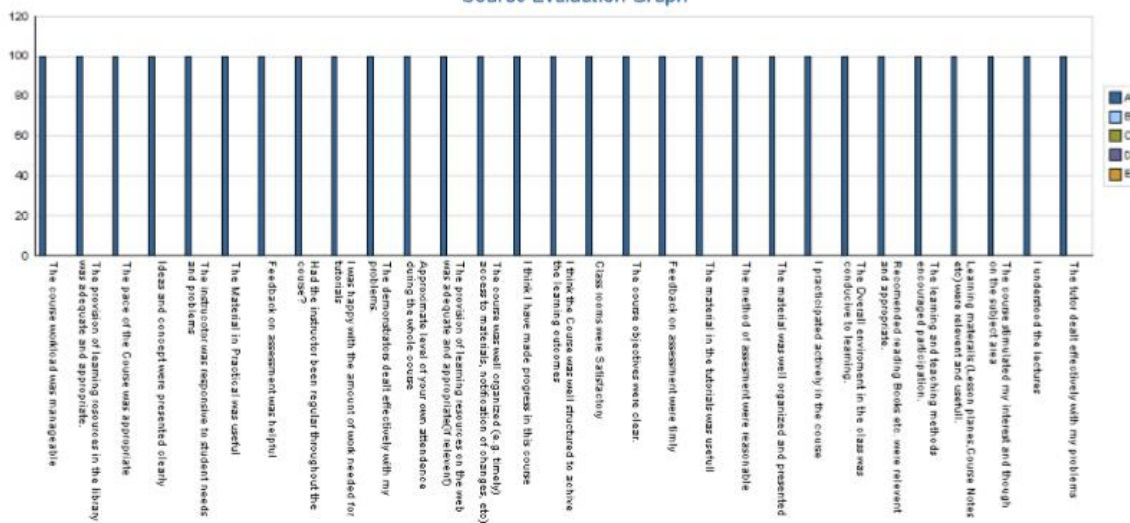
Teacher Name: Zia ur Rehman Mashwani

Course Name: Diversity in Non- Vascular Plants

Section: A M/E: M Semester# 1

Class: M.Sc (Botany)

Course Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: No weakness was recorded in the course.

Strengths: The tutor added recent materials in the course. The instructor presented communication skill, good manner and confirmed participation of students in discussion of class matters. Punctuality was excellent.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

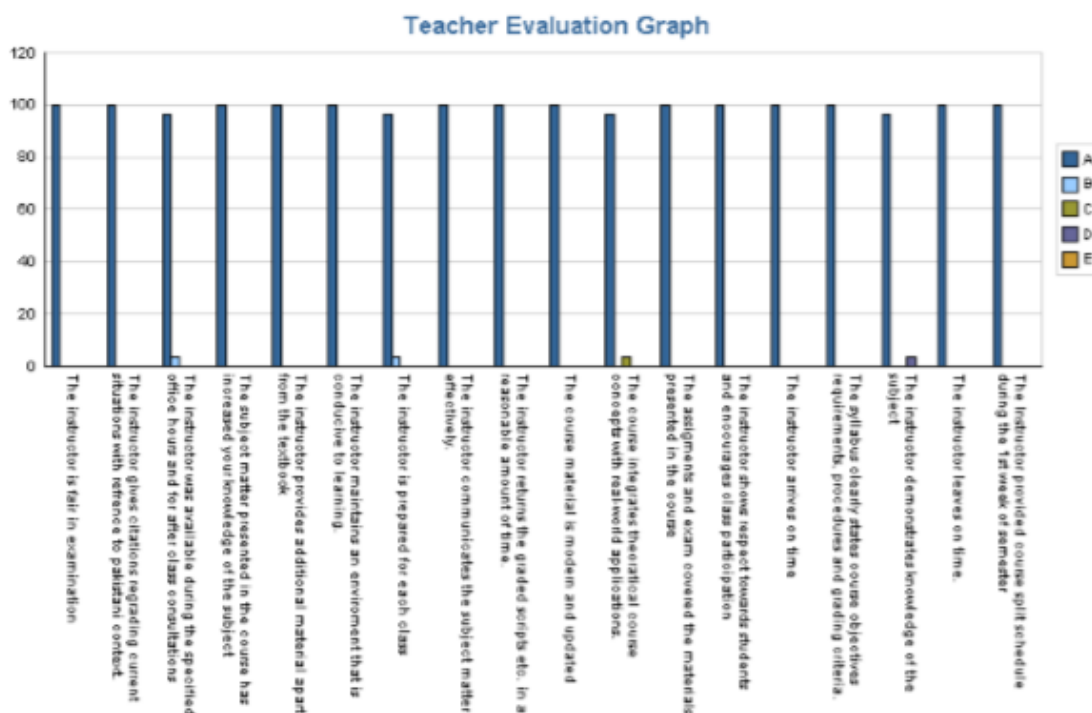
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Eia ur Rehman Mashwani

Course Name: Concepts of Genetics

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



General Comments of the Students about this Teacher

Weaknesses: Students revealed satisfactory response about the course.

Strengths: Teacher was able to teach the course in a good manner, with all characteristics of preparation, communication skill, participation, including modern concepts, and behavior etc.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 22, 2021

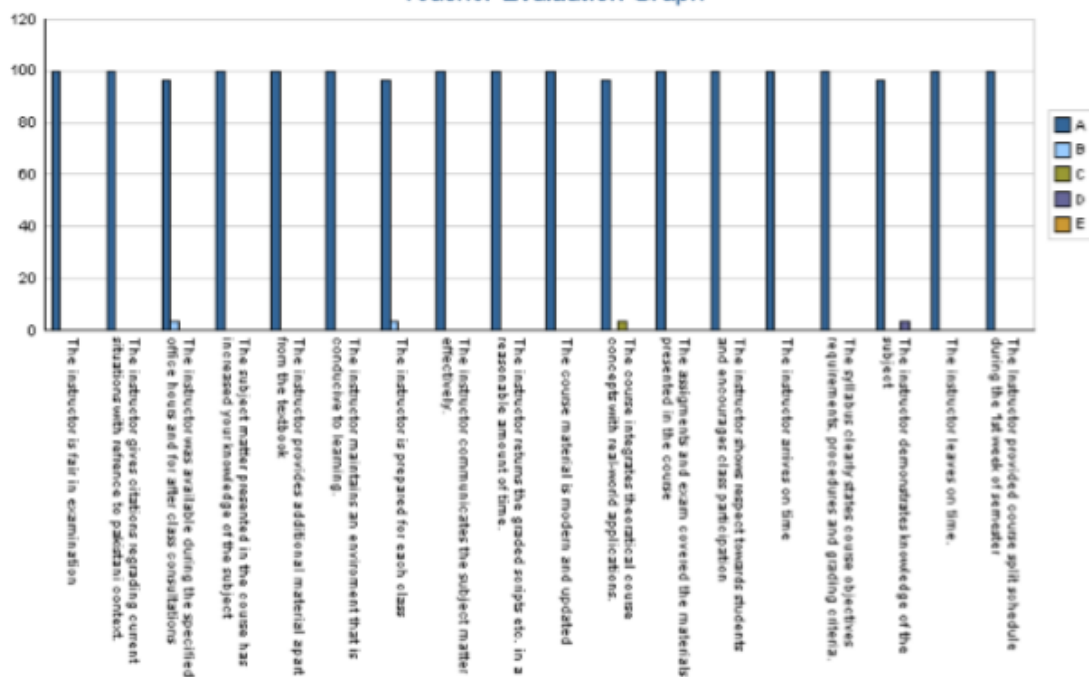
Session Name: FALL-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Concepts of Genetics

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: Students showed satisfaction about the course.

Strengths: The course work helped in building excellent bond with students creating a good atmosphere in class promoting learning, etc. The workload was manageable. Teacher established progress in this course. Contribution of students in class discussion was assured and included recent materials in the course subjects.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

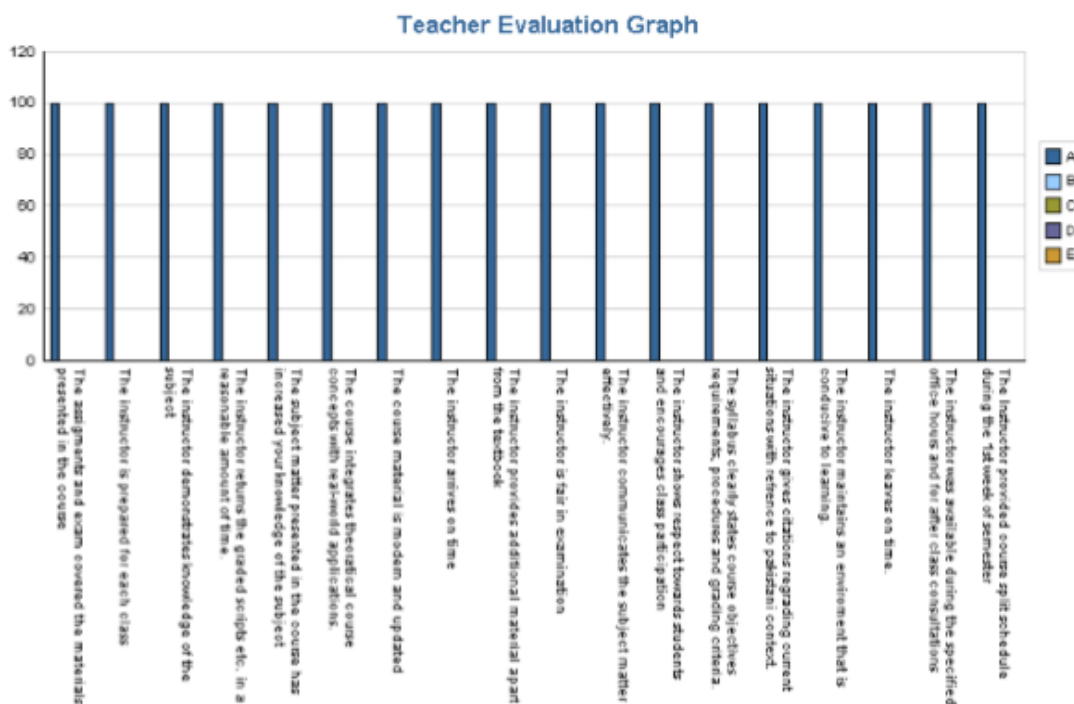
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Concepts of Genetics

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



General Comments of the Students about this Teacher

Weaknesses: No specific weakness indicated. The teacher should be more responsive towards the students

Strengths: Concepts and ideas were presented clearly. Instructor was capable to communicate the course in a respectable routine show punctuality and was fair in exams. Contents of the course were up-to-date.

FALL 2019
M.Sc. EVENING
COURSE EVALUATION



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

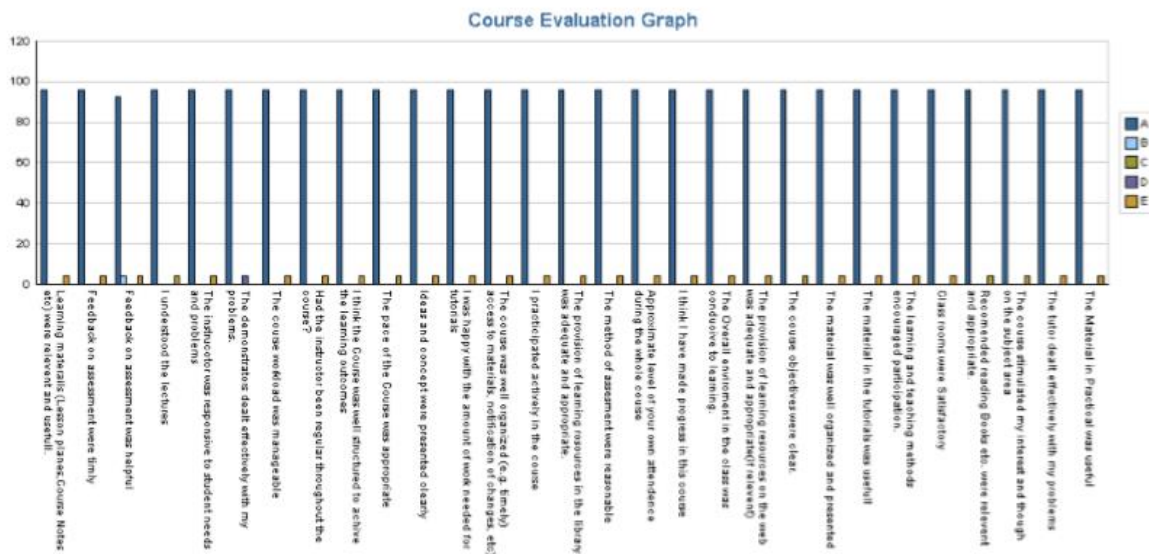
Session Name: FALL-19

Teacher Name: MUHAMMAD ARSHAD

Course Name: Plant Taxonomy and Embryology

Section: A M/E: E Semester# 3

Class: M.Sc (Botany)



General Comments of the Students about this Course

Weaknesses; No major weakness was recorded.

Strengths: The instructor showed good communication skill, included recent materials in the course subjects, and remained regular. Course objectives were clear and demonstrator dealt effectively with student's problems.



Pir Mehr Ali Shah
Arid Agriculture University

Performa 1

Print Date: Aug 22, 2021

Session Name: FALL-19

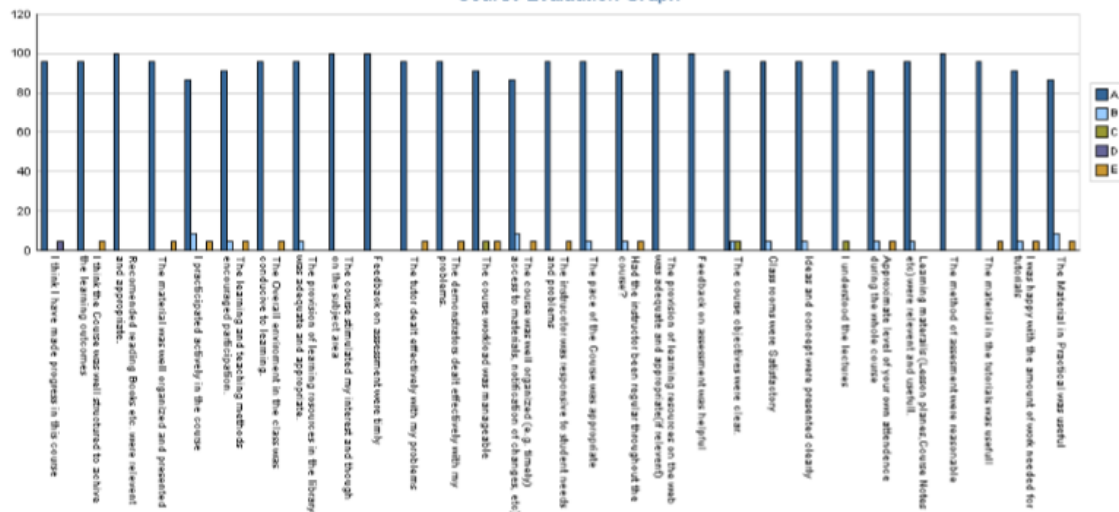
Teacher Name: Eias Ahmed

Course Name: Plant Ecology

Section: A M/E: E Semester# 1

Class: M.Sc (Botany)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No major weakness was recorded

Strengths: Course objectives were clear and demonstrator dealt effectively with student's problems. Tutor developed contribution of student in class discussion, included recent materials in the subject.



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

Session Name: FALL-19

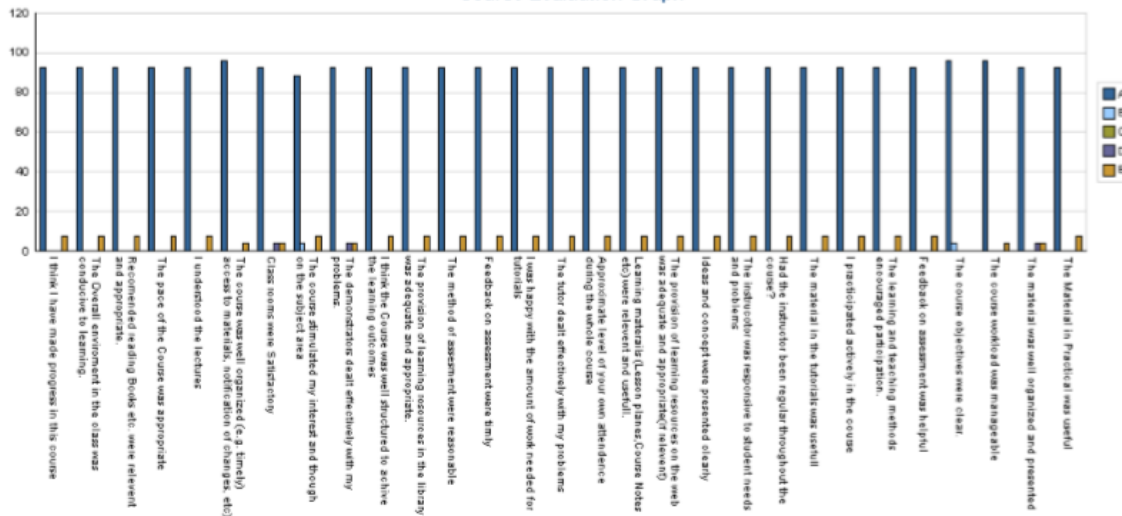
Teacher Name: Ghulam Yaseen - IPFP

Course Name: Research Planning and Report Writing

Section: A M/E: E Semester# 3

Class: M.Sc (Botany)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No major weakness was observed

Strengths: The tutor simplified the objectives of course. Students were happy with the amount of workload and course organization. Tutor was prepared for each class.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 1**

Print Date: Aug. 22, 2021

Session Name: FALL-19

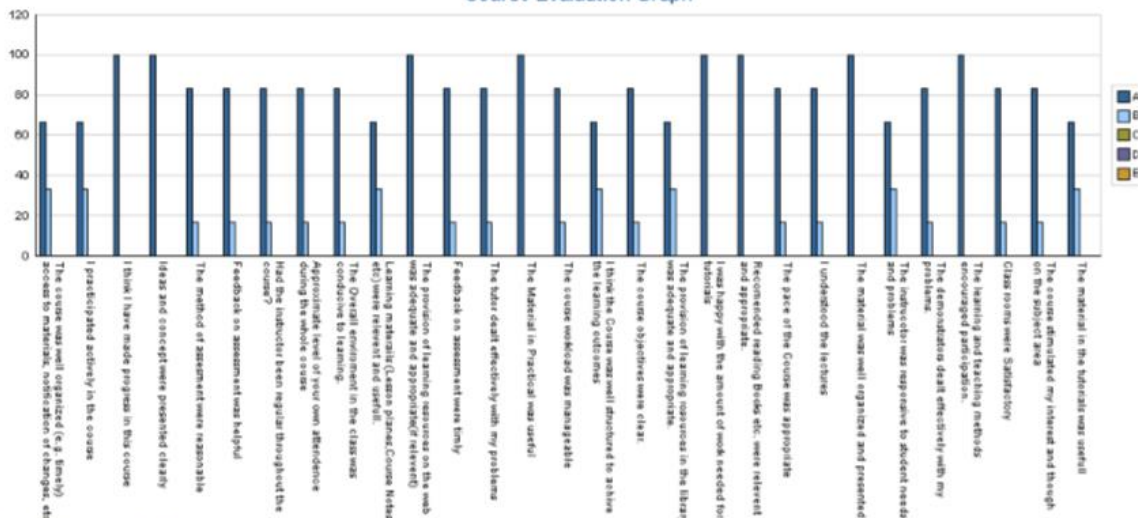
Teacher Name: Ghulam Yaseen - IPFP

Course Name: Biosystematics

Section: B M/E: E Semester# 3

Class: M.Sc (Biology)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No weakness indicated.

Strengths: The instructor showed good attitude and communication skill, established contribution of students in class discussion, included recent materials in the course subjects. Lectures were excellently delivered. Assessment feedback was helpful and timely.



Pir Mehr Ali Shah
Arid Agriculture University

Performa 1

Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Noshin Ilyas

Course Name: Plant Physiology

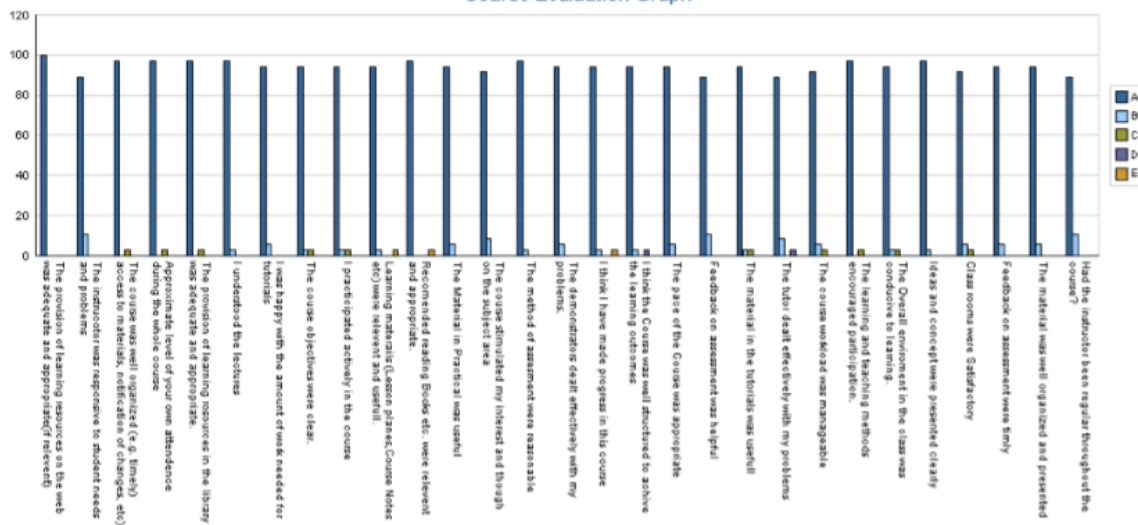
Section: A

M/E: E

Semester# 5

Class: BS (Biochemistry)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No weakness was observed

Strengths: Course objectives were clear and demonstrator dealt effectively with student's problems. Ideas and concepts were presented clearly. Students understood the lectures.



Pir Mehr Ali Shah
Arid Agriculture University

Performa 1

Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: M. Naveed Iqbal

Course Name: Principles of Biotechnology

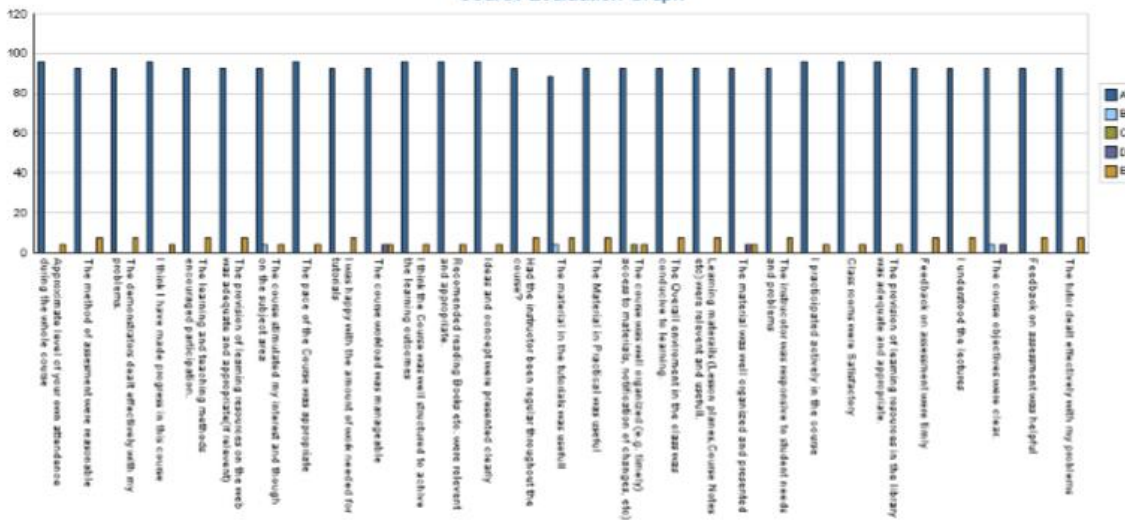
Section: A

M/E: E

Semester# 3

Class: M.Sc (Botany)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No weakness was observed

Strengths: The tutor showed reasonable conduct and statement skill, confirmed participation of students in class discussion, included recent materials in the course subjects, remained quick and regular.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 1**

Print Date: Aug. 21, 2021

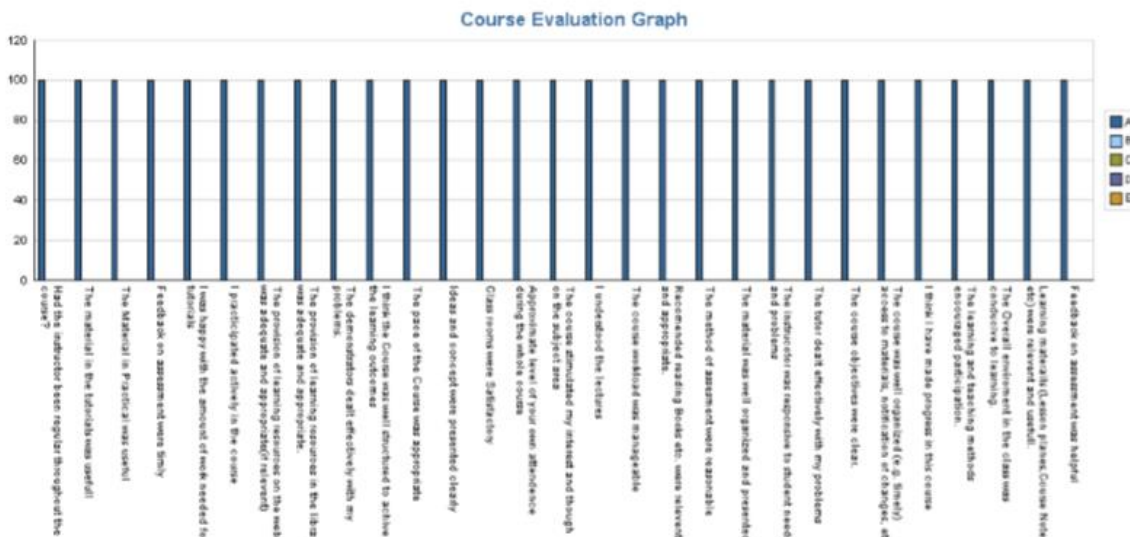
Session Name: FALL-19

Teacher Name: Abdul Waheed

Course Name: Plant and Cell Physiology-I

Section: A M/E: E Semester# 1

Class: M.Sc (Botany)



General Comments of the Students about this Course

Weaknesses: No weakness indicated by students.

Strengths: Workload was practicable. The tutor presented reasonable statement skill and conduct, confirmed students participation in class discussion, included recent data in course subjects, remained regular and quick.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 1**

Print Date: Aug. 21, 2021

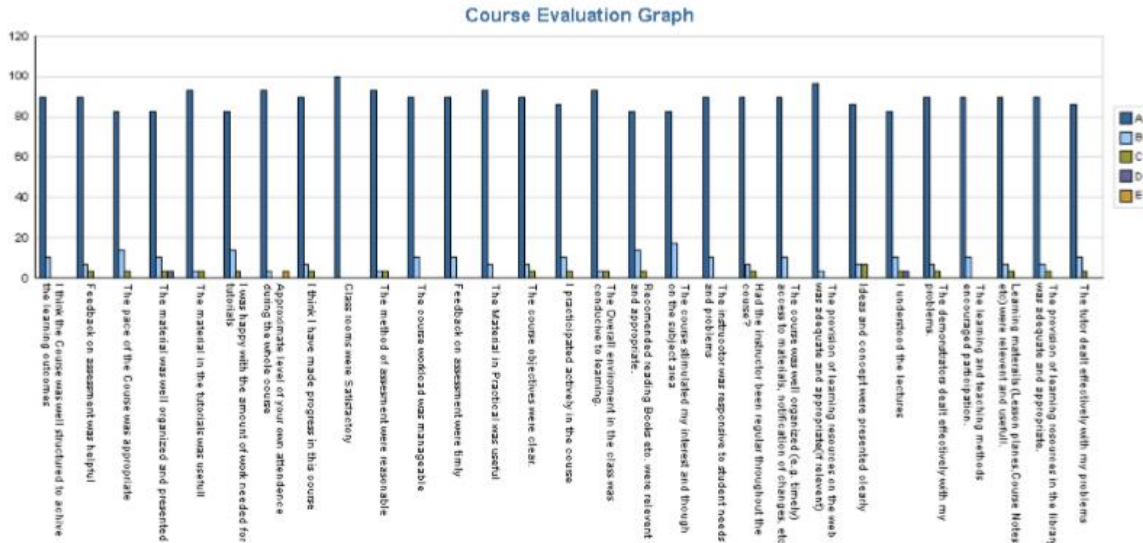
Session Name: FALL-19

Teacher Name: Abdul Waheed

Course Name: Cellular Biology

Section: B M/E: E Semester# 1

Class: M.Sc (Biology)



General Comments of the Students about this Course

Weaknesses: Students indicated no weakness.

Strengths: The tutor included recent materials in the course.. Tutor provided the relevant course material timely and took assessments on time. Students showed tutor was punctual.



Pir Mehr Ali Shah
Arid Agriculture University

Performa 1

Print Date: Aug. 21, 2021

Session Name: FALL-19

Teacher Name: Abdul Waheed

Course Name: Cellular Biology

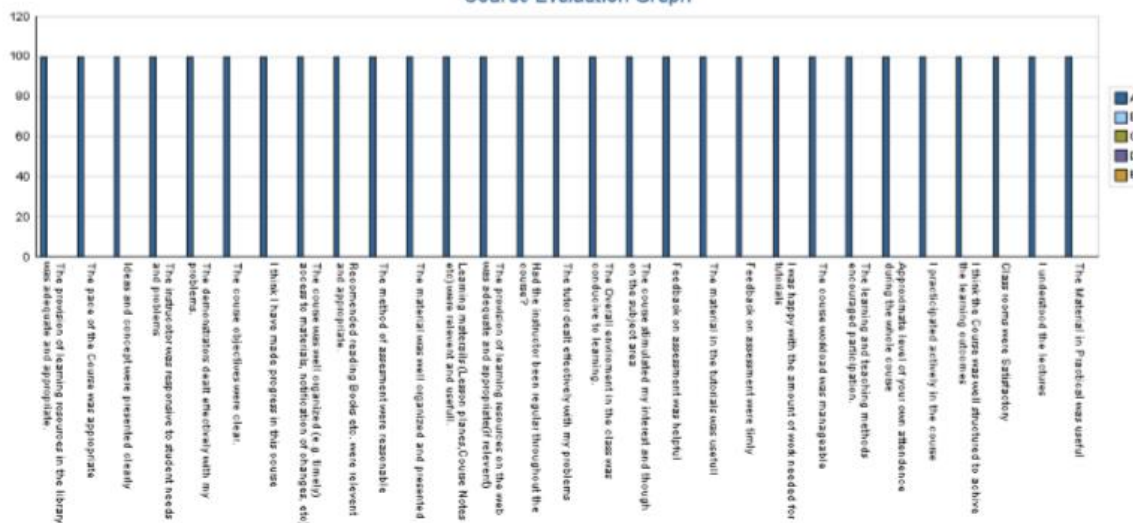
Section: A

M/E: E

Semester# 1

Class: M.Sc (Botany)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No specific weakness indicated in the course.

Strengths: The tutor was punctual and included recent materials in the course. The tutor showed good conduct and statement skill and confirmed participation of students in class.



Pir Mehr Ali Shah
Arid Agriculture University

Performa 1

Print Date: Aug. 22, 2021

Session Name: FALL-19

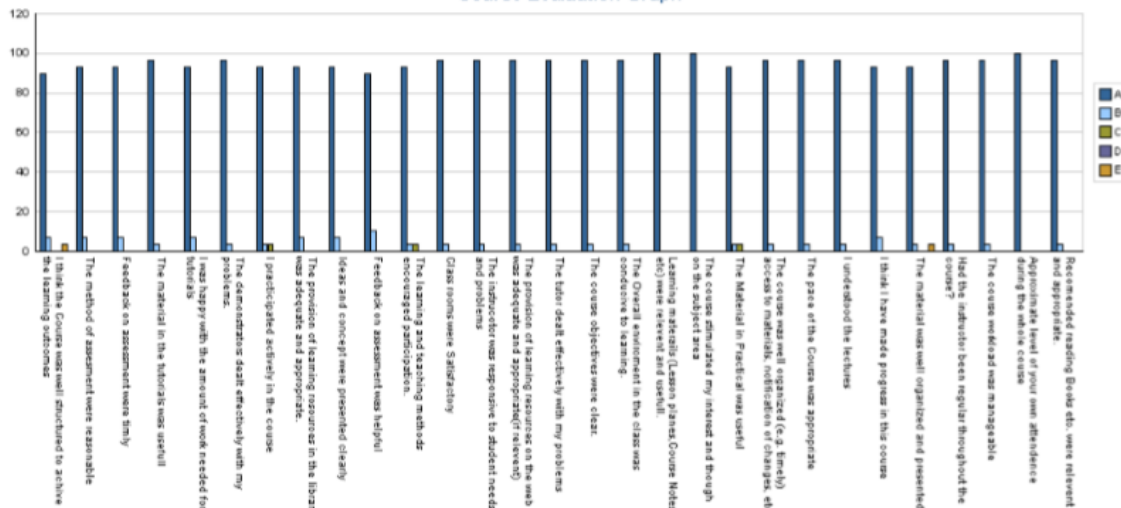
Teacher Name: Zia ur Rehman Mashwani

Course Name: Concepts of Genetics

Section: B M/E: E Semester# 1

Class: M.Sc (Biology)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: No major weakness noted.

Strengths: The tutor was punctual in class and was available in office timings, and included recent materials relevant to real life applications in the course. The tutor showed good conduct and confirmed participation of students in class.



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

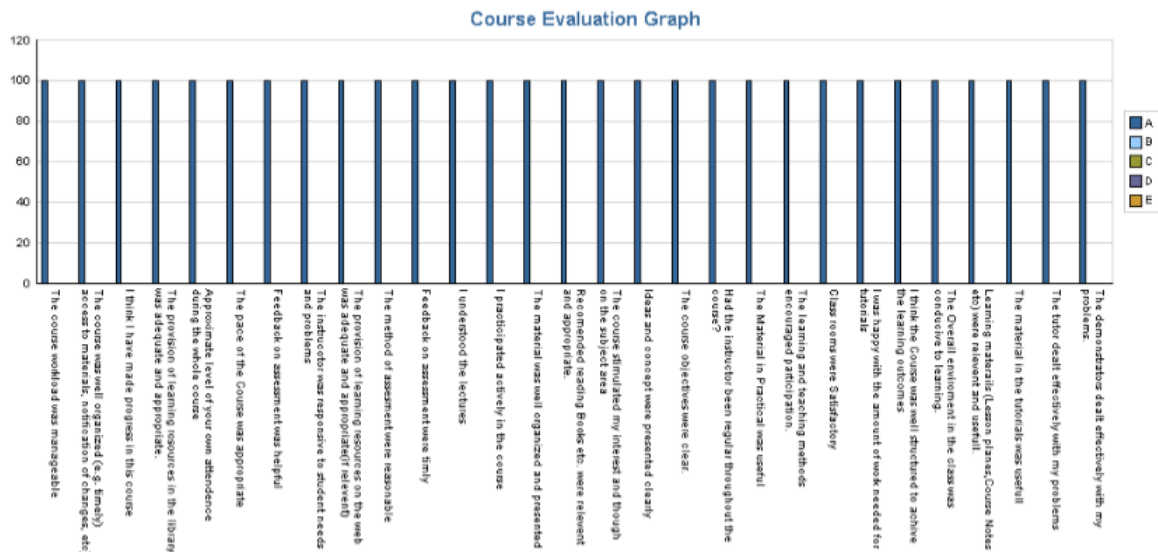
Session Name: FALL-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Diversity in Non- Vascular Plants

Section: A M/E: E Semester# 1

Class: M.Sc (Botany)



General Comments of the Students about this Course

Weaknesses: Students indicated less interest in the course.

Strengths: The tutor showed good punctuality and statement skill and confirmed participation of students in class. The tutor included recent materials in the course and maintained a healthy learning environment in the class.



**Pir Mehr Ali Shah
Arid Agriculture University**
Performa 1

Print Date: Aug. 22, 2021

Session Name: FALL-19

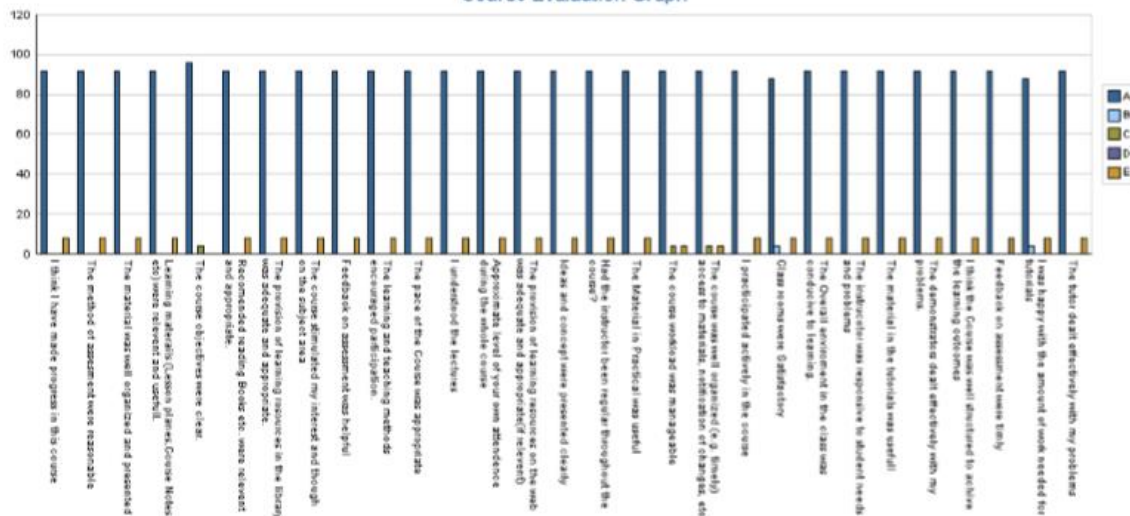
Teacher Name: Eia ur Rehman Mashwani

Course Name: Concepts of Genetics

Section: A M/E: E Semester# 3

Class: M.Sc (Botany)

Course Evaluation Graph



General Comments of the Students about this Course

Weaknesses: Students indicated little eakness in thecourse.

Strengths:. The tutor showed good conduct and teaching skills and confirmed participation of students in class. The tutor was punctual and included recent materials in the course

FALL 2019
M.Sc. EVENING
TEACHER EVALUATION



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

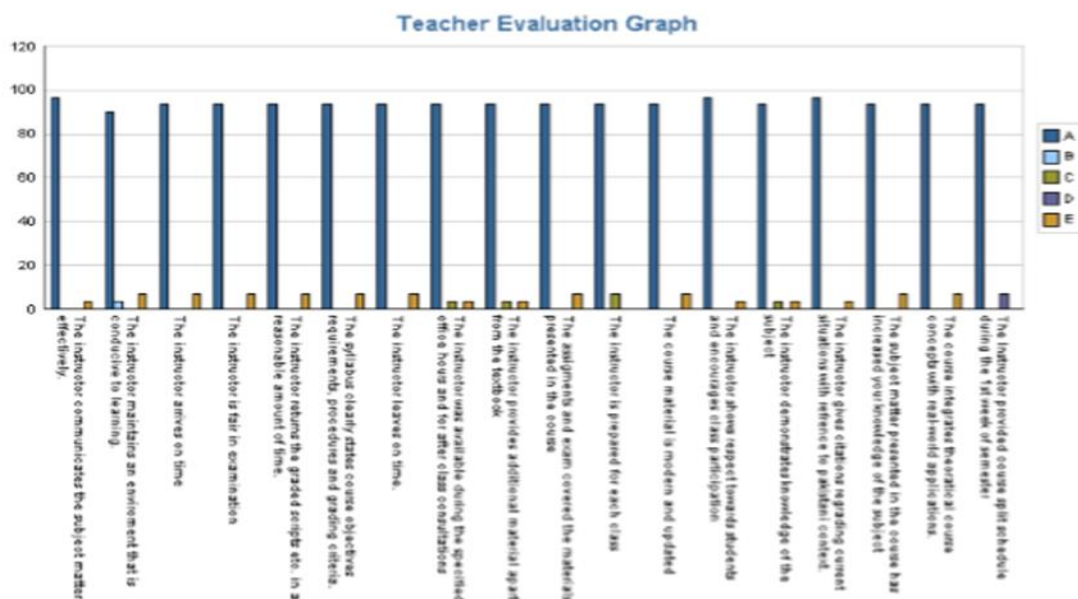
Print Date: Aug. 21, 2021

Session Name: FALL-19

Teacher Name: Abida Akram

Course Name: Mycology and Plant Pathology

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



General Comments of the Students about this Teacher

Weaknesses: Little weakness was observed

Strengths: Tutor made contribution of students in class discussion effective and included recent materials in the subject. Course objectives were clear and demonstrated effectively



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 22, 2021

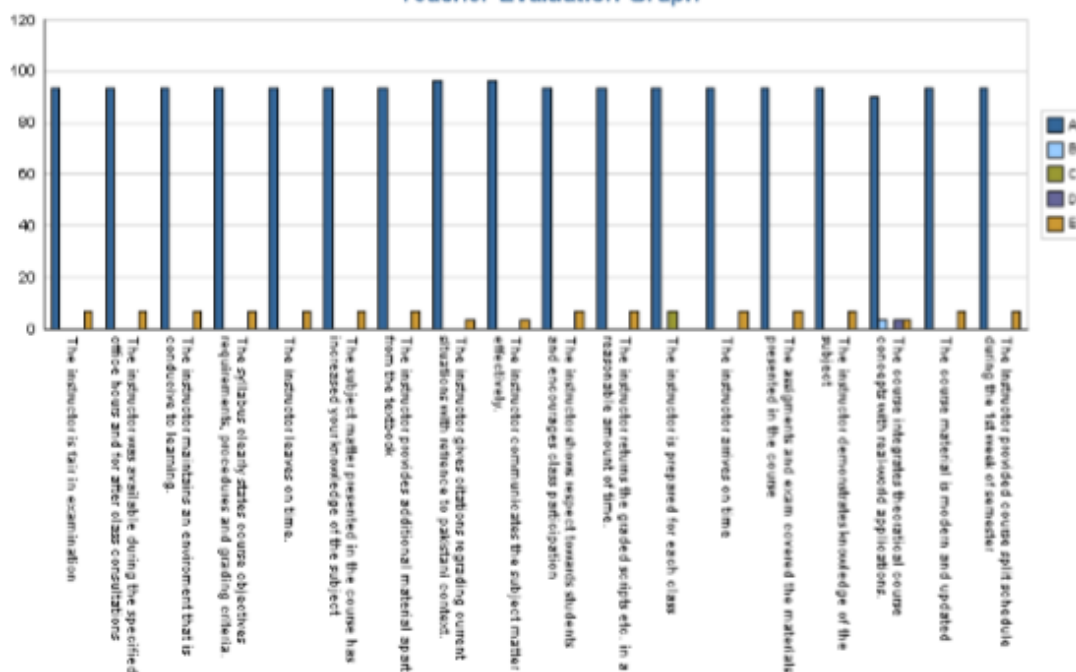
Session Name: FALL-19

Teacher Name: MUHAMMAD ARSHAD

Course Name: Plant Taxonomy and Embryology

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: Little weakness was observed

Strengths: Course work and relevant material was up to date and teacher included recent materials in the course subject. Ideas and concepts were presented clearly



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

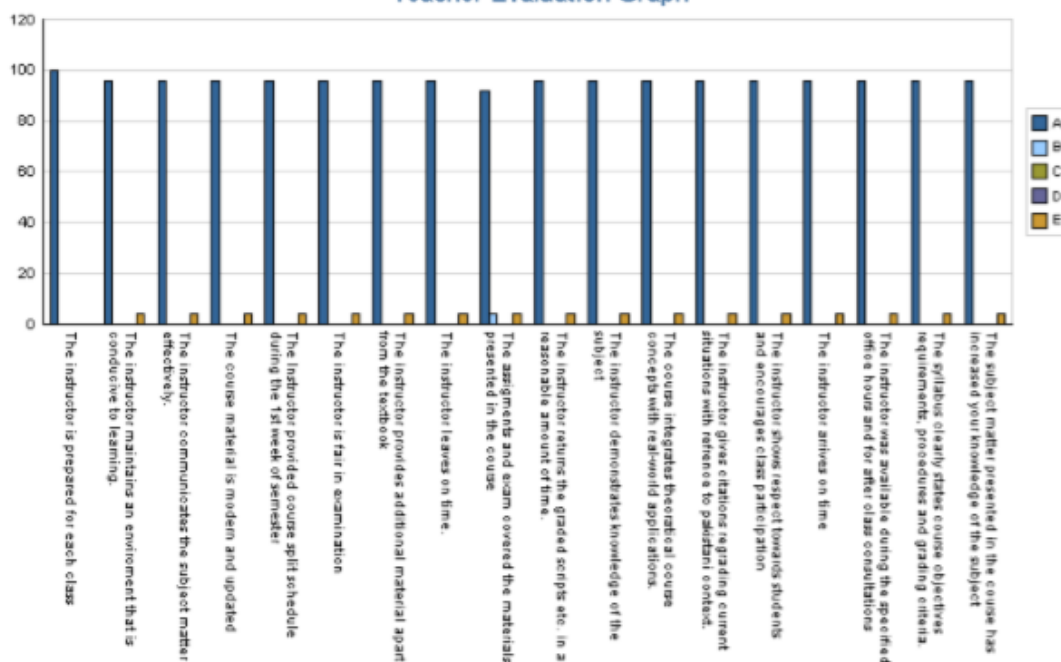
Session Name: FALL-19

Teacher Name: Ejaz Ahmed

Course Name: Plant Ecology

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: Small weakness was indicated.

Strengths: The tutor showed reasonable attitude in delivering the course objective. Workload was manageable. The tutor showed reasonable conduct and statement skills and arrived and left class on time, confirmed good participation of students in class discussion.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

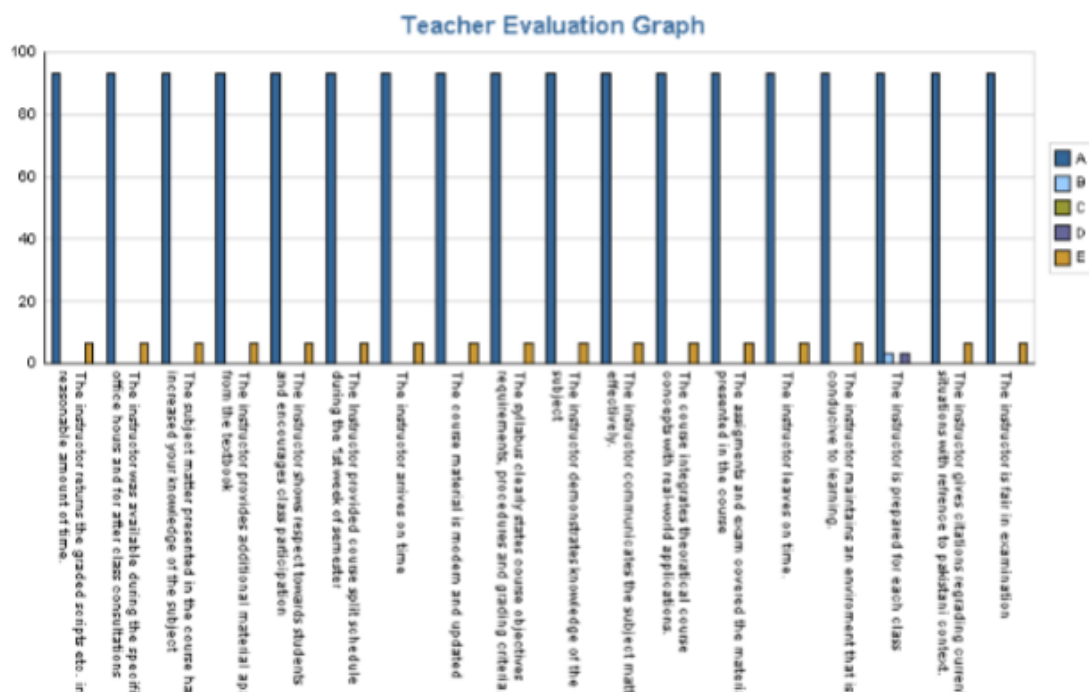
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Ghulam Yaseen - IPFP

Course Name: Research Planning and Report Writing

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



General Comments of the Students about this Teacher

Weaknesses: Some weakness was indicated by students.

Strengths: Instructor has been punctual in class and available at office timings, tutor provided modern revised course work to students and showed good communication skills.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

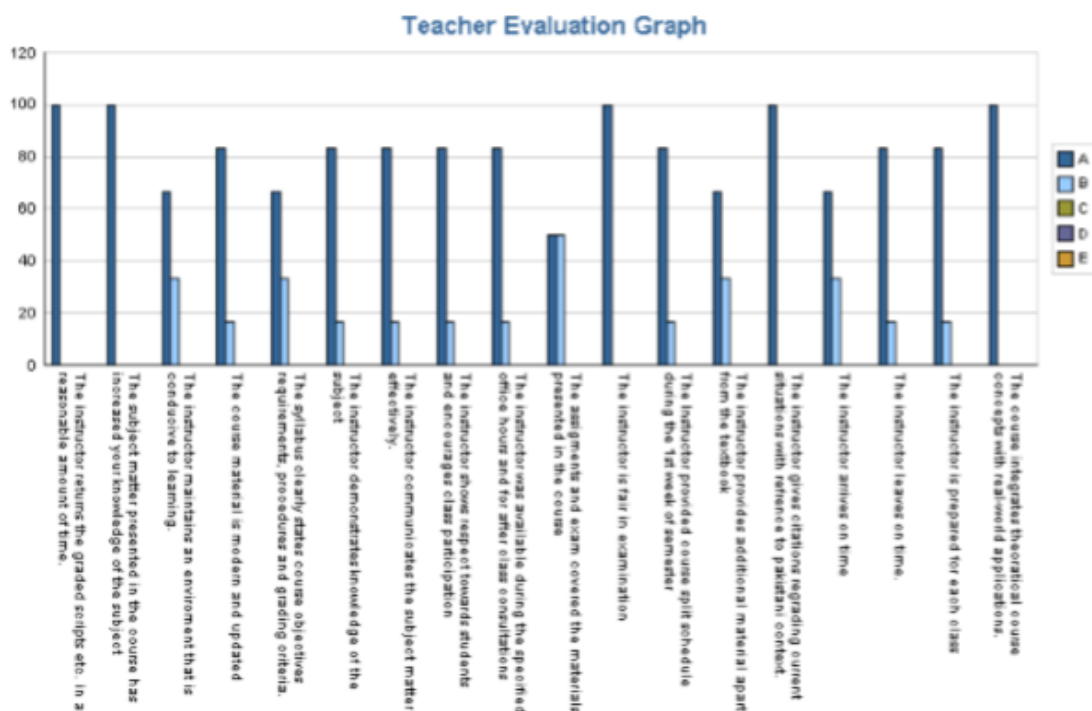
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Ghulam Yaseen - IPFP

Course Name: Biosystematics

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



General Comments of the Students about this Teacher

Weaknesses: No weakness was indicated by students.

Strengths: Assignments and exams were conducted on time. Good healthy learning behavior was maintained in the class. Instructor had good command on the knowledge of the subject and taught the whole course well.

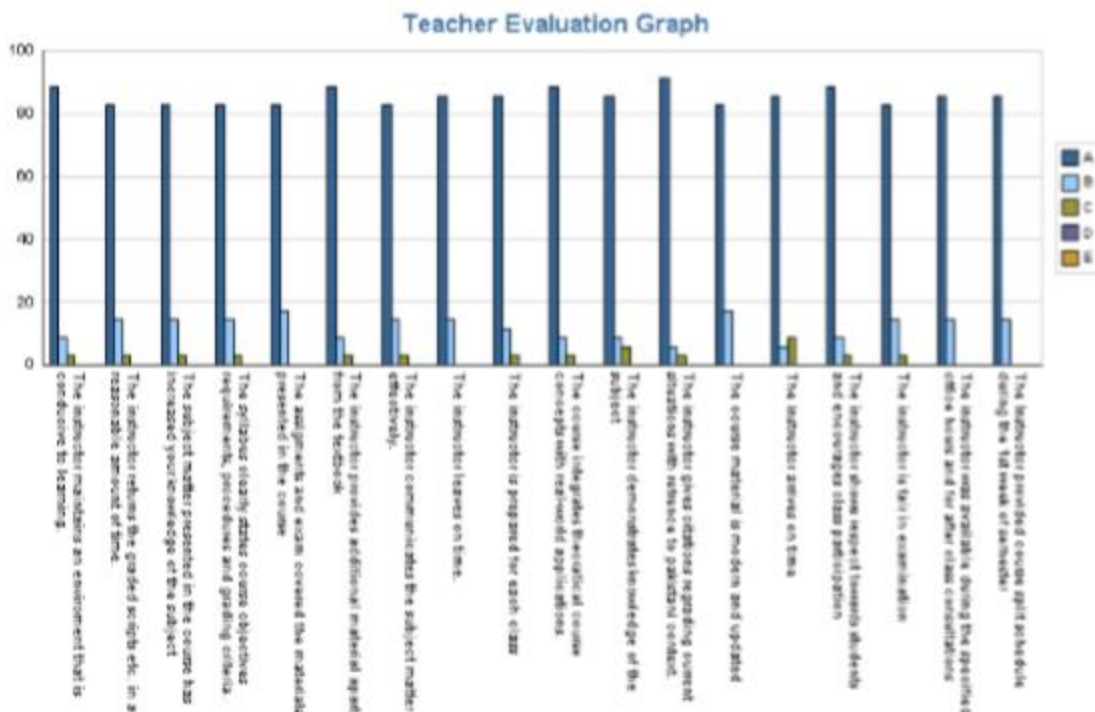


Session Name: FALL-19

Teacher Name: Noshin Ilyas

Course Name: Plant Physiology

Section: A M/E: E Semester#: 5



General Comments of the Students about this Teacher

Weaknesses: No major weakness was indicated by students.

Strengths: Instructor has been punctual in class and available at office timings, tutor provided modern revised course work to students and showed good communication skills.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

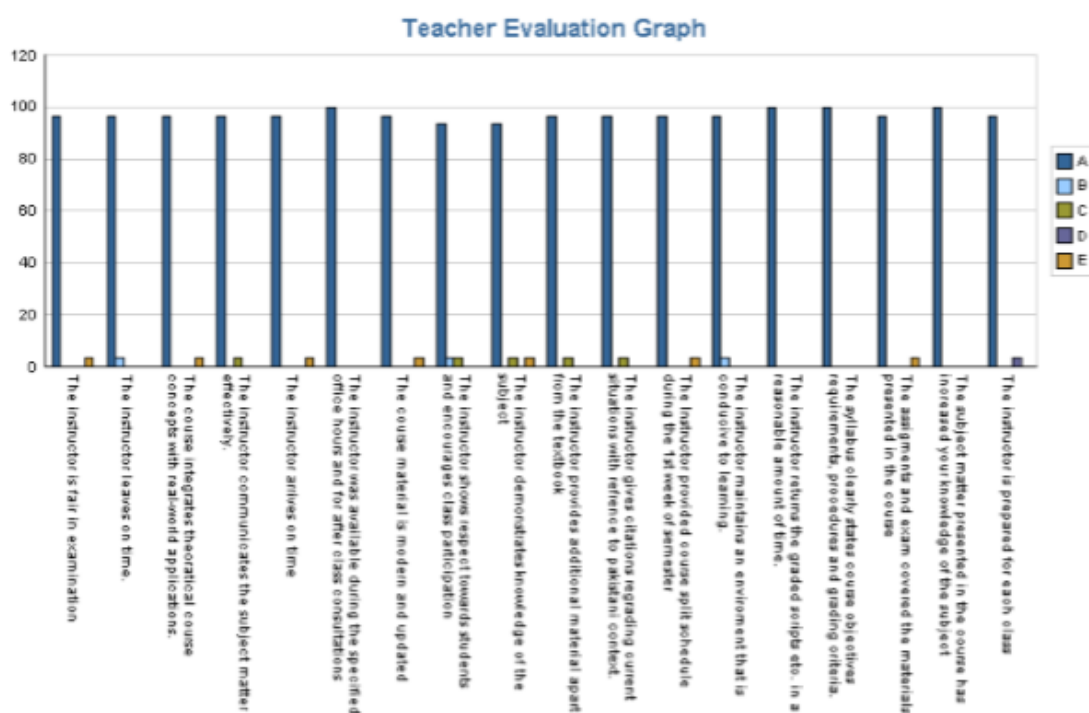
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: M. Naveed Iqbal

Course Name: Principles of Biotechnology

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



General Comments of the Students about this Teacher

Weaknesses: No weakness was indicated.

Strengths: The tutor showed reasonable conduct and statement skills and arrived and leaved class on time, confirmed good participation of students in class discussion.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

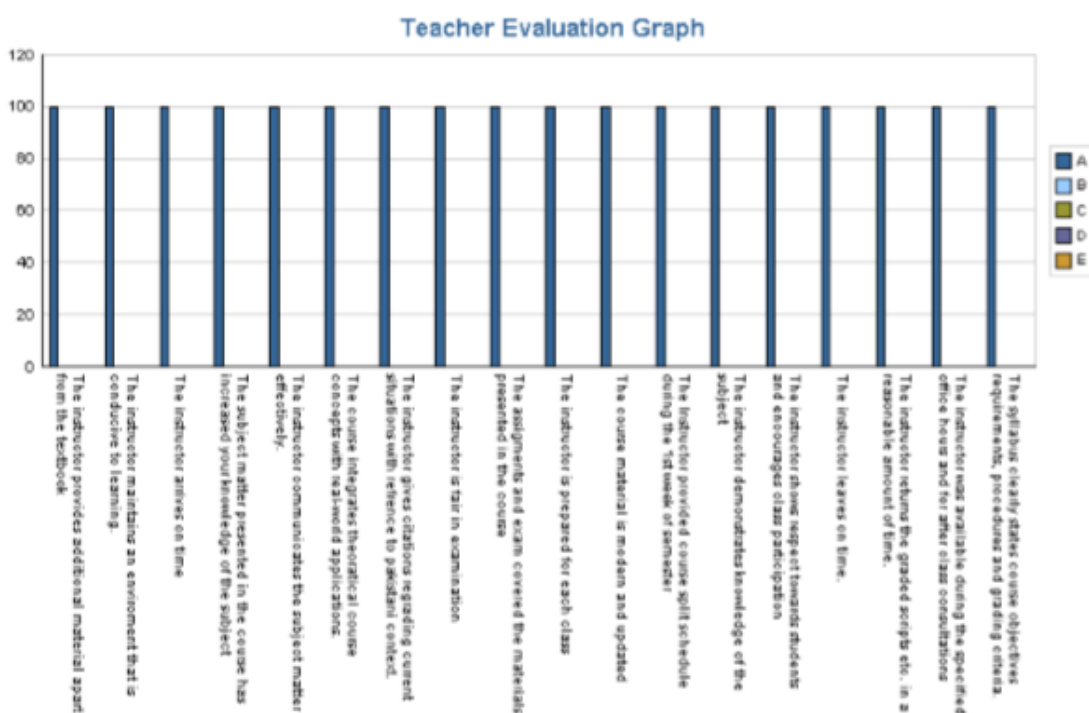
Print Date: Aug. 21, 2021

Session Name: FALL-19

Teacher Name: Abdul Waheed

Course Name: Plant and Cell Physiology-I

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



General Comments of the Students about this Teacher

Weaknesses: No weakness was observed

Strengths: Course work and relevant material was up to dated and teacher included recent materials in the course subject. Ideas and concepts were presented clearly.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

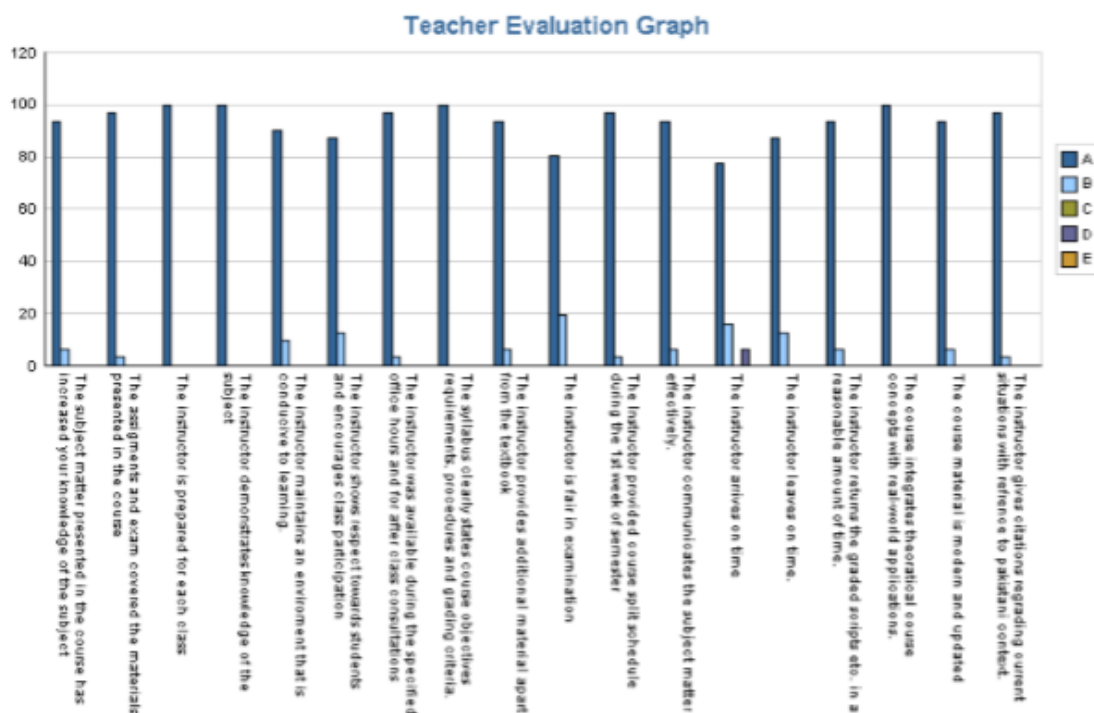
Print Date: Aug. 21, 2021

Session Name: FALL-19

Teacher Name: Abdul Waheed

Course Name: Cellular Biology

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



General Comments of the Students about this Teacher

Weaknesses: No weakness was observed

Strengths:. Tutor made contribution of students in class discussion effective and included recent materials in the subject. Course objectives were clear and demonstrated effectively



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 21, 202

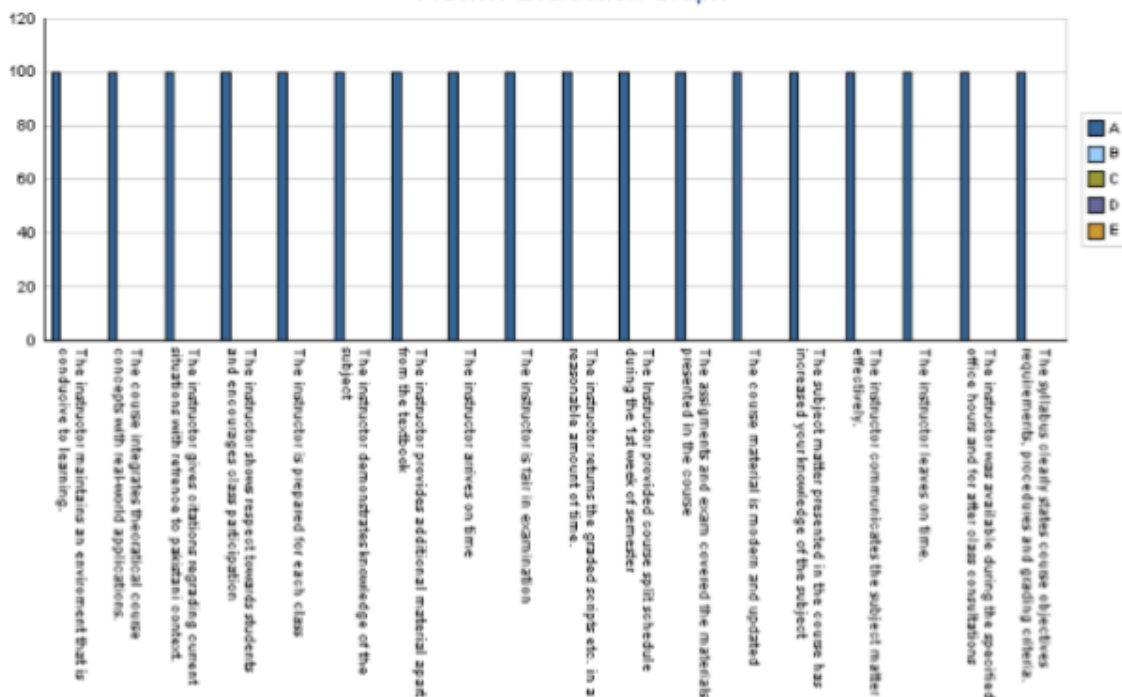
Session Name: FALL-19

Teacher Name: Abdul Waheed

Course Name: Cellular Biology

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

Teacher Evaluation Graph



General Comments of the 0Students about this Teacher

Weaknesses: No weakness was observed. Students were highly satisfied

Strengths: Strengths:. Graded scripts were returned in time. Course concepts were clear. The instructor communicates the subject matters very effectively. Instructor linked the subject matter successfully



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 22, 2021

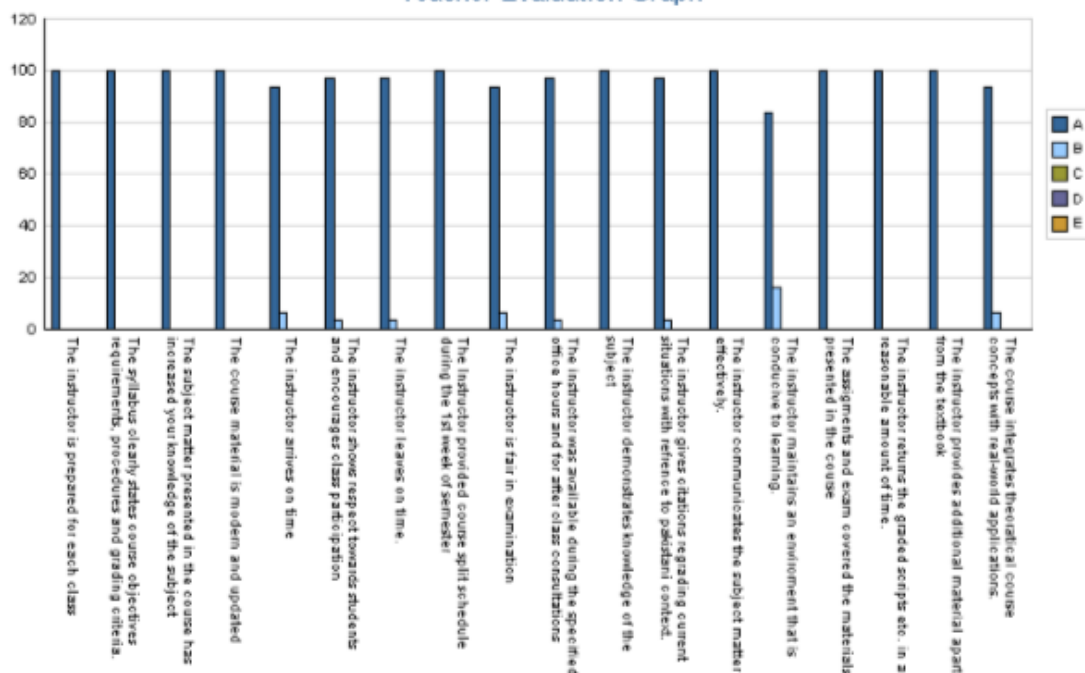
Session Name: FALL-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Concepts of Genetics

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: No weakness indicated.

Strengths: The course material was contemporary and restructured. Additional materials were provided. Communication, environment of class, feedback of assignments and after class consultation was satisfactory.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

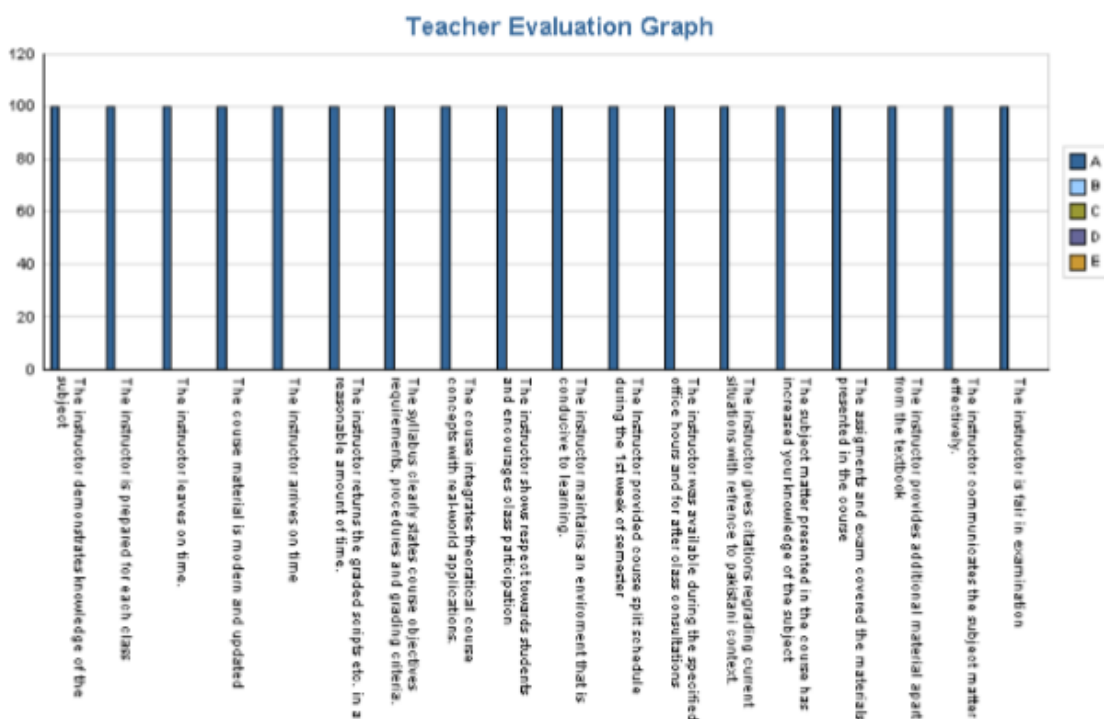
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Diversity in Non- Vascular Plants

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



General Comments of the Students about this Teacher

Weaknesses: No weakness observed

Strengths: Instructor prepared each class for the delivery of knowledge and linked the subject matter successfully. Instructor was available after class consultation. Overall students have increased their knowledge in this course.



Pir Mehr Ali Shah
Arid Agriculture University

Performa 1

Print Date: Aug. 22, 2021

Session Name: FALL-19

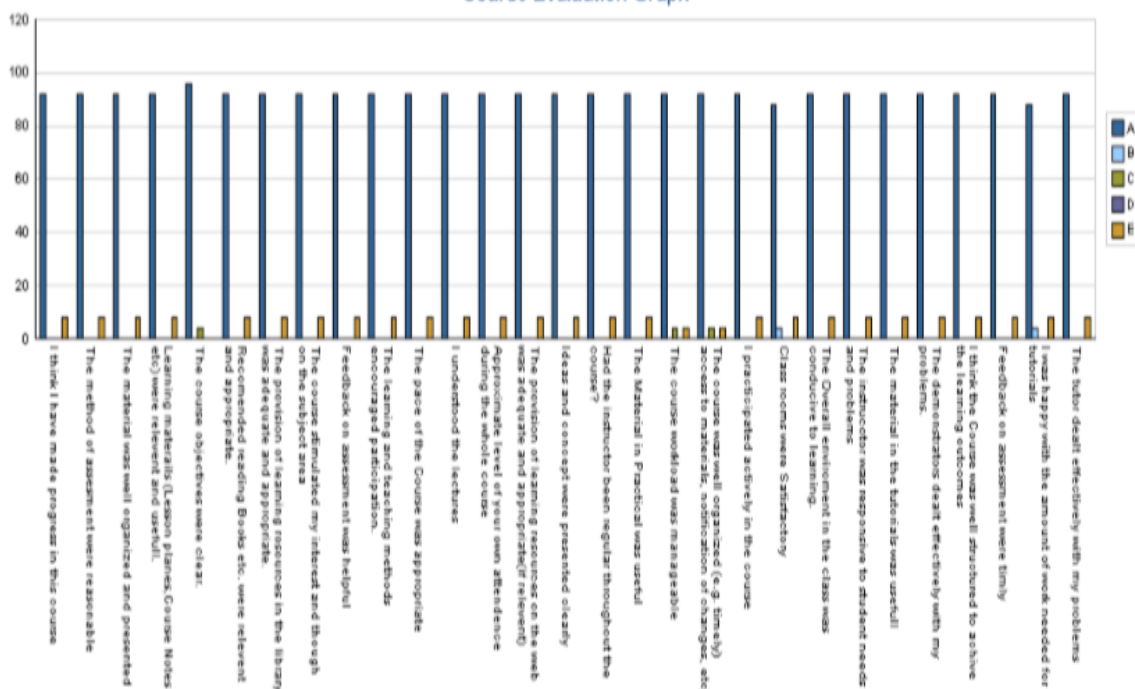
Teacher Name: Zia ur Rehman Mashwani

Course Name: Concepts of Genetics

Section: A M/E: E Semester# 3

Class: M.Sc (Botany)

Course Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: Small weakness recorded

Strengths: The tutor showed good conduct and confirmed participation of students in class. The tutor was punctual in class and was available in office timings, and included recent materials relevant to real life applications in the course.

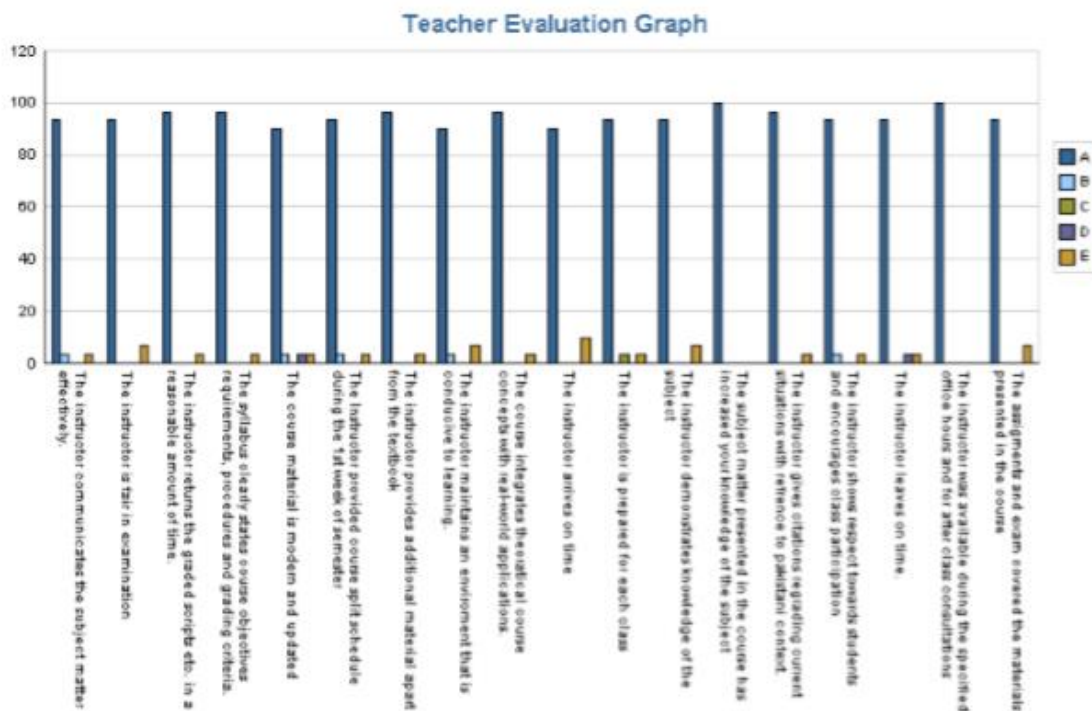


Session Name: FALL-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Concepts of Genetics

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



General Comments of the Students about this Teacher

Weaknesses: Student showed small weakness towards teacher.

Strengths: The tutor was punctual and included recent materials in the course. The tutor has good conduct and statement skill and confirmed participation of students in class



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 21, 2021

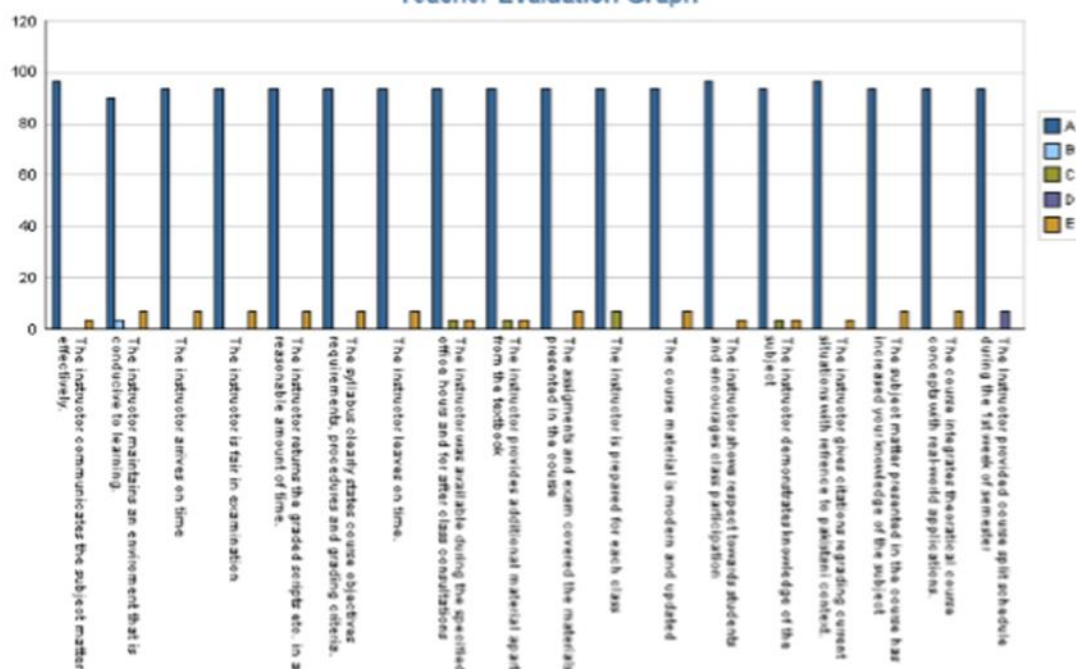
Session Name: FALL-19

Teacher Name: Abida Akram

Course Name: Mycology and Plant Pathology

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: No big weakness was noted

Strengths: The tutor included recent materials in the course. The tutor has good conduct and statement skill and confirmed participation of students in class.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 22, 2021

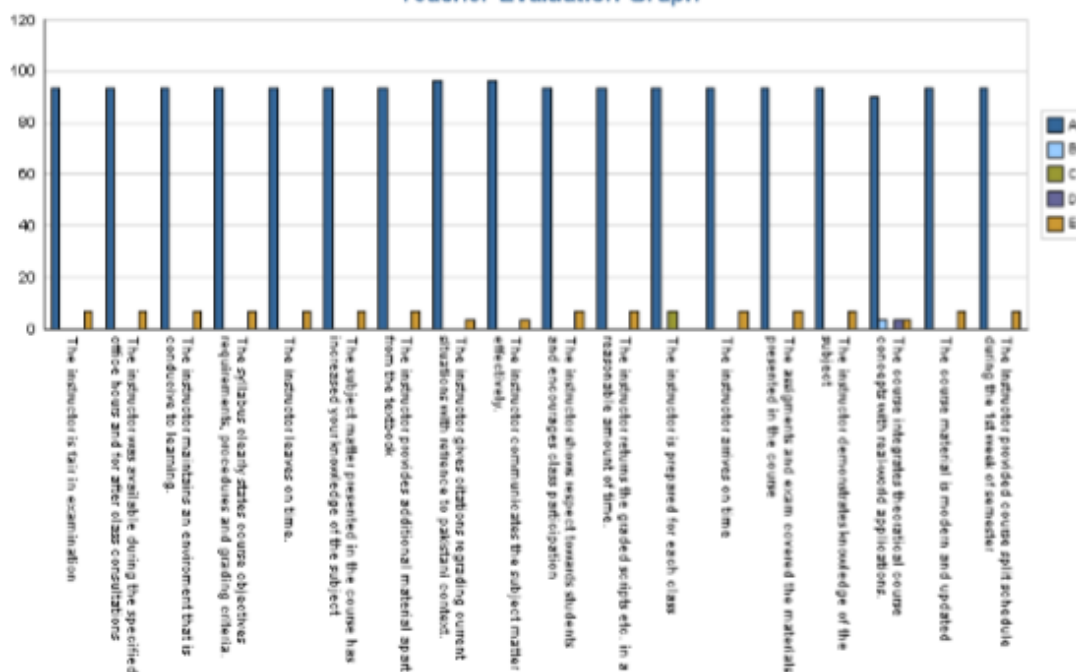
Session Name: FALL-19

Teacher Name: MUHAMMAD ARSHAD

Course Name: Plant Taxonomy and Embryology

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: No big weakness was observed.

Strengths:. Communication, environment of class, feedback of assignments and after class consultation was satisfactory. Instructor prepared each class for the delivery of knowledge and linked the subject matter successfully



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 22, 2021

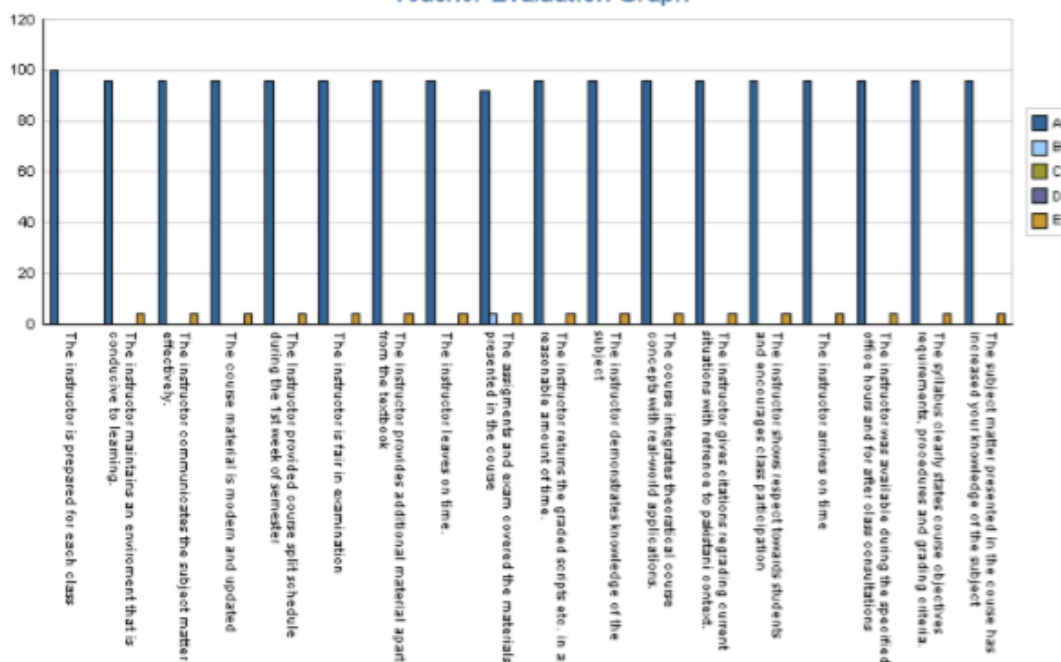
Session Name: FALL-19

Teacher Name: Ejaz Ahmed

Course Name: Plant Ecology

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: No weakness was indicated in the course.

Strengths: Instructor was available after class consultation. Overall students have increased their knowledge in this course.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

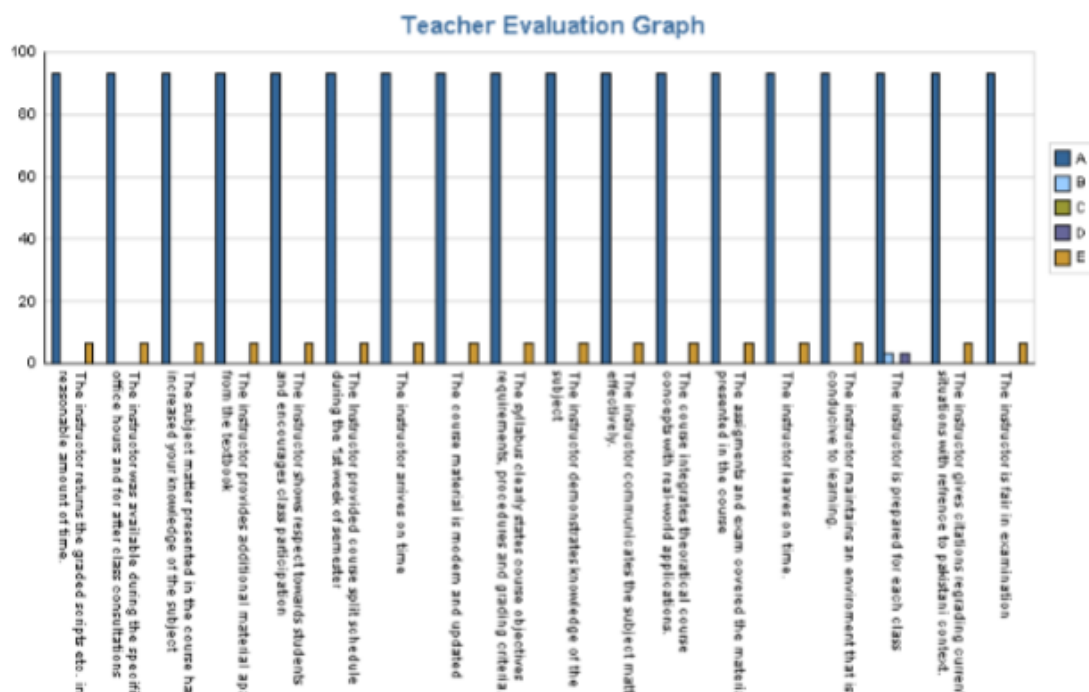
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Ghulam Yaseen - IPFP

Course Name: Research Planning and Report Writing

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



General Comments of the Students about this Teacher

Weaknesses: No big weakness was observed in the study.

Strengths: The tutor had reasonable conduct and statement skill, confirmed participation of students in class discussion, included recent materials in the course.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

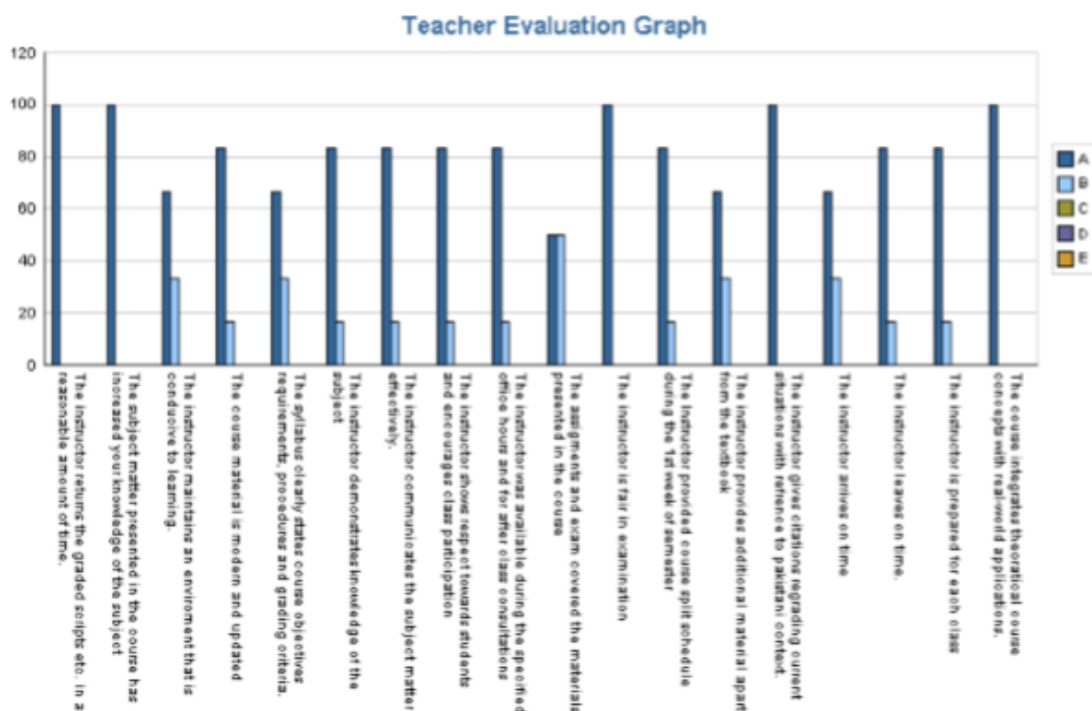
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Ghulam Yaseen - IPFP

Course Name: Biosystematics

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



General Comments of the Students about this Teacher

Weaknesses: No weakness recorded.

Strengths: The tutor had reasonable manner and communication skill, confirmed participation of students in class discussion. The tutor dealt effectively with all problems.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 22, 2021

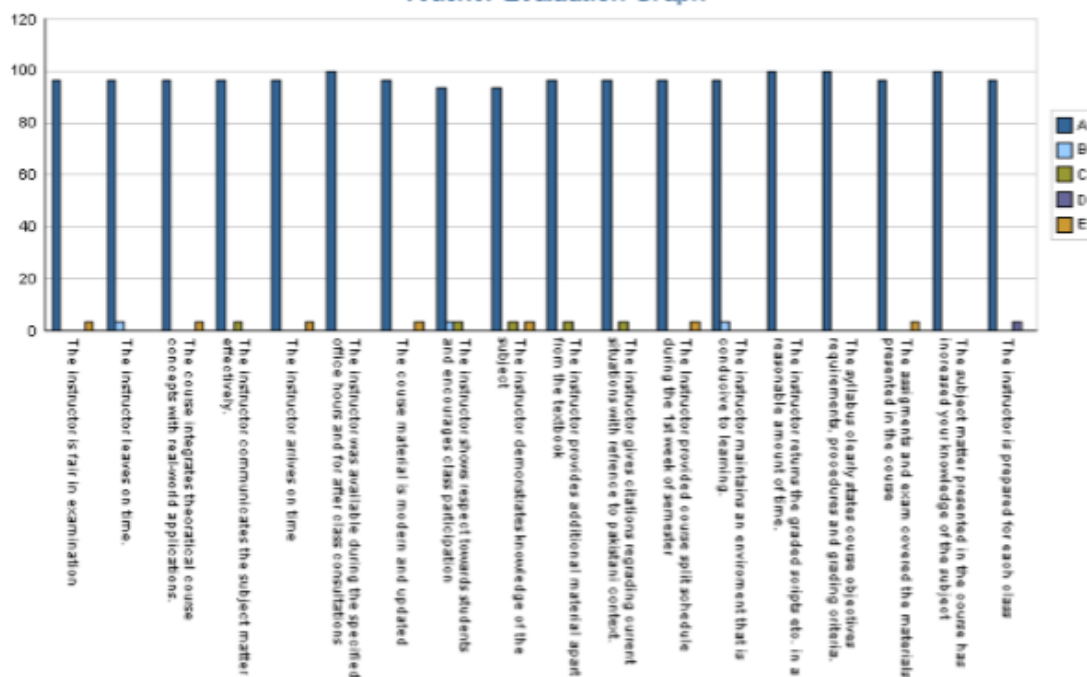
Session Name: FALL-19

Teacher Name: M. Naveed Iqbal

Course Name: Principles of Biotechnology

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: No weakness is indicated.

Strengths: The tutor presented guaranteed contribution of students in class discussion, included modern concepts materials in the course contents



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 21, 2021

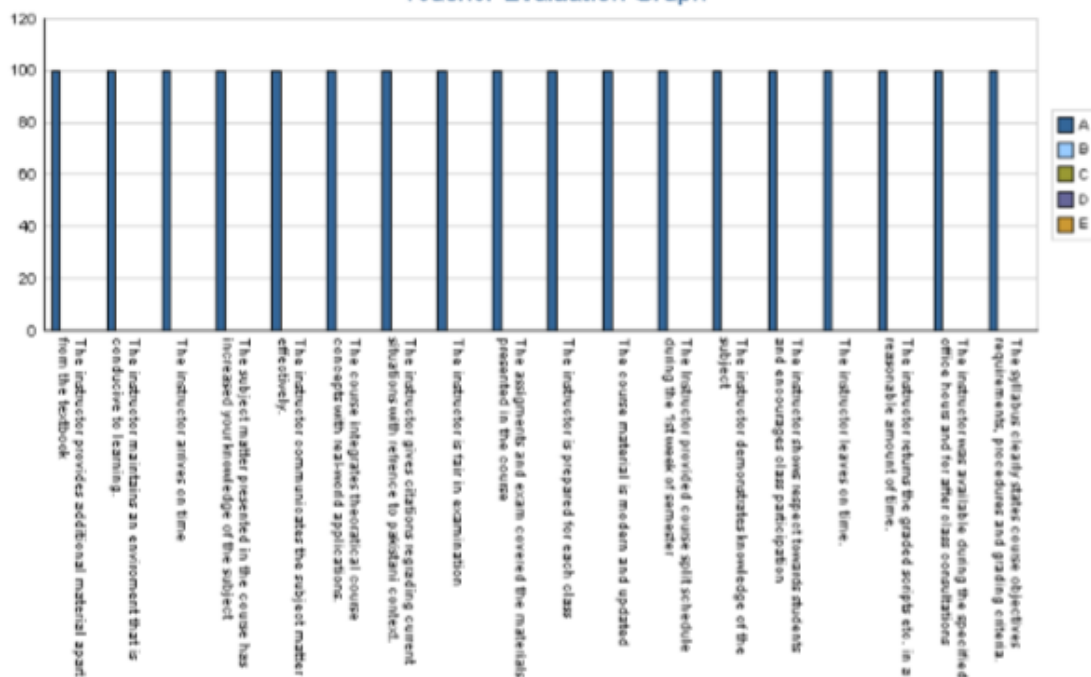
Session Name: FALL-19

Teacher Name: Abdul Waheed

Course Name: Plant and Cell Physiology-I

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: No weakness was observed in analysis.

Strengths: The instructor was fair in assessments and provided relevant course material on time and effectively creating positive environment in class room for active participation of students.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

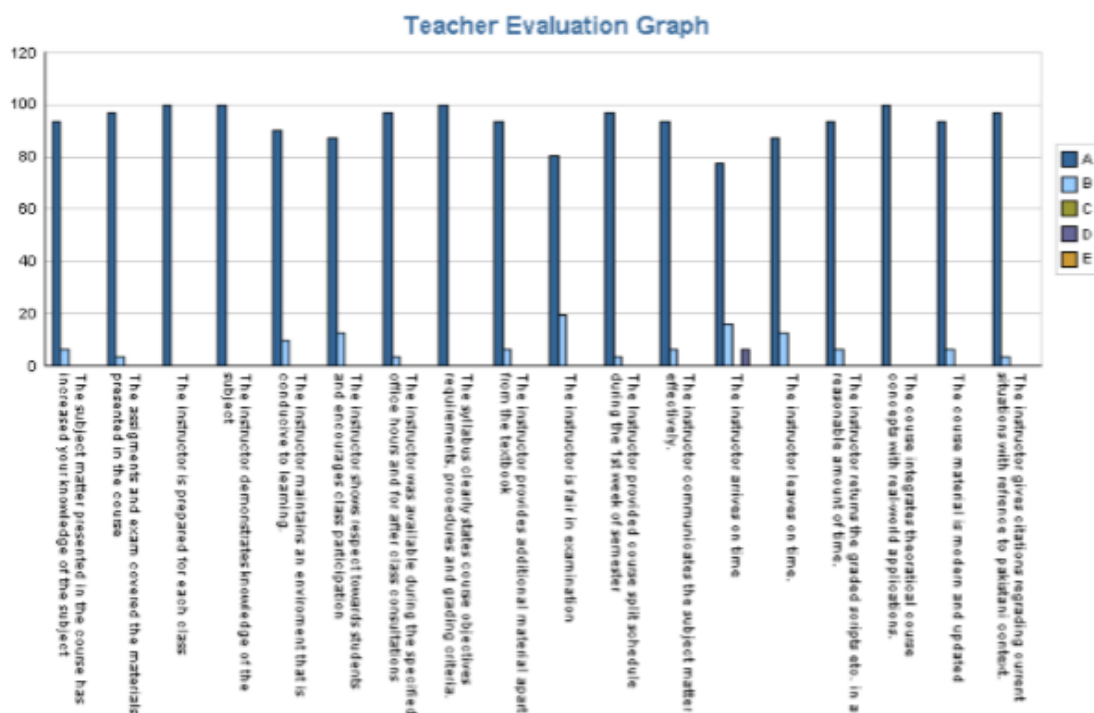
Print Date: Aug. 21, 2021

Session Name: FALL-19

Teacher Name: Abdul Waheed

Course Name: Cellular Biology

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



General Comments of the Students about this Teacher

Weaknesses: No weakness indicated

Strengths: The tutor had good amount of statement skill and participation of students in class. Tutor provided additional material as well and maintained an environment in class for learning. The tutor was punctual and included recent materials in the course related to the coursework.



Pir Mehr Ali Shah
Arid Agriculture University
Performa 10

Print Date: Aug. 21, 202

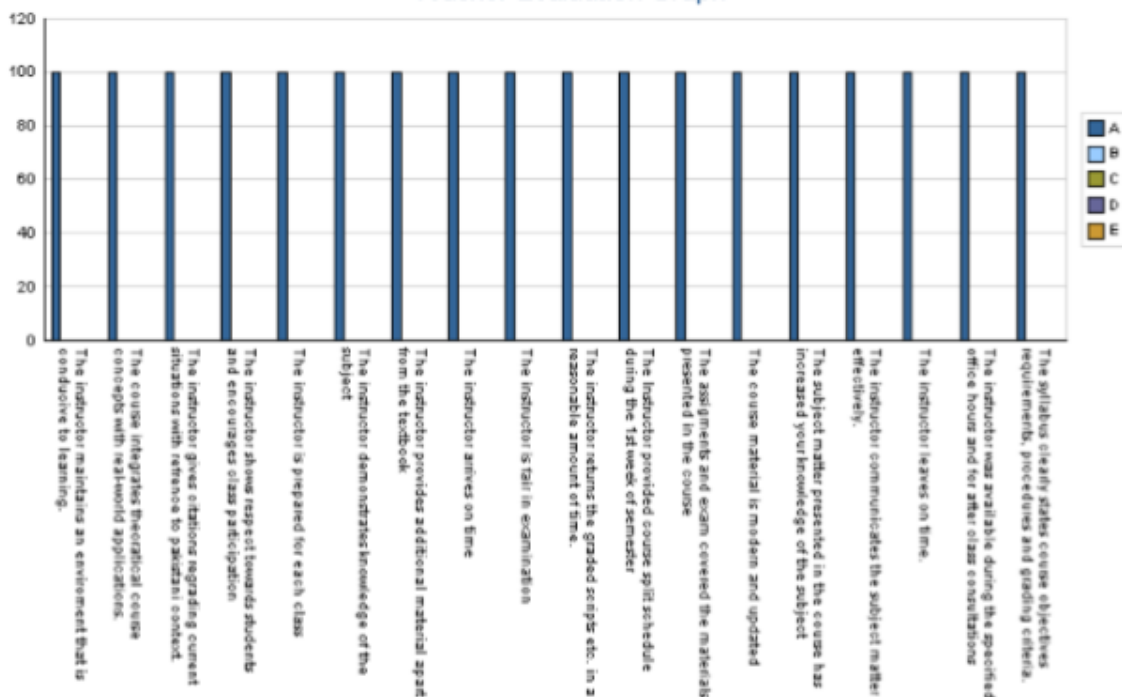
Session Name: FALL-19

Teacher Name: Abdul Waheed

Course Name: Cellular Biology

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: Students had satisfactory response.

Strengths: Course objectives were clear and learning material was available in time. Instructor was regular and fair in examinations and well prepared for each class.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

Print Date: Aug. 22, 2021

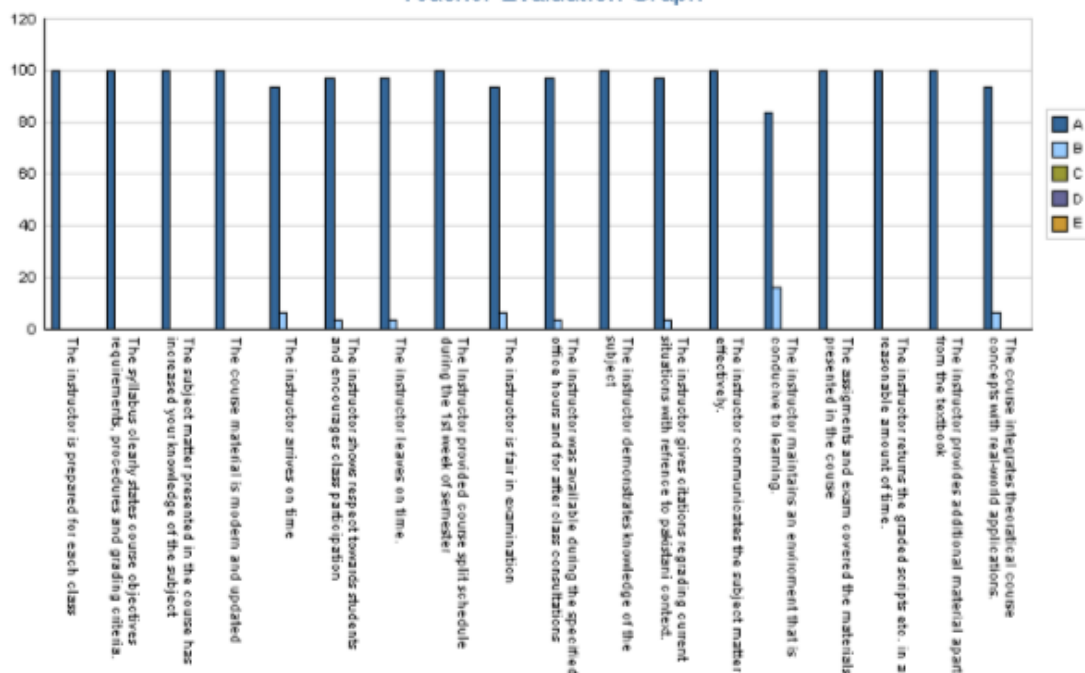
Session Name: FALL-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Concepts of Genetics

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

Teacher Evaluation Graph



General Comments of the Students about this Teacher

Weaknesses: No weakness is indicated.

Strengths: The tutor presented guaranteed contribution Lectures were excellently delivered. Assessment feedback was timely and helpful.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

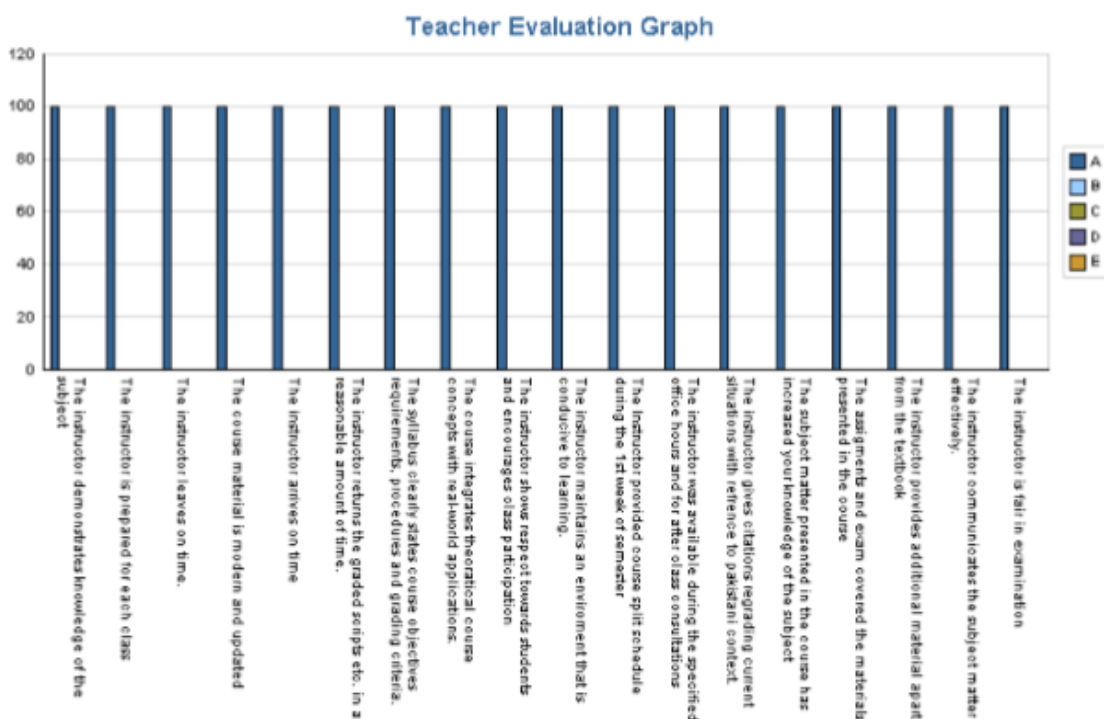
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Diversity in Non- Vascular Plants

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



General Comments of the Students about this Teacher

Weaknesses: No weakness was observed in analysis.

Strengths: The instructor was fair in assessments and provided relevant course material on time and effectively creating positive environment in class room for active participation of students.



Pir Mehr Ali Shah
Arid Agriculture University
Performa 1

Print Date: Aug. 22, 2021

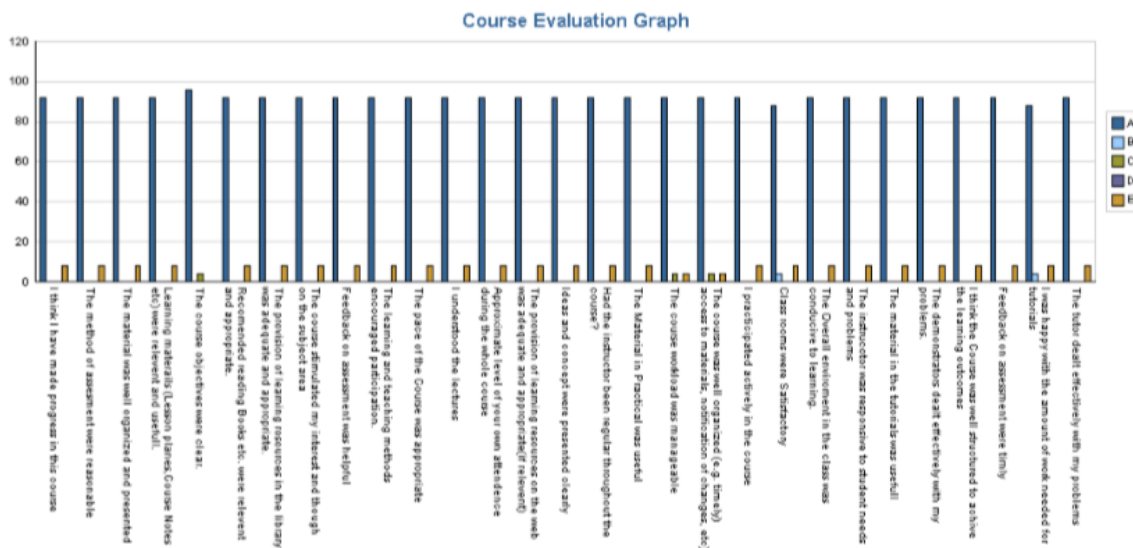
Session Name: FALL-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Concepts of Genetics

Section: A M/E: E Semester# 3

Class: M.Sc (Botany)



General Comments of the Students about this Teacher

Weaknesses: Small weakness indicated

Strengths: The tutor was punctual and included recent materials in the course related to the coursework. The tutor had good amount of statement skill and participation of students in class.



**Pir Mehr Ali Shah
Arid Agriculture University
Performa 10**

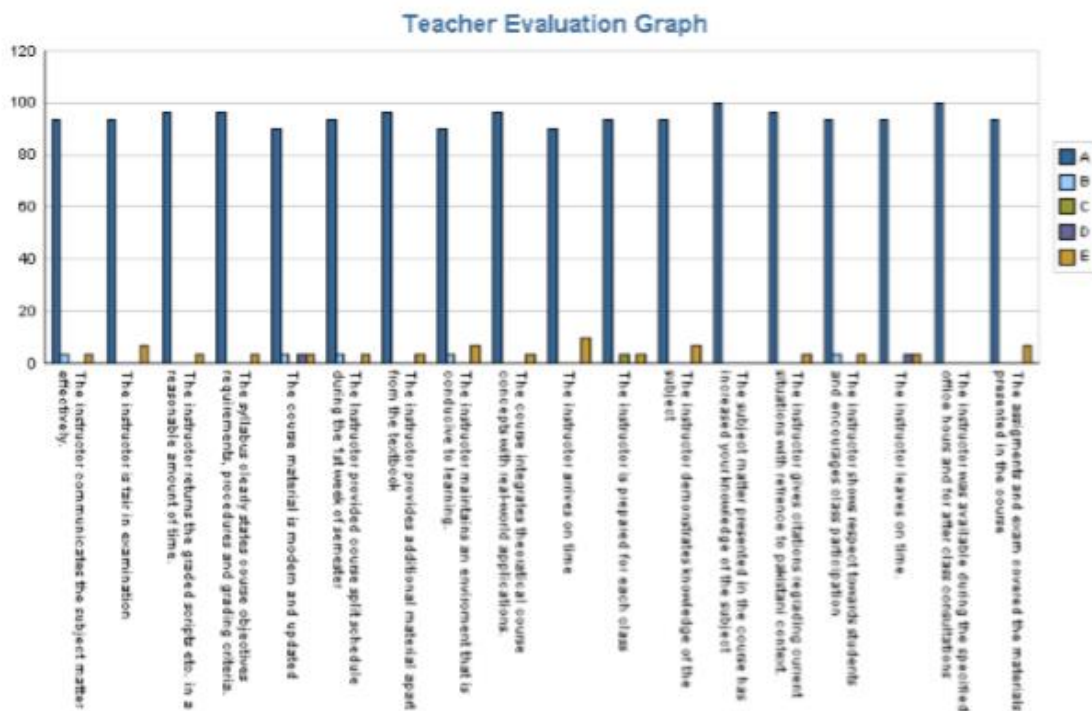
Print Date: Aug. 22, 2021

Session Name: FALL-19

Teacher Name: Zia ur Rehman Mashwani

Course Name: Concepts of Genetics

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



General Comments of the Students about this Teacher

Weaknesses: No weakness indicated

Strengths: The tutor was punctual and included recent materials in the course related to the coursework. Tutor provided additional material as well and maintained an environment in class for learning. The tutor had good amount of statement skill and participation of students in class.

SPRING 2020
M.Sc. MORNING
COURSE EVALUATION

(No Graphs are displayed on CMS)

Performa 2: FACULTY COURSE REVIEW REPORT

Course code	Title	Credit value	Assessment Method/exam	No of students	Comment on curriculum	Any change is course for future	Semester	% grade					Course instructor
								A	B	C	D	F	
Fall 2019													
Bot 702	Plant and cell physiology-I	3(2-2)	Examination/Assi gnment	41	Fair	Minor Changes in Environmen tal Data	Fall 2019	13	18	5	4	1	Abdul Waheed
Bot 709	Plant Ecology	3(2-2)	Examination /Assignment	78	Updated	None	Fall 2019	3	21	26	7	8	Yamin bibi
Bot-701	Diversity in Non-vascular plants	3(2-2)	Examination/ Quiz	12	Updated	None	Fall 2019	5	7	-	-	-	Zia-ur-rehman Mashwani
Biol-701	Cellular Biology	3(2-2)	Examination / Quiz	41	Fair	None	Fall 2019	8	18	15	0	0	Abdul Waheed
BCh-701	Biochemistry	3(2-2)	Examination /Quiz	7	Updated	None	Fall 2019	7	0	0	0	0	Riffat Batool-IPFF
BOT-705	Plant Taxonomy and embryology	3(2-2)	Examination /Quiz	30	Fair	Few modificatio ns in course material were done	Fall 2019	1	6	13	5	5	Muhamma d Arshad
BOT -712	Research planning and Report Writing	3(1-4)	Examination /Assignment	15	Fair	None	Fall 2019	13	1	1	0	0	Ghulam Yaseen
BIOI-728	Concepts of Genetics	3(2-2)											Zia-ur-Rehman Mashwani
BOT -708	Mycology and Plant Pathology	3(2-2)	Examination /Assignment	68	Fair	None	Fall 2019	2	20	24	17	1	Abda Akram
BIO-712	Principles of Biotechnolog y	3(2-2)	Examination /Assignment	68	Fair	None	Fall 2019	37.5	62.5	0	0	0	M.Naveed Iqbal
Spring-2020													
Biol -706	Diversity in Vascular plants	3(2-2)	Class Quiz assignment and Exam	38	Fair	No	Spring-20	36.8	42.1	15.7	5.2	0	Dr. Zia-ur-Rehman
Bot-711	Environment al pollution	3(2-2)	Class Quiz assignment and Exam	11	Updated	No	Spring-20	27.2	54.5	18.18	0	0	Dr. Saira Asif
Bot-710	Ethnobotany	3(2-2)	Presentation and Speaking skill	02	Fair	No	Spring-20	50	50	0	0	0	Ghulam yaseen
Bot-704	Photosociology	3(2-2)	Presentation and Speaking skill	08	Fair	No	Spring-20	37.5	62.5	0	0	0	Khafsa Malik

Bot-707	Plant Anatomy	3(2-2)	Net surfing for literature and designing experiments	02	Fair	No	Spring-20	100	0	0	0	0	Dr. Noshin Ilyas
Bot 703	Plant and cell physiology II	3(2-2)	Examination /Assignment	53	Fair	None	Spring-17	10	35	8	1		Abdul waheed
Bot 735	Plant and Microbe interaction	3(2-2)	Examination /Assignment	39	Fair	None	Spring-20	10	18	8	1	0	Yamin Bibi
BOT 728	Principles of Genome analysis and genomics	3(2-0)	Written exam/Presentation	7	Fair	No	Spring-20	2	1	1	1	2	Dr . M. Naveed Iqbal
BIOL-736	General Pharmacognosy	3(2-2)	Examination /Assignment	39	Fair	None	Spring-20	10	18	8	1	0	Dr. Zia-ur-Rehman Mashwani
BOT-720	Seminar-I	1(1-0)	Examination /Assignment	3	Fair	None	Spring-20	7	18	8	1	0	AbdaAkram
BCH-704	Molecular Biology	3(2-2)	Examination /Assignment	10	Fair	None	Spring-20	8	17	8	1	0	Nabila Tabbasam
STAT-700	Elements of Statistics and Biometry	3(3-0)	Examination /Assignment	15	Fair	None	Spring-20	10	18	8	1	0	Nasir Ali

Fall-2020

Bot 701	Diversity in non vascular plants	3(2-2)	Examination /Assignment	88	Updated	Minor Changes in Environmental Data	Fall 2020	4	25	29	10	22	Saira Asif
Bot-709	Plant Ecology	3(2-2)	Giving a problem and designing experiments for solution	55	Fair	Few modifications in course material were done	Fall 2020	12.7	60	25.4	1.8	0	Khafsa Malik
BOT 705	Plant Taxonomy and Embryology	3(2-2)	Class Quiz assignment and Exam	14	Updated	No	Fall 2020	11	3	-	-	-	Ghulam Yaseen
BOT-702	Plant and cell physiology-I	3(2-2)	Quiz	33	Fair	None	Fall 2020	4	10	12	3	4	Naveed Iqbal
BOT-712	Research planning and Report writing	3(1-4)	Presentation	1	Fair	None	Fall 2020	1	0	0	0	0	Yamin Bibi
BCH-701	Biochemistry	3(2-2)	Class Quiz assignment and Exam	35	Updated	None	Fall-2020	4	10	12	3	4	Riffat Batool
BIOL-701	Cellular Biology	3(2-2)	Class Quiz assignment and Exam	14	Updated	None	Fall-2020	4	10	12	3	4	M.Naveed Iqbal
BIO-728	Concepts of Genetics	3(2-2)	Class Quiz assignment and	22	Updated	None	Fall-2020	4	10	12	3	4	Zia Ur Rehman

			Exam										Mashwani
BIOL-708	Economic Biology	4(3-2)	Class Quiz assignment and Exam		Updated	None	Fall-2020	30	9	1	1	3	Saira Asif
BOT -708	Mycology and Plant Pathology	3(2-2)	Class Quiz assignment and Exam	14	Updated	None	Fall-2020	30	9	1	2	4	Abda Akram
BIOL-712	Principles Of Biotechnology	3(2-2)	Class Quiz assignment and Exam	14	Updated	None	Fall-2020	30	9	1	5	6	Khafsa Malik
Spring -2020													
BOT-706	Diversity in Vascular Plants	3(2-2)	Quiz	20	Fair	None	Spring-20	4	9	3	0	4	Dr. Zia-ur-Rehman Qureshi
BOT-711	Environmental Pollution	3(2-2)	Written and oral examination	40	Updated	Few modifications in course material were done	Spring-20	30	9	1	-	-	Saira Asif
BOT 710	Ethnobotany	3(2-2)	Written and oral examination	13	Fair	Few modifications in course material were done	Spring-20	10	1	1	-	1	Ghulam Yaseen
Bot-704	Phytosociology	3(2-2)	Net surfing for literature and designing experiments	02	Fair	No	Spring-20	100	0	0	0	0	Khafsa Malik
BOT-707	Plant Anatomy	3(2-2)	Net surfing for literature and designing experiments	01	Fair	Few modifications in course material were done	Spring-20	100	0	0	0	0	Dr. Nosheen Ilyas
Bot 703	Plant and Cell Physiology-II	3(2-2)	Examination /Assignment	73	Updated	None	Spring-18	15	29	24	3	8	Abdul Waheed
Bot 735	Plant-microbe Interactions	3(2-2)	Examination /Assignment	52	Updated	None	Spring-20	20	24	6	1	3	Yamin Bibi
BIOL-728	Principles of Genome Analysis and Genomics	3(3-0)	Quiz	65	Fair	None	Spring-20	0	36	26	1	2	Dr. Naveed Iqbal
STAT-700	Elements of Statistics and biometry	3(3-0)	Written and oral examination	13	Fair	Few modifications in course material were done	Spring-20	20	24	6	1	3	Nasir Ali
BCH-704	Molecular Biology	3(2-2)	Written and oral examination	13	Fair	Few modifications in course material were done	Spring-20	20	24	6	1	3	Nabila Tabbasam
BOT-720	Seminar-I	1(1-0)	Written and oral examination	13	Fair	Few modifications in course material	Spring-20	20	24	6	1	3	Abda Akram

						were done							
BIOL-736	General Pharmacognosy	3(2-2)	Written and oral examination	13	Fair	Few modifications in course material were done	Spring-20	20	24	6	1	3	Zia Ur Rehman Mashwani
Fall-2018													
BOT-701	Diversity in Non-Vascular Plants	3(2-2)	Quiz	29	Fair	None	Spring-18	6	21	1	0	0	Dr. Zia-ur-Rehman
BOT-708	Mycology and Plant Pathology	3(2-2)	Quiz	2	Updated	None	Spring-18	2	0	0	0	0	Dr. Abida
BIOL-709	Plant Ecology	3(2-2)	Quiz	3	Fair	None	Spring-18	1	2	0	0	0	Dr. M.Arshad
BOT 501	Plant Physiology	3(2-2)	Written exam/presentation	11	Updated	No	Spring-18	3	8	-	-	-	Dr. Tasawar Sultana
BOT 705	Plant Taxonomy and Embryology	3(2-2)	Written exam/Presentation	2 PhD	Fair	Few modifications in course material were done	Spring-18	1	1	-	-	-	Dr. M. Arshad
BOT 702	Plant and Cell Physiology-I	3(2-2)	Written exam/Presentation	14 PhD	Updated	No	Spring-18	6	6	-	-	-	Dr. Nosheen Ilyas
BIOL-712	Research Planning and Report Writing	3(2-2)	Oral presentation	2	Fair	Few modifications in course material	Spring-18	2	-	-	-	-	Dr. Rehmat ullah Qureshi

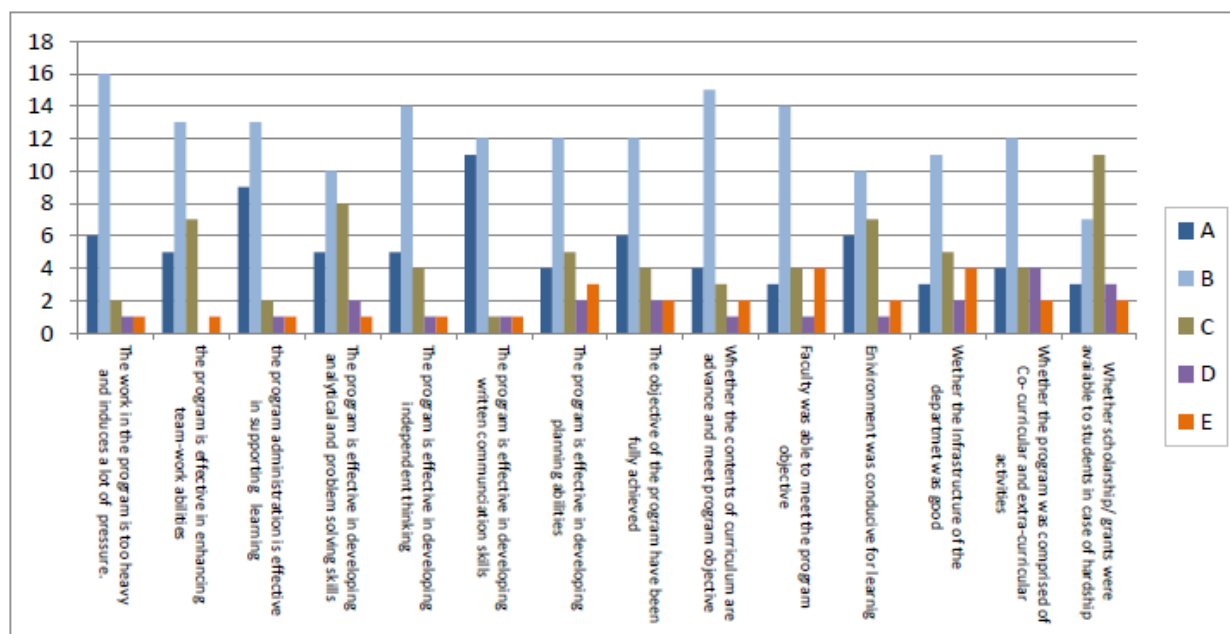
Proforma 3: GRADUATING STUDENTS SURVEY.

Review of graduating scholars was directed through Performa 3. Students demonstrated their high appraisal for program adequacy, for improving collaboration among the staff, support for learning, meeting goals of project and favorable environment for learning. Different parts of the system have likewise been appraised high. The results of the overview are given. **Best aspects of the Program:**

- Program is conducive and improved learning skills.
- Understanding importance of Plants and biodiversity
- Enhanced writing skills

Aspects of Program in need of improvement:

Need of more research equipment in PGBL laboratory in accordance with various courses.



Proforma 5: FACULTY SURVEY RESULTS

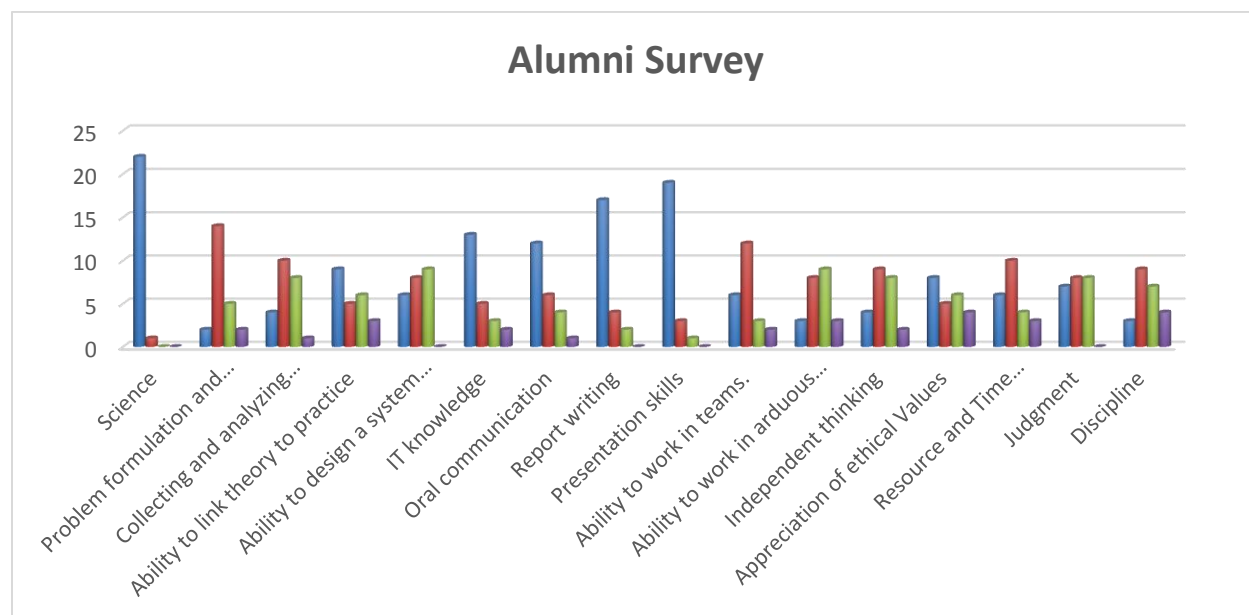
The consequences of personnel overview demonstrated that the greater part of the employees were satisfied with their level of scholarly endeavors. All the faculty members have a decent and respectable communication among themselves and with the students. However, a portion of the employees have reservations about the time they have for themselves and research services.

S. No.	Parameter	Dr. M Arshad	Dr. Rahmat	Dr. Abida	Dr. Noshin	Dr. Naveed	Dr. Yamin	Dr. Mubashrah	Dr Zia	Ms Saira
1.	Your mix of research, teaching and community service	A	B	B	A	A	A	B	A	B
2.	The intellectual stimulation of your work	B	A	A	B	A	A	B	B	B
3.	Type of teaching/research you currently do.	A	B	B	B	B	A	A	A	B
4.	Your interaction with students	B	A	B	A	A	B	C	A	B
5.	Cooperation you received from colleagues	A	B	A	B	A	A	B	A	A

6.	The mentoring available to you	A	B	A	B	A	A	B	A	B
7.	Administrative support from the department	B	A	B	A	B	A	B	A	B
8.	Providing clarity about the faculty promotion process	A	A	A	B	A	B	A	B	A
9.	Your prospects for advancement and progress through ranks	B	A	A	A	B	A	A	B	B
10.	Salary and compensation Packages	A	B	A	A	B	A	B	B	A
11.	Job security and stability at the department	A	B	A	B	A	B	B	A	B
12.	Amount of time you have for yourself and family	B	C	C	B	C	C	B	C	B
13.	The overall climate at the Department	A	B	A	B	A	A	A	B	A
14.	Whether the department is utilizing your experience and knowledge	B	A	B	A	A	B	A	B	A

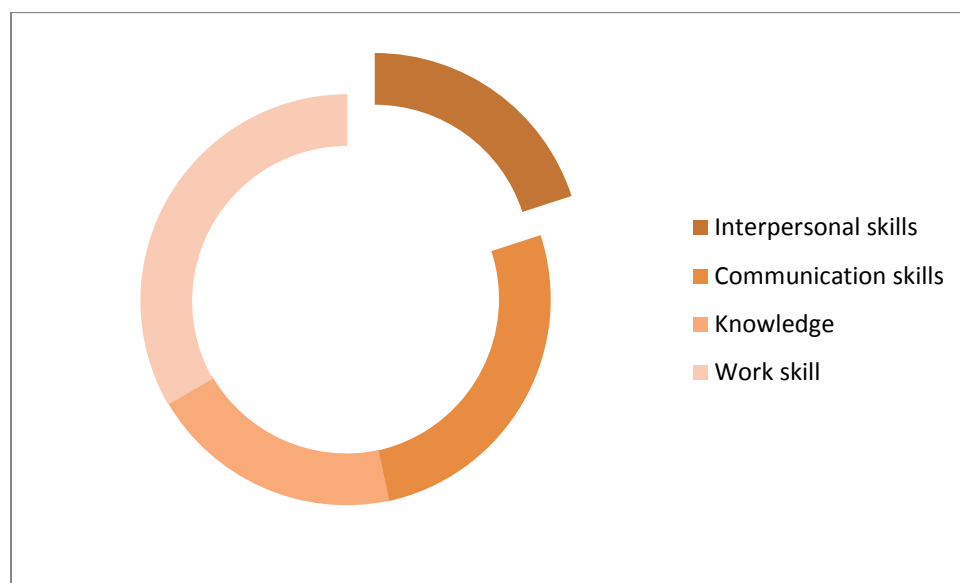
Proforma 7:ALUMNI SURVEY RESULTS:

Feedback of graduates in 2019 and 2020 was procured through Proforma-7. Greater part of the Alumni have appraised the opportunities of learning provided by department. Interpersonal aptitudes and administration/authority aptitudes have additionally been appraised high.



Proforma 08: EMPLOYER SURVEY

The rationale of this survey is to obtain employers input on the quality of education, the department is providing and to assess the quality of the academic program. The survey included University graduates employed in different organizations. All the employers significantly favoured the excellent performance of the candidates as regards different aspects of the professional life like power of problem formulation and solving skills, and have great ability of oral communication and are reliable and morally sound. Employers showed a little apprehension about computer skills of the students.



Skill level %

PROGRAM OUTCOMES:

Skills and capabilities Reflected In performance as Botanists:

Degree of skills and capabilities that will reflect on their performance as botanist:

- Students shall have a skill to recognize plants up to species level.
- Knowledge of plant communities and ecological zoning will be improved.

- Understanding of morphological and physiological features of the plant flora will be improved.
- Students will be able to work as professionals.
- It will also build confidence to communicate and shall also develop the skill of effective writing.
- Students shall have an understanding of the impact of study of botany on environment.
- Basic skills and applied approach towards analytical techniques of the students will be improved.
- Students shall have an ability to use modern as well as conventional tools, skills and techniques necessary to conduct botanical research.
- Students shall learn to develop an insight for research design.
- Students shall have an understanding of professional and ethical responsibilities of a botanist.
- Student will surely know about flora of Pakistan, plant identification and ethnobotanical uses of local and exotic plants.
- Team work among the researchers will be ensured.

Strength of the Department

- University has many Accredited Programs.
- Collaborations with other universities and institutes for fulfilling the research requirements.
- Faculty members are fully qualified with specializations in their respective fields
- Labs are reasonably equipped.
- University's campus is friendly and safe.
- Ongoing research projects in different fields.
- University has significant impact on the regional community--educationally, economically, and culturally.
- University offers research based learning environment

Weaknesses Identified in the Program

1. There is a lack of lectures halls.
2. University lacks sufficient financial support for faculty scholarship.
3. There is a need of short foreign training to faculty members
4. Latest literature and review are hardly available
5. Lack of Gas supply in Laboratories
6. As an integral part of the department, it must have

- Departmental library
- Green house,
- Herbarium & botanic garden
- Computer Lab,

University has directionless research development and ineffective relationship with industry.

University has inadequate resources for recruitment, retention and advising of students.

Major Feature of Improvement Plans

- To develop herbarium for confirm the identity of a plant or determine that it is new to science
- To establish herbarium and Botanic garden in order to aid the students by physically observing plants in preserved and live state.
- To establish computer Lab for students
- To develop departmental library.

Table 3: Quantitative Assessment of the Department (Year 2019-2020)

Sr. No.	Particular	No	Remarks
1	M. Sc. degree awarded	449	30 students joined M. Phil. program; the remaining got employment, currently holding various positions
2	Students: Faculty ratio	1:20	Fulfil HEC criteria
3	Technical : No technical ratio	2: 4	Fulfil HEC criteria
4	Average grade point	2:1	Fulfil HEC criteria

The evaluation process indicated high efficiency of system and satisfactory impact of outcomes. Almost all the graduates and post graduates got jobs in various organizations (provincial department, universities, research organizations, banks and private firms).

Faculty Satisfaction Regarding the Administrative Services

- There are some reservations of faculty about some administrative offices of the university about disposal of documents which usually delayed.

Table 5: Degree requirements

Degree	Pre-requisites
M. Sc.	B. Sc. with 45% marks from a recognized institution,

SECTION 2

Criterion 2: Curriculum Design and Organization

A. Title of Degree Program: M. Sc. in Botany

Intent: All the courses for degree program were developed by board of studies, faculty and then academic council. Guidelines given by HEC curriculum committee are also considered.

B. Definition of Credit Hour

A student must complete a definite number of credit hours. One credit hour is one theory lecture or two hours laboratory (practical work/weeks). One credit hour carries 20 marks.

C. Degree Plan

Presently three degree programs are organized by the department including M.Sc, M.Phil and PhD

- **M. Sc (Botany)**

The M. Sc. degree Program consists of 02 academic years / 04 semesters. As a whole a student has to study 20 Theory papers to total credit hours, out of this 04 Marks are assigned for evaluation through assignments, test and exercises by the concerned teacher and the remaining marks for mid and final 56 as per university examination rules. Degrees are awarded after completing the required number of credit hours (courses) following by Comprehensive Examination. All the courses for degree program were developed by board of studies, faculty and then academic council. Guidelines given by HEC curriculum committee are also considered.

Table 6: Core Courses

S. No.	Course	Title	Credit
1	BOT-701	Diversity in Non- Vascular Plants	3(2-2)
2	BCH-701	Biochemistry	3(2-2)
3	BIOL-701	Cellular biology	3(2-2)
4	BOT-702	Plant and Cell Physiology-I	3(2-2)
5	BOT-703	Plant and Cell Physiology-II	3(2-2)
6	BOT-704	Phytosociology	3(2-2)
7	BOT-705	Plant Taxonomy and Embryology	3(2-2)
8	BOT-706	Diversity in Vascular Plants	3(2-2)
9	BOT-707	Plant Anatomy	3(2-2)
10	BOT-708	Mycology and Plant Pathology	3(2-2)
11	BIOL-708	Economic biology	4(3-2)
12	BOT-709	Plant Ecology	3(2-2)
13	BOT-710	Ethnobotany	3(2-2)
14	BOT-711	Environmental Pollution	3(2-2)
15	BOT-712	Research Planning and Report Writing	3(1-4)
16	BIOL-712	Principles of Biotechnology	3(2-2)
17	BOT-720	Seminar-I	1(1-0)
18	BOT-728	Principles of Genome analysis and Genomics	3(2-2)
19	BIOL-728	Concepts of Genetics	3(2-2)
20	BOT-735	Plant microbes interaction	3(2-2)
Minor courses			
21	BIOL-701	Cellular Biology	3(2-2)
22	BCH-701	Biochemistry	3(2-2))
23	BCH-704	Molecular Biology	3(2-2)
24	BIOL-712	Principles of Biotechnology	3(2-2)
25	STAT-700	Elements of Statistics and Biometry	3(3-0)
26	BIOL-736	General Pharmacogonosy	3(2-2)
All courses offered for M. Sc. Programs can be offered to the Ph. D. students, depending upon their requirements			

Curriculum course requirement for M. Sc./M. Phil./Ph. D degree is summarized in the following table, whereas , their detailed description is also provided at end of report.

Standard 2.1: Assessment of the Curriculum of Botany Department

The assessment of curriculum is done in the following table and the courses are cross tabulated according to the program outcomes.

Meeting Standard 2.1: Courses versus Program Outcomes

Table 7: Course vs. Program Outcome

COURSE	OUTCOMES			
	1	2	3	4
BOT 701	***	**	***	**
BOT 702	**	***	**	****
BOT 703	***	**	**	***
BOT 704	**	***	***	**
BOT 705	***	**	**	***
BOT 706	***	**	**	***
BOT 707	***	**	***	***
BOT 708	***	**	***	***
BOT 709	**	***	***	***
BOT 710	****	**	***	**
BOT 711	**	***	**	***
BOT 712	***	**	***	**
BOT 713	***	**	**	***
BOT 725	**	**	***	**
BOT 734	***	***	***	**
BOT 722	**	***	**	***

* = Relevant

** = Relevant and satisfactory

*** = Very relevant and satisfactory

- The curriculum fits well and satisfies the core requirements for the program, as specified by the respective accreditation body.
- The curriculum satisfied the general arts and professional and other discipline required for the program according to demands and requirements set by the higher education Commission.

Standard 2-2: Elements Vs Courses

Meeting standard 2-2: Percentage of Elements in Courses

Elements	Courses
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Theoretical backgrounds	BOT-701, BOT-702, BOT-703, BOT-704, BOT-705, BOT-706, BOT-707, BOT-708, BOT-709, BOT-710, BOT-711, BOT-713, BOT-714, BOT-715, BOT-717, BOT-718, BOT-721, BOT-722, BOT-723, BOT-724, BOT-725, BOT-726, BOT-727, BOT-728, BOT-729, BOT-730, BOT-732, BOT-733, BOT-735, BOT-738
Problem analysis	BOT-712, BOT-736, BOT-737, BOT-751
Solution designs	BOT-716, BOT-719, BOT-720, BOT-731, BOT-734, BOT-799

Standard 2-3

The curriculum for the core courses is designed as per requirements as approved by HEC.

Standard 2-4

The curriculum meets major requirements as approved by HEC.

Standard 2-5

The standard has been answered in table 4.4 as directed in manual.

Standard 2-6

Not applicable for M.Sc.

Standard 2-7

Enhancing Oral and written Communication Skills of the students

- Skill is developed through seminars, assignment and presentation by the faculty in their respective courses.

SECTION 3

Criterion 3: LABORATORIES AND COMPUTING FACILITIES

There is one Laboratory for M.Sc Program in the department. The facilities and shortcomings of laboratory are listed as under.

LAB-1

Laboratory title	<i>Post Graduate Botany Lab</i> (for M.Sc students)
Location and Area	Faculty of Sciences, Department of Botany, 2 nd floor, New Academic Block.
Objectives	Laboratory is used for ➤ Laboratory is spacious and adequate for reserach and teaching. ➤ Research work for the graduate and post graduate students. ➤ Practical exercise and demonstration to master students in their introductory and major courses.
Major apparatus viz equipments	Laboratory is equipped with basic apparatus and reagents. These include Hot plate, EC meter, weighing balance, pH meter, microscopes, slides, electric balance, etc.
Safely Regulations	Minor hazards and accidents, injuries (First Aid Kit), safely measures are unavailable against fire (extinguisher). Though, the university maintains a Medical Dispensary for such incidents.

Standard 3-1: Laboratory Manuals:

- The equipment's are fairly sufficient however; instruments regarding molecular approaches are lacking e.g. refrigerated centrifuge, PCR Spectrophotometer.
- Individual teachers have prepared some manuals but in general there lacking of laboratory manual of each subject on account of absence of department Library.

Standard 3-2: Support/Laboratory Personal for Maintenance of Laboratory

Laboratories are maintained by only one laboratory assistant (equipment, glassware, chemicals, material etc). Three laboratories attendants assist students in practical, cleaning and washing.

Standard 3-3: Computing Infrastructure and Facilities

Computer facilities are insufficient and not available to all faculty members and the postgraduate students.

However the department has the following shortcomings/ problems:

- IT issues, virus problems, telephone sets / connections?
- Majority of the faculty members do not have access to the PCs as department have only one Computer provided by the university.
- Not availability of internet facility

SECTION 4:

Criterion 4: Student Support and Advising

Departmental Orientation

All newly admitted students are given orientation session at departmental level. It covers orientation about semester system, introduction of faculty and staff and use departmental facilities and services.

Student Advisor

One of the faculty members is deputed as student advisor. The services provided by the student advisor are:

- Providing general assistance
- Solving students problems (personal and academic)
- Organization of function at departmental level

Standard 4-1: Frequency of courses

- Courses are taught as per approved scheme of study.

Standard 4-2: Structure of the Courses

The majority of the courses are divided into two major aspects: Theoretical and Practical.

Theoretical portion covered in teaching, assignments and presentations.

Practical's aspects are covered by performing experiments in Labs and fields. In order to update students about the latest developments in study area visits to various research organization areas is also organized.

Standard 4.3: Guidance to the Students

There is a strong and regular communication between student advisors and students to discuss about program requirements. Regular interaction between student and teacher supports advising and counseling system.

SECTION 5: PROCESS CONTROLL

Standard 5.1: Admission Criteria for Each Program

- The process of admission well established and followed as per rules and criteria set by university. For this purpose an advertisement is given in the national papers by the Registrar office.
- Admission criteria:
 - **M. Sc.** (B. Sc. at least 2nd division With Botany)
- Admission criteria are revised every year before the announcement of admissions.

Standard 5.2: Process of Registration and Monitoring of Students.

- The complete list of finally admitted candidate after fulfilling the admission criteria is to be forwarded to the registrar office for proper registration in the specific program. Registration numbers are issued to the students

- Students are registered once in a degree Program.
- Mid, Final, Practical exams and assignments are used to monitor student progress.

Standard 5.3: Recruiting Process for Faculty

Recruitment policy for faculty followed by the University is as per HEC standard recommendation. New inductions are as follows:

- Vacant and newly created positions are advertised in the leading daily newspapers. Applications are received by the registrar office; call letters are issued to the short listed candidates on the basis of their experiences, qualification, publications and other qualities/ activities as fixed as per university rules.
- The candidates are interviewed by the university selection Board. Principal and alternate candidates are selected
- Selection of candidates is approved by the syndicate for issuing orders to join within a specified time period.
- Induction of new candidates depends upon the number of approved vacancies.
- Standard set by HEC are considered.

Retention of Excellent Faculty Members

- At present, some procedure exists for retaining highly qualified faculty members.
- HEC also supports appointment of highly qualified members as foreign faculty professor, National Professors and deputes them in various departments of the university.

Standard 5.4: Process and Procedure to Ensure Teaching and Delivery of Course Material

- Periodical revision of the curriculum helps high quality teaching. This revision is based upon requirements, innovations and new technology
- With the emergence of new fields, new courses are set and included in the curriculum
- Relevant and supporting material is available in university library
- Lecture aids are prepared by the teachers and given to the students.
- Most of the lectures are also supplemented by overheads, slides and pictures
- All efforts are made that the courses and knowledge imparted meet the objectives and outcomes. The progress is regularly reviewed in the staff meetings.

5.5. Completion of Program Requirements

- Announcement of the date of commencements examination by the controller of examinations announces.
- Notification of results after 30 days of the examinations finish, the controller office notifies the results of the students.
- The evaluation procedure consists of quizzes, mid and final examinations, practical formulas, assignments and reports, oral and technical presentation.

SECTION 6

Criterion 6: FACULTY

Standard 6-1: Full Time Faculty

Effective Programs for Faculty Development

- Proficient implementation and accessibility of pleasing research and academic facilities are provided conferring to the faculty members.
- provided conferring to the faculty members.
- Incentives in the practice of allowances to thesis supervisors have been implemented lately to promote high standard research.
- Faculty is encourage in various development program of the university

Faculty member motivation

- There is a calamitous necessity of motivation

Table 8: Faculty Distribution by Program Areas in Botany

Program area of specialization	Courses in the area and average number of sections per year	Number of faculty members in each area	Number of faculty with Ph. D degree
Taxonomy & Ethnobotany	6	2	1
Ecology	6	1	1
Physiology	8	1	1
Mycology and Plant Pathology	2	1	1
Tissue Culture	3	2	2
Total	25	7	6

Table 9: Faculty Specialization

S. No	Name	Position	Qualification	Specialization
1.	Dr. Muhammad Arshad	Professor	PhD	Plant Ecology
2.	Dr. Abida Akram	Professor	Ph.D	Mycologist
3.	Dr. Rahmatullah Qureshi	Professor	PhD	Plant Taxonomy & Ethnobotany
4.	Dr. Noshin Ilyas	Assist Professor	PhD	Plant Microbiologist
5.	Dr. Naveed Iqbal Raja	Assist Professor	PhD	Tissue culture
6.	Dr. Yamin Bibi	Assist Professor	PhD	Phytochemistry
7.	Dr. Mubashra Munir	Assist Professor	Ph.D	Fresh water biologist
8.	Dr. Zia Ur Rehman Mashwani	Assist Professor	Ph.D	Ethnopharmacology
9.	Dr.Khafsa Malik	Assist Professor	Ph.D	Biosystematics and Biodiversity
10.	Dr. Saira Asif	Lecturer	Ph.D	Tissue Culture

Standard 6.2: Effective Programs for Faculty Development

- Proficient implementation and accessibility of pleasing research and academic facilities are provided conferring to the faculty members.
- Incentives in the practice of allowances to thesis supervisors have been implemented lately to promote high standard research.

Standard 6.3: Faculty member motivation

- There is a calamitous necessity of motivation

SECTION 7

Criterion 7: Institutional Facilities

Standard 7-1 infrastructure

The institutional facilities are insufficient though the department has provided new space. These shortfalls are under:

- The department has lack of departmental library.
- Lab of the dept. lack the gas supply
- There is only one lecture hall for all classes on departmental disposal and the remaining shared with other department.
- New Labs are also required.
- Upturn the department budget for research and experimentation.
- The Department lacks the computer and internet laboratory.

Standard 7-2 Library facilities

The university central library has very limited number of books, journals and periodical, it's a small library in term of space and facilities 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

- Faculty offices are inadequate.
- Shortage of lecture halls

SECTION 8

Criterion 8: Institutional Support

- There is one classroom available therefore; classes are taken in the labs
- There should be more encouragement for the faculty members to carry out quality research.
- There is inadequate supporting technical and official staff and some equipment.

Standard 8-1 Support and Financial Resources

At present department is having a very insufficient financial resource to maintain the present needs of the department. Individual research grants for students and faculty are mainly supporting the departmental research activities. There is dire need of increasing the financial resources allocated to the department to establish a library, laboratories and computer facilities. Suggestions and factors that can contribute to the motivation to the faculty are given as follows:

- Discrimination should be discouraged at all levels.
- Sabbatical leaves for researches in the country and abroad.
- Research grants to the young faculty members.

Standard 8-2 High Quality Graduate Students and Research scholars

Graduate students are enrolled once in a year.. Lately, details of the students and research scholars are given following tables.

Table 12: Showing the Number of students obtaining degree in M.Sc. programs from 2019-20

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STUDENTS	No.	
	2019	2020
M.Sc.	153	139

Students: Faculty ratio	1:20	Fulfills HEC criteria
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Standard 8-3 Financial Resources:

Total budget of the department for the financial year 2019-20 is Rs. 55000/- (Fifty thousand rupees only) which hardly fulfills the departmental needs particularly for the purchase of necessary chemicals, etc.

Proforma 9**Faculty Resume**

Name	Prof. Dr. Abida Akram
Personal	CNIC No: 37405-2924797-2 Office Phone: 92-051-9292117 Cell No. 92-333-5320262 E-mail: abidauaar@hotmail.com abidaakram@uaar.edu.pk abidauaar@gmail.com Address: Department of Botany, Pir Mehr Ali Shah, Arid Agriculture University, Rawalpindi
Courses taught	<u>B.Sc (Hons)</u> • General Botany. • Plant Ecology • Plant Physiology <u>BS (Forestry)</u> • General Biology-1 • General Biology-II <u>M.Sc Botany</u> • Morphology of Non-Vascular plants, Bacteria and Virus • Environmental Pollution • Plant Physiology • Arid Zone Ecology • Economic Botany • Forensic Botany • Mycology and Plant Pathology • Plant Microbe Interactions <u>M.Sc Biology</u> • Environmental Biology • Biodiversity • Mycology and Plant Pathology <u>M.Phil. / Ph.D Botany & Biology</u> • Plant Microbe Interaction • Forensic Botany <u>M.B.A (Agri-business)</u>

	Biology
M. Phil thesis supervised	• Role of Plant based Nanoparticles on Growth of Wheat under Biotic Stress • Evaluation of Green Synthesized Silver Nanoparticles on Disease incidence Against Canker in Mandarin • Integrated impact of oil seed cakes and biocontrol agents for management of • Root Knot Nematodes • Aflatoxin contamination in Barley and its products. • Assessment of Aflatoxin in Wheat and its Associated products • Pathological evaluation of secondary metabolites produced by <i>Fusarium</i> sp. isolated from Sesame. • Impact of some abiotic factors on <i>in vitro</i> development of <i>Alternaria</i> sp. Isolated from Sesame • Establishment of an efficient protocol for plantlet's regeneration via direct and indirect organogenesis in <i>Vitis vinifera</i> L. • Pathological evaluation of secondary metabolites produced by <i>Alternaria</i> sp. isolated from Sesame • Study of some mushrooms collected from Islamabad for their antioxidant activity • Histopathological studies of sesame seedlings infected with <i>Alternaria</i> spp. • <i>In vitro</i> evaluation of different bio-agents against <i>Sclerotium rolfsii</i> Sacc. • Soil mycoflora of Bhoman Batth Tehsil Wazirabad, Gujranwala. • Assessment of antifungal efficacy of selected spices against <i>Aspergillus</i> spp. • Prevalence of fungal contamination in various drinking water sources. • Histopathological studies of chickpea seedling infected with <i>Sclerotium rolfsii</i> • Mycoflora associated with seeds of Sesame (<i>Sesamum indicum</i> L.) from Sialkot and its management • Molecular characterization of fungal isolates and aflatoxins contamination in chickpea flour • Evaluation of <i>Pongamia pinnata</i> products against the <i>Sclerotium rolfsii</i> extracted from chickpea.

	• Histopathological studies of chickpea seedling infected with <i>Fusarium</i> Spp. • Identification and ethnological study of mushrooms collected from Soon Valley • Effect of seed-born mycoflora of Lentil on their mycotoxin and nutritional profile • Nutritional profile, mycoflora assessment and aflatoxin contamination in chickpea • Molecular characterization of <i>Sclerotium rolfsii</i> Sacc. isolated from chickpea • Screening of Pothwar region grasses for their allelopathic effect • Evaluation of intraspecific relationship of <i>Solanum melongenna</i> L. and <i>Lycopersicon esculantum</i> Miller based on SDS-PAGE. • Evaluation of allelopathic activity of some leguminous plants • Preliminary screening of some higher plants for evaluation of their allelopathic potential.
Ph. D thesis supervised	• Isolation of <i>Alternaria</i> and <i>Fusarium</i> spp., their pathogenesis and Pathogenesis related proteins with Sesame (<i>Sesame indicum</i> L.) • Integrated management of mycotoxins in Red chilli. • Exploration of mechanism of action of <i>Aspergillus</i> and <i>Fusarium</i> spp. in Sesame. • Isolation and characterization of toxigenic and atoxigenic strains of <i>Aspergillus flavus</i> in maize. • QTL Mapping of <i>Aspergillus flavus</i> resistance in Chilli (<i>Capsicum annum</i>).
Ph. D thesis co-supervised	Nil
Publications (Non impact factor)	• Nayyar, B. G., A. Akram, S. Akhund, W. Seerat and S. Sadia. 2016. Comparative Efficacy of physico-chemical and biological treatments on seed germination and mycoflora of <i>Sesamum indicum</i> L. Sc., Tech. and Dev. 35 (4): 171-178. • Sultana, K., M.I. Bhatti, A.Akram, G.Irshad, M.I.Mastoi and

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Research Interest	• Mycology & Plant Pathology • Morphological & Genetic variability in Fungi • Mycoflora and Mycotoxins Management • Characterization of Oyster mushrooms • Fungal Secondary Metabolites • Antimicrobial activity of Plants & Bioagents
Impact factor Publications	• Laala, G., M. U. Raja, S. R. A. Gardezi, G. Irshad, A. Akram and I. Bodlah. 2019. Study of macro fungi belonging to order agaricales of Poonch District Azad Jammu and Kashmir (AJK). Pure Appl. Biol. 8(1): 27-33. • http://dx.doi.org/10.19045/bspab.2018.700160 • Nayyar, B. G., S. Woodward, L. A. J. Mur, A. Akram, M. Arshad, S. M. S. Naqvi, S. Akhund. 2018. Identification and pathogenicity of Fusarium species associated with sesame (<i>Sesamum indicum</i> L.) seeds from the Punjab, Pakistan Physiological and Molecular Plant Pathology (102) 128-135. Impact Factor 1.395 • Akram, A., P.Amber, S. M. Iqbal, R. Qureshi, A. Javed, S. Mukhtar. 2017. RAPD based characterization of chickpea isolates of <i>Sclerotium rolfsii</i>. Pak. J. Bot., 49(5): 2015-2022. Impact. Factor 0.69 • Akhund, S., A. Akram, N. Q. Hanif, R. Qureshi, F. Naz, B. G. Nayyar. 2017. Pre-harvest aflatoxins and <i>Aspergillus flavus</i> contamination in variable germplasms of red chillies from Kunri, Pakistan. Mycotoxin Res. 33:147–155. • DOI 10.1007/s12550-017-0274-1. Impact factor 2.00 • Ara A., A. Akram, M. Ajmal, S .Akhund, B.G. Nayyar, BG W. Seerat and S. Mukhtar. 2017. Histopathological studies of

	sesame (<i>Sesamum indicum</i> L.) seedlings infected with <i>Fusarium oxysporum</i>. Pl. Path. & Quar. 7(1): 82–90 (2017) • Hussain, M. N. I. Raja, A. Akram, A. Iftikhar, D. Ashfaq, F. Yasmeen, R. Mazhar, M. Imran, M. Iqbal. 2017. A status review on the pharmacological implications of <i>Artemisia absinthium</i>: A critically endangered plant. Asian Pac. J. Trop Dis; 7(3): 185-192 • Shabbir, Z., S. Latif, S. Talib, M. Hussain, M. Ali, M. W. Yasir, A. Akram, U. M. Quraishi. 2017. Exploring novel diversity for biofortification in Elite D-genome synthetic hexaploid wheat (AABBDD). Int. J. Biosci. 1(1) 100-108. Impact factor 0.553 • Akhund. S., A. Akram, R. Qureshi, F. Naz, N. Q. Hanif, B. G. Nayyar. 2016. Natural occurrence of multiple fungi in variable germplasms of red chillies from Kunri, Pakistan, Int. J. Biosci. 9 (6) 213-225. Impact factor 0.553 • Sabir, S., A. Akram, N. I. Raja, Z. R. Mashwani, Sohail, H. M. Sadaf, M. Hussain, I. Riaz, N. Ahmad and E. Ahmed. 2016. A probe into the medicinal potential of <i>Viola canescens</i> – A threatened medicinal plant from Himalaya. J. Coas. L. Medi. 2016; 4(7): 575-579. • Qureshi, H., M. Arshad, A. Akram, N. I. Raja, S. Fatima and M. S. Amjad . 2016. Ethnopharmacological and phytochemical account of paradise tree (<i>Melia azedarach</i> L.: Meliaceae). Pure Appl. Biol., 5(1): 5-14. • Seerat, W., A. Akram, R. Qureshi, J. Asad, S. Akhund, B. G. Nayyar. 2016. The potential of some spice extracts for controlling <i>Aspergillus</i> species. Int. J. Biosci. 8(5), 96-104. Impact factor 0.553 • Ajmal, M., A. Akram, A. Ara, S. Akhund, B. G. Nayyar, W. Seerat. 2016. Stem histopathology of sesame seedlings infected with <i>Alternaria alternata</i>. Microscopy Research 4, 11-19. 33. Impact factor 0.75 • Nayyar, B. G., A. Akram, S. Akhund, W. Seerat and S. Sadia. 2016. Proteomics applied to plant defense mechanism: Role of pathogenesis-related proteins in disease defense. Nature and Science, 14(3)21-33 • Mushtaq, S., A. Akram, R. Qureshi, Z. Akram, N. Qudsia, S. Akhund and B. G. Nayyar. 2015. Natural incidence of Aflatoxins, mycological profile and molecular characterization of aflatoxigenic strains in chickpea flour.
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	Pakistan. Pak. J. Bot., 47(3): 1153-1160. I. Factor 1.207 • Fatima.S., A.Akram, M.Arshad, S.K.Chaudhri, M.S.Amjad and H.Qureshi. 2014. Effect of biological potassium fertilization (BPF) on availability of phosphorus and potassium to maiz (<i>Zea mays</i> L.) under controlled conditions. I. J. of Biosc. (IJB) 8(5):25-36 Impact factor 0.553 • Nayyar, B. G., A. Akram .,S. Akhund and M. Rafiq, 2014. Short Communication: Seed Viability Test and Pathogenecity Assessment of Most Prevalent Fungi Infecting <i>Sesamum indicum</i> L. J. of Pharm. & Bio. Sc. (IOSR-JPBS) 9(5): 21-23 Impact factor 1.12 • Nayyar, B. G., S. Akhund and A. Akram, 2014. A review: management of <i>Alternaria</i> and its mycotoxins in crops. Scho. J. Of Agri. Sc.4(7): 432-437. Impact factor 1.3725 • Shaheen. H., R. Qureshi., A. Akram, M. Gulfraz . 2014. Inventory of medicinal flora from Thal Desert, Punjab, Pakistan. Afr. J. Tradit. Complement Altern Med. 11(3):282-290 Impact factor 0.71 • Shaheen. H., R. Qureshi., A. Akram, M. Gulfraz and D. Potter. 2014. A prelimnary floristic checklist of Thal desert Punjab, Pakistan. Pak. J. Bot., 46(1): 13-18. Impact factor 1.207 • Batool, S., M. Gulfraz, A. Akram, S.M. S. Naqvi, I.Haq, B. Mirza and M. S. Ahmad. 2014 Evaluation of antioxidant potential and HPLC based identification of phenolics in <i>Polygonum amplexicaule</i> extract and its fractions. Pak. J. Pharm. Sci. • Farooq, M., A. Akram, R. Afazal and K. Sultana. 2013. Ethno Morphological Studies of Mushrooms Collected From Soon Valley. IOSR J. Phar. & Bio Sc. 8(5) 05-11 Impact factor 1.138 • Nayyar, B. G., A. Akram, M.Arshad, S.M. Mughal, S. Akhund and S. Mushtaq. 2013. Mycoflora detected from seeds of <i>Sesamum indicum</i> L.in Sialkot, Pakistan. IOSR J. Phar. & Bio Sc.7(3) 99-103. Impact factor 1.138 • Razzaq,A., M. Arshad, S. Ashraf, A. Akram, A. Qayyum and I. Mahmood. 2013. Evalution of Psyllium Husk (<i>Plantago ovata</i>) as a low cost gelling for callus formation and regeneration in wheat (<i>Triticum aestivum</i> L.) cultivar GA-2002. Wul. J. Klagenfurt, Austria. 20(7)153-161. Impact factor 0.467 • Bano, Q., N. Ilyas., A. Bano., N. Zafar. A. Akram and F.
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	Hassan. 2013. Effect of <i>Azospirillum</i> inoculation on maize (<i>Zea mays</i> L.) under drought stress. Pak. J. Bot., 45(SI): 13-20. Impact factor 1.207 • Amber, P., A. Akram, R. Qureshi and Z. Akram. 2012. HPLC analysis for secondary metabolites detection in <i>Sclerotium rolfsii</i> isolated from chickpea. Pak. J. Bot., 44: 417-422. Impact factor 1. • Jabeen, Z., A. Riaz, K. sultana., A. Akram, M. Ansar., I. Hassan and I. Ahmad. 2012. Incidence of <i>Aspegillus flavus</i> and extent of aflatoxin contamination in peanut samples of Pothwar region of Pakistan. Afr. J. Micro. Res. 6 (9):1942-1946. Impact factor 0.539 • Shaheen. H., R. Qureshi., A. Akram and M. Gulfraz. 2012. Some important medicinal flora of Noorpur Thal, Khushab, Pakistan. Arch. Des Sc. 2(65):57-73. Impact factor 0.536 • Ahmad, M. A., S. M. Iqbal, N. Ayub, Y. Ahmad and A. Akram. 2010. Identification of resistant sources in chickpea against <i>Fusarium</i> wilt. Pak. J. Bot., 42 (1): 417-426 Impact factor 0.69 • Ali, S. R., S. M. Iqbal, U. Iqbal, A. Ghafoor and A. Akram. 2009. Pathogenic diversity in <i>Ascochyta rabiei</i> (PASS.) of chickpea. Pak. J. Bot., 41 (1): 413-419. Impact factor 0.69 • Akram, A., S. M. Iqbal, N. Ahmad, U. Iqbal and A. Ghafoor. 2008. Morphological variability and mycelial compatibility among the isolates of <i>Sclerotinia sclerotiorum</i> associated with stem rot of chickpea. Pak. J. Bot., 40(6): 2663-2668. Impact factor 1.207 • Akram, A., S. M. Iqbal, C. A. Rauf and R. A. Qureshi. 2008. Detection of resistant sources for collar rot disease in chickpea germplasm. Pak. J. Bot., 40 (5): 2211-2215. Impact factor 0.69 • Akram, A., S. M. Iqbal., R. A. Qureshi and C. A. Rauf. 2008. Variability among isolates of <i>Sclerotium rolfsii</i> associated with collar rot disease of chickpea in Pakistan. Pak. J. Bot., 40 (1): 453-46. Impact factor 0.69 • Akram, A., M. Fatima., S. Ali, G. Jilani and R. Asghar. 2007. Growth, yield and nutrients uptake in response to integrated phosphorus and potassium management. Pak. J. Bot., 39 (4): 1083-1087. Impact factor 1.207 • Ghulam, J., A. Akram, R. M. Ali, Fauzia, Hafeez, H. Imran, Shmasi, A. Nawaz & A. Gafoor. (2007). Enhancing crop
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	growth, nutrients availability, economics & Beneficial rhizosphere microflora through organic and bio-fertilizers. Annals of Microbiology. 2(57) 177-183 Impact factor: 1.549
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Name	Prof. Dr. MUHAMMAD ARSHAD
Personal	PMAS ARID AGRICULTURE UNIVERSITY, MURREE ROAD, RAWALPINDI PAKISTAN. E. Mail: arshad2uaar @ yahoo.com H. No. 12, UNIVERSITY COLONY NO. 2, PMAS ARID AGRICULTURE UNIVERSITY, MURREE ROAD, RAWALPINDI PAKISTAN. Off: 051-9062207
Courses taught	• Ethnobotany • Medicinal Plants of Pakistan • Phytosociology • Plant Ecology • Plant Taxonomy and Embryology
M. Phil thesis supervised	1. To determine the potential role of Zink oxide nanoparticles on germination, growth and yield of wheat. 2. To determine the effects of Iron nanoparticles on the growth and photosynthetic efficiency of wheat. 3. Botanical Demography and traditional uses of plants of kaghan valley. 4. Phytochemical screening and analysis of redox protective activities of <i>Gymnosporia royleana</i>. 5. Comparative effect of Ca, K, and B for alleviation of drought Stress in Durum wheat. 6. Screening some varieties of durum wheat for adaptation to Salinity stress. 7. Ethno pharmacological application of medicinal plants among the women of Tehsil Nagar District Hunza , Pakistan •
Ph. D thesis supervised	• QTL Mapping for metabolic and Molecular attributes of Drought Tolerance in Wheat (<i>Triticum aestivum</i> L.). (Samar Fatima Ph.D.completed in 2014). • Improvement of wheat for drought tolerance through genetic engineering (M. Khalid completed in 2014) • Morphological and Biochemical adaptation of local cultivar of Barley (<i>Hordeum vulgare</i> L.) under drought. (Rehana Kouser Ph.D.completed in 2015).

	• Taxonomic, Phytochemical and Biological screening of some selected Medicinal Plants of lesser Himalaya Region of Pakistan.(Ejaz Ahmed in progress) • Association mapping for drought tolerance in diverse bread wheat germplasm. .(Sunbel Khalil Chaudhari Thesis submitted) • Ecological Evaluation of Vegetation Structure and Diversity in District Kotli Azad Jammu and Kashmir. .(M Shoaib in progress) • Ecobiological and phytochemical characterization of selected invasive plants of Pothwar Region. .(Huma Qureushi in progress). • Evaluating antimicrobial and anti-oxidant potential of green silver and copper Nano particles in wheat.(Sidra Saber in progress). •
Ph. D thesis co-supervised	1. The Ecology of Algal Flora from Kallar Kahar Lake and its associated tributaries. (Mubashrah Muneer Ph.D.completed in 2014). 2. Salicylic acid induced Adaptive Response of Sunflower <i>Helianthus annuus</i> L. Under drought stress. (Husn –e- Sahar Zaidi Ph.D.completed in 2015). 3. QTL mapping of Drought mapping population Derived from bread wheat cultivar opata and synthetic Hexaploid. (Mamoona Ilyas Ph.D.completed in 2014). 4. Studies On Seed and integrated control practices for <i>Circium arvense</i> in rainfed wheat(Ramzan Ansar Ph.D.completed in 2015). 5. Phytosociological and Ethnobotanical appraisal of Swat Valley with reference to Biodiversity and Conservation. (M. Ilyas Ph.D.completed in 2015).

	6. Phytosociology, floral diversity and conservation status of Murree-Kotli Sattian-Kahuta National Park. (M. Waseem In Progress) 7. Exploration of mechanism of action of <i>Aspergillus</i> and <i>Fusarium</i> spp. in sesame (Brine Gagosh inprogress} 8. QTL Mapping of Physiological attributes of salt tolerance in wheat RILs population. 9. Transgenic <i>Citrus reticulata</i> plant production for fungal disease resistance using chitinase gene and its subsequent physiological and molecular characterization (Mubashir Hussain). 10. Bioactivity guided assessment of some selected medicinal plants of Malakand Division. (Gul Raheem Ph.D. completed in 2014). 11. Assessment of antimicrobial, antioxidant activities and phytochemical screening of <i>Leptodenia pyrotechnica</i>. (Mehmooda Manazer Ph.D. completed in 2015). 12. Phytoecology and vegetation diversity of Muzarabad Division Azad Jammu and Kashmir (Arshad Mahmood Khan In Progress) 13. Biological Evaluation of Phospholipids Complexes from Extract of <i>Bistorta amplexicaulis</i> (Salma Batool In Progress). 14. Isolation and Characterization of potential
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	anticancer compounds from <i>Bistorta amplexicaulis</i> . (Shehzadi Tabasum In Progress). 15. Detection of Sequence Composition of Begomoviruses associated with leaf curl disease of Capsicum (Samina Yasmin In Progress). 16. Isolation, Characterization and Assessment of Bioactivity of Secondary Metabolites from <i>Berberis lyceum</i> Royle . (M .Asad Anwer thesis submitted). 17. Identification and Characterization of Antioxidant and Cytotoxic Activities of Selected Medicinal Plants of Gallyat Region. (M Ishaq In Progress) 18. Amelioration of heavy metal stresses by inoculation with tolerant PGPR and Biochar. (Roomina Mazhar In Progress) QTL Mapping of <i>Aspergillus flavus</i> resistance in Chilli (<i>Capsicum annuum</i>). (Zunera Shabbir In Progress). 19. In Progress). 20. Bioremediation of crude oil contaminated soil with PGPR and Biochar for sustainable production of maize. (In Progress). 21. Bioassay guided assessment of some selected medicinal plants of salt range Pakistan. (Huma Mehreen In Progress). 22. Effect of bioorganic fertilizer containing PGPR prepared from waste protein on maize. (Fatima Bibi in progress). 23. Evaluation of plant extract based strategy for food bio preservation. (Nadia Sardar in progress).
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Publications (Non impact factor)	1. Amjad M. S., M. Arshad, S. Fatima, and N. Mumtaz. 2014. Palatability and Animal Preferences of Plants in Tehsil Nikyal, District Kotli, Azad Jammu and Kashmir Pakistan. <i>Annual Research and Review in Biology</i>. 4(6)953-961 2. Sehar, H., A. waheed, Jalal-ud-Din, M. Arshad, A. Razzaq. 2014. Evaluation of Sunflower hybrids to drought stress at germination and seedling growth stages. <i>International journal of Scholarly research gate</i>. 2(2): 1-12. 3. Sadaf, H.M; Y. Bibi, M. Arshad and M. S. Amjad. 2014. Status of Maiden Hair Tree <i>Ginkgo biloba</i>; Living Fossil becoming Endangerd. <i>Nova Journal of Medical and Biological Sciences</i>. 2(7)1-5. 4. Qureshi, H; M. Arshad and Y. Bibi 2014 Toxicity assessment and phytochemical analysis <i>Broussonetia papyrifera</i> and <i>Lantan camara</i> . Two notorious invasive plant species. <i>Journal of Biodiversity and Environmental Sciences</i>5 (2):508-517 5. Amjad, M. S. and M. Arshad. 2014. Ethnobotanical inventory and medicinal uses of some important woody plant species of Kotli, Azad Kashmir, Pakistan. <i>Asian Pac. J. Trop. Biomed (Elsevier)</i>., 4(12): 952-958 6. Masood M;, S., M. Arshad, S. Asif and S. K. Chaudhari. 2014. <i>Viola canascens</i> Herbal wealth to conserved. <i>Journal Of Botany</i>. 2014: 1-6 7. Ahmed, E., Y. Bibi, M. Arshad and K. Ullah. 2014. Conservation status of <i>Taxus floridana</i>, a critically endangered evergreen coniferous plant. <i>Pure and applied biology</i>. 3(4): 188-191. 8. Amjad, M. S., M. Arshad and R. Qureshi. 2015. Ethnobotanical inventory and folk uses of indigenous plants from Pir Nasoora National Park, Azad Jammu and Kashmir. <i>Asian Pac. J. Trop. Biomed (Elsevier)</i>., 5(3): 234-241. 9. Saboon, Y. Bibi, M. Arshad, N. Ahmad, I. Riaz, S. K. Chaudhari. 2015. An insight into medicinal and ethnopharmacological potential of <i>Crotalaria burhia</i>. <i>Asian Pac. J. Trop. Dis</i>. 5(7): 511-514. 10. Tahir, Z., M. Arshad and S. K. Chaudhari. 2015. Redox protective potential of fruits and vegetables: A review. <i>Journal of Coastal Life Medicine</i>. 3(8): 663-668.

	11. Amjad, M. S., H. Qureshi, M. Arshad, S. K. Chaudhari, M. Masood. 2015. The incredible queen of green: Nutritive value and therapeutic potential of <i>Moringa oleifera</i> Lam. <i>Journal of Coastal Life Medicine</i>. 3(9): 744-751. 12. 76. Sabir, S., R. Qureshi, M. Arshad, M. S. Amjad, S. Fatima, M. Masood, Saboon and S. K. Chaudhari. 2015. Pharmacognostic and clinical aspects of <i>Cydonia oblonga</i>: A review. <i>Asian Pacific Journal of Tropical Disease (Elsevier)</i>. 5(11): 850-855. 13. Akhtar, S., Y. Kakei, K. Bashir, A. Shahzad, T. Yamakawa, M. Arshad, Fayyaz- Ul-Hassan, H. Nakanishi and N. K. Nishizawa. 2015. Characterizing the expression of genes involved in iron transport in Pakistani peanut varieties under iron deficiency stress. <i>Turkish Journal of Botany</i>. 39:996-1007. 14. Amjad, M. S., M. Arshad, H. M. Sadaf, Durre. Shahwar, F. Akrim and A. Arshad. 2016 Floristic composition, biological spectrum and conservation status of the vegetation in Nikyal valley Azad Jammu and Kashmir.. <i>Asian pacific journal of Tropical Diseases (Elsevier)</i>., 6(1)63--69 15. Saboon, Y. Bibi, M. Arshad, S. Sabir, M. S. Amjad, E. Ahmad and S. K. Chaudhari. 2016. Pharmacology and biochemistry of <i>Polygonatum verticillatum</i>: A review. <i>Journal of Coastal Life Medicine</i>, 4(5): 406-415. 16. Sabir, S., M. Arshad, M. Hussain, H. M. Sadaf, Sohail, M. Imran, F. Yasmeen, Saboon and S. K. Chaudhari. 2016. A probe into biochemical potential of <i>Aconitum violaceum</i>: A medicinal plant from Himalaya. <i>Asian Pacific Journal of Tropical Disease (Elsevier)</i>., 6(6): 502-504.
Research Interest	Plant Ecology; Phytosociology; Plant Biosystematics; Plant Taxonomy; Medicinal Plants; Ethnobotany.
Impact factor Publications	Impact Factor Publication 1. Qureshi, H., M. Arshad and Y. Bibi 2014 Invasive flora of Pakistan A Criticle Analysis. <i>International journal of Bioscience</i>, 4 (1), 407-424 (Impact factor = 0.076). 2. Arshad M., M. Ahmad, E. Ahmad, A. Saboor, A. Abbas, and S. Sadiq,. 2014. An ethnobiological study in Kala Chitta hills of Pothwar region, Pakistan:

	multinomial logit specification <i>Journal of Ethnobiology and Ethnomedicine</i>, 2013, 10 (13):1-17 (Impact factor = 2.42) 3. Chaudhari, S. K., Y. Bibi and M. Arshad 2014 <i>Podophyllum hexandrum</i>: An endangered medicinal plant from Pakistan. <i>Pure and Applied Biology</i>, (3):1, 19-2 (Impact factor = 0.365). 4. Fatima, S., M. Arshad and R. Qureshi. 2014. QTL mapping for physiological maturity in synthetic hexaploid wheat (<i>Triticum aestivum</i> L.) under drought stress. <i>Pure and Applied Biology</i>, (3):1, 25-31(Impact factor = 0.365). 5. Chaudhari, S. K., M. Arshad, G. Mustafa , S. Fatima, M. S. Amjad and F. Yasmin 2014 Foliar epidermal anatomy of grasses from Thal Desert, District Khushab Pakistan. <i>International Journal of Biosciences</i>, (4):8, 62-70 (Impact factor = 0.076). 6. Bano, A., M. Ahmad, T. B. Hadda, A. Saboor, S. Sultana, M. Zafar, M. P. Khan, M. Arshad and M. A. Ashraf 2014. Quantitative ethnomedicinal study of plants used in the skardu valley at high altitude of Karakoram-Himalayan range, Pakistan <i>Journal of Ethnobiology and Ethnomedicine</i>, 10 (43):1-17 (Impact factor = 2.42). 7. Sabir, S., M. Arshad, S. Asif and S. K. Chaudhari. 2014. An insight into medicinal and thraupeutic potential of <i>Silybum marianum</i> (L) Gaertn. <i>International Journal Of Biosciences</i>, 4(11):104-115 (Impact factor = 0.076). 8. Fatima, S. and M. Arshad 2014 Mapping quantitative trait loci of morphological attribute using drought mapping population 5 (Opata x SH349) under drought stress. <i>International Journal of Biosciences</i>, 4(12):134-143 (Impact factor = 0.076). 9. Fatima, S., M. Arshad, S. K. Chaudhari, A. Ali, M. S. Amjad and R. kousar. 2014 Utilization of synthetics for drought tolerance in wheat <i>Triticum aestivum</i> L. <i>International Journal of Biosciences</i>, 5(1):104-112 (Impact factor = 0.076). 10. Ali, A., M. Arshad, S. M. S. Naqvi, M. Ahmed, H. Sher, S. Fatima, A. G. Kazi,,A. Rasheed, A. Mujeeb-Kazi. (2014) Exploitation of Synthetic- derived Wheat's through osmotic stress responses for drought tolerance improvement. <i>Acta Physiol Plant</i> (Springer), (Impact factor = 1.58). 11. Sabir, S., M. Arshad, K. Zahara, S. Tabassum and S.
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	K. Chaudhari, 2014 Pharmacological attributes and nutritional benefits of tea tree oil. International Journal of Biosciences, 5(2):80-91 (Impact factor = 0.076). 12. Sabir, S., M. Arshad and S. K. Chaudhari. 2014. Zinc Oxide Nanoparticles for Revolutionizing Agriculture: Synthesis and Applications. Scientific world journal (Hindawi). 2014: 1-8. (Impact factor = 1.2). 13. Amjad, M. S., M. Arshad, S. K. Chaudhari. 2014. Structural diversity, its components and regenerating capacity of lesser Himalayan forests vegetation of Nikyal valley District Kotli (A.K), Pakistan. Asian pacific journal of Tropical Medicine (Elsevier), 7(Suppl 1): S454-S460. (Impact factor = 1.2). 14. Amjad, M. S., M. Arshad, A. Rashid, S. K. Chaudhari, N. Z. Malik and F. Akrim. 2014. Examining relationship between environmental gradients and lesser Himalayan forest vegetation of Nikyal valley, Azad Jammu and Kashmir using ordination analysis. Asian journal of Tropical Medicine (Elsevier), 7(Suppl 1): S610-S616. (Impact factor = 1.2). 15. Zahara K, S, Tabassum, S. Sabir, M. Arshad, R. Qureshi, M. S. Amjad and S. K Chaudhari. 2014. A review of therapeutic potential of <i>Saussurea lappa</i>-An endangered plant from Himalaya. Asian journal of Tropical Medicine (Elsevier). 7(Suppl 1): S60-S69. (Impact factor = 1.2). 16. Ilyas M., N. Ilyas, M. Arshad, A. G. Kazi, A. M. Kazi, and A. Waheed. 2014. Qtl mapping of wheat doubled haploids for chlorophyll content and chlorophyll fluorescence kinetics under drought stress imposed at anthesis stage Pak. J. Bot., 46(5): 1889-1897 (Impact factor = 1.207). 17. Fatima, S., A. Akram, M. Arshad, S. K. Chaudhari, , M. S. Amjad and H. Qureshi.. 2014 Effect of biological potassium fertilization (BPF) on the availability of phosphorus and potassium to maize (<i>Zea mays</i> L.) under controlled conditions. International Journal of Biosciences, 5(8):25-36 (Impact factor = 0.076). 18. Akhtar, S. A. Shahzad, N. Bangash, M. Arshad F - Hassan and I. Ahmed 2014. Morpho-physiological and genetic diversity of groundnut (<i>Arachis hypogaea</i> L.) Genotypes under iron deficiency stress Pak. J. Agri. Sci., Vol. 51(4), 953-961 (Impact factor = 1.24). 19. Anser, M. R. , M. A. Malik, M. Ansar, M. Arshad.
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	2014. Integrated practices for Canada thistle suppression in rainfed wheat under contrasting climatic conditions. SYLWAN. 158(10):123-139 (Impact factor = 0.251). 20. Iqbal, Z., R. Naeem, M. Ashraf, M. Arshad, A. Afzal, A. H. Shah, M. S. Khan and M. Farooq. 2015. Genetic Diversity of Soybean Accessions Using Seed Storage Proteins. Pak. J. Bot., 47(1): 203-209. (Impact factor = 1.207). 21. Kanwal, R., M. Arshad, Y. Bibi, S. Asif. S. K. Chaudhari. 2015. Evaluation of Ethnopharmacological and Antioxidant Potential of <i>Zanthoxylum armatum</i> DC. J. Chem., 2015:1-8. (Impact factor = 0.772). 22. Ali, A., M. Arshad, S. M. S. Naqvi, A. Rasheed, H. Sher, A. G. Kazi and A. Mujeeb-Kazi. 2015. Comparative Assessment of Synthetic-derived and Conventional Bread Wheat Advanced Lines Under Osmotic Stress and Implications for Molecular Analysis. Plant Mol Biol Rep. Springer. DOI 10.1007/s11105-015-0884-8 (Impact factor = 2.374). 23. Manzoor K., N. Ilyas, N. Batool, B.Ahmad and M. Arshad (2015). Effect of Salicylic Acid on the Growth and Physiological Characteristics of Maize under Stress Conditions J.Chem.Soc.Pak., 37(3):588-593(Impact factor: 0.345). 24. Massod, M., M. Arshad, R. Qureshi.S. Sabir, M. S. Amjad, H. Qureshi and Z. Tahir 2015. <i>Picrorhiza kurroa</i>: An ethnopharmacologically important plant species of Himalayan region Pure and Applied Biology,4 (3):407-417 (Impact factor = 0.365).
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DR. RAHMATULLAH QURESHI

RESEARCH THESES SUPERVISED	A. <u>Ph.D. Theses Supervised (Major supervisor)</u>			
	S. No.	Name	Year	Title of theses
	1	Ms. Mubashrah Munir HEC Indigenous Scholar	2014	Ecology of Algal Flora from Kallar Kahar Lake and its tributaries

2	Mr. Gul Rahim HEC Indigenous Scholar	2014	Bioactivity Guided Assessment of some medicinal plants of Malakand Division
3	Ms. Mehmooda Munazir, HEC Indigenous Scholar	2015	Assessment of antimicrobial, antioxidant activities and phytochemical screening of <i>Leptadenia pyrotechnica</i>
4	Ms. Humaira Shaheen, HEC Indigenous Scholar	2015	Floristic & Ethnobotanical Enumerations of Thal Desert, Punjab, Pakistan
5	Mr. Muhammad Ilyas	2015	Phytosociological and Ethnobotanical appraisal of Kabal Valley Swat with Especial Reference to Plant Biodiversity Conservation.

B. PhD Theses Supervised (Member)

S. No.	Name	Year	Title of theses
6	Pervaiz Anwar	2014	Biochemical analysis of oil extracted from wild olive (<i>Olea ferruginea</i>) and its comparison with standard oil of cultivated olive (<i>Olea europea</i>)
7	Khalid Mehmood (03- arid-827)	2014	Improvement of wheat for drought tolerance through Genetic Engineering
8	Ms. Sammar Fatima (02-arid- 281)	2014	Drought stress induced metabolic changes in local cultivar of wheat (<i>Triticum aestivum</i> L.)
9	Rehana Kauser	2015	Morphological and biochemical adaptations of local cultivar of barley (<i>Hordeum vulgare</i> L.) under drought
10	Mr. Safdar Ali (11-arid-06)	2015	Weed population dynamics and wheat productivity under different tillage systems in Pothwar

	<table><tr><td>11</td><td>Ms. Sangam Khalil (05-arid-334)</td><td>2015</td><td>Habitat preference and breeding biology of grey partridge (<i>Francolinus pondicerianus</i>) in salt range, Punjab</td></tr><tr><td>12</td><td>Ms. Asma Ahmed</td><td>2015</td><td>Phytochemical analysis of selected medicinal plants for antidiabetic compounds</td></tr></table>	11	Ms. Sangam Khalil (05-arid-334)	2015	Habitat preference and breeding biology of grey partridge (<i>Francolinus pondicerianus</i>) in salt range, Punjab	12	Ms. Asma Ahmed	2015	Phytochemical analysis of selected medicinal plants for antidiabetic compounds																												
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	C. . Phil. Theses Supervised (Major Supervisor) <table><tr><td>S. No.</td><td>Name</td><td>Year of Passing</td><td>Title of theses</td></tr><tr><td>32</td><td>Abdullah Rahim</td><td>2014</td><td>Ethnobotanical profile of District Battagram, KPK</td></tr><tr><td>33</td><td>Saima Sharif</td><td>2014</td><td>Ethnobotanical Enumeration of Tehsil Bagh, AJK</td></tr><tr><td>34</td><td>Anam Iftikhar</td><td>2015</td><td>Micro-propagation and antioxidant activity of <i>Solanum villosum</i></td></tr><tr><td>35</td><td>Sajid Safeer</td><td>2015</td><td>Floristic bioecology of Mahasheer National Park, AJK</td></tr><tr><td>36</td><td>Muhammad Imran</td><td>2015</td><td>Botanical wisdom of Tehsil Balakot, KPK</td></tr><tr><td>37</td><td>Farhan Anwar</td><td>2015</td><td>Vegetation analysis of Rangelands of District Bakhar (Punjab), Pakistan</td></tr></table> D. Co-supervisor <table><tr><td>S. No.</td><td>Name</td><td>Year of Passing</td><td>Title of theses</td></tr><tr><td>39</td><td>Sabith Rehman</td><td>2015</td><td>Ethnobotanical evaluation of North Waziristan Agency</td></tr></table>	S. No.	Name	Year of Passing	Title of theses	32	Abdullah Rahim	2014	Ethnobotanical profile of District Battagram, KPK	33	Saima Sharif	2014	Ethnobotanical Enumeration of Tehsil Bagh, AJK	34	Anam Iftikhar	2015	Micro-propagation and antioxidant activity of <i>Solanum villosum</i>	35	Sajid Safeer	2015	Floristic bioecology of Mahasheer National Park, AJK	36	Muhammad Imran	2015	Botanical wisdom of Tehsil Balakot, KPK	37	Farhan Anwar	2015	Vegetation analysis of Rangelands of District Bakhar (Punjab), Pakistan	S. No.	Name	Year of Passing	Title of theses	39	Sabith Rehman	2015	Ethnobotanical evaluation of North Waziristan Agency
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Lead Guest Editor	Evidence Based-Complimentary and Alternative Medicine, Hindawi publishers (USA).																																				
Co-Editor	Pakistan Journal of Weed Science Research (HEC Recognized)																																				
TECHNICAL REFEREE	1. Pakistan Journal for Scientific & Industrial Research 2. Pakistan Journal of Agriculture 3. Pakistan Journal of Pharmaceutical Sciences 4. Journal of Animal and Plants Sciences 5. Pakistan Journal of Pharmaceutical Sciences 6. Journal of Ethnobiology & Ethnomedicine 7. BMC Complementary and Alternatives Medicine 8. Journal of Medicinal Plants Research 9. African Journal of Pharmacy & Pharmacology 10. Mountain Research & Development 11. Journal of Ethnopharmacology 12. Pharmaceutical Biology 13. African Journal of Traditional, Complementary and Alternative																																				

	medicines 14. International Journal of Economic and Environmental Geology
Consultancies	1. Environmental Impact Assessment for Seismic operation in East Qadan Wari gas field (Nara Desert) with reference to the vegetation. 2001. Hagler Bailey Pakistan (Pvt.) Limited, Islamabad. 2. Environmental Impact Assessment for Seismic operation in Gamabt Block with reference to the vegetation. 2001. Halcrow Pakistan (Pvt.) Limited, Islamabad. 3. Environment Impact Assessment Study of Sawan Wari (Nara Desert) for OMV Gas Company with reference to the vegetation. 2001. Hagler Bailey Pakistan (Pvt.) Limited, Islamabad.
Resource Person/Guest Speaker	1. Delivered an invited lecture titled, "Significance of Plant Biodiversity: Prospects from Pakistan" Organized by the department of Botany, Gorden college, Rawalpindi, dated 8th January, 2016. 2. Delivered an invited lecture titled, "Role of Plants for the Sustainable Biodiversity" on the International Day for Biological Diversity "Biodiversity for Sustainable Development" Organized by Pakistan Museum of Natural History, Islamabad in collaboration with Pakistan Science Foundation and Ministry of Science & Technology dated 22nd May, 2015. 3. Delivered an invited talk on "Plants as renewable source of energy: prospects from Pakistan" in three days International Conference on Energy Production From Agriculture Biomass and Domestic Waste organized by the Department of Biochemistry, PMAS-AAUR dated 15-17th April, 2014. 4. Delivered an invited talk on "Significance of Plant Biodiversity- Prospects from Pakistan" in Gorden College, Rawalpindi organized by the department of Botany, dated 8th January, 2016. 5. Delivered an invited talk on "Medicinal shrubs and trees of Nara Desert, Pakistan" in the 5th International and 14th National conference of Botany, organized by Pakistan Botanical Society, University of Karachi, , dated 27 to 15 to 18th January, 2016. 6. Delivered an invited talk on "Phytodiversity and conservation issues: A case study from the Nara Desert, Pakistan" in the 2nd International Symposium On Biodiversity of Pakistan: Prospects and Associated Issues organized by Department of Botany University of Peshawar at Baragali Summer Campus Abbotabad dated May 22-24, 2016
SEMINAR/ CONFERENCE/ SYMPOSIUM ATTENDED	1. 4th International and 13th National conference of Botany, organized by Pakistan Botanical Society, Shaheed Benazir Butto University, Sheringal, Upper Dir, Pakistan, dated 27 to 30.08.2014. 2. International Seminar on "Research in Pharmacy: Opportunities for Pharmacists to Contribute in Healthcare System, Faculty of Pharmacy,

D	University of Baluchistan, Quetta, 1st June, 2015, Serena Hotel, Quetta. 3. 4th International and 13th National conference of Botany, organized by Pakistan Botanical Society, Shaheed Benazir Butto University, Sheringal, dated 27 to 30.08.2014. 4. Strategic management of biodiversity in the Jhelum-Poonch River Basin: Challenges for Hydropower Development organized by ICF, Haigler Baily at Serena Hotel, Islamabad dated 12-13th June, 2015. 5. 5th International and 14th National conference of Botany, organized by Pakistan Botanical Society, University of Karachi, , dated 27 to 15 to 18th January, 2016. 6. 2nd International Symposium On Biodiversity of Pakistan: Prospects and Associated Issues organized by Department of Botany University of Peshawar at Baragali Summer Campus Abbotabad dated May 22-24, 2016
PUBLICATIONS	<u>INTERNATIONAL</u> <u>(Impact Factored)</u> 1. Ali, S., M.A. Malik, M. Ansar, G. Qadir and R. Qureshi. 2016. Seed bank density and weed flora dynamics of <i>Convolvulus arvensis</i> as affected by different tillage systems in rainfed wheat (<i>Triticum aestivum</i>). <i>Int. J. Agric. & Biol.</i>, Vol. 00, No. 0, 201x (Impact Factor: 0.758) 2. Idrees, S., R. Qureshi, Y. Bibi, A. Ishfaq, N. Khalid, A. Iftikhar, A. Shabir, I. Riaz, Saboon and N. Ahmad. 2016. Ethnobotanical and biological activities of <i>Leptadenia pyrotechnica</i> (Forssk.) Decne.: A review. <i>Afr. J. Tradit. Complement. Altern. Med.</i>, 13(4): 88-96. (Impact Factor: 0.553) 3. Qureshi, R., S. A. Ghazanfar, H. Obied, V. Vasileva and M. A. Tariq. 2016. Ethnobotany: A Living Science for Alleviating Human Suffering. <i>Evidence-Based Complementary and Alternative Medicine</i>, Volume 2016, Article ID 9641692, 3 pages. http://dx.doi.org/10.1155/2016/9641692. (Impact Factor: 1.9122) 4. Ahmad, I., M. J. Jaskani, M. Nafees, I. Ashraf and R. Qureshi. 2016. Control of media browning in micropropagation of Guava (<i>Psidium guajava</i> L.). <i>Pak. J. Bot.</i>, 48(2): 713-716. 5. Ali, S., M.A. Malik, M. Ansar and R. Qureshi. 2016. Economic evaluation for integrated use of glyphosate herbicide and tillage combinations applied before sowing of rain-fed wheat (<i>Triticum aestivum</i> L.). <i>Pak. J. Bot.</i>, 48(1): 331-337 (Impact Factor: 0.822). 6. Munir, M., R. Qureshi, M. Ilyas, M. Munazir and M.K. Leghari. 2016. Systematics of <i>Chroococcus</i> from Pakistan. <i>Pak. J. Bot.</i>, 48(1): 255-262 (Impact Factor: 0.822). 7. Ilyas, M., R. Qureshi, N. Akhtar, M. Munir and Z.U Haq. 2015. Vegetation studies of Kabal Valley, District Swat, Pakistan using multivariate approach. <i>Pak. J. Bot.</i>, 47(SI): 77-86 (Impact Factor: 0.822).

8. Khan, A.M., **R. Qureshi**, M.F. Qaseem, M. Munir, M. Ilyas and Z. Saqib. 2015. Floristic checklist of district Kotli, Azad Jammu & Kashmir. *Pak. J. Bot.*, 47(5): 1957-1968. (**Impact Factor: 0.822**).
9. Iftikhar, A., **R. Qureshi**, M. Munir, G. Shabbir, M. Hussain and M.A. Khan. 2015. *In vitro* micropropagation of *Solanum villosum*-a potential alternative food plant. *Pak. J. Bot.*, 47(4): 1495-1500 (**Impact Factor: 0.822**).
10. Mushtaq, S., A. Akram, N.Q. Hanif, **R. Qureshi**, Z. Akram, S. Akhund and B.G. Nayyar. 2015. Natural incidence of aflatoxins, mycological profile and molecular characterization of aflatoxigenic strains in chickpea flour. *Pak. J. Bot.*, 47(3): 1153-1160 (**Impact Factor: 0.822**).
11. Munazir, M., **R. Qureshi** and M. Munir. 2015. Preliminary phytochemical screening of roots and aerial parts of *Leptadenia pyrotechnica*. *Pak. J. Bot.*, 47(2): 659-664 (**Impact Factor: 0.822**).
12. Maqsood, M., R. Qureshi, M. Ikram, S. Ali, M. Rafi, J. A. Khan and M. S. Ahmed. 2015. Preliminary screening of methanolic plant extracts against human rhabdomyosarcoma cell line from Salt range, Pakistan. *Pak. J. Bot.*, 47(1): 353-357 (**Impact Factor: 0.822**).
13. Munazir, M., R. Qureshi and M. Munir. 2015. *In vitro* antioxidant activity of methanolic extracts of various parts of *Leptadenia pyrotechnica* (Forssk.) Decne. *Pak. J. Pharm. Sci.*, 28(2): 535-539 (**Impact Factor: 0.95**).
14. Shaheen, H., **R. Qureshi**, I. Zahra M. Munir and M. Ilyas. 2014. Floristic diversity of Santh Saroola, Kotli Sattian, Rawalpindi, Pakistan. *Pak. J. Bot.*, 46(6): 1945-1954 (**Impact Factor: 0.822**).
15. **Qureshi, R.** and S. Raana. 2014. *Conyza sumatrensis* (Retz.) E. H. Walker: A new record from Pakistan. *Plant Biosystems*, 148(5-6): 1035-1039. <http://dx.doi.org/10.1080/11263504.2013.850119> (**Impact Factor: 1.910**)
16. Maqsood, A., A. Rehman, I. Ahmad, M. Nafees, I. Ashraf, **R. Qureshi**, M. Jamil, M. Rafay and T. Hussain. 2014. Physiological attributes of fungi associated with stem end rot of mango (*Mangifera indica* L.) cultivars in postharvest fruit losses. *Pak. J. Bot.*, 46(5): 1915-1920 (**Impact Factor: 0.822**).
17. Zahara, K., S. Tabassum, S. Sabir, M. Arshad, **R. Qureshi**, M.S. Amjad and S.K. Chaudhari. 2014. A review of therapeutic potential of *Saussurea lappa*-An endangered plant from Himalaya. *Asian Pac. J. Trop. Med.*, 7(Suppl 1): 560-569 (**Impact Factor: 0.926**).
18. Wariss, H.M., S. A. Pirzada, K. Alam, S. Anjum and **R. Qureshi**. 2014. Flora of Lal Suhanra National Park, Bahawalpur, Punjab, Pakistan. *Pak. J. Bot.*, 46(4): 1331-1341 (**Impact Factor: 0.822**).
19. **Qureshi, R.**, H. Shaheen, M. Ilyas, M. Wasim and M. Munir. 2014. Phytodiversity and plant life of Khanpur Dam, Khyber Pakhtunkhwa, Pakistan. *Pak. J. Bot.*, 46(3): 841-849 (**Impact Factor: 0.822**).
20. Gulfraz, M., D. Ahamd, M.S. Ahmad, **R. Qureshi**, R.T. Mahmood, N. Jabeen and K.S. Abbasi. 2014. Effect of leaf extracts of *Taraxacum*

- officinale* on CCl₄ induced Hepatotoxicity in rats, *in vivo* study. Pak. J. Pharm. Sci., 27(4): 825-829 ((**Impact Factor: 0.95**)).
21. Shaheen, H., **R. Qureshi**, A. Akram and M. Gulfraz. 2014. Inventory of medicinal flora from Thal Desert, Punjab, Pakistan. *Afr. J. Tradit. Complement. Altern. Med.*, 11(3): 282-290 (**Impact Factor: 0.553**).
22. Shaheen, H., **R. Qureshi**, A. Akram, M. Gulfraz and D. Potter. 2014. A preliminary floristic checklist of Thal Desert Punjab, Pakistan. *Pak. J. Bot.*, 46(1): 13-18 (**Impact Factor: 0.822**).

(Non-Impact Factored Papers)

23. Abbas, Q., S. W. Khan, S. Khatoon, S. A. Hussain, S. N. Hassan, A. Hussain, **R. Qureshi** and I. Hussain. 2014. Floristic biodiversity and traditional uses of medicinal plants of Haramosh Valley Central Karakoram National Park of Gilgit district, Gilgit-Baltistan, Pakistan. *J. Bio. & Env. Sci.*, 5 (6): 75-86.
24. Ahmed, A., M.J. Asad, M.S. Ahmad, **R. Qureshi**, S.I. Shah, H. Gul and M. Gulfraz. 2015. Antidiabetic and hypolipidemic potential of *Rhazya stricta* Decne extract and its fractions. *International Current Pharmaceutical Journal*, 4(2): 353-361.
25. Ali, S., M.A. Malik, M. Ansar and **R. Qureshi**. 2014. Weed growth dynamics associated with rainfed wheat (*Triticum aestivum* L.) establishment under different tillage systems in Pothwar. *International Journal of Plant, Animal and Environmental Sciences*, 4(2): 146-154.
26. Amjad, M.S., M. Arshad and **R. Qureshi**. 2015. Ethnobotanical inventory and folk uses of indigenous plants from Pir Nasoora National Park, Azad Jammu and Kashmir. *Asian Pac. J. Trop. Biomed.*, 5(3): 234-241 (**Impact Factor: 0.926**).
27. Fatima, S. M. Arshad and **R. Qureshi**. 2014. QTL mapping for physiological maturity in synthetic hexaploid wheat (*Triticum aestivum* L.) under drought stress. *Pure Appl. Bio.*, 3(1): 25-31.
28. Khan, A., A. Ahmad, Z. Rahman, Siraj-ud-Din, **R. Qureshi** and J. Muhammad. 2015. The assessment of carbon stocks in the oak scrub forest of Sheringal Valley Dir Kohistan. *Open Journal of Forestry*, 5: 510-517.
29. Masood, M., M. Arshad, R. Qureshi, S. Sabir, M.S. Amjad, H. Qureshi and Z. Tahir. 2015. *Picrorhiza kurroa*: An ethnopharmacologically important plant species of Himalayan region. *Pure Appl. Biol.*, 4(3): 407-417.
30. **Qureshi, R.** 2014. Folk knowledge of medicinal plants from Rohri Hills, Sindh, Pakistan. *Acta Hort. (ISHS)* 1023: 255-261. http://www.actahort.org/books/1023/1023_37.htm
31. **Qureshi, R.**, M. Khanum, H. Shaheen and M. Munir. 2014. Medicinal plants of Koont research farm, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, Pakistan. *Indian J. Nat. Prod. Resour.*, 5(3): 273-277.

32. **Qureshi, R.**, Qurat-Ul-Ain, M. Ilyas, G. Rahim, W. Ahmad, H. Shaheen and K. Ullah. 2012. Ethnobotanical study of Bhera, District Sargodha, Pakistan. *Archives Des Sciences*, 65 (11): 690-707. (**Impact factor: 0.474**)
33. Sabir, S., **R Qureshi**, M. Arshad, M.S. Amjad, S. Fatima, M. Masood, Saboon, S. K. Chaudhari. 2015. Pharmacognostic and clinical aspects of *Cydonia oblonga*: A review. *Asian Pac. J. Trop. Dis.*, 5(11): 850-855.
34. Shaheen, H., **R. Qureshi**, M.F. Qaseem. 2015. Qualitative investigation techniques used for analysis of ethnobotanical data from Thal Desert, Punjab, Pakistan. *Journal of Medicinal Plants Studies*, 3(6): 69-75.
35. Shaheen, H., R. Qureshi, S. Iqbal and M. F. Qaseem. 2014. Seasonal availability and palatability of native flora of Santh Saroola Kotli Sattian, Rawalpindi, Pakistan. *African Journal of Plant Sciences*, 8(2): 92-102. DOI:10.5897/AJPS12.169.

BOOK CHAPTER/RESAERCH SUMMARY PUBLISHED

36. **Qureshi** and G.R. Bhatti. 2014. Floral diversity of Nara Desert, Pakistan. , 413-431. In: Biodiversity of Pakistan (Editor: Rafique, M., K.A. Ibupoto, S.A. Hussain & K. Mahmood). pp. 413-431. (**ISBN: 978-969-8040-28-4**).
37. **Qureshi, R.** 2014. Floral Diversity, Threats and Conservation Measures: A Case Study from Nara Desert, Pakistan. In: Environmental and Agricultural Research Summaries (Editor: Lucille T. Cacioppo). Volume 3. pp.175-176. **ISBN: 978-1-63117-090-4**. eBook: **ISBN: 978-1-63117-094-2**.

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Personal	ASSISTANT PROFESSOR DEPARTMENT OF BOTANY PMAS ARID AGRICULTURE UNIVERSITY, MURREE ROAD, RAWALPINDI PAKISTAN. E. Mail: noshinilyas@yahoo.com , noshinilyas@uaar.edu.pk Contact no. 092-333-5310587 (Cell) 092-51-5418017 (landline)
Courses taught	• Plant Proteomics • Stress Physiology • Physiology and Genetics of BNF

	• Plant Physiology • Environmental Pollution • Plant Anatomy • Physiology and Genetics of Biological Nitrogen Fixation
M. Phil thesis supervised	1. Role of biochar as soil amendment for wheat under salinity stress 2. Phytochemical study and medical applications of some medicinal plants as antioxidant and anti-tumor agents 3. Effect of Salicylic acid and Jasmonic acid on Wheat under drought stress 4. Effect of Salicylic Acid and Glycine-Betaine on Wheat under Salt Stress 5. Effect of Plant Derived Smoke on Physiology of Brassica under Heavy Metal Stress 6. Effect of Brassinosteroid on Wheat under Drought Stress 7. Interaction of Jasmonate with Ethylene in the Regulation of some Physiological processes in <i>Triticum aestivum</i> . L 8. Effect of PGPR on biochemical and physiological parameters of basil 9. Potential of agricultural waste for the improvement of wheat 10. Role of biodegradable mulch in the improvement of cabbage 11. Effects of Thermal Decontamination of Crude Oil Polluted Soil on the Growth of Lettuce 12. Plant growth promoting rhizobacteria and phosphorous fertilizer assisted phytoextraction of heavy metals in wheat 13. Effect of Organic Amendments on Tomato Growth and Yield 14. Role of bacterial exopolysaccharides in drought tolerance of wheat
Ph. D thesis supervised	1. Screening and evaluation of allelochemicals in suppressing weeds of wheat crop (Tauseef Anwar Ph.D.completed in 2018).

	2. Fertigation efficacy of municipal waste water for leafy vegetables (Hina waheed Ph.D.completed in 2018). 3. Amelioration of heavy metal stress by inoculation with tolerant PGPRs and Biochar (Roomina Mazhar Thesis submitted) 4. Bioremediation of Crude Oil contaminated Soil with PGPR and Biochar for Sustainable Production of Maize (Maimona Saeed in progress) 5. Effect of bioorganic fertilizer containing PGPR prepared from waste protein on maize (Fatima Bibi in progress). 6. Testing the potential of waste water from olive oil mill waste for improvement of growth of wheat crop (Sumera Shabir in progress). 7. Amelioration of drought stress by silicon and biofertilizer (Nosheen Akhtar in progress).
Ph. D thesis co-supervised	1. Degradation of Azo Containing Dyes in environment(Farzana Kausar Ph.D.completed in 2016) 2. Association mapping for drought tolerance in diverse bread wheat germplasm (Sunbal Khalil Ch Ph.D.completed in 2017) 3. Morpho-Physiological responses of wheat towards iron and silver nano particles application(Farhat Ph.D.completed in 2017) 4. Utilizing Potential Oleginous microbes for lipid bases biofuel production from food processing waste(Samia Qadeer Ph.D.completed in 2019) 5. Evaluation of Anti-Microbial and Anti-Oxidant Potential of Green Silver and Copper Nanoparticles in Wheat (Sidra Sabir Thesis submitted in 2019) 6. Response of Canola to Green Synthesized Zinc Nanoparticle (Sohail Thesis submitted in 2019) 7. Potential of Bacteria for Simultaneous Treatment for Polychlorinated Biphenyl (PCB) and Chromium in tannery waste water (Muhammad Wahab Yasir Thesis submitted in 2019)

Publications (Non-impact factor)	17. Iqbal, M., Asif, S., Ilyas, N. , Raja, N. I., Hussain, M., Shabir, S., ... & Rauf, A. (2016). Effect of plant derived smoke on germination and post germination expression of wheat (<i>Triticum aestivum</i> L.). <i>American Journal of Plant Sciences</i> , 7(06), 806.
Research Interest	• Plant microbe interaction under abiotic stress. • Physiological, biochemical and molecular mechanism of abiotic stress tolerance in plants.
Impact factor Publications	Impact Factor Publication 25. Amara, U., Shad, S., Ilyas, N., Manaf, A., & Raja, N. I. (2018). In vitro germination and biochemical profiling of Brassica napus in response to biosynthesised zinc nanoparticles. <i>IET nanobiotechnology</i>, 13(1),46-51 (Impact factor = 2.059). 26. Yasmeen, F., Raja, N. I., Ilyas, N., & Komatsu, S. (2018). Quantitative proteomic analysis of shoot in stress tolerant wheat varieties on copper nanoparticle exposure. <i>Plant molecular biology reporter</i>, 36(2), 326-340.(Impact factor =3.543) 27. Qadeer, S., Mahmood, S., Anjum, M., Ilyas, N., Ali, Z., & Khalid, A. (2018). Synchronization of lipid-based biofuel production with waste treatment using oleaginous bacteria: A biorefinery concept. <i>Process Safety and Environmental Protection</i>, 115, 99-107. (Impact factor = 3.441). 28. Anwar, T., Ilyas, N., Qureshi, R., Munazir, M., Khan, A. M., Ansari, L., ... & Panni, M. K. (2018). Allelopathic activity of solvent extracts of <i>Rhazya stricta</i> Decne. against selected weeds of wheat crop. <i>Appl. Ecol. Environ. Res</i>, 16(5), 5405-5421. (Impact factor = 0.7). 29. Batool, N., Ilyas, N., Shahzad, A., Hauser, B. A., & Arshad, M. (2018). Quantitative trait loci (QTLs) mapping for salt stress tolerance in wheat at germination stage. <i>Pakistan Journal of Agricultural Sciences</i>, 55(1). (Impact factor = 0.494). 30. Batool N and N. Ilyas., 2018. Physicochemical and Antimicrobial properties of canola (<i>Brassica napus</i> L.) seed oil Pakistan Journal of Pharmaceutical Sciences (PJPS) 55(1), 47-55 (Impact factor = 0.682). 31. Batool N, M.Arshad, F.Hassan, N.Ilyas, A. Shahzad. 2018. Review-A review of therapeutic potential of <i>Mangi feraindica</i>. Pakistan Journal of Pharmaceutical

	Sciences (PJPS) 31 (4) : 1441-1448 (Impact factor = 0.682). 32. Ilyas, N., Ambreen, F., Batool, N., Arshad, M., Mazhar, R., Bibi, F., & Saeed, M. (2018). Contribution of Nitrogen Fixed by Mung Bean to the Following Wheat Crop. <i>Communications in soil science and plant analysis</i>, 49(2), 148-158. (Impact factor = 0.589). 33. Ilyas, N., Gull, R., Mazhar, R., Saeed, M., Kanwal, S., Shabir, S., & Bibi, F. (2017). Influence of salicylic acid and jasmonic acid on wheat under drought stress. <i>Communications in soil science and plant analysis</i>, 48(22), 2715-2723. (Impact factor = 0.589). 34. Kanwal, S., Ilyas, N., Shabir, S., Saeed, M., Gul, R., Zahoor, M., ... & Mazhar, R. (2018). Application of biochar in mitigation of negative effects of salinity stress in wheat (<i>Triticum aestivum</i> L.). <i>Journal of plant nutrition</i>, 41(4), 526-538. (Impact factor = 0.618). 35. Qaseem, M. F., Qureshi, R., Ilyas, N., & Jalal-Ud-Din, S. G. (2017). Multivariate statistical analysis for yield and yield components in bread wheat planted under rainfed conditions. <i>Pakistan Journal of Botany</i>, 49(6) (Impact factor = 0.690). 36. Kanwal, S., N. Ilyas, N. Batool, and M. Arshad. 2014. Alleviation of drought stress in wheat by combined application of PGPR, Compost and mineral fertilizer. <i>Journal of Plant Nutrition</i>.40(9): 1250-1260. (Impact factor = 0.168). 37. Saeed, M., Ilyas, N., Mazhar, R., Bibi, F., & Batool, N. (2016). Drought mitigation potential of Azospirillum inoculation in canola (<i>Brassica napus</i>). <i>Journal of Applied Botany and Food Quality</i>, 89. (Impact factor = 1.06). 38. Mazhar, R., Ilyas, N., Saeed, M., Bibi, F., & Batool, N. (2016). Biocontrol and Salinity Tolerance Potential of Azospirillum lipoferum and its Inoculation Effect in Wheat Crop. <i>International Journal of Agriculture & Biology</i>, 18(3). (Impact factor = 0.746). 39. Kausar, F., Khalid, A., Mahmood, T., & Ilyas, N. (2016). Efficacy of Bacterial Strains Isolated from Textile Wastewater for Degradation of Azo Dye Associated Aromatic Amines. <i>International Journal of Agriculture & Biology</i>, 18(6). (Impact factor =0.746).
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Courses taught	• Plant Physiology • Plant Cell Biology • Plant Genomics • Conservation and Management of Resources
M. Phil thesis supervised	8. Screening of Pakistani Wheat (<i>Triticum aestivum</i> L.) Varieties for Thermo-Tolerance Against Heat Shocks. 9. <i>In Vitro</i> And Molecular Characterization of Transgenic Wheat (<i>Triticum aestivum</i> L.) Resistant for Bacterial Diseases. 10. Comparative Study of Bacterial Diseases Susceptibility in Local Transgenic and Non-Transgenic Wheat Varieties. 11. Effect of UV, Gamma and X-Rays Radiations on Morphological and Physiological Characters of Different Varieties of <i>Zea mays</i>. 12. Micro- Propagation of Myrtle (<i>Myrtus communis</i> L.) 13. Morphological and Physiological Effects of UV, Gamma and X-Rays on Different Varieties of Wheat (<i>Triticum aestivum</i> L.). 14. Detection and Characterization of Anti-Microbial Activity of <i>Aloe vera</i> Gel. 15. Establishment of an Efficient Protocol for Callus Induction and Regeneration of <i>Cassia angustifoli</i>. 16. Effect of Light Regime and Growth Promoters on <i>In Vitro</i> Seed Germination of Sea Buckthorn. 17. <i>In Vitro</i> Propagation of <i>Citrus Reticulata</i>. 18. Ethnobotanical Wisdom of The Inhabitant of Devi Galli, Azad Kashmir. 19. Biological and Analytical Characterization of Black-Pepper Seed Oil. 20. Composition and Physiological Effects of <i>Silybum marianum</i> Seed Oil. 21. Antibacterial and Antifungal Effects of Aloe, Turmeric

	and Lemon and Their Potential Role in Callus Induction and Regeneration. 22. In Vitro Conservation and Production of Desiccation Tolerant Synthetic Seeds of Mandarin. 23. Effect of Different Wavelengths of Light on Cell Proliferation and Differentiation of Bread Wheat Calli. 24. Effect of Green Silver Nano-Particles on Germination and Growth of Wheat Against Heat Stress. 25. Effect of Green Silver Nano-Particles on <i>Citrus reticulata</i> L. Under Biotic Stress. 26. Evaluation of Antifungal and Antibacterial Activities of Green Silver Nano-Particles Synthesized from <i>Citrus reticulata</i> L. 27. Effect of Green Silver Nano-Particles on Morphogenic and Biochemical Variations in Callus Cultures of <i>Citrus Reticulata</i> L. Under Different Spectral Lights. 28. Effect of Plant Based Silver Nano-Particles on Germination and Post Germination Expression of Rice Against <i>Aspergillus flavus</i>. 29. Effect of Iron Nano-Particles on Wheat Under Drought Stress. 30. Effect of Green Synthesized Silver and Copper Nano-Particles on Growth Parameters of Maize. 31. Antenatal Screening of Local Females for Haematological Problems. 32. Effect of Calcium Phosphate and Selenium Nanoparticles on Wheat Against Drought Stress. 33. Effect of Green Synthesized Silver Nanoparticles in Stress on Wheat Calli. 34. Effect of Titanium Dioxide Nanoparticles on Wheat Under Salinity Stress.
Ph. D thesis supervised	• Morpho-Physiological and Biochemical Response of Wheat (<i>Triticum aestivum</i> L.) to Cu and Fe Nanoparticles (Farhat Yasmeen Ph.D. completed in 2017). • Detection and Sequence Determination of Begomoviruses associated with Leaf Curl Disease at <i>Capsicum</i> spp. (Samina Yasmin Ph.D. completed in 2018) • Strategies for The Production of Chemically Consistent Plantlets of <i>Citrus reticulata</i> L.. (Mubashir Hussain Ph.D. completed in 2019).

	• Synthesis and Characterization of TiO₂ NPs and their Evaluation for Anti-Fungal Effects on Wheat. (Seema Hussan Satti Thesis submitted) • Control of Aflatoxin in Rice, by Application Silver Nano-Particles. (Muhammad Ejaz Thesis submitted) • Physio-Morphic And Biochemical Characterization of Wheat Varieties in Response to Silver Nanoparticles Against Heat Stress. (Muhammad Iqbal in progress). • Differential role of green synthesized titanium dioxide nanoparticles on wheat in response to salinity. (Nilofar Mustafa Abbasi in progress). • Response of Bread Wheat to green bimetallic Ag/ZnO alloy nanoparticles and fertilizers (Maria Ehsan in progress).
Ph. D thesis co-supervised	1. Hina Waheed (2018)
Publications (Non impact factor)	1. Iqbal M, Y. Bibi, N.I. Raja, M. Ejaz, M. Hussain, F. Yasmeen, H. Saira, M. Imran. 2017. Review on Therapeutic and Pharmaceutically Important Medicinal Plant <i>Asparagus officinalis</i> L. <i>Journal of Plant Biochemistry and Physiology</i>, 5(1): 180-186. 2. Iqbal M., N. I. Raja, F. Yasmeen, M. Hussain, M. Ejaz and M. A. Shah. 2017. Impacts of Heat Stress on Wheat: A Critical Review. <i>Advances in Crop Science and Technology</i>, 5(1):1-9. 3. Shabir, A., N. I. Raja, U. Javaid, N. U. A. Zafar, H. Javed, F. Yasmeen. 2017. Ethno botanical Wisdom of Inhabitant of Devi Galli Azad Kashmir. <i>Biomedical Journal of Science & Technical Research</i>, 1(6):1-11. 4. Mazhar R; N. Ilyas; N. I. Raja; M. Saeed; M. Hussain; W. Seerat; H. Qureshi; Sumera Shabir. 2016. Plant growth promoting Rhizobacteria: Biocontrol potential for pathogens. <i>Pure and Applied Biology</i>, 5(4):1288-1295. 5. Iqbal H; M. Shoaib; M. Usman; S. Aziz; M. A. Yousaf; M. J. Asad;N. I. Raja; M. M. Zafar; S. Nazir. 2016. <u>In vitro Study: Suppression of LDL Oxidation Using Green Leafy Vegetable Leaves.</u> <i>American-Eurasian Journal of Agriculture and Environmental Sciences</i>, 16(2):380-384. 6. Qureshi H; M Arshad; A. Akram; N. I Raja; S. Fatima;

	M. S. Amjad. 2016. <u>Ethnopharmacological and phytochemical account of paradise tree (<i>Melia azedarach</i> L.: Meliaceae).</u> <i>Pure and Applied Biology</i>, 5(1):5-14. 7. Hussain M; N. I. Raja; M. Iqbal; A. Iftikhar; H. M. Sadaf; S. Sabir; M. A. Sultan; M. Nasim. 2016. <u>Plantlets Regeneration via Somatic Embryogenesis from the Nucellus Tissues of Kinnow Mandarin (<i>Citrus reticulata</i> L.).</u> <i>American Journal of Plant Sciences</i>, 7(6):798-805. 8. Iqbal M; S. Asif, N. Ilyas, N. I. Raja, M. Hussain, S. Shabir, A. Rauf. 2016. <u>Effect of Plant Derived Smoke on Germination and Post Germination Expression of Wheat (<i>Triticum aestivum</i> L.).</u> <i>American Journal of Plant Sciences</i>, 7(6): 806-813. 9. Mashwani, Z. R; M. A. Khan; N. I. Raja; K. Rehman; M. Ahmad. 2015. Application of Foliar Anatomy to Understand the Taxonomic Position of Weedy Grass Species from Gandgar Range, Western Himalaya, Pakistan. <i>Journal of Biodiversity and Environmental Sciences</i>. 10. Qureshi R, H. Qureshi, H. Shaheen, G. Rahim, W. Ahmed, N. I. Raja. 2012. Medico-Ethnobotanical Knowledge of Jhang Saiyidan, Islamabad, Pakistan. <i>Archives in Disease Sciences</i>, 65(12):1-13. 11. Ahmad F; M. A. Khan; M. Ahmad; M. Arshad; M. Zafar; A. Khan; N. I. Raja and Z. Rehman. 2011. Foliar epidermal anatomy as an aid to the identification of grasses in tribe Aveneae (subfamily Pooideae, Poaceae) from salt range of Pakistan. <i>Journal of Medicinal Plants Research</i>, 5(1):81-87. 12. Raja N. I; H. Rashid; A. Bano; Z. Chaudhary. 2008. Effect of Growth Regulators on Callus Induction and Regeneration in Local Cultivars of Wheat Pakistan. <i>Pakistan Journal of Agricultural Research</i>, 171.21(1-4):165.
Research Interest	Nano- Biotechnology, Modern Agricultural Practices in Pakistan, Plant Biotechnology (Production of Transgenic Crops), Proteomics, Genetic Engineering and Molecular Biology, Plant Cell, Tissue and Organ Culture, Biochemical Analysis of Medicinal Plants, Radiobiology

Impact factor Publications	Impact Factor Publication
	1. Khan I., M. A. Raza, ,M. H. Khalid, , N. I. Raja, S. Min, A. Zhang, M. Naeem, A. T. Meraj, N. Iqbal, . Zhang and L. Huang. 2019. <i>In Vitro</i> Effect of Metallic Silver Nanoparticles(AgNPs): A Noval Approach toword the Feasible Production of Biomass and Natural Antioxidants in Pearl Millet (<i>Pennisetum glaucum</i> L.). <i>Applied Ecology and Environmental Research</i>, 179(6): 12877-12892. (Impact factor = 0.689) 2. Khan I., M. A. Raza, M. H. Khalid, S. A. Awan, N. I. Raja, X. Zhang, S. Min , B. C. Wu ,M. J. Hassan and L. Huang. 2019. Physiological and Biochemical Responses of Pearl Millet (<i>Pennisetum glaucum</i> L.) Seedlings Exposed to Silver Nitrate (AgNO₃) and Silver Nanoparticles (AgNPs). <i>International Journal of Environmental Research and Public Health</i> , 16(13):2261 (Impact factor = 2.468) 24. Iqbal, M., A. Ali, H. Rashid, N.I. Raja, N.H. Naveed, Z.R. Mashwani, M. Hussain, M. Ejaz. 2019. Silver Nanoparticles (AgNPs) and Silver Salt (AgNO₃) Elicits Morphogenic and Biochemical Variations in Callus Cultures of Sugarcane. <i>IET Nanobiotechnology</i>. DOI. 10.1049/iet-nbt.2018.5122 (Impact factor = 1.937) 25. Hussain, M., N.I. Raja, Z.R. Mashwani, M. Iqbal, M. Ejaz and S. Aslam. 2019. Green synthesis and evaluation of silver nanoparticles for antimicrobial and biochemical profiling in Kinnow (<i>Citrus reticulata</i> L.) to enhance the fruit quality and productivity under biotic stress. <i>IET Nanobiotechnology</i>. (Impact factor = 1.937) 26. Iqbal, M., A. Ali, H. Rashid, N.I. Raja, N.H. Naveed, Z.R. Mashwani, M. Hussain, M. Ejaz. 2019. Evaluation of sodium alginate and calcium chloride on development of synthetic seeds. <i>Pak. J. Bot.</i>, 51(5): 1569-1574. (Impact factor = 0.69) 27. Ali, A. S. Mohammad, M. A. Khan, N. I. Raja, M. Arif, A. Kamil and ZUR. Mashwani. 2019. Silver

	nanoparticles elicited in vitro callus cultures for accumulation of biomass and secondary metabolites in <i>Caralluma tuberculata</i>. <i>Artificial Cells. Nanomedicine, and Biotechnology</i>. DOI. 10.1080/21691401.2019.1577884. (Impact factor =3.026) 28. Anum, F. N. I. Raja, M. Hussain, M. Iqbal, S. K. Chaudhari, M. Ehsan, U. Javaid, N. U. Ain. Effect of Green Synthesised Silver Nanoparticles on Morphogenic and Biochemical Variations in Callus Cultures of Kinnow mandarin (<i>Citrus reticulata</i> L.). <i>IET Nanobiotechnology</i>. DOI. 0.1049/iet-nbt.2018.5276. March 2019 (published in I. F=1.937) 29. Waheed H., N. Ilyas, N. I. Raja, T. Mahmood & Z. Ali. 2019. Heavy metal phyto-accumulation in leafy vegetables irrigated with municipal wastewater and human health risk repercussions, <i>International Journal of Phytoremediation</i>, DOI:10.1080/15226514.2018.154057. (Impact factor = 2.059) 30. Iqbal, M., N.I. Raja, M. Hussain, R. Iqbal, S.K. Chaudhari, M.A. Sultan, A. Muneeb and M. Ejaz. 2018. Morphological fabrication of immobilized green synthesized silver nanoparticles. <i>Nanoscience and Nanotechnology Letters</i>, 10,1-7 (Impact factor = 2.917) 31. Iqbal, M., N.I. Raja, Z.R. Mashwani, F.H. Wattoo, M. Hussain, M. Ejaz and H. Saira. 2018. Assessment of silver nanoparticles exposure on physiological, and biochemical changes and antioxidative defence system in wheat (<i>Triticum aestivum</i> L.) under heat stress. <i>IET Nanobiotechnology</i>. (Impact factor = 2.059) 32. Iqbal, M., N.I. Raja, Z.R. Mashwani, F.H. Wattoo, M. Hussain, M. Ejaz. 2018. Assessment of green synthesized silver nanoparticles in wheat seedlings at anatomical level in relation to their uptake, translocation and accumulation. <i>Iranian Journal of Science and Technology: Transection A Science</i>. (Impact factor = 0.757) 33. Hussain, M., N. I. Raja, Z.R. Mashwani, M. Iqbal, S.
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	K. Chaudhari, M. Ejaz, S. Aslam, and F. Yasmeen. 2018. Green Synthesis and Characterization of Silver Nanoparticles and Their Effects on Disease Incidence Against Canker and Biochemical Profile in <i>Citrus reticulata</i> L. <i>Nanoscience and Nanotechnology Letters</i>, 10: 1-8 (Impact factor = 2.917) 34. Hussain, M., N. I. Raja, H. Rashid, Z.R Mashwani, A. Mehmood And M Iqbal. 2018. Establishment of an efficient protocol for plantlets regeneration via direct and indirect organogenesis in <i>Citrus reticulata</i> Blanco (Kinnow Mandarin). <i>Pakistan Journal of Botany</i>, 50(3):1203-1210 (Impact factor = 0.750) 35. Yasmeen. F., N. I. Raja, N. Ilyas & S. Komatsu. 2018. Quantitative Proteomic Analysis of Shoot in Stress Tolerant Wheat Varieties on Copper Nanoparticle Exposure. <i>Plant Molecular Biology Reporter</i>. http://doi.org/10.1007/s11105-018-1082-2 (Impact factor = 1.844) 36. Ejaz M ; <u>N. I. Raja</u> ; <u>M. Iqbal</u> ; M. Hussain and M. Sheeraz. 2018. Effect of Silver Nanoparticles and Silver Nitrate on Growth of Rice under Biotic Stress. <i>IET Nanobiotechnology</i>. (Impact factor = 2.059) 37. <u>Hussain M.</u> ; <u>N. I. Raja</u> ; <u>Z. R. Mashwani</u> ; <u>F. Naz</u> ; <u>M. Iqbal</u> ; <u>S. Aslam</u>. 2018. Green synthesis and characterisation of silver nanoparticles and their effects on antimicrobial efficacy and biochemical profiling in <i>Citrus reticulata</i>. <i>IET Nanobiotechnology</i>, 12(4): 514-519 (Impact factor = 2.059) 38. <u>Hussain M</u> ; <u>N. I. Raja</u> ; <u>M. Iqbal</u> ; <u>M. Ejaz</u> ; <u>S. Aslam</u> ; <u>A. Rehman</u> . ; <u>U. Javaid</u>. 2018. Seed germination and biochemical profile of <i>Citrus reticulata</i> (Kinnow) exposed to green synthesised silver nanoparticles. <i>IET Nanobiotechnology</i>, 12(5): 688-693 (Impact factor = 2.059) 39. Yasmin S; N. I. Raja; S. Hameed; J. K. Brown. 2018. First report of Tomato leaf curl virus and Croton yellow vein mosaic betasatellite infecting chilli plants in Pakistan. <i>New Disease Reports</i>. (Impact factor = 2.42) 40. Yasmin, S., N. I. Raja, S. Hameed, Z. Abbas. 2018. Detection and partial characterization of
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	begomoviruses infecting chilli pepper. <i>International Journal of Biosciences</i>, 13(1): 267-271. (Impact factor = 4.057) 41. Iqbal M, S. Asif, N. Ilyas, Fayyaz-ul-Hassan, N.I. Raja, M. Hussain' M. Ejaz, H. Saira. 2018. Smoke Produced from Plants Waste Material Elicits Growth of Wheat (<i>Triticum Aestivum</i> L.) by Improving Morphological, Physiological and Biochemical Activity. <i>Biotechnology Reports</i>, 17: 35-44. (Impact factor = 0.967) 42. Faiza A, Naveed I R, Noor-Ul-Ain, Uneza J, Farhat Y. 2018. Some Physio-Chemical Properties of <i>Silybum marianum</i> Seed Oil Extract. <i>Current Trends in Biomedical Engineering & Biosciences</i>, 13(5): 555875. (Impact factor = 0.822) 43. Sohail, Z.R. Mashwani, N. I. Raja, A. Ghaffar, M. A. Shah, M. Yasmeen, S. Umar, M. L. Sohail. 2017. Silver nanoparticles- a promising anti-mosquito's agent. <i>Nanoscience and Nanotechnology Letters</i>, 9(12):1875-1890. (Impact factor = 2.917) 44. Yasmin S; N. I. Raja; S. Hameed; J. K. Brown. 2017. <u>First association of Pedilanthus leaf curl virus, Papaya leaf curl virus, Cotton leaf curl Kokhran virus, and Papaya leaf curl beta-satellite with symptomatic chilli pepper in Pakistan.</u> <i>Plant Disease</i>, 110(12): 2155. (Impact factor = 2.941) 45. Hussain M., N. I. Raja, M. Iqbal, S. Aslam. 2017. Applications of Plant Flavonoids in the Green Synthesis of Colloidal Silver Nanoparticles and Impacts on Human Health. <i>Iranian Journal of Science and Technology: Transection A Science</i>. (Impact factor = 0.747) 46. Iqbal M., N. I. Raja, Z. R. Mashwani, M. Hussain, M. Ejaz, F. Yasmeen. 2017. Effect of Silver Nanoparticles on Growth of Wheat Under Heat Stress. <i>Iranian Journal of Science and Technology: Transection A Science</i>. (Impact factor = 0.747) 47. Hussain M; N. I. Raja; Z. R. Mashwani; M. Iqbal; M. Ejaz; F. Yasmeen; Sohail. 2017. In vitro germination and biochemical profiling of <i>Citrus reticulata</i> in response to green synthesized zinc and copper nanoparticles. <i>IET Nanobiotechnology</i>, 11(7):
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	790-796. (Impact factor = 2.059) 48. Hussain M; N. I. Raja; Z.R. Mashwani; M. Iqbal; S. Sabir; F. Yasmeen. 2017. <i>In vitro</i> seed germination and biochemical profiling of <i>Artemisia absinthium</i> exposed to various metallic nanoparticles. <i>3 Biotech</i>, 7:101. (Impact factor = 1.497) 49. Aslam S; N. I. Raja; M. Hussain; M. Iqbal; M. Ejaz; D. Ashfaq; H. Fatima; M. A. Shah, Abd-Ur-Rehman; M. Ehsan. 2017. Current Status of <i>Withania somnifera</i> (L.) Dunal: An Endangered Medicinal Plant from Himalaya. <i>American Journal of Plant Sciences</i>, 8: 1159-1169. (Impact factor = 0.36) 50. Yasmeen F; N. I. Raja; A. Razzaq; S. Komatsu. 2017. Proteomic and physiological analyses of wheat seeds exposed to copper and iron nanoparticles. <i>Biochimica et Biophysica Acta (BBA) - Proteins and Proteomics</i>, 1865(1): 28-42. (Impact factor = 2.609) 51. Saeed M; N. Ilyas; A. Akram, N. I Raja; R. Mazhar; F. Bibi; W. Seerat; S. Kanwal; N. Batool. 2016. Effect of drought stress on Brassica crops and its mitigation by inoculation of PGPR. <i>International Journal of Biosciences</i>, 9(6): 282-291. (Impact factor = 3.873) 52. Iqbal M; N. I. Raja; S. Asif; N. Ilyas; M. Hussain; F. Yasmeen; M. Ejaz; M. A. Sultan; S. Aslam; H. Javed. 2016. <i>In Vitro</i> Study of Callogenesis and Regeneration Potential of Elite Wheat (<i>Triticum aestivum</i> L.) Cultivars. <i>American Journal of Plant Sciences</i>, 7:2515-2526. (Impact factor = 0.36) 53. Sabir S; A. Akram; N. I Raja; Z.R. Mashwani; Sohail; H. M. Sadaf; M. Hussain; I. Riaz; N. Ahmad, E. Ahmed. 2016. A probe into the medicinal potential of <i>Viola canescens</i>– A threatened medicinal plant from Himalaya. <i>Journal of Coastal Life Medicine</i>, 4(7):575-579. (Impact factor = 0.35) 54. Hussain M, Y. Bibi, N. I. Raja, M. Iqbal, S. Aslam, N. Tahir, M. Imran, A. Iftikhar. 2016. A review of therapeutic potential of <i>Ajuga bracteosa</i>: A critically endangered plant from Himalaya. <i>Journal of Coastal Life Medicine</i>, 4(11):918-924. (Impact factor = 0.35) 55. Yasmeen F; N. I. Raja; A. Razzaq; S. Komatsu.
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	2016. Gel-free/label-free proteomic analyses of wheat shoot in stress tolerant varieties under iron nanoparticles exposure. <i>Biochimica et Biophysica Acta (BBA) - Proteins and Proteomics</i>, 1864(11):1586-98. (Impact factor = 2.609) 56. Hussain M., N.I. Raja, A. Akram, A. Iftikhar, D. Ishfaq, F. Yasmeen, R. Mazhar, M. Imran, M. Iqbal. 2016. A status review on the pharmacological implications of <i>Artimisia absinthium</i> – A critical endangered plant from Himalaya. <i>Asian Pacific Journal of Tropical Disease</i>, 7 (3): 185-192. (Impact factor = 1.772) 57. Yasmeen F., N. I. Raja, G. Mustafa, K. Sakata, S. Komatsu. 2016. <u>Quantitative proteomic analysis of post-flooding recovery in soybean root exposed to aluminum oxide nanoparticles</u>. <i>Journal of Proteomics</i>, 143:136-150. (Impact factor = 3.722) 58. Bibi S; Z. R. Mashwani; K. Rahaman; N. I. Raja. 2015. Biological Screening of Polarity Based Extracts of Leaves and seeds of <i>Sisymbriu mirio</i> L. <i>Pakistan Journal of Botany</i>, 47: 301-305. (Impact factor = 0.750) 59. Yasmeen, F., A. Razzaq, N.I. Raja, H. M. Jhanzab. 2015. Effect of silver, copper and iron nanoparticles on wheat germination. <i>International Journal of Biosciences</i>. (Impact factor = 3.873) 60. Yasmeen F., N. I. Raja, M. Hussain, N. Taj, S. K. Chaudhari. 2014. Effect of spring and autumn sowing on morphological attributes of sweet corn genotypes. <i>International Journal of Biosciences</i>, 5(1): 29-36. (Impact factor = 3.873) 61. Ilyas N, A. Bano, S. Iqbal and N. I. Raja. 2012. Physiological, Biochemical and Molecular characterization of <i>azospirillum spp.</i> isolated from Maize under water stress. <i>Pakistan Journal of Botany</i>, 44:71-80. (Impact factor = 0.750) 62. Mashwani Z. R; M. A Khan; M. Ahmad; M. Zafar; N. I. Raja; M. Arshad; Samiullah. 2012. Macro-mineral quantification of the forage grass species in the Gandgar Hills, Western Himalaya, Pakistan. <i>Pakistan</i>
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	<i>Journal of Botany</i>. 44:117-121. (Impact factor = 0.750) 63. Rashid H; M. H. Khan; Z. Chaudhary; A. Bano; and N. I. Raja. 2011. An Improved <i>Agrobacterium</i> Mediated Transformation system in Wheat. <i>Pakistan Journal of Botany</i>, 44(1):297-300. (Impact factor = 0.750) 64. Raja N. I; H. Rashid; A. Bano; Z. Chaudhary; N. Ilyas. 2010. Improving <i>Agrobacterium</i> Mediated Transformation Protocol for Integration of <i>Xa21</i> Gene in Wheat (<i>Triticum aestivum</i> L.). <i>Pakistan Journal of Botany</i>, 42(5):3613-3631. (Impact factor = 0.750) 65. Raja N. I; H. Rashid; A. Bano; Z. Chaudhary; M. Shah. 2010. Screening of Local Wheat Varieties against Bacterial Leaf Streak caused by Different Strains of <i>Xanthomonas translucens</i> sp. <i>undulosa</i> (Xtu). <i>Pakistan Journal of Botany</i>, 42(3):1601-1612. (Impact factor = 0.750) 66. Raja N. I; H. Rashid; A. Bano; Z. Chaudhary. 2009. Effect of Age of Callus on Plant Regeneration and Transformation Frequency in Local Cultivars of Wheat. <i>Pakistan Journal of Botany</i>, 41(6):2801-2806. (Impact factor = 0.750) 67. Raja N. I; A. Ali; H. Rashid; H. Khan; Z. Chaudhary. 2009. Screening of Pakistani Rice (<i>Oryza Sativa</i>) Cultivars against <i>Xanthomonas oryzae</i> sp. <i>oryzae</i>. <i>Pakistan Journal of Botany</i>, 41(5):2595-2604. (Impact factor = 0.750)
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Name	Dr Zia-ur-Rehman Mashwani
Personal	PMAS ARID AGRICULTURE UNIVERSITY, MURREE ROAD, RAWALPINDI PAKISTAN. E. Mail: zia.botany@gmail.com
Courses taught	- Diversity in vascular plant - Diversity in non vascular plants - Biodiversity - Plant Ecology - General Pharmacognosy

	• Concept in Genetics
M. Phil thesis supervised	• Sherish Javed (2011) Phytochemical quantification and biological screening of <i>Artemesia vulgaris</i> Linn. • Uzma Bashir (2011) Chemical and Biological characterization of <i>Boerhavia procumbens</i> • Saadia Irum (2012) Phytochemical and antioxidant potential of <i>Berberis lycium</i> Royle. • Humara Amin (2013) Phytochemical and Pharmacognostic evaluation of <i>Amaranthus viridis</i> and <i>A.spinosus</i> • Raheela Ismail (2013) Nutraceutical Potential of wild vegetables <i>Rumex hastatus</i> and <i>R. nepalensis</i> • Shabnum Bibi (2013) Pharmacognostic and phytochemical screening of <i>Sisymbrium irio</i> L. • Arsh Bibi (2014) Comparative secondary metabolites analysis and antioxidant potential in calli of <i>Nigella sativa</i> L. • Ayesha Rehman (2014) Differential secondary metabolites analysis and antioxidant potential in calli of <i>Cassia asbus</i> L. • Tasneem Bashir (2015) Phytochemical composition and nutraceutical evaluation of <i>Morus alba</i> fruit. • Ubaid Ul Hassan (2015) Phytochemical characterization and nutraceutical potential of <i>Ziziphus muratiana</i> fruit. • Seemab Gul (2016) Biological and analytical characterization of sea-buckthorn (<i>Hippophae rhamnoides</i>) seed oil. • Rahmat Wali (2016) Quantitative ethnomedicinal study of plant used in Fairy Meadow National Park, Diamir, Gilgit Baltistan. • Malik Shamsher (2017) Ethnobiology of Taxila Valley, A quantitative approach. • Umme Amara (2017) Response of Brassica napus to Zinc nanoparticles under controlled condition. • Rahimullah (2017) Effect of silver nanoparticle on the growth, yield and quality of Canola. • Usman Ali (2017) Phytochemical assessment and antioxidant potential of selected Pteridophytes from Poonch, Azad Kashmir. • Amir Ali (2018) Effect of silver nanoparticle on regeneration and antioxidant capacity of <i>Caralluma tuberculata</i>. • Umm-e-Ammara (2018) in-vitro Seed germination, growth

	and biochemical profile of Zea mays in response to silver nanoparticle. • Salahuddin (2019) Exploration of Plant based ethnomedicines used by the local communities along Pak-Afghan Border region, Khyber agency. • Khalid Kamran (2019) Impact of Foliar application of green Zinc nanoparticles on secondary metabolites of Canola Seeds. • Marij Khan (2019) Iron Nanoparticles assisted biofortification of wheat (<i>Triticum aestivum</i>). • Asma Ibrar (2019) Biological evaluation of various solvent extracts of <i>Hylotelephium ewersii</i> and <i>Oxyria digyna</i>. • Kiran Gul (2019) Biological evaluation of various solvent extracts of <i>Artemisia glacialis</i> and <i>Rheum australe</i>. • Safia Rani (2019) Zinc Nanoparticles assisted biofortification of wheat (<i>Triticum aestivum</i>) •
Ph. D thesis supervised	• Muhammad Faraz Khan (2019) Ethnobotanical profile and biological screening of selected medicinal plants of Sudhanoti, Azad Kashmir. • Sohail (2020) Response of Canola to Green Synthesized Zinc Nanoparticle.
Ph. D thesis co-supervised	• Evaluation of Anti-microbial and Antioxidant Activity of Green Silver Nanoparticles in <i>Citrus reticulata</i> L. (Mubashir Hussain Ph.D. completed in 2019).
Publications	
Research Interest	Nanobiotechnology; Improvement of Oilseed Crops, Medicinal Plants; Ethnobotany.
Impact factor Publications	13. T. Khan, N. Ullah, M. A. Khan, ZUR Mashwani, A. Nadhman. 2019. Plant-based gold nanoparticles; a comprehensive review of the decade-long research on synthesis, mechanistic aspects and diverse applications. 272(102017) https://doi.org/10.1016/j.cis.2019.102017 (IF:8.243) 14. Wali, R., K. Rahman, N. I. Raja, R. Qureshi, R. W. Bussmann, ZUR. Mashwani. 2019. A quantitative medicobotanical expedition of Fairy Meadows National Park, Diamir, Gilgit Baltistan, Pakistan. <i>Ethnobotany Research & Applications</i>. 18(35)1 -30 http://dx.doi.org/10.32859/era 15. Ali, A. S. Mohammad, M. A. Khan, N. I. Raja, M. Arif, A. Kamil and ZUR. Mashwani. 2019. Silver nanoparticles elicited in vitro callus cultures for accumulation of biomass and

	secondary metabolites in <i>Caralluma tuberculata</i>. Artificial Cells, Nanomedicine, and Biotechnology. 47(1): 715-724 https://doi.org/10.1080/21691401.2019.1577884 (IF: 4.462) 16. Mohammad, S., M. A. Khan, A. Ali, L. Khan, ZUR. Mashwani. 2019. Feasible production of biomass and natural antioxidants through callus cultures in response to varying light intensities in olive (<i>Olea europaea</i>. L) cult. Arbosana. Journal of Photochemistry and Photobiology B: Biology. 193:140-147 https://doi.org/10.1016/j.jphotobiol.2019.03.001 (IF: 4.067) 17. Iqbal, M., A. Ali, H. Rashid, N. I. Raja, N. H. Naveed, ZUR Mashwani, M. Hussain, M. Ejaz, And Z. Chaudhry. 2019. Evaluation of Sodium Alginate and Calcium Chloride on Development of Synthetic Seeds. Pakistan Journal of Botany, 51(5):1569-1574 (IF: 0.672) 18. Sohail, U. Amara, S. Shad, N. I. Raja, N. Ilyas, A. Manaf, ZUR Mashwani. 2019. in vitro Germination and Biochemical Profiling of Brassica napus in Response to Biosynthesized Zinc Nanoparticles. IET Nanobiotechnology. 13(1): 46-51 DOI: 10.1049/iet-nbt.2018.5012 (IF:1.925) 19. Iqbal, M., N. I. Raja, ZR. Mashwani, M. Hussain, M. Ejaz, F. Yasmeen. 2019. Effect of Silver Nanoparticles on Growth of Wheat Under Heat Stress. Iranian Journal of Science and Technology, Transactions A: Science 43(2): 387-359 https://doi.org/10.1007/s40995-017-0417-4 (IF:0.692) 20. Hussain, M., N. I. Raja, ZUR Mashwani, M. Iqbal, S. K. Chaudhari, M. Ejaz, S. Aslam, F. Yasmeen, 2018. Green Synthesis and Characterization of Silver Nanoparticles and Their Effects on Disease Incidence Against Canker and Biochemical Profile in Citrus reticulata L. Nanoscience and Nanotechnology Letters, 10(10): 1348-1355 https://doi.org/10.1166/nnl.2018.2799 (IF: 2.917) 21. Hussain, M., N. I. Raja, ZUR. Mashwani, M. Iqbal, M. Ejaz, S. Aslam. 2018. Green Synthesis and Evaluation of Silver Nanoparticles for Antimicrobial and Biochemical Profiling in Kinnow (<i>Citrus reticulata</i> L.) to Enhance Fruit Quality and Productivity under Biotic Stress. IET Nanobiotechnology. DOI: 10.1049/iet-nbt.2018.5049. (IF:1.925) 22. Bibi, A., M. A. Khan, M. Adil and ZUR Mashwani. 2018.
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	Production of callus biomass and antioxidant secondary metabolites in black cumin. <i>Journal of Animal and Plant Sciences</i>. 28(5):1321-1328 (IF: 0.529) 23. Iqbal, M., N. I. Raja, ZUR. Mashwani, F. H. Wattoo, M. Hussain, M. Ejaz, H. Saira. 2018. Assessment of AgNPs exposure on physiological and biochemical changes and antioxidative defence system in wheat (<i>Triticum aestivum</i> L) under heat stress. <i>IET Nanobiotechnology</i>. DOI: 10.1049/iet-nbt.2018.5041 (IF:1.925) 24. Iqbal, M., N. I. Raja, ZUR. Mashwani, F. H. Wattoo, M. Hussain, M. Ejaz. 2018. Assessment of Green Synthesized Silver Nanoparticles in Wheat Seedlings at the Anatomical Level in Relation to their Uptake, Translocation and Accumulation. Iranian Journal of Science and Technology, Transactions A: Science DOI: 10.1007/s40995-018-0639-0 (IF:0.692) 25. Hussain, M., N. I. Raja, ZUR Mashwani, M. Iqbal, S. K. Chaudhari, M. Ejaz, S. Aslam, and F. Yasmeen. 2018. Green Synthesis and Characterization of Silver Nanoparticles and Their Effects on Disease Incidence Against Canker and Biochemical Profile in <i>Citrus reticulata</i> L. <i>Nanoscience and Nanotechnology Letters</i>. 10:1–8 (IF:2.917) 26. Khan MF, Tang H, Lyles JT, Pineau R, Mashwani ZUR and Quave CL. 2018. Antibacterial Properties of Medicinal Plants from Pakistan Against Multidrug-Resistant ESKAPE Pathogens. <i>Frontier in Pharmacology</i>. 9:815. doi: 10.3389/fphar.2018.00815 (IF:3.845) 27. Ali, H., M. A. Khan, W. K. Kayani, T. Khan, ZUR Mashwani, N. Ullah and R.S. Khan. 2018. Thidiazuron regulated growth, secondary metabolism and essential oil profile in shoot culture of <i>Ajuga bracteosa</i>. <i>Industrial Crops and Products</i>. 121: 418-427 (IF:4.191) 28. Mashwani, ZUR., A. Nadhman, M.A. Khan. 2018. In-vitro antilishmanial and antibacterial potential of Pakistani traditional medical plants. <i>International Journal of Infectious Diseases</i>. 73S:264 https://doi.org/10.1016/j.ijid.2018.04.4016 (IF:3.538) 29. Ejaz, M., N.I. Raja, ZUR. Mashwani, M.S. Ahmad, M. Hussain, M. Iqbal. 2018. Effect of silver nanoparticles and silver nitrate on growth of rice under biotic stress. <i>IET Nanobiotechnology</i>. DOI: 10.1049/iet-nbt.2018.0057
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	(IF:1.925) 30. Hussain, M., N.I.Raja, ZUR Mashwani, F. Naz, M. Iqbal, S. Aslam. 2018. Green synthesis and characterization of silver nanoparticles and their effects on antimicrobial efficacy and biochemical profiling in Citrus reticulata. IET Nanobiotechnology. DOI: 10.1049/iet-nbt.2017.0153 (IF: 1.925) 31. Hussain, M., N. I. Raja, H. Rashid, ZUR Mashwani, A. Mehmood And M Iqbal. 2018. Establishment of an efficient protocol for plantlets regeneration via direct and indirect organogenesis in Citrus reticulata Blanco (Kinnow Mandarin). Pakistan Journal of Botany 50(3):1203-1210 (IF: 0.672) 32. Sohail, ZUR Mashwani, N. I. Raja, A. Ghaffar, M. A. Shah, M. Yameen, S. Umar, M. L. Sohail. 2017. Silver Nanoparticle—A Promising Anti-Mosquito's Agent: A Review. Nanoscience and Nanotechnology Letters. 9 (12): 1875-1890. https://doi.org/10.1166/nnl.2017.2586 (IF:2.915) 33. Saboon, M. Arshad, M.S. Ahmad and ZR Mashwani. 2017. Fermentation Enhances Redox Protective Activities of Gymnosporia royleana Wall. ex Lawson Extracts. Iranian Journal of Science and Technology, Transactions A: Science. https://doi.org/10.1007/s40995-017-0385-8 (IF:0.692) 34. Hussain, M., N. I. Raja, ZR. Mashwani, M. Iqbal, M. Ejaz, F. Yasmeen, Sohail. 2017. In Vitro Germination and Biochemical Profiling of <i>Citrus reticulata</i> in Response to Green Synthesized Zinc and Copper Nanoparticles. IET Nanobiotechnology. 11(7):790-796 http://dx.doi.org/10.1049/iet-nbt.2016.0256 (IF: 1.925) 35. Hussain, M., N.I., Raja, ZR. Mashwani. M. Iqbal, S. Sabir F. Yasmeen. 2017. In vitro seed germination and biochemical profiling of <i>Artemisia absinthium</i> exposed to various metallic nanoparticles.3 Biotech .7: 101. https://doi.org/10.1007/s1320 (IF: 1.786) 36. Amara, U., ZR. Mashwani, A. Khan, S. Laraib, R. Wali, U. Sarwar, Q. Ain, S. Shakeel, Rahimullah, and Sohail. 2017. Conservation Status and Therapeutic Potential of Saussurea lappa: An Overview. American Journal of Plant Sciences, 8(3):602-614. https://doi.org/10.4236/ajps.2017.83041 37. Mashwani ZR., M. A. Khan, T. Khan and A. Nadhman. 2016. Application of Plant terpenoids in the synthesis of colloidal silver nanoparticles. Advances in Colloid and Interface
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	Science. 234:132-141. http://dx.doi.org/10.1016/j.cis.2016.04.008 38. Sabir, S., A. Akram, N.I. Raja, ZR. Mashwani, Sohail, H. M. Sadaf, M. Hussain, I. Riaz, N. Ahmad, E. Ahmed. 2016. A probe into the medicinal potential of <i>Viola canescens</i> – A threatened medicinal plant from Himalaya. <i>Journal of Coastal Life Medicine</i>. 4(7): 575-579. DOI: 10.12980/jclm.4.2016J6-41 39. Mashwani ZR., T. Khan, M. A. Khan and A.Nadhman. 2015. Synthesis in plants and plant extracts of silver nanoparticles with potent antimicrobial properties: current status and future prospects. <i>Applied Microbiology and Biotechnology</i>. 99(23):9923-9934 (IF:3.670) 40. Shaheen, H., ZR. Mashwani and M. E.I. Dar. 2015. Spatial patterns and diversity of alpine vegetation across Langer-Shandur valley, Hindukush Himalayas. <i>Current Science</i>. 108(8):1534-1539 (IF: 0.756) 41. Rehman, K., ZR. Mashwani, M. A. Khan, Z. Ullah, H. J. Chaudhary. 2015. An Ethno botanical perspective of traditional medicinal plants from the Khattak tribe of Chonthra Karak. Pakistan. <i>Journal of Ethnopharmacology</i>. 165:251-259 (IF: 3.414) 42. Bibi, S., ZR. Mashwani, K. Rehman, N. I. Raja, M. Gulfranz. 2015. Biological screening of polarity based extracts of leaves and seeds of <i>Sisymbrium irio</i> L. <i>Pakistan Journal of Botany</i> 47 (SI): 301-305 (IF: 0.672) 43. Bashir, T., ZR. Mashwani and K. Zahra, S. Tabassum and Mudrikah. 2015. Chemistry, Pharmacology and Ethnomedicinal Uses of <i>Helianthus annuus</i> (Sunflower): A Review. <i>Pure and Applied Biology</i>, 4(2): 226-235 44. Mashwani, ZR., M. A. khan, M. Ahmad. 2014. Potential of Pakistani traditional medicinal plants to combat diabetes. <i>Journal of Traditional Chinese Medicine</i>. 15; 34(4): 488-490 (IF: 0.857) 45. Khan, G., F. Zhang, Q. Gao, ZR. Mashwani, K.Rehman, M.A.Khan and S. Chen. 2013. Trichomes diversity in the tropical flora of Pakistan. <i>J. Med. Plant. Res</i> 7(22):1587-1592 46. Mashwani, ZR., M.A. Khan, S. Irum and M. Ahmad. 2013. Antioxidant potential of root bark of <i>Berberis lycium</i> Royle. from Galliyat, Western Himalaya, Pakistan. <i>Pakistan Journal</i>
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	of Botany, 45(SI): 231-234. (IF: 0.672) 47. Mashwani, ZR., M. A. Khan, M. Ahmad, M. Zafar, N. I. Raja, M. Arshad and Samiullah. 2012. Macro-mineral quantification of the forage grass species in the Gandgar Hills, Western Himalaya, Pakistan. Pakistan Journal of Botany, 44: 117-121 SI. (IF: 0.672) 48. Mashwani, ZR. M.A.Khan, M.Ahmad, M.Arshad. 2011. The Diversity of grasses in the Gandgar Range, Northwest Pakistan. Proceeding of 2nd International Conference on “Biodiversity is our Life, 29-31 Dec 2010” organized by The Centre of Biodiversity and Conservation (CBC), Shah Abdul Latif University, Khairpur. 49. Ahmad, F., M. A. Khan, M. Ahmad, M. Arshad, ZR. Mashwani. 2011. Foliar epidermal anatomy as an aid to the identification of grasses in tribe Aveneae (subfamily Pooideae, Poaceae) from salt range of Pakistan. J. Med. Plant. Res. 5(1):81-87. 50. Zafar, M., M. A. Khan, M. Ahmad, S. Sultana, S. K. Marwat, F. Ahmad, ZR. Mashwani. 2010. Elemental analysis of some medicinal plants used in traditional medicine by atomic absorption spectrophotometer (AAS). J.Med.Plant.Res.4 (19):1987-1990. DOI: 10.5897/JMPR10.081
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Name	Dr.Yamin Bibi
Personal	Assistant Professor Department of Botany PMAS Arid Agriculture University Rawalpindi. Pakistan Email address: dryaminbibi@uaar.edu.pk Contact #: +923035712234
Courses taught	• General Pharmacognosy • General Pharmacology • Plant Ecology • Research Planning and Report Writing • Conservation and Management of Plant Resources • Plant Microbe Interaction • Arid Zone Ecology • Plant Reproductive Biology
M. Phil thesis supervised	1. Pharmacological Studies on Selected Plant Species

	from Thal Desert, Pakistan (Khurshid Anwar, Thesis submitted. 2020-2021) 2. Ethnomedicinal Survey of Tehsil Malakwal, District Mandi-Bahauddin, Punjab, Pakistan (Tayyaba Munawar, Thesis Submitted 2020-2021) 3. Evaluation of Immune Boosting Potential of Selected Medicinal Plant Species (Irum Khalid, Research work in Process 2021-2022) 4. Cytotoxicity Assessment of Fractionated Extracts of <i>Euphorbia royleana</i> (Neelum Naheed, Research work in process 2021-2022) 5. Biological Efficacy of Purified Compounds from Selected plant Species (Ayesha Khanum, Research work in process 2021-2022) 6. Cytotoxic and Antimicrobial Efficacy of <i>Alhagi maurorum</i> (Syeda Sobia Gillani M.Phil completed in 2020) 7. Pharmacological Evaluation of <i>Pseudocryptotis foetida</i> Extracts (Tayyiba Afzal M.Phil completed in 2020) 8. Antioxidant and Phytochemical Analysis of <i>Prinsepia utilis</i> Extracts (Saiqa Sharif M.Phil completed in 2020) 9. Cytotoxicity Assessment of <i>Thalictrum foliolosum</i> leaves and Roots Extracts (Rozina Ishaq M.Phil completed in 2020) 10. Green Synthesis Of Silver nanoparticles from selected Species and their effect on Bioactivities (Aroosa Habib M.Phil completed in 2019) 11. Bioactivities on <i>Ficus palmata</i> and <i>Calotropis Procera</i> Extracts (Raafia Batool Chaudhry M.Phil completed in 2019) 12. Antioxidant and antimicrobial effects of <i>Withania Coagulans</i> Fruit Extracts (Bibi Fiza M.Phil completed in 2019) 13. Nutraceutical analysis of some underutilized plant species (Kiran Javed M.Phil completed in 2018) 14. Nutraceutical Assessment of some selected wild vegetables (Basma Jalil M.Phil completed in 2018) 15. Ethnomedicinal survey of selected villages of district Bagh Azad Jammu and Kashmir (Tasneem Maqsood M.Phil completed in 2018) 16. Evaluation of phytotoxic activity of <i>Thevetia Peruviana</i> extracts (Najma Parveen M.Phil)
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	completed in 2018) 17. Investigation of Cytotoxic and Antimicrobial Potential of <i>Myrsine Africana</i> (Sadaf Laraib M.Phil completed in 2017) 18. Antioxidant and Cytotoxic Activities of Selected Ethnomedicinal Plants of Balakot Region (Uzma Sarwar M.Phil completed in 2017) 19. Nutraceutical Potential of Some Selected Plants of Tehsil Plandri AJK (Kiran Naseem M.Phil completed in 2017) 20. Assessment of antioxidant Potential of Selected Aromatic Plants (Qurat Ul Ain M.Phil completed in 2017) 21. Nutraceutical Assessment of <i>Capsella bursa-pastoris</i> (Iqra Riaz M.Phil completed in 2016) 22. Nutritional and Medicinal Evaluation of <i>Solanum villosum</i> (Nabeela Ahmad M.Phil completed in 2016) 23. Antioxidant and Cytotoxic Evaluation of <i>Caralluma tuberculata</i> (Mudrikah M.Phil completed in 2015) 24. In vitro Toxicity Assessment of <i>Cedrela serrata</i> Extract (Shaista Tabasuum M.Phil completed in 2015) 25. Pharmacological Studies on <i>Bidens biternata</i> (Kulsoom Zahara M.Phil completed in 2015) 26. Biochemical Evaluation of <i>Kickxia ramosissima</i> (Zakia Binish M.Phil completed in 2014) 27. Investigation on Antimicrobial Effects of <i>Echinops echinatus</i> (Lunba Shafique M.Phil completed in 2014)
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Ph. D thesis supervised	1. Identification and Characterization of Antioxidant and Cytotoxic Activities of Selected Medicinal Plants of Gallyat Region, Pakistan (Muhammad Ishaque Ph.D.completed in 2018). 2. Bioassay Guided Assessment of Selected Medicinal Plants of Pakistan. (Huma Mehreen Sadaf Ph.D. In Process of foreign evaluation 2021) 3. Bioassay guided characterization of selected Bidens species (Kulsoom Zahara Ph.D. In Process of foreign evaluation 2021) 4. Cytotoxicity Guided Screening and Characterization of Selected Solanaceous Plant Extracts. (Iqra Riaz Ph.D. In thesis write up 2021). 5.Evaluation of plant extract based strategy for food bio-preservation (Nadia Sardar Ph.D. In thesis write up 2021).
Ph. D thesis CO- supervised	1. Assessment of Growth and Physiochemical Responses of Wheat to Chemo-Blended Silver and Iron Nanoparticles (Hafiz Muhammad Jhanzab Ph.D.completed in 2019). 2. Ecobiological and Allelochemical Characterization of Selected Invasive Plants of Pothwar Region of Pakistan (Huma Qureshi Ph.D.completed in 2018). 3. Taxonomic, Phytochemical and Biological Screening of Some Selected Medicinal Plants of Lesser Himalaya Pakistan. (Ejaz Ahmed Ph.D.completed in 2018).

Publications (Non impact factor)	1. Waheed, A., Bibi, Y., Nisa, S., Chaudhary, F. M., Sahreen, S., & Zia, M. (2013). Inhibition of human breast and colorectal cancer cells by <i>Viburnum foetens</i> L. extracts in vitro. <i>Asian Pacific journal of tropical disease</i>, 3(1), 32-36. 2. Sarwar, S., Dietz, B., Ping, Y., Bibi, Y., Nisa, S., & Chaudhary, M. F. (2013). Novel anti-uterus cancer potential of fruit extract of <i>Lantana camara</i> as exhibited through the inhibition of alkaline phosphatase in human endometrial adenocarcinomatic cell line. <i>Journal of Medicinal Plants Research</i>, 7(18), 1216-1221. 3. Batool, N., Bibi, Y., & Ilyas, N. (2014). Current status of <i>Ulmus wallichiana</i>: Himalayan endangered Elm. <i>Pure and Applied Biology</i>, 3(2), 60. 4. Chaudhari, S. K., Bibi, Y., & Arshad, M. (2014). <i>Podophyllum hexandrum</i>: An endangered medicinal plant from Pakistan. <i>Pure and Applied Biology</i>, 3(1), 19. 5. Ahmed, E., Yamin Bibi, M. A., & Ullah, K. (2014). Conservation status of <i>Taxus floridana</i>, acritically endangered evergreen coniferous Plant. <i>Pure and Applied Biology</i>, 3(4), 188-191. 6. Zahara, K., Bibi, Y., & Tabassum, S. (2014). Clinical and therapeutic benefits of <i>Centella asiatica</i>. <i>Pure and Applied Biology</i>, 3(4), 152. 7. Sadaf, H. M., Bibi, Y., Arshad, M., & Amjad, M. S. (2014). Status of Maiden Hair Tree-<i>Ginkgo biloba</i>; Living Fossils Becoming Endangered. <i>Nova Journal of Medical and Biological Sciences</i>, 2(7), 1-5. 8. Qureshi, H., Arshad, M., & Bibi, Y. (2014). Toxicity assessment and phytochemical analysis of <i>Broussonetia papyrifera</i> and <i>Lantana camara</i>: Two notorious invasive plant species. <i>Journal of Biodiversity and Environmental Sciences</i>, 5(2), 508-517. 9. Zahara, K., Bibi, Y., Tabassum, S., Bashir, T., Haider, S., Araa, A., & Ajmal, M. (2015). A review on pharmacological properties of <i>Bidens biternata</i>: A potential nutraceutical. <i>Asian Pacific Journal of Tropical Disease</i>, 5(8), 595-599. 10. Bibi, Y., Arshad, M., Ahmad, N., Riaz, I., & Chaudhari, S. K. (2015). An insight into medicinal and ethnopharmacological potential of <i>Crotalaria burhia</i>. <i>Asian Pacific Journal of Tropical Disease</i>, 5(7), 511-514. 11. Bibi, Y., Tabassum, S., Zahara, K., Bashir, T., & Haider, S. (2015). Ethnomedicinal and pharmacological properties of <i>Caralluma tuberculata</i> NE Brown-A review.
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	Pure and Applied Biology, 4(4), 503. 12. Sadaf, H. M., Bibi, Y., Riaz, I., Sultan, M. A., Bibi, F., Bibi, M., ... & Sabir, S. (2016). Pharmacological aptitude and profiling of active constituent from <i>Otostegia limbata</i>-Comprehensive review. <i>Asian Pacific Journal of Tropical Disease</i>, 6(11), 918-924. 13. Hussain, M., Bibi, Y., Raja, N. I., Iqbal, M., Aslam, S., Tahir, N., ... & Iftikhar, A. (2016). A review of therapeutic potential of <i>Ajuga bracteosa</i>: A critically endangered plant from Himalaya. <i>Journal of Coastal Life Medicine</i>, 4(11), 918-924. 14. Saboon, Y. B., Arshad, M., Sabir, S., Amjad, M. S., Ahmed, E., & Chaudhari, S. K. (2016). Pharmacology and biochemistry of <i>Polygonatum verticillatum</i>: a review. <i>Journal of Coastal Life Medicine</i>, 4(5), 406-415. 15. Shaheen, S., Bibi, Y., Hussain, M., Iqbal, M., Saira, H., Safdar, I., ... & Laraib, S. (2017). A review on <i>Geranium wallichianum</i> D-Don ex-sweet: an endangered medicinal herb from Himalaya Region. <i>Med. Aromat. Plants</i>, 6(02), 2167-0412. 16. Safdar, I., Bibi, Y., Hussain, M., Iqbal, M., Saira, H., Shaheen, S., ... & Mehboob, H. (2017). Review on current status of <i>Betula utilis</i>: An important medicinal plant from Himalaya. <i>J. Bot. Sci</i>, 6, 1-7. 17. Iqbal, M., Bibi, Y., Raja, N. I., Ejaz, M., Hussain, M., Yasmeen, F., ... & Imran, M. (2017). Review on therapeutic and pharmaceutically important medicinal plant <i>Asparagus officinalis</i> L. <i>J Plant Biochem Physiol</i>, 5(180), 2. 18. Qureshi, H., Arshad, M., Bibi, Y., Osunkoya, O. O., & Adkins, S. W. (2018). Multivariate impact analysis of <i>Parthenium hysterophorus</i> invasion on above-ground plant diversity of Pothwar region of Pakistan. <i>Applied Ecology and Environmental Research</i>, 16(5), 5799-5813. 19. Jamil, T., Bibi, Y., & Zahara, K. (2020). An Insight into Endangered Himalayan Paeony (<i>Paeonia emodi</i> Royle): Ethnobotany, Phytochemistry and Pharmacology. <i>Journal of Plant and Environment</i>, 2(1), 25-31. 20. Safdar, A., & Bibi, Y. (2020). Medicinal Uses and Conservation Status of <i>Aconitum violaceum</i>. <i>Journal of Plant and Environment</i>, 2(1), 19-23.
Research Interest	Plant Based Natural Products, Bioevaluation, Isolation & Chemical Characterization
Impact factor Publications	Impact Factor Publication

	Impact Factor Publication 1. Ahmed, S., Owen, C. P., Waheed, A., Nisa, S., Bibi, Y., & Chaudhary, M. F. (2009). Biochemical evaluation of extracts from <i>Caralluma tuberculata</i> against hormone-dependent breast cancer cells. <i>Journal of Pharmacy and Pharmacology</i> 1, A-135. (Impact factor = 2.264). 2. Bibi, Y., Nisa, S., Waheed, A., Zia, M., Sarwar, S., Ahmed, S., & Chaudhary, M. F. (2010). Evaluation of <i>Viburnum foetens</i> for anticancer and antibacterial potential and phytochemical analysis. <i>African journal of biotechnology</i>, 9(34), 5611-5615. (Impact factor = 0.573) 3. Bibi, Y., Nisa, S., Chaudhary, F. M., & Zia, M. (2011). Antibacterial activity of some selected medicinal plants of Pakistan. <i>BMC complementary and alternative medicine</i>, 11(1), 1-7. (Impact factor = 2.24). 4. Bibi, Y., Zia, M., Nisa, S., Habib, D., Waheed, A., & Chaudhary, F. M. (2011). Regeneration of <i>Centella asiatica</i> plants from non-embryogenic cell lines and evaluation of antibacterial and antifungal properties of regenerated calli and plants. <i>Journal of biological engineering</i>, 5(1), 1-8. (Impact factor = 2.48). 5. Zia, M., Arshad, W., Bibi, Y., Nisa, S., & Chaudhary, M. F. (2011). Does Agro-injection to soybean pods transform embryos. <i>Plant Omics Journal</i>, 4(7), 384-390. (Impact factor = 0.84). 6. Nisa, S., Bibi, Y., Waheed, A., Zia, M., Sarwar, S., Ahmed, S., & Chaudhary, M. F. (2011). Evaluation of anticancer activity of <i>Debregeasia Salicifolia</i> extract against estrogen receptor positive cell line. <i>African journal of Biotechnology</i>, 10(6), 990-995. (Impact factor = 0.573). 7. Bibi, Y., Nisa, S., Zia, M., Waheed, A., Ahmed, S., & Chaudhary, M. F. (2012). In vitro cytotoxic activity of <i>Aesculus indica</i> against breast adenocarcinoma cell line (MCF-7) and phytochemical analysis. <i>Pak J Pharm Sci</i>, 25(1), 183-7. (Impact factor = 1.103). 8. Bibi, Y., Nisa, S., Zia, M., Waheed, A., Ahmed, S., & Chaudhary, M. F. (2012). The study of anticancer and antifungal activities of <i>Pistacia integerrima</i> extract in vitro. <i>Indian journal of pharmaceutical sciences</i>, 74(4), 375.
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Book chapters	• Kulsoom Zahara & Yamin Bibi. 2020. Advancement in Plant Based Drug Development to Overcome Multivariate Drug Resistance in Today's Drug Discovery" In: RECENT PROGRESS IN MEDICINAL PLANTS Vol. 51 - Antimicrobial Resistance and Bioactive Natural Products". EDITOR :Dr. Sujogya Kumar Panda and Dr. Debasmita Dubey. Studium Press, USA.

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Courses taught	• Diversity of non-vascular plants • Molecular plant development • Environmental toxicology & bioremediation • Environmental biotechnology • Environmental Pollution • General Biology • Economic Biology
Research Interest	Plant Biotechnology, Environmental toxicology & bioremediation, Environmental biotechnology, Sustainable Biomass Energy Production.
M. Phil thesis supervise (on-going)	1. Investigation of methyl ester potentiality of waste seeds of <i>Xanthium spinosum</i> 2. Eco-taxonomic studies of PaharPur range district Dera Ismail Khan 3. Optimal generation of renewable energy from non-edible

	biomass via pyrolysis 4. Utilization of glycerol to glycerol carbonate via transesterification reaction in a Bubble mediated reactor
Impact factor Publications	Latest Publications 1. M Baessa, MJ Rodrigues, C Pereira, T Santos, N da Rosa Neng, JMF Nogueira, L Barreira, J Varela, H Ahmed, Asif S, SA Boukhari, WK Kayani, Khawaja Shafique Ahmad, G Zengin, A Mollica, L Custódio (2019) A comparative study of the in vitro enzyme inhibitory and antioxidant activities of <i>Butea monosperma</i> (Lam.) Taub. and <i>Sesbania grandiflora</i> (L.) Poiret from Pakistan: New sources of natural products for public health problems, South African Journal of Botany, 120, 146-156, Impact Factor = 1.504 2. Iqbal M., Asif S., Ilyas N., Hassan F., Raja N.I., Hussain M., Ejaz M., Saira H., (2018) Smoke produced from plants waste material elicits growth of wheat (<i>Triticum aestivum</i> L.) by improving morphological, physiological and biochemical activity, Biotechnology Reports, 17, 35-44. Impact Factor = 2.61 3. Asif S., Ahmed M., Bokhari A., Chuah L.F., Klemes J., Akbar M.M., Sultana S., Yusup S., (2017) Methyl ester synthesis of <i>Pistacia khinjuk</i> seed oil by ultrasonic-assisted cavitation system, Industrial Crops and Products, 108, 336-347. Impact Factor = 4.191 4. Asif S., Chuah L.F., Klemes J., Ahmed M., Akbar M.M., Keat T.L., Fatima, A., (2017) Cleaner production of methyl ester from non-edible

	feedstock by ultrasonic-assisted cavitation system, Journal of Cleaner Production, 161, 1360-1373. Impact Factor = 6.395 5. Bokhari A., Yusup S., Chuah L.F., Klemes J., Asif S., Ali B., Akbar MM., Kamil R.N.M., (2017) Pilot scale intensification of rubber seed (<i>Hevea brasiliensis</i>) oil via chemical interesterification using hydrodynamic cavitation technology, Bioresourse Technology, 242, 272-282. Impact Factor = 6.669 6. Rozina, Asif S., Ahmad M., Zafar M., Ali N., (2017) Prospects and potential of fatty acid methyl esters of some non-edible seed oils for use as biodiesel in Pakistan, Renewable and Sustainable Energy Reviews, 74, 687-702. Impact Factor = 10.556 7. Ahmed H., Naz M., Mustafa I., Khan M.R., Asif S., Afzal M.S., Arshad M., Naveed M.U., Ali S., Simsek S., (2017) Impact of epidemiological factors on the prevalence, intensity and distribution of ectoparasites in pigeons, Journal of Parasitic Diseases, 41(4), 1074-1081. Impact Factor = 0.50 8. Bostan, N., Naeem, M., Afzal, M.S., Shah, Z.H., Mustafa, I., Arshad, M., Haider, W., Khan, A.A.,Asif, S., Khan, M.R., Ahmad, S.S., Ali, S., Naveed, M. and Ahmed, H. (2016). Sero-prevalence of Hepatitis B and C Virus from rural areasof northern Punjab (Sargodha District), Pakistan. Tropical Biomedicine 33(4): 599–607. Impact Factor = 1.34 9. Huma Qureshi, Saira Asif, Haroon Ahmed, Hassan
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	A. Al-Kahtani & KhizarHayat (2016). Chemical composition and medicinal significance of Fagonia cretica: a review. Natural Product Research. 30(06):625-639. Impact Factor = 1.999 10. Mustafa, I., Ghani, A., Arif, N., Asif, S., Khan, M. R., Waqas, A., ... & Malik, I. U. (2015). Comparative metal profiles in different organs of house sparrow (Passer domesticus) and black kite (Milvus migrans) in Sargodha District, Punjab, Pakistan. <i>Pakistan Journal of Zoology</i>, 47(4). Impact Factor = 0.790 11. Irfan Mustafa, Abdul Ghani, Nousheen Arif, Saira Asif, Mobushir Riaz Khan, Ayesha Waqas, (2015) Comparative Metal Profiles in Different Organs of House Sparrow (Passer domesticus) and Black Kite (Milvus migrans) in Sargodha District, Punjab, Pakistan. <i>Pakistan J. Zool.</i>, vol. 47(4), pp. 1103-1108. Impact Factor = 0.790
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Courses taught	• Diversity of non-vascular plants • Molecular plant development • Environmental toxicology & bioremediation • Environmental biotechnology • Environmental Pollution • General Biology • Economic Biology
Research Interest	Plant Biotechnology, Environmental toxicology & bioremediation, Environmental biotechnology, Sustainable Biomass Energy Production.

M. Phil thesis supervise (on-going)	1. Investigation of methyl ester potentiality of waste seeds of <i>Xanthium spinosum</i> 2. Eco-taxonomic studies of PaharPur range district Dera Ismail Khan 3. Optimal generation of renewable energy from non-edible biomass via pyrolysis 4. Utilization of glycerol to glycerol carbonate via transesterification reaction in a Bubble mediated reactor
Impact factor Publications	Latest Publications 12. M Baessa, MJ Rodrigues, C Pereira, T Santos, N da Rosa Neng, JMF Nogueira, L Barreira, J Varela, H Ahmed, Asif S, SA Boukhari, WK Kayani, Khawaja Shafique Ahmad, G Zengin, A Mollica, L Custódio (2019) A comparative study of the in vitro enzyme inhibitory and antioxidant activities of <i>Butea monosperma</i> (Lam.) Taub. and <i>Sesbania grandiflora</i> (L.) Poiret from Pakistan: New sources of natural products for public health problems, South African Journal of Botany, 120, 146-156, Impact Factor = 1.504 13. Iqbal M., Asif S., Ilyas N., Hassan F., Raja N.I., Hussain M., Ejaz M., Saira H., (2018) Smoke produced from plants waste material elicits growth of wheat (<i>Triticum aestivum</i> L.) by improving morphological, physiological and biochemical activity, Biotechnology Reports, 17, 35-44. Impact Factor = 2.61 14. Asif S., Ahmed M., Bokhari A., Chuah L.F., Klemes J., Akbar M.M., Sultana S., Yusup S., (2017) Methyl ester synthesis of <i>Pistacia khinjuk</i> seed oil by ultrasonic-assisted cavitation system, Industrial Crops and Products, 108, 336-347.

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Courses taught	• Ethnobotany • Research Techniques and instrumentation • Phytosociology • Plant Ecology • Plant Taxonomy and Embryology • Biodiversity • Principles of Bio technology

M. Phil thesis supervised	• Taxonomic diversity of family Asteraceae in district Dera Ismail Khan, Pakistan. • Evaluation of antifungal activity of green Maganese nanoparticles against wheat rust • Ethnobotanical surveys of plants in Gujrat • Immobilization of heavy metals from contaminated soil and evaluation of multi-variant nanoparticles from <i>olea europae</i>
Ph. D thesis supervised	• Effect of Nano fertilizers on growth, productivity and bio fortification of <i>Brassica campestris</i> • Pollen diversity in honey samples of Bee flora in division Bannu KPK Pakistan
Ph. D thesis co-supervised	NIL
Publications (Non impact factor)	NIL
Research Interest	Plant Ecology; Phytosociology; Plant Biosystematics; Plant Taxonomy; Medicinal Plants; Ethnobotany, Biodiversity
Impact factor Publications	• Identification of Sulaiman and Kirthar range flora using Palynomorphological features through LM and SEM
	• Paly morphological study of weedy Melliferous(Bee visited plants using light Microscopic techniques from Southern Khyber Pakhtunkhwa, Pakistan
	• Shah, S. N., Ahmad, M., Zafar, M., Hadi, F., Khan, M. N., Noor, A., ... & Hussain, M. (2021). Application of spore morphology to solve identification problems in certain species of family Dryopteridaceae from Malakand Division, Pakistan. <i>Microscopy Research and Technique</i>.
	• Antibacterial and antifungal activity of methanolic extract of <i>Salix alba</i> L. against various Pathogens (Brazilian journal of Biology)
	• Rashid, N., Zafar, M., Ahmad, M., Memon, R. A., Akhter, M. S., Malik, K., ... & Shah, S. N. (2020). Seed morphology: An addition to the taxonomy of Astragaleae and Trifolieae (Leguminosae: Papilionoidae) from Pakistan. <i>Microscopy Research and Technique</i>.
	• Ikram, M., Raja, N. I., Javed, B., Hussain, M., Hussain, M., Ehsan, M., ... & Akram, A. (2020). Foliar applications of bio-fabricated selenium nanoparticles to improve the growth of wheat plants under drought stress. <i>Green Processing and Synthesis</i>, 9(1), 706-714.

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SUMMARY AND CONCLUSION

In the department of Botany, Pir Mehr Ali Shah Arid Agriculture Rawalpindi, this Self-Assessment Report (SAR) encompasses the activities carried out for M.Sc. Program from fall semester 2016-18. The prior objective of Self-Assessment Report (SAR) was to examine academic activities as perceived by students of the Department of Botany.

Botany is a diverse profession that encompasses all aspects and fields of plants. The Department has well-structured academic Program of M.Sc. Department is actively engaged in academic activities. The successful graduates produced by the Department of Botany are proving their worth in practical field is great assets in field of botany. In order to assess whether department is fulfilling its objectives or not, surveys on various aspects such as course evaluation, teacher evaluation, alumni survey, graduating students surveys and faculty survey etc. have been conducted by the departmental members of the program team. The data revealed that students are satisfied with the subject approach of faculty members, their fairness in examination, and level of knowledge. The objective of M. Sc program is to prepare all future graduates for technical and professional success. This is summarized in the following Self-assessment report for Department of Botany, which is focused on achievements of our graduates in last 2 academic years 2016-18. Basic needs for improving M. Sc. Program is that the Institutional facilities should be improved like provision of computer library, better lecture halls and laboratories.

So institutional support in this regard can play a pivotal role in stream lining the sustained development of institution to update the knowledge of the faculty member. The program is focused on improving student's ability to apply knowledge of plant sciences so they can design and conduct experiments, as well as analyze and interpret data.

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