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DEPARTMENT OF PLANT PATHOLOGY



SELF-ASSESSMENT REPORT (3rd CYCLE)
(Ph.D)

October 2010-July 2012

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Member
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INTRODUCTION

This Self Assessment Report (SAR) presents the progress of Ph.D level for Department of plant pathology, for the academic years 2010-12. Surveys were conducted at the end of each semester i.e., Fall semester (2010-11), Spring (2011), Fall semester (2011-12) and Spring (2012). This Self Assessment Report (SAR) is based on eight criteria laid down by Higher Education Commission, Pakistan. The first criterion provides the program mission and objectives followed by criterion 2 that gives an insight in to the curriculum development. Criterion 3 catalogues the laboratories and other relevant information about the computers availability and internet etc, The information about students' support and advising is mentioned in the fourth criterion whereas the next two criteria give the information about process control and faculty characteristics. Institutional facilities and support are seventh and eighth criteria respectively used for the development of this self assessment report. On the basis of all observations, feedback from the stakeholders, shortcomings and facilities have been pointed out. A summary is presented at the end of the report.

Program Assessment Results

Teacher's Evaluation

Assessment was conducted twice during each academic year of 2010-2011 and 2011-2012 at the end of each semesters i-e fall semesters 2010- 2011 and 2011- 2012 and spring semesters 2011 and 2012. There were seven teachers that included Prof. Dr. Abdul Rauf, Dr. M. Inam-ul-Haq, Dr Tariq Mukhtar, Dr Abid Riaz, Dr. Muhammad Ashfaq and Dr. Farah Naz, and in the department at the time of assessment that are numbered 1-7. Students evaluate the teachers at the end of each semester in accordance with Proforma-10 (Annexure-X). The compiled result of 2010-11 & 2011-12 is presented graphically in Fig. 1. According to the results the performance of teachers was satisfactory. It is obvious from the graph that Teacher 7 topped with the score of 81.41 % followed by teacher 4 and 6, respectively, while teacher 5 is on the bottom securing 73.5% score for fall semesters (Fig. 1).

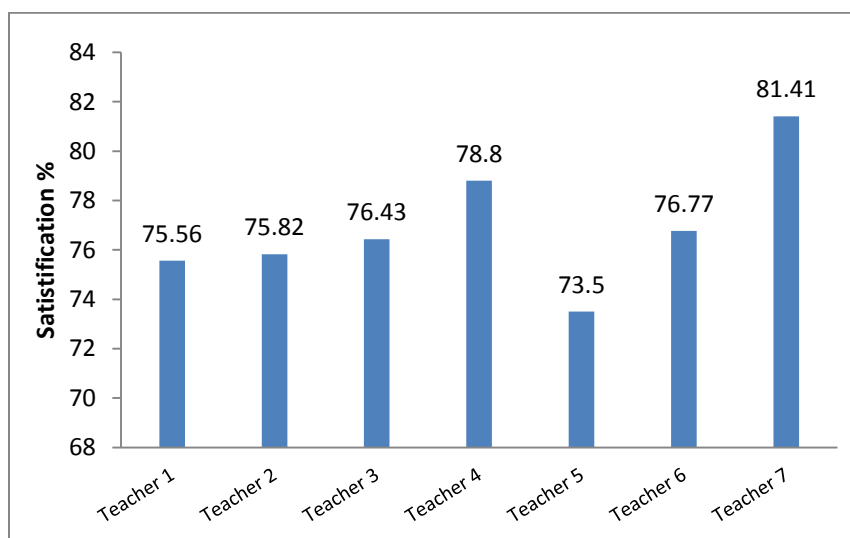
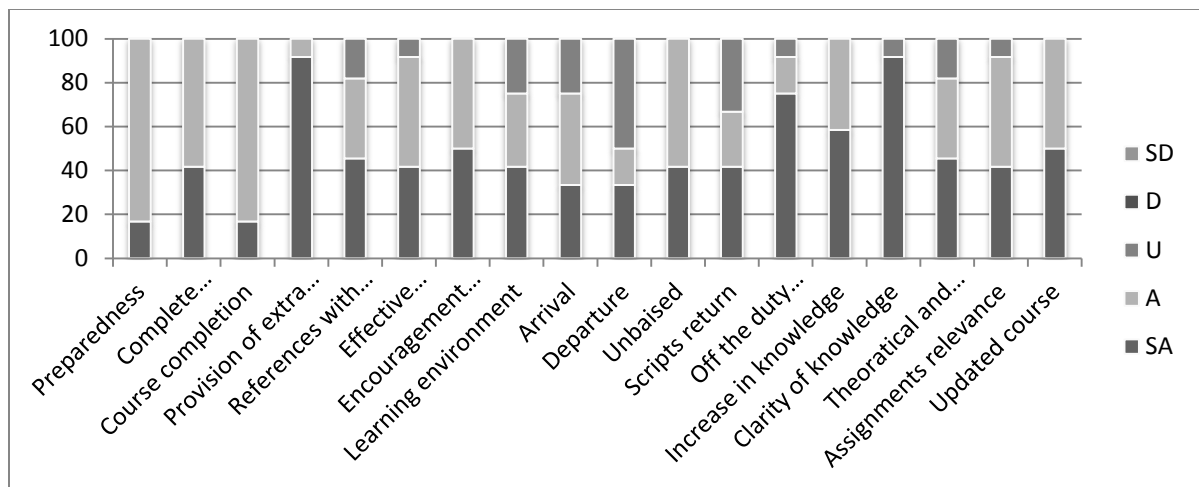


Fig. 1 Teacher Evaluation for the years 2010-11 and 2011-12 at post graduate level

Bar diagram showing evaluation of teachers in detail

Teacher 1

The students were satisfied with the teacher. 80% of the students believed that the teacher taught his subject which increased their knowledge while remained were uncertain. About Twenty percent of the students, however, did not agree that the teacher completed the course.



SA= Strongly Agree; A= Agree; UC = Uncertain; D = Disagree; SD = Strongly Disagree

General Comments of the Students about this Teacher

Weakness:

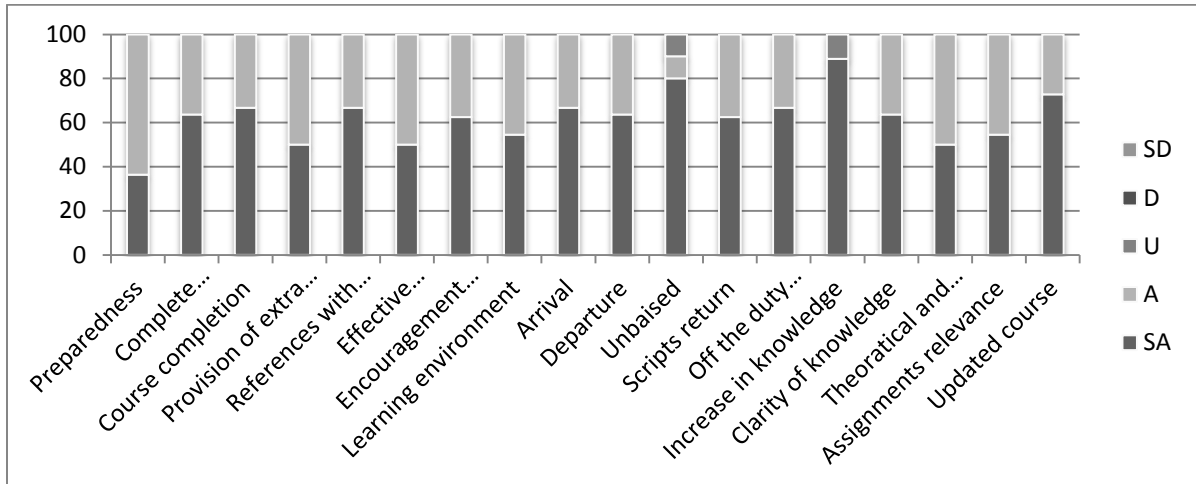
- Teacher should complete his course on time

Strengths:

- Teacher's methodology was good
- Teacher was fair in examination.

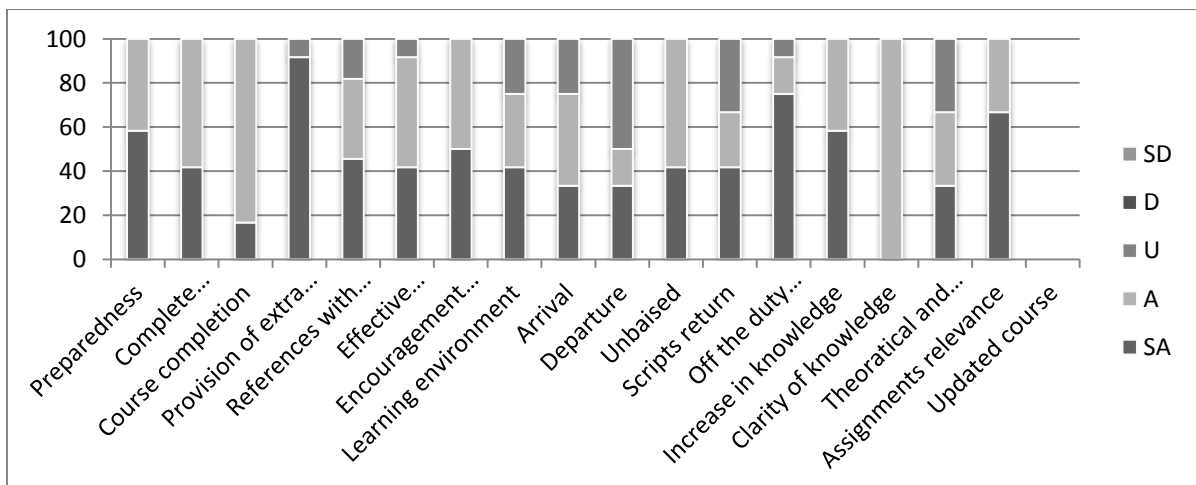
Teacher 2

According to the assessment results, about 80% students revealed that the teacher increased their knowledge rests were either uncertain or disagreed. More than 55% students showed that teacher demonstrated the subject matter perfectly. 70% showed that the teacher followed the timings of classes.



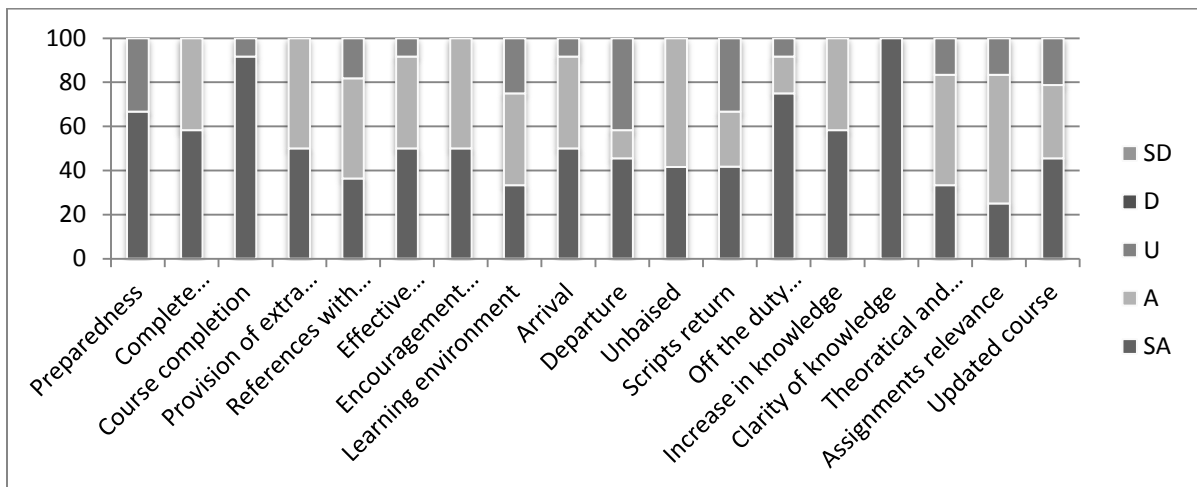
Teacher: 3

From all respondents 50 % agreed with the statements that the teacher was prepared course was well organized, understanding of lectures and pace of course was appropriate. About 40% were uncertain about the learning and teaching method encouraged participation.



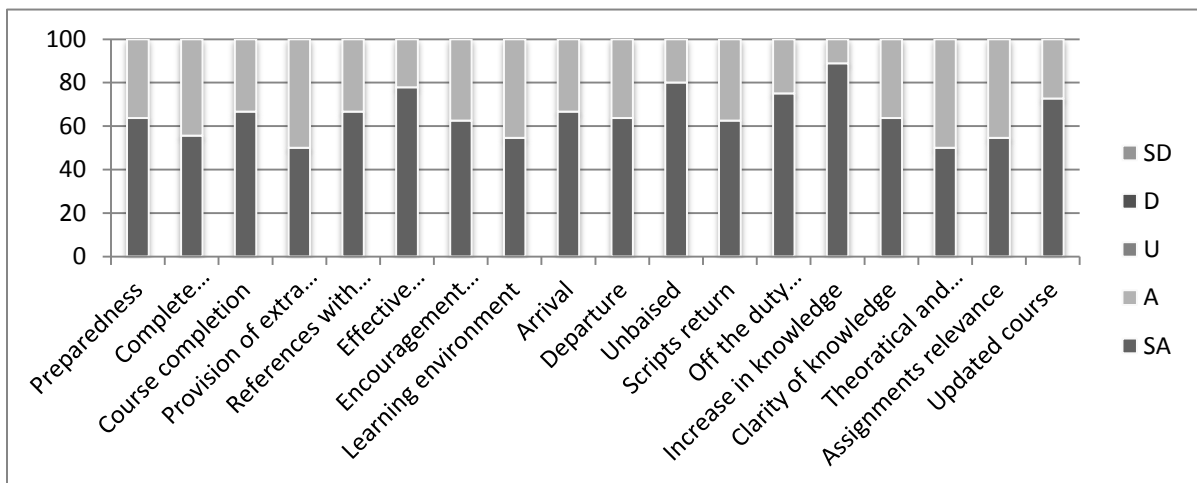
Teacher 4

The following graphs have shown that performance of the teacher rated by the students is good. 70% students showed that the instructor was prepared and demonstrated the knowledge, respectively. Yet, the communication needs to be more effective because the 35% students disagreed about the communication question. The teacher was also fair in the examination.



Teacher: 5

Analyses of the Performa revealed good performance of the teacher on overall basis. Generally all the indicators are categorized in strongly agreed, agreed or uncertain.



General comments about the teacher

Teachers Evaluation (Proforma 10)

Weaknesses:

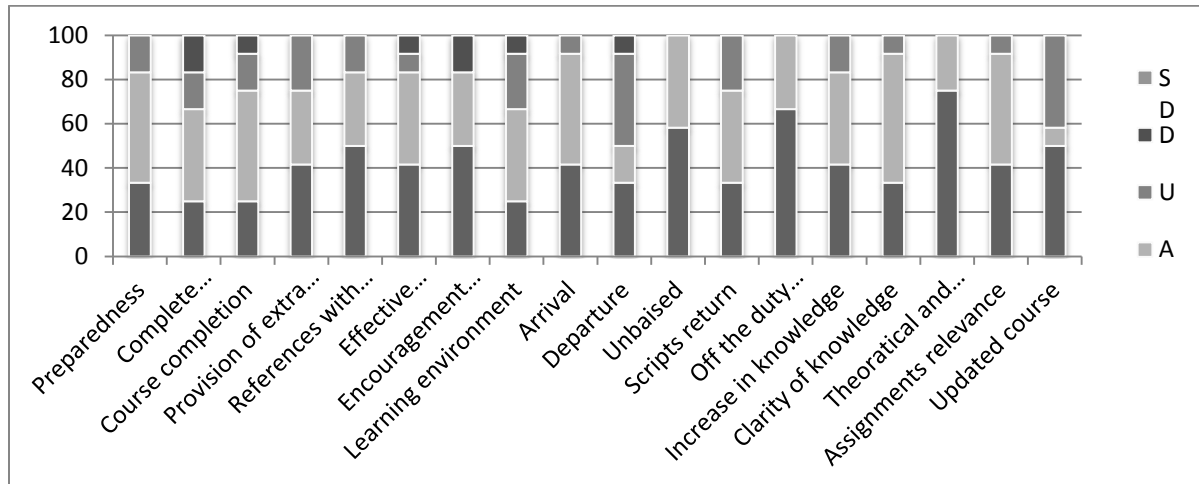
- Teacher should arrange field visits and study tours to learn more practically.

Strengths:

- Teacher encouraged class participation.
- Lectures were informative and full of knowledge.
- Teacher had good command on his subject.

Teacher: 6

The survey results exhibited the teacher was prepared for the class perfectly. Whereas, demonstration can be further strengthened, more than 70% of the students were happy about the examination numbering. Further things are depicted in Fig.



General Comment of Students about this Teacher

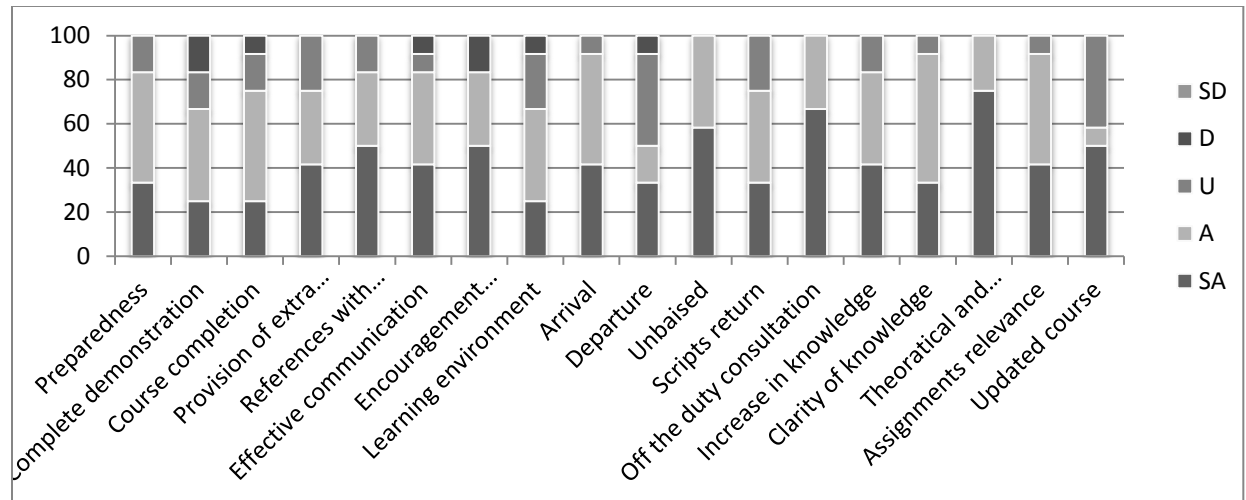
Teachers Evaluation (Proforma 10)

Strengths:

- Teacher was cooperative.
- Teacher was nice and humble.

Teacher- 7

Similarly, 81.9% students agreed that the course was completed in due time and the rest remained uncertain. Likewise they were also agreed that the teacher provides additional material apart from the text and the teacher used to give them citation regarding current situations with reference to Pakistani context.



Teachers Evaluation (Proforma 10)

Weaknesses:

- Teacher should provide notes on time.

Strengths:

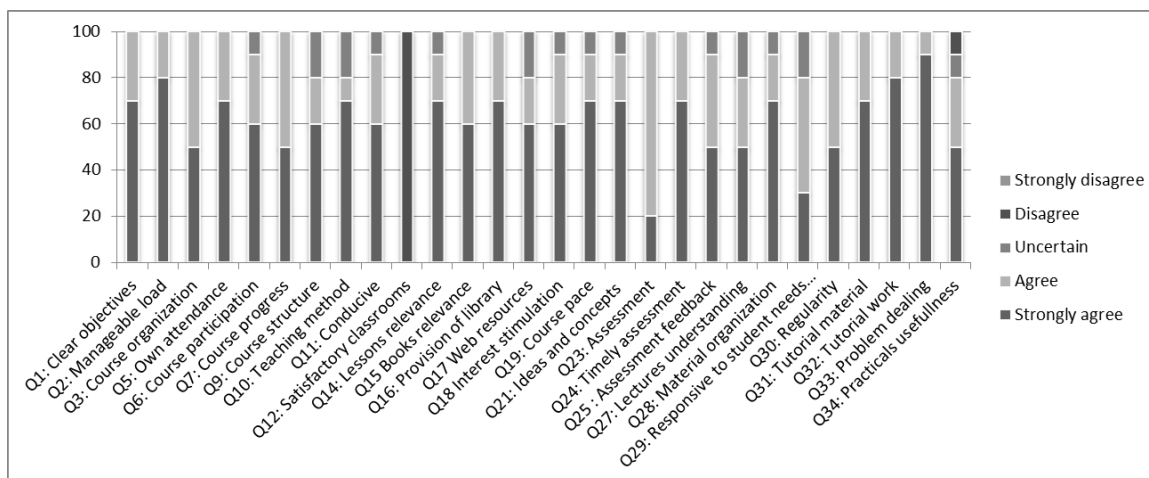
- Teacher completed the course within time.
- Teacher was nice.

STUDENT COURSE EVALUATION:

One course of each of the seven teachers who taught at post graduate level in the academic year-2010-11 was also evaluated by the students enrolled in that course. The course was examined as per proforma 1.(Annexure-1). Detailed evaluation of individual course is given in bar charts shown in following.

PP 701 Teacher 1

All the students were positive about the course objectives as well as length of the course. Same was with the organization of the course. Interestingly, all the students were satisfactory about the conditions of the class rooms. Similarly, lecture delivery as well as assessment in examination was reported by 100% satisfactory. Moreover, practical experiments were organized in conducive environment leading to satisfactory results.



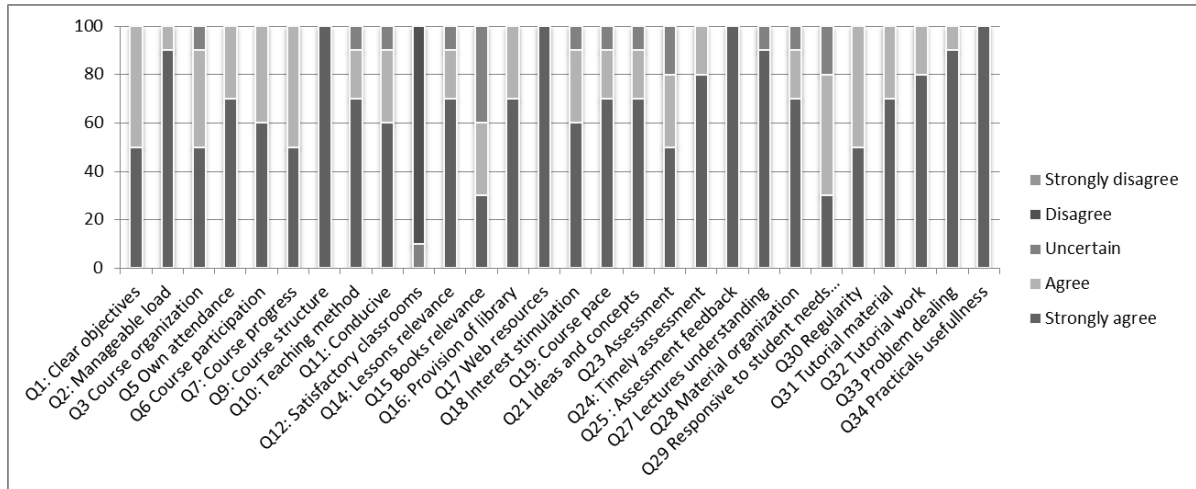
Weaknesses:

- Teacher should be on time
- Tutorial time should be adequate

Strengths: Course was well organized.

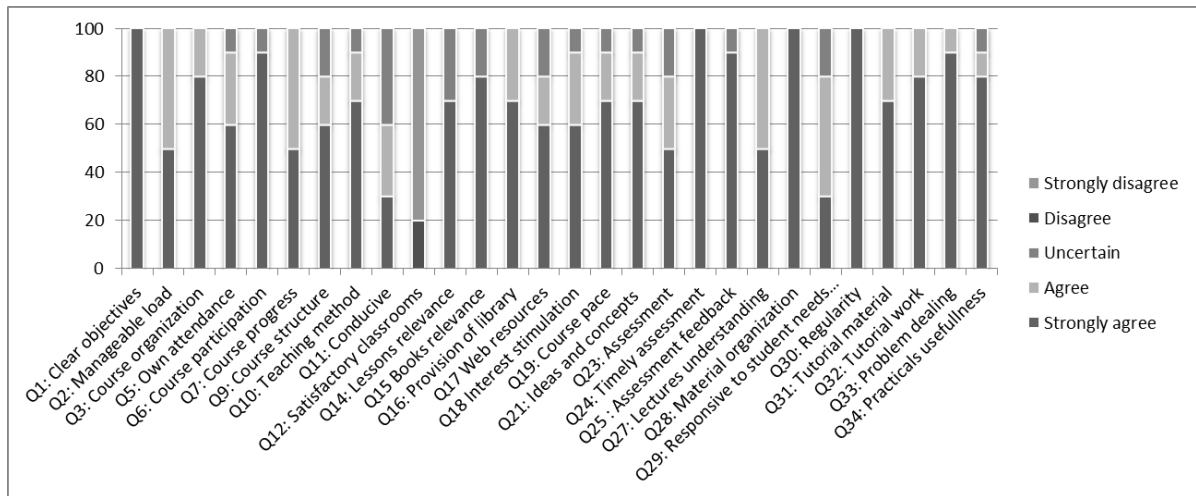
PP-707 Teacher: 2

Course load was manageable. 70% students liked the teaching methodology. On the other hand, 90% course load was manageable. But the instructor has to be regular in the class as some students were uncertain about the teacher regularity.



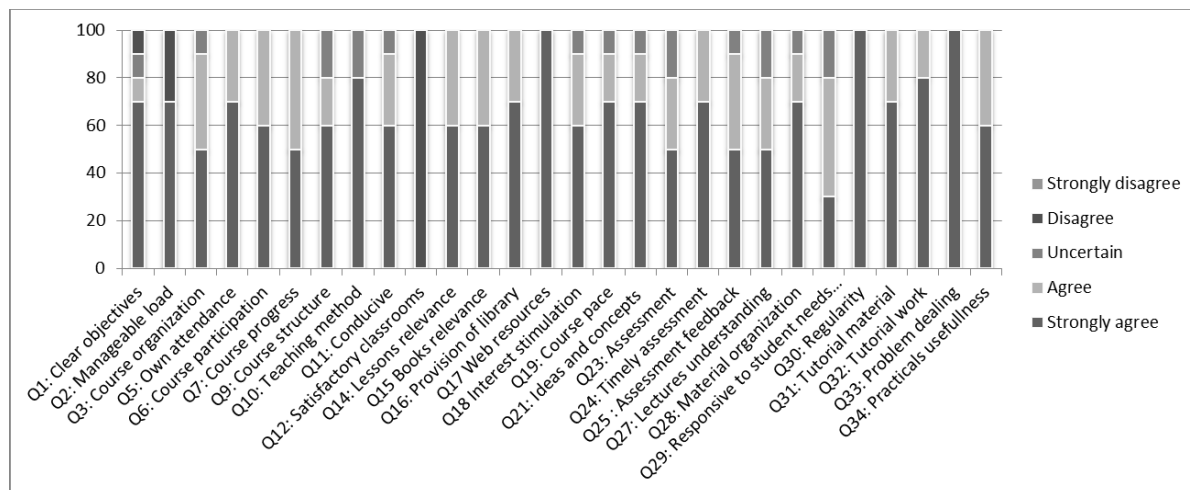
PP-714 Teacher 3

Every student agreed that course objectives were clear, course load was manageable and the course was well organized, yet students have to be present all the time. Similarly, the ideas and concepts were presented in an ideal environment and the method of assessment was impartial.



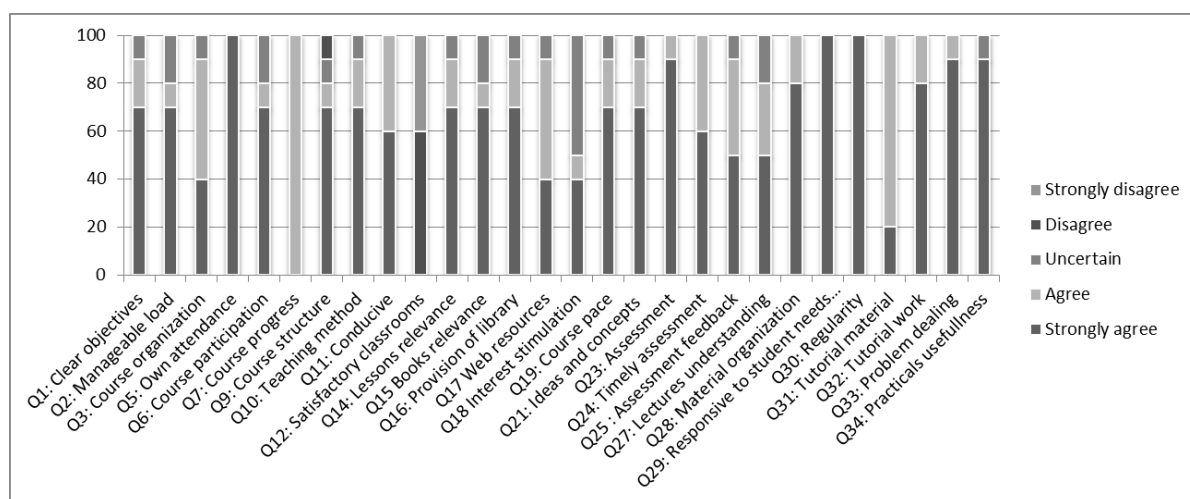
PP-712 Teacher 5

According to the assessment, 90% of the students agreed that course objectives were clear whereas the rest remained uncertain. Same was the case with course load. 20% students showed their uncertainty about the pace of this course. Similarly, 50% of the students were uncertain about the understanding of lectures.



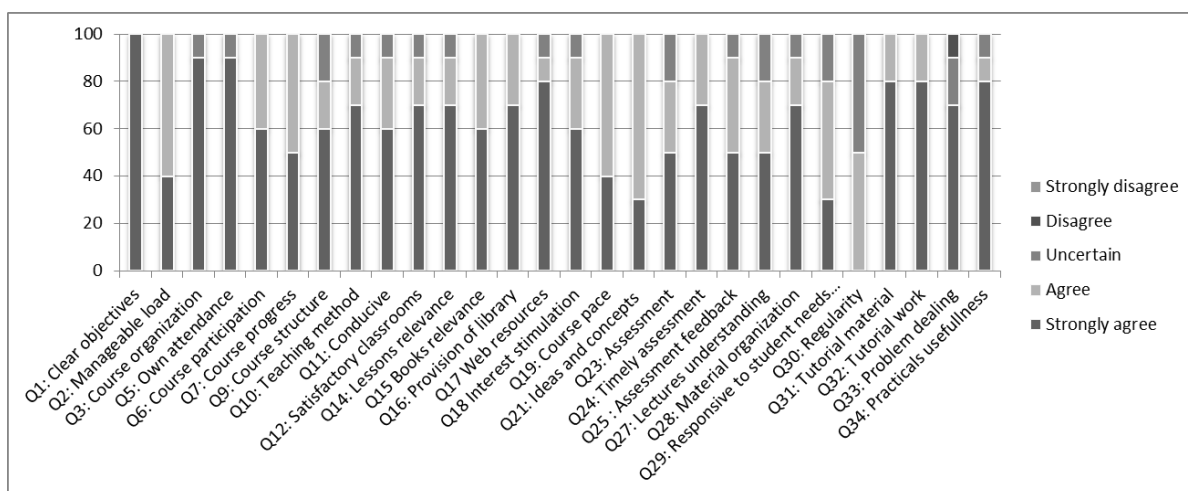
PP-703 Teacher 6

It is evident from the fig that most of the students strongly agreed with the statement that course objectives were clear, course work was manageable, learning and teaching method encouraged participation and the course was well organized. Participation of the students was also adequate. 80% of the students were present throughout the lectures. However, the relevant books and helping material needs to be provided in future.



PP-706 Teacher 7

According to assessment, 100% students were agreed and strongly agreed from the inquired statements, such as the clarity of the course objectives, course load was manageable and they understand lectures fully and feedback was given properly for the assessments. A few students expressed their view as uncertain. Details for the rest of the queries are given below in fig.



Alumni Survey

The individual results of alumni survey regarding knowledge, communication, interpersonal skills and management/leadership skills are provided via pie charts in the coming figures. It is evident from the graphs of knowledge that majority of the alumni agreed or strongly agreed with problem solving, collecting and analyzing the data and knowledge of science, arts, humanities and professionalism. Improvement is needed, however, in ability to think and link theory with practice. The results of individual parameters are given in the following Fig.2-5.

Graphs also suggest that they are really good in oral and presentation skills but there is room for betterment in report writing.

Similarly, interpersonal abilities were also good. Data indicate that improvement needs to be made in preparing graduates to deal with challenging and arduous situations. On the same

grounds, report writing skills need to be incorporated more, although resource management was appropriate.

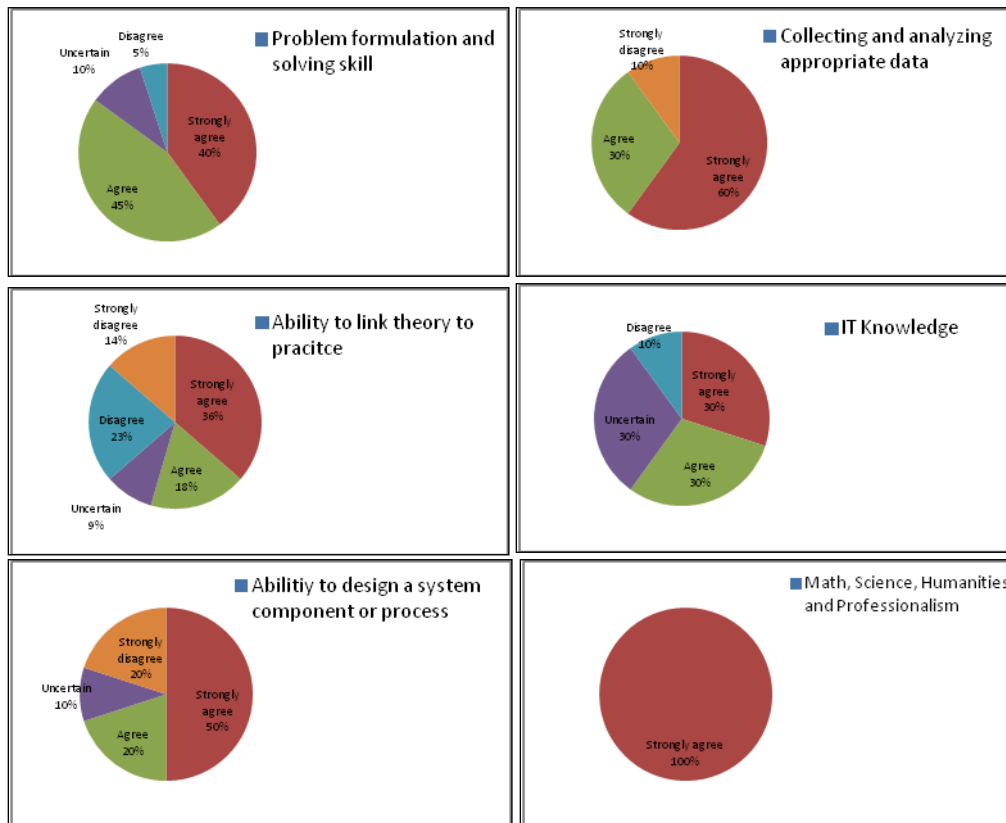


Fig.2 Knowledge gained in the degree

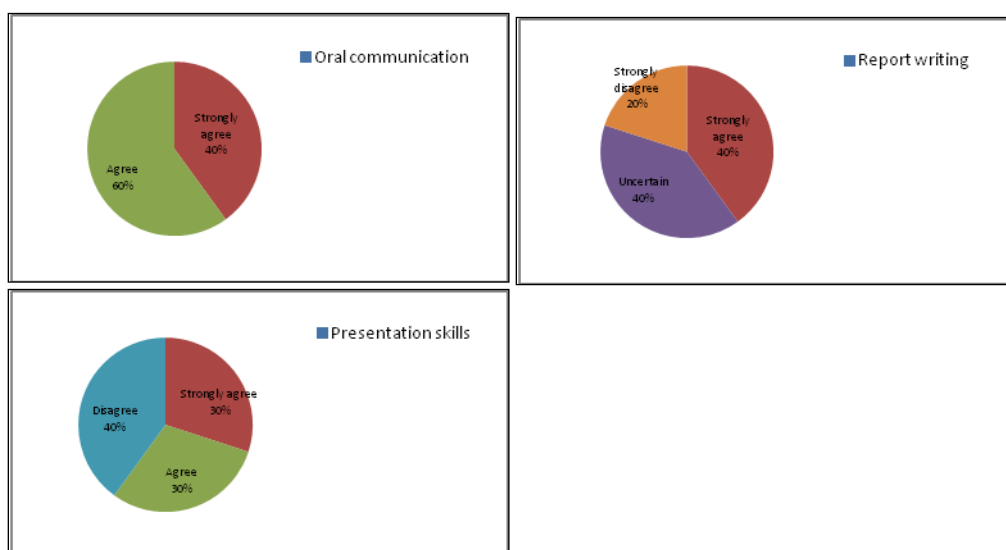


Fig. 3 Communication Skills learnt for the programme

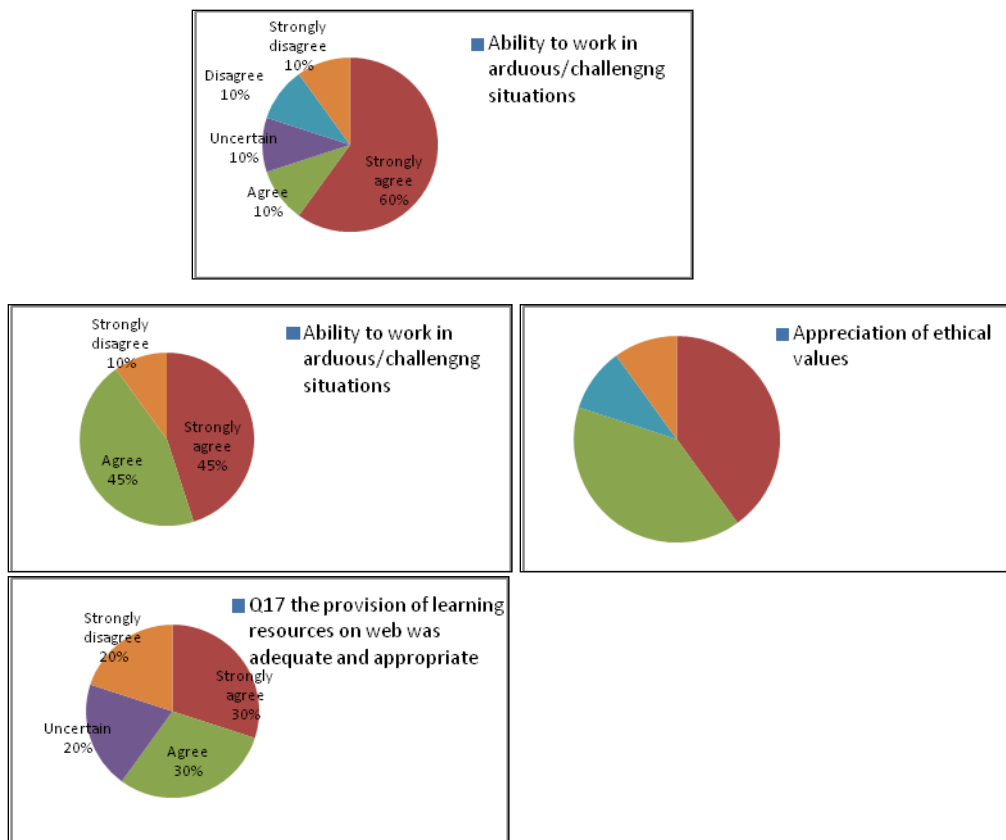


Fig. 4 Interpersonal Skills improved by the programme

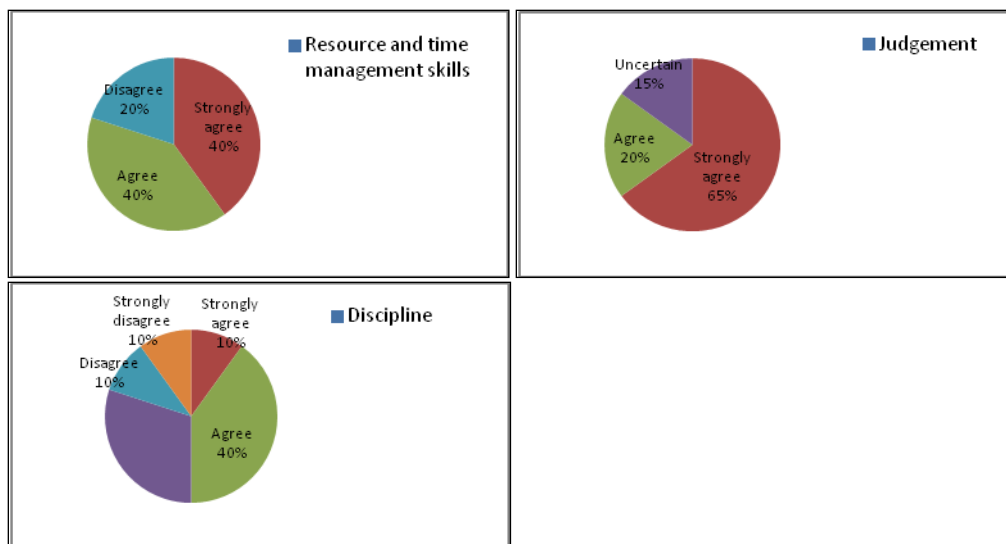
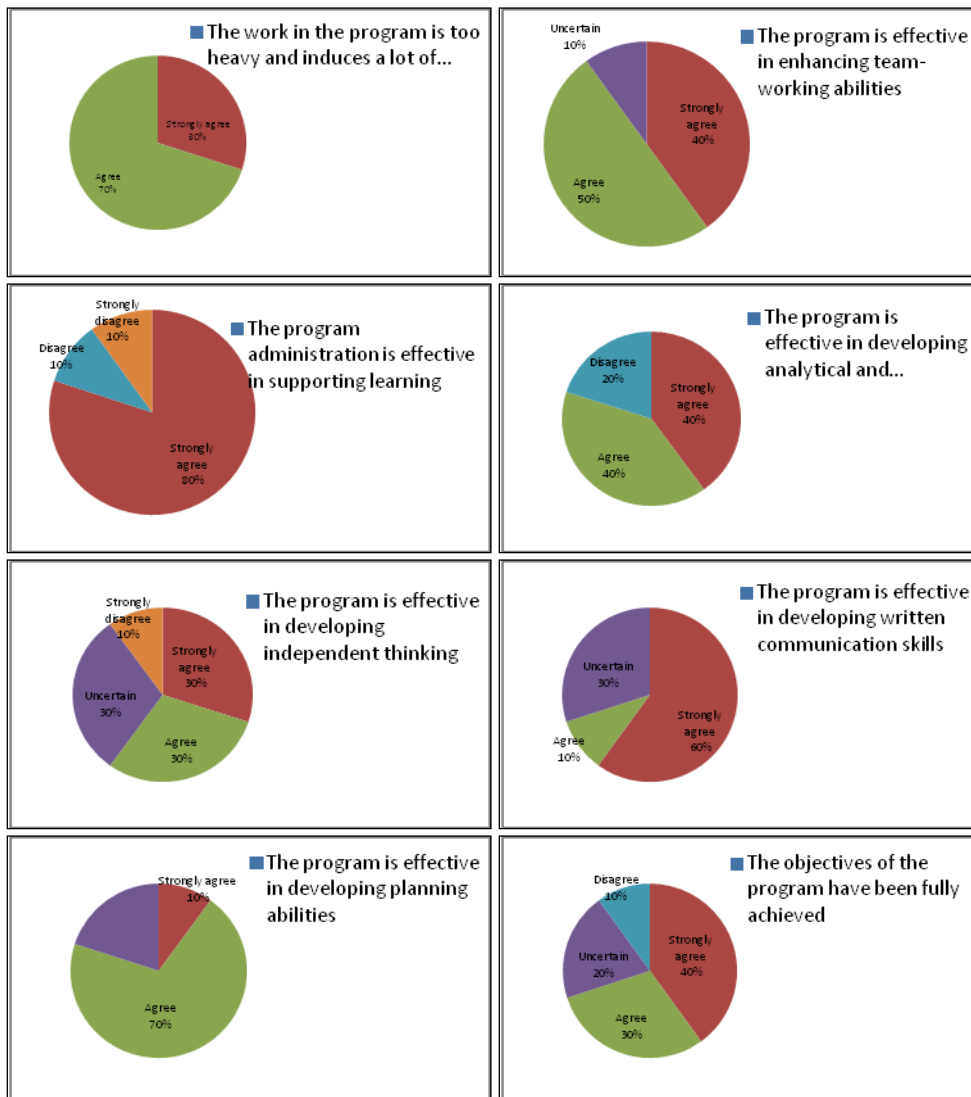
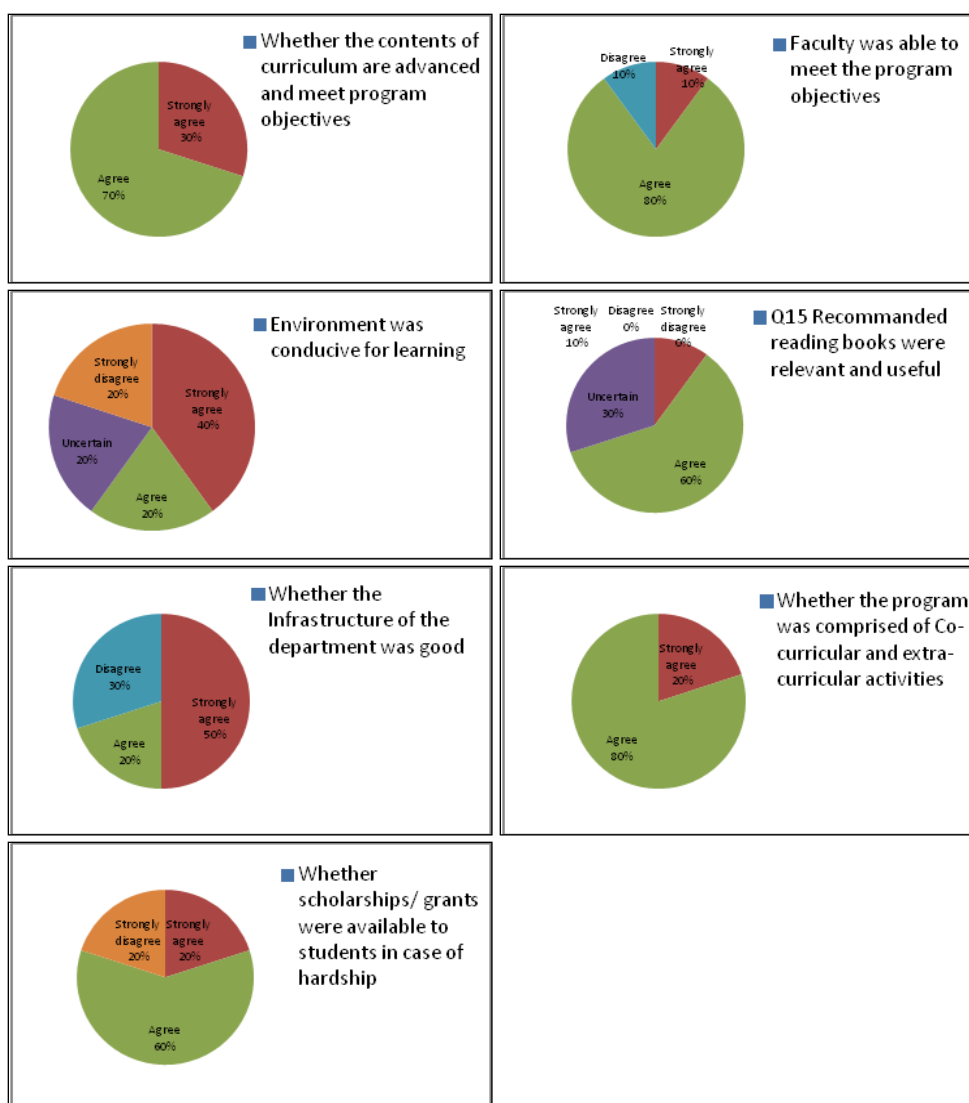


Fig.5 Management/Leadership skills inculcated through the programme

Survey of Graduating Students

Survey of graduating students revealed that the program is heavy and induces a lot of pressure but they agreed that the program is effective in enhancing team working abilities. Program administration, however, needs to bring improvement. Program is also effective in developing analytical skills, independent thinking and written and communication skills. Furthermore, the program enhances the planning abilities yet few also disagreed that the program goals are achieved at the end of the program. Similar situations can be observed in the figure given below. Scholarships were also available not in great deal.





Employer survey

A survey was conducted to get the employer's point of view about the working of our former students in their organizations (Proforma 8, Annexure 8). Feed back about 21 employees was obtained from organizations viz. National Agriculture Research Centre Islamabad (NARC), Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, Federal Seed Certification Department, Islamabad, Bahaud Din Zakria University Multan and Department of Agricultural Extension Punjab. Their views are reflected in the bar diagram below. The major emphasis was to know the employers comments on the quality of education regarding: knowledge, communication skill, work skill and interpersonal skills

these students have. Survey reflects that our graduates fall above average in all areas and their skill levels revealed more than 70% (Fig. 6). This indicates that these graduates are adaptable in show their best potential in any given environment. Some employers gave general comments about some weaknesses in the practical workability. The employers in this survey however, appreciated the practical skills shown by some of our students.

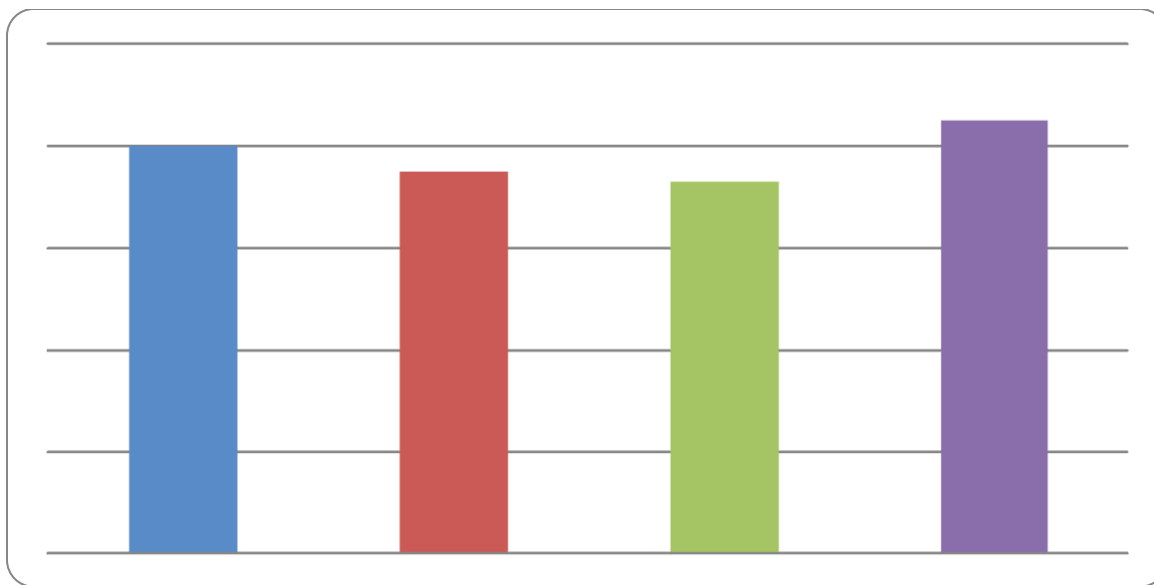


Fig. 6 Various skill levels of the graduates as per information given by employers

PROFORMA 2

The proforma pertains to the report of course review by the faculty members. these proformae were collected from each of the teachers who took undergraduate course in the assessment year. In the following pages soft copies sent by the teachers are reproduced as such.

Faculty Course Review Report



For completion by the course instructor and transmission to Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:	Plant Pathology		Faculty:	FC & FS	
Course Code:	PP-401	Title:	Introduction to Plant Pathogens		
Session:	2012-11	Semester:	Autumn ☒	Spring ☐	Summer ☐
Credit Value:	2(1-2)	Level:		Prerequisites:	
Name of Course Instructor:	Dr. Irfan Ul-Haque	No. of Students:40 Contact Hours:03	Lectures	Other (Please State)	
			Seminars		
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)		Midterm 06 marks (only theory) Final Theory 12 Practical 20 Assignment 02 Total: 40			

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Original y Registere d	%Grade A	%Grade B	%Grad e C	D	E	F	No Grad e	Withdraw al	Total
No. of Students	40	31.5	31.5	15.75	15.75		5.5		-	40

Overview/Evaluation (Course Co-coordinator's Comments)

Feedback: first summarize, then comment on feedback received from:

(These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires(Proforma-1)
Informative course contains basic things

2) External Examiners or Moderators (if any)
--Nil

3) Student /staff Consultative Committee (SSCC) or equivalent, (if any)

--nil

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

Should be essential before taking pathology as major. Yes complies with HEC.

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

Effective method and should be continued

6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports:
Not received.

Faculty Course Review Report



For completion by the course instructor and transmission to Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:	Plant pathology		Faculty:	Crop and food sciences	
Course Code:	Pp 501	Title:	Introductory mycology		
Session:	2011-12	Semester:	Autumn ☐	Spring ☐	Summer ☐
Credit Value:	3(2-2)	Level:	Bsc(Hons)	Prerequisites:	
Name of Course Instructor:	Mrs Gulshan Irshad	No. of Students	Lectures 32	Other (Please State)	
		Contact Hours	practical 16		
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)		Mid term :12 marks Final :24 marks Assignment :4 marks Total marks :60			

Distribution of Grade/Marks and other Outcomes: (adpt the grading system as required)

Undergraduate	Original ly Registere d	%Grade A	%Grade B	%Grad e C	D	E	F	No Grad e	Withdraw al	Total
No. of Students	20	40%	20%	40%						
Post-Graduate	Original ly Registere d	%Grade A	%Grade B	%Grad e C	D	E	No Grade		Withdraw al	Total
No. of Students										

Overview/Evaluation (Course Co-coordinator's Comments)

Feedback: first summarize, then comment on feedback received from:
(These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires(Proforma-1)

2) External Examiners or Moderators (if any)
3) Student /staff Consultative Committee (SSCC) or equivalent, (if any)
4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports:
7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt :

Faculty Course Review Report



For completion by the course instructor and transmission to Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:	Plant Pathology		Faculty:	Crop and Food Sciences	
Course Code:	PP-503	Title:	Introductory Plant Nematology		
Session:	2010-2011	Semester:	Autumn ☒	Spring ☐	Summer ☐
Credit Value:	3(2-2)	Level:	Undergraduate	Prerequisites:	B.Sc. Hons. Four semesters
Name of Course Instructor:	Dr. Tariq Mukhtar	No. of Students Contact Hours	Lectures 30 Seminars 1	Other (Please State) Practical (15)	
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)		Mid exam = 20% Final Exam = 40% Assignment = 7% Practical = 33%			

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Original y Registere d	%Grade A	%Grade B	%Grad e C	D	E	F	No Grad e	Withdraw al	Total
No. of Students	26	8	9	9	-	-	-	-	-	26
Post-Graduate	Original y Registere d	%Grade A	%Grade B	%Grad e C	D	E	No Grade		Withdraw al	Total
No. of Students										

Overview/Evaluation (Course Co-coordinator's Comments)

Feedback: first summarize, then comment on feedback received from:
(These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires(Proforma-1)

2) External Examiners or Moderators (if any)

3) Student /staff Consultative Committee (SSCC) or equivalent, (if any)

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

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

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

7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt :

Faculty Course Review Report



For completion by the course instructor and transmission to Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:	Plant Pathology		Faculty:	Crop and Food Sciences	
Course Code:	PP-505	Title:	Introduction to Plant Prokaryotes		
Session:	2012-13	Semester:	Autumn ☐	Spring ☐	Summer ☐
Credit Value:	3(2-2)	Level:	BSc (Hons)	Prerequisites:	
Name of Course Instructor:	Dr. M. Inam-ul-Haq	No. of Students Contact Hours	Lectures	Other (Please State)	
			Seminars		
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)		Two assignments were given to individual student during the semester; One was written and the second was oral presentation. Students were assessed twice during the semester in mid and final exams.			

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Originall y Registere d	%Grad eA	%Grad e B	%Grad e C	D	E	F	No Grade	Withdraw al	Total
No. of Students	21	62	38	0	0	0	0			21
Post-Graduate	Originall y Registere d	%Grad eA	%Grad e B	%Grad e C	D	E	No Grade		Withdraw al	Total
No. of Students										

Overview/Evaluation (Course Co-coordinator's Comments)

Feedback: first summarize, then comment on feedback received from:
(These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires (Proforma-1)

2) External Examiners or Moderators (if any)
3) Student /staff Consultative Committee (SSCC) or equivalent, (if any)
4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports:
7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt :

Faculty Course Review Report



For completion by the course instructor and transmission to Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:	Plant Pathology		Faculty:	FC&FS	
Course Code:	PP-507	Title:	Introduction to Plant Viruses		
Session:	Fall Semester 2010-11	Semester:	Autumn ☒	Spring ☐	Summer ☐
Credit Value:	3(2-2)	Level:	B.Sc(Hons)	Prerequisites:	Introductory Plant Pathology
Name of Course Instructor:	Dr. Muhammad Ashfaq	No. of Students (26) Contact Hours (68)	Lectures 30	Other (Please State) Lab: 16	
			Seminars		
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)		Two assignments/student (10%), Mid Exam (30%), Final Exam (60%)			

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Original ly Registere d	%Grade A	%Grade B	%Grad e C	D	E	F	No Grad e	Withdraw al	Total
No. of Students	19	42.31	46.15	11.54						
Post-Graduate	Original ly Registere d	%Grade A	%Grade B	%Grad e C	D	E	No Grade		Withdraw al	Total
No. of Students										

Overview/Evaluation (Course Co-coordinator's Comments)

Feedback: first summarize, then comment on feedback received from:

(These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires (Proforma-1)
nice personality with good knowledge, full command on communication skill, best and dutiful with good teaching methods.

2) External Examiners or Moderators (if any)

-

3) Student /staff Consultative Committee (SSCC) or equivalent, (if any)

-

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

course is fine and no need of any improvement

5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
Present Course is fine and informative with clear objectives and satisfied practical classes.

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

-

7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt :

-

Faculty Course Review Report
(To be filled by each teacher at the time of Course Completion)



For completion by the course instructor and transmission to Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:			Faculty:		
Course Code:	601	Title:	Principal of Disease Management		
Session:		Semester:	Autumn ☐	Spring ☐	Summer ☐
Credit Value:	3(2-2)	Level:		Prerequisites:	
Name of Course Instructor:	Dr Farah Naz	No. of Students Contact Hours	Lectures 32	Other (Please State)	
			Seminars Practical 16		
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)		Assignment for 4 Marks Mid term: 12 Marks Final term: 24 Marks Total Marks: 60			

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Original y Registere d	%Grade A	%Grade B	%Grad e C	D	E	F	No Grad e	Withdraw al	Total
No. of Students	19	52%	26%	21%						19
Post-Graduate	Original y Registere d	%Grade A	%Grade B	%Grad e C	D	E	No Grade		Withdraw al	Total

No. of Students									
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Overview/Evaluation (Course Co-coordinator's Comments)

Feedback: first summarize, then comment on feedback received from:
(These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires(Proforma-1)

2) External Examiners or Moderators (if any)

3) Student /staff Consultative Committee (SSCC) or equivalent, (if any)

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

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

ALL IS WELL!!!!

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

Faculty Course Review Report



For completion by the course instructor and transmission to Head of Department or his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:	Plant Pathology		Faculty:	Crop & food sciences	
Course Code:	PP-603	Title:	Range and Forest Pathology		
Session:	Fall 2010-11	Semester:	Autumn ☐	Spring ☐	Summer ☐
Credit Value:	2(1-2)	Level:	B.Sc. (Hons.) Agri.	Prerequisites:	Introductory Plant Pathology
Name of Course Instructor:	Dr. Abid Riaz	No. of Students :19 Contact Hours: 3	Lectures:32 Seminars:14	Other (Please State)	
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)		Midterm 06 marks (only theory) Final Theory 12 Practical 20 Assignment 02 Total: 40			

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Original y Register ed	%Grade A	%Grade B	%Grade C	D	E	F	No Grade	Withdraw al	Total
No. of Students	19	27.50	43.50	30	-	-	-	-	-	14

Overview/Evaluation (Course Co-coordinator's Comments)

Feedback: first summarize, then comment on feedback received from:
(These boxes will expand as you type in your answer.)

- 1) Student (Course Evaluation) Questionnaires (Proforma-1)
-An Excellent course with extensive field exposure- practical should be strengthened

2) External Examiners or Moderators (if any) Nil

3) Student /staff Consultative Committee (SSCC) or equivalent, (if any)
Nil

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

An important course with special context to forest conservation & protection. There is a serious dearth of forest pathologists in the country and this course can inculcate the inspiration among students for identifying forest diseases suggest management measures.

5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)
Prevailing method is serving the purpose of assessment quite effectively.

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

Not conveyed

7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt :
Range pathology is not a big issue in our area so that portion should be confined or omitted.

Faculty Course Review Report



For completion by the course instructor and transmission to Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:	Plant Pathology		Faculty:	C&FS	
Course Code:	PP-609	Title:	Project Planning & Scientific writing		
Session:	2010-11	Semester:	Autumn ☐	Spring ☐	Summer ☐
Credit Value:	2(1-2)	Level:	B.Sc. Hons. Agri.	Prerequisites:	Introductory Plant Pathology
Name of Course Instructor:	Dr.Abdul Rauf	No. of Students:19 Contact Hours:03	Lectures:16 Seminars:19	Other (Please State)	
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)		Midterm 06 Final Theory 20 Practical 20 Assignment 02 Total: 40			

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Original ly Registere d	%Grade A	%Grade B	%Grad e C	D	E	F	No Grad e	Withdraw al	Total
No. of Students	19	36.80	31.44	15.70	15.70		.	-	-	19
Post-Graduate	Original ly Registere d	%Grade A	%Grade B	%Grad e C	D	E	No Grade		Withdraw al	Total
No. of Students										

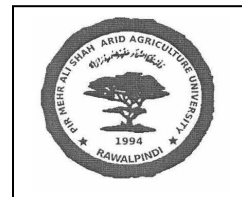
Overview/Evaluation (Course Co-coordinator's Comments)

Feedback: first summarize, then comment on feedback received from:
(These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires(Proforma-1) Career related course with immense importance
2) External Examiners or Moderators (if any) Nil
3) Student /staff Consultative Committee (SSCC) or equivalent, (if any) - Nil
4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines -----It is one of the important courses enabling student to work under a supervisor and find solution of the problem.
5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives) -----It is working properly
6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports: ----- report not conveyed.
6) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt : ----- Its credit hours may be increased.

SAR Proforma 9

Faculty Resume



Name	Muhammad Irfan Ul-Haque		
Personal	Professor/Chairman Department of Plant Pathology Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi. Phone # 92519290239 Cell#03335193255 Email.: irfan52@uaar.edu.pk irfhaque@gmail.com		
Experience	Date 8.3.1980 to 28-11.81 29-11-81 to 01-12-99 01.12.1999 to Date	Title Investigator Scientific Officer/ Senior Scientific Associate Professor Professor	Institute Pak. Forest Institute Peshawar Pak, Agric. Res. Council, Islamabad PMAS AAUR
Memberships	LIFE MEMBER OF FOLLOWING SOCIETIES a. Pakistan Phytopathological Society(PPS) b. Pakistan Botanical Society (PBS) c. Mycology and Plant Pathology Society of Pakistan d. Pakistan Genetical Society		
Graduate Students Postdocs	Years 2003 to 2011	Degree M.Sc (Hons)	Name Mulammad smail Naveed Aslam Asif Khan Zeeshan Zafar Nasim Begum Sajida Imtiaz Samina Bashir Saima Farooq Rumana Kiani Tariq Khan Sumaira Ishfaq Tazeem Riaz Kamran Saleem Hafiza Sidra Umar Shabaz

	2006 to 2011	Ph.D.	Hafiz Ammar Mah Jabeen Bilal Mustafa Hussain Shah Abid Riaz Syed Nadeem Afzal Muhammad Ijaz Nasim Begum Hafiz Ziaullah
Service Activity	1. Administration as Chairman 2. Teaching of courses to students. 3. Thesis supervision for the M.Sc (Hons)? Ph.D. students 4. Supervision of research project		
Brief Statement of Research Interest	<i>Pathological studies on major horticultural and cereal/sugar crops mainly focusing on bacterial diseases</i>		

<i>Publications</i>	1. 23. Hussain, M. A., T. Mukhtar, M. I. Haque and M. Z. Kayani. 2007. Mycoflora associated with lentil (<i>Lens esculenta</i> Moench) seeds from five localities of the Punjab, Pakistan. Pak. J. Bot., 39 : 903-906. 2. 24. Bashir, S., M. I. Haque, T. Mukhtar, G. Irshad and M. A. Hussain. 2007. Pathogenic variation in <i>Pseudomonas syringae</i> and <i>Xanthomonas campestris</i> pv. <i>sesami</i> associated with blight of sesame. Pak. J. Bot., 39 : 939-943. 3. 25. Ahmedani, M. S., A. Khaliq and M.I. Haque. 2007. Scope of commercial formulations of <i>Bacillus thuringiensis</i> Berliner as an alternative to methyl bromide against <i>Trogoderma granarium</i> Everts larvae, Pak. J. Bot., 39:871-880. 4. 26. Firdous, S. S., R. Asghar, M.I.Haque, and S. N. Afzal. 2007. Development of Hypersensitive Response by <i>Xanthomonas campestris</i> pv <i>sesami</i> on <i>Lycopersicon esculentum</i> L and <i>Solanum tuberosum</i> L. leaves. Pak. J. Bot. 39:2135-2139. 5. 27. Afzal, S.N., M. I. Haque, M.S. Ahmedani, S. Bashir and A.R. Rattu. 2007 Assessment of yield losses caused by <i>Puccinia striiformis</i> triggering stripe rust of wheat in the most common wheat varieties. Pak. J. Bot.39: 2127-2134. 6. 28. Farah Naz, Chaudhary Abdul Rauf, Nadeem Akhtar Abbasi, Irfan-ul-Haque and Iftikhar Ahmad 2008. Influence of inoculum levels of <i>Rhizoctonia solani</i> and susceptibility on new potato germplasm. Pakistan Journal of Botany, 40(5): 2199-2209. 7. 29. Muhammad Shoaib Ahmedani, M. I. Haque, Syed Nadeem Afzal, Umer Iqbal, and S. Naz 2008. Scope of commercial formulations of <i>Bacillus thuringiensis</i> Berliner as an alternative to methyl bromide against <i>Tribolium castaneum</i> adults. Pakistan Journal of Botany, 40(5): 2149-2156. 8. 30. Syed Nadeem Afzal, M.I. Haque, M.S. Ahmedani, Abdul Rauf, Munir Ahmad, Syeda Siddiqa Firdous, Atiq-ur-Rehman Rattu and Iftikhar Ahmad 2008. Impact of stripe rust on kernel weight of wheat varieties sown in rainfed areas of Pakistan. Pakistan Journal of Botany, 40(2): 923-929. 9. 31. Shah H., Yasmin, T., Hameed, S. M.I. Haque. 2008. Transmission and Host Range Studies off Pakistani Isolate of Chilli Veinal Mottle Virus. Pak. J. Bot., 40(6): 2669-2681.
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	10. 32. Firdous, S. S., R. Asghar, M.I.Haque, A.Waheed, S. N. Afzal and M.Y. Mirza. 2009. Pathogenesis of <i>Pseudomonas syringae</i> Pv. <i>sesami</i> Associated with Sesame (<i>Sesamum indicum</i> L.) Bacterial Leaf Spot. Pakistan Journal of Botany, 41(2): 927-934. 11. 33. Shah H., Yasmin, T., Fahim, M., Hameed, S. and M.I. Haque. 2009. Prevalence, occurrence and distribution of chili veinal mottle virus in Pakistan Pak. J. Bot., 41(2): 955-965. 12. 34. Ahmedani, M. S., M. Aslam, M. I. Haque, Syed Nadeem Afzal and S. Naz. 2009. Varietal changes in nutritional composition of wheat kernel (<i>Triticum aestivum</i> L.) caused by Khapra Beetle infestation. Pak. J. Bot. 41(3): 1511-1523. 13. 35. Afzal, S. N., M.I. Haque, Ahmad, Syeda Siddiqa Firdous, Abdul Rauf, I. Ahmad and A. R. Rattu. 2009. Resistance potential of wheat germplasm (<i>Triticum aestivum</i> L.) against stripe rust under rain-fed climate of Pakistan. Pak. J. Bot. 41(3): 1463-1475. 14. 36. Huma Safdar, Muhammad Ashfaq, Shahid Hameed, Irfan Ul-Haque and Abdul Mujeeb- kazi. 2009. Molecular analysis of genetic diversity in elite II Synthetic hexaploid wheat screened against <i>Barley Yellow Dwarf Virus</i>. African Journal of Biotechnology. 8(14): 3244 - 3250 15. 37. Afzal, S. N., M.I. Haque, , Abdul Rauf, I. Ahmad and Syeda Siddiqa Firdous. 2010. <i>Xanthomonas campestris</i> pv. <i>Sesami</i>. Pak. J. Bot., 42(6): 4191-4198. 16. 38. Rattu, A.R., I.Ahmad, M.Fayyaz, M.A. Akhtar, I. Haque, M. Zakria and S. N. Afzal. 2010. Virulence analysis of <i>Puccinia triticinia</i> cause of leaf rust of wheat. Pak. J. Bot. 41(4):1957-1964. 17. 39. Iqbal, U., T. Mukhtar, S.M. Iqbal, I. Haque and S.R. Malik.2010. Host plant resistance in blackgram against charcoal rot (<i>Macrophomina phaseolina</i> (Tassi) Goid) . Pak. J. Phytopathol. 22(2):71-78. 18. 40. Firdous, S.S., R. Asghar, M.I. Haque, S.N. Afzal, G. Murtaza and S.M. Mughal. 2010. Isolation, purification, characterization and identification of virulence factors of <i>Pseudomonas syringae</i> pv. <i>sesami</i> and <i>Xanthomonas campestris</i> pv. <i>Sesami</i>. Pak. J. Bot., 42(6): 4191-4198.
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	19. 41. Ahmedani, M. S., M. I. Haque, Syed Nadeem Afzal, M. Naeem, T. Hussain and S. Naz. 2011. Quantitative losses and physical damage caused to wheat kernel (<i>Triticum aestivum</i> L.) by Khapra Beetle infestation. <i>Pak. J. Bot.</i>, 43(1): 659-668. 20. 42. Shah, H., Tahira Yasmin, Muhammad Fahim, Shahid Hameed, Irfan-ul-Haque, Muhammad Munir and Khalil Ahmed Khanzada. 2011. Reaction of exotic and indigenous <i>Capsicum</i> genotypes against Pakistani isolates of chili vein mottle virus. <i>Pak. J. Bot.</i>, 43(3): 1707-1711. 21. 43. Kishwar Sultana, Chaudhary Abdul Rauf, Abid Riaz, Farah Naz, Gulshan Irshad and Muhammad Irfan ul Haque. 2011. Checklist of agarics of Kaghan valley. <i>Pak. J. Bot.</i>, 43(3): 1777-1787. 22. 44. Syed Zia-ul-Hussnain, M. I. Haque, S. M. Mughal, Kosar Nawaz Shah, Aiysha Irfan, Shahid Afghan, Aamir Shahazad, Akhtar Batool, Plosha Khanum, Khalid Hussain, Khalid Nawaz, Muhammad N. Hassan and Fauzia Y. Hafeez. 2011. Isolation and biochemical characterizations of the bacteria (<i>Acidovorax avenae</i> subsp. <i>avenae</i>) associated with red stripe disease of sugarcane. <i>African Journal of Biotechnology</i> Vol. 10(37), pp. 7191-7197. 23. 45. Muhammad Tariq-Khan and Muhammad Irfan Ul-Haque. 2011. Elite-II synthetic hexaploid wheats as a potential source of resistance against yellow rust. <i>Archives Of Phytopathology And Plant Protection</i>, 44:12, 1165-1170. 24. 46. Muhammad Ijaz, M.I. Haque, C.A. Rauf, Fayyaz-ul-Hassan, Abid Riaz and S.M. Mughal. 2011. Correlation between humid thermal ratio and epidemics of <i>Cercospora</i> leaf spot of peanut in Pothwar. <i>Pak. J. Bot.</i>, 43(4): 2011-2016. 25. 47. Syed Zia-ul-Hussnain, S. Afghan, M.I. Haque, J.C. Comstock, S.M. Mughal, A. Shahzad, K. Hussain, K. Nawaz, Y.B. Pan, P. Jackson and A. Irfan. 2011. First report of Ratoon Stunt of Sugarcane caused by <i>Leifsonia xyli</i> subsp. <i>xyli</i> in Pakistan. <i>Plant Disease</i>. Vol.95(12):1581.
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<i>Research Grants and Contracts.</i>	As Principal Investigator 1. HEC Funded Project “Virulence Analysis of <i>Puccinia striiformis</i> Population Triggering Stripe Rust of Wheat in Northern Punjab and NWFP” amounting Rs. 1.288 millions. 2. HEC Funded Project “Genetic Diversity and Phylotyping of <i>Ralstonia solanacearum</i> Strains Causing Bacterial Wilt of Chillies in Major Chilli Growing Areas of Pakistan” amounting Rs. 5.347 millions. As Co-PI 1. Pak China Consortium MoST Project “Development of high yielding rust tolerant wheat genotypes by using molecular markers” amounting Rs. 4.45 millions. 2. HEC funded Project “Virulence Analysis of <i>Xanthomonas campestris</i> pv <i>sesami</i> and <i>Pseudomonas syringae</i> pv <i>sesami</i>, the Causal Organisms of Sesame (<i>Sesamum indicum</i> L.) Bacterial Blight” amounting Rs. 6.4 millions.
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SAR Proforma 9

Faculty Resume

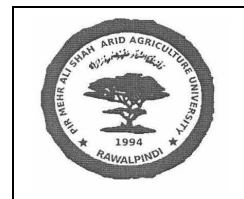
Name	Gulshan Irshad		
Personal	Lecturer Department of Plant Pathology Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi. Phone # 92519290239 Cell#03335398344 Email.: gulshanirshadpp@gnaim.com		
Experience	Date 04-6-2004	Tilte lecturer	Insitute PMAS AAUR
Memberships	LIFE MEMBER OF FOLLOWING SOCIETIES e. Pakistan Phytopathological Society(PPS) f. Pakistan Botanical Society (PBS)		
Graduate Students	Years	Degree	Name

Postdocs	2005 2007 2008 2009 2010 2010 2011 2012	M.Sc (Hons) M.Sc (Hons) M.Sc(Hons) M.Sc (Hons) M.Sc (Hons) M.Sc (Hons) M.Sc (Hons) M.Sc (Hons)	Mulammad Asif Hira Shah Hassan Raiz Madiha Zamarud Adnan Ahmed Haroon Shah Hira Zeeshan Haider
Service Activity	1. Teaching of courses to students. 2. Supervise the M.Sc (Hons) students 3. Supervision of research project		
Brief Statement of Research Interest	Identifying aeromycoflora diseases on vegetable crops and their control by epidemiological modeling.		

<i>Publications</i>	1 Bashir, S., M. I. Haque, T. Mukhtar, G. Irshad and M. A. Hussain.2007. Pathogenic variation in <i>Pseudomonas syringae</i> and <i>Xanthomonas campestris</i> pv. <i>sesami</i> associated with blight of sesame. Pak. J. Bot., 39: 939-943. 2 Bashir S., M.I. Haq, T. Mukhtar and G. Irshad. 2007. Screening of sesame cultivation against bacterial leaf spot caused by <i>pseudomonas syringea</i> pv. <i>Sesame</i>. Pakistan Journal of Phytopathology. 19(1) 62-68. 3. Mukhtar.T., M.Z. Kayani, R. Ahmad and G. Irshad. 2007. Occurrence of citrus nematode (<i>Tylenchulus semipenetrans</i>) in Sargodha District. Pakistan Journal of Phytopathology. 39(3) 40-43. 4. Irshad. G., A.R. Bhutta and T. Mukhtar. 2007. Effect germination of forest tree and their chemical control. Pakistan Journal of Phytopathology. 19(1) 69-75. 5. Gulfraz. M, S. Mehmood, N. Minhas, N. Jabeen, R. Kauser, K. Jabeen and Gulshan Irshad 2008. Comparison and antimicrobial properties of essential oil of <i>foeniculum valgare</i>. African Journal of Biotechnology. 7(24). 4364-4368. 6. M. Inam-ul-Haq, N.Javed, M.J.Jaskani ,M.M.Khan\ , H.U.Khan and S.R.Gowen and G.Irshad.2008. Effect of temperature, moisture and <i>Trichoderma</i> species on the survival of <i>Fusarium oxysporum ciceri</i> in the rainfed areas of Pakistan. Pakistan Journal of Botany (Accepted for publication). 7. Sultana,K.,C.A.Rauf,A.Raiz,F.Naz,G.Irshad.2011. Check List of Agaries of Kaghan valley. Pak.J.Bot.43(3) 8. Irshad. G,F. Naz. M.Irfan-Ul-Haque and A.Rauf. Population dynamics of aeromycoflora at three sites of rawalpindi by evaluating two sampling methods. 2013.(Accepted). Phytopathology.
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<i>Research Grants and Contracts.</i>	1. Screening of substrates of mass production of bio control agent.(2007) (PMASAAUR). 2. Induction of sysetemic resistance through rhizobacteria in tomato.(2009) (PMASAAUR)

SAR Proforma 9



Faculty Resume

Name	Dr. Tariq Mukhtar														
Personal	Associate Professor Department of Plant Pathology, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi Phone # +92 51 9290239 Cell # 0301-7194205 E-mail: drtmukhtar@uaar.edu.pk														
Experience	<table border="1"> <thead> <tr> <th>Date</th><th>Title</th><th>Institution</th></tr> </thead> <tbody> <tr> <td>04-11-2006 to Date</td><td>Associate Professor</td><td>PMAS Arid Agriculture University, Rawalpindi</td></tr> <tr> <td>06-10-2006 to 03-11-2006</td><td>Assistant Professor</td><td>PMAS Arid Agriculture University, Rawalpindi</td></tr> <tr> <td>30-05-1991 to 05-10-2006</td><td>Agricultural Officer</td><td>Agriculture, Pest Warning and Quality Control of Pesticides (Plant Protection)</td></tr> </tbody> </table>	Date	Title	Institution	04-11-2006 to Date	Associate Professor	PMAS Arid Agriculture University, Rawalpindi	06-10-2006 to 03-11-2006	Assistant Professor	PMAS Arid Agriculture University, Rawalpindi	30-05-1991 to 05-10-2006	Agricultural Officer	Agriculture, Pest Warning and Quality Control of Pesticides (Plant Protection)		
Date	Title	Institution													
04-11-2006 to Date	Associate Professor	PMAS Arid Agriculture University, Rawalpindi													
06-10-2006 to 03-11-2006	Assistant Professor	PMAS Arid Agriculture University, Rawalpindi													
30-05-1991 to 05-10-2006	Agricultural Officer	Agriculture, Pest Warning and Quality Control of Pesticides (Plant Protection)													
Honor and Awards	First position in M.Sc. (Hons) Plant Pathology in 1992														
Memberships	Life member of the following societies a) Zoological Society of Pakistan (ZSP) b) Pakistan Society of Nematologists (PSN) c) Pakistan Phytopathological Society (PPS) (Joint Secretary) d) Pakistan Botanical Society (PBS) e) Myco-Phytopathological Society of Pakistan (Mycops)														
Graduate Students	Years	Degree	Name												
Postdocs	2010	Ph.D.	Dr. Umer Iqbal												
Undergraduate Students	2011	Ph.D.	Dr. Muhammad Arshad Hussain												
	2012	Ph.D.	Dr. Muhammad Zameer Kayani												
	2012	M. Sc. Hons	Nasira Perveen												
	2011	M. Sc. Hons	Fakhar-ud-Din												
<i>Honour Students</i>	2011	M. Sc. Hons	Sundas Aslam												
	2010	M. Sc. Hons	Wajahat Azeem												

	2008	M. Sc. Hons	Israr Arshad
	2007	M. Sc. Hons	Amber Kazmi
Service Activity	1. Teaching of courses to undergraduate and graduate classes. 2. Supervision of Ph. D. and M. Sc. Students. 3. Supervision of research projects. 4. Conducting research trials.		
Brief Statement of Research Interest	Management of plant pathogens with different control strategies.		

SAR Proforma 9

Faculty Resume



<i>Name</i>	Dr.M.Inam-ul-Haq									
<i>Personal</i>	Dr. M.Inam-ul-Haq Associate Professor/Director Advanced Studies Department of Plant Pathology Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, Pakistan Phone: +92-51-9062150 Phone: +92-51-9290157 Cell # +92-03457708552									
<i>Experience</i>	Current appointment first, each entry as follows: <table><tr><td><i>Date,</i></td><td><i>Title</i></td><td><i>Institution.</i></td></tr><tr><td>1. 28-01-2011</td><td>DAS</td><td>PMAS AAUR</td></tr><tr><td>2. 23-9-2008</td><td>Asso Prof</td><td>PMAS AAUR</td></tr></table>	<i>Date,</i>	<i>Title</i>	<i>Institution.</i>	1. 28-01-2011	DAS	PMAS AAUR	2. 23-9-2008	Asso Prof	PMAS AAUR
<i>Date,</i>	<i>Title</i>	<i>Institution.</i>								
1. 28-01-2011	DAS	PMAS AAUR								
2. 23-9-2008	Asso Prof	PMAS AAUR								
<i>Honor and Awards</i>	 <i>1. UNESCO 02 months Training</i> <i>2. HEC Post Doc 2005-06</i>									
<i>Memberships</i>	<i>List memberships in professional and learned Societies, indicating offices held, committees, or other specific assignments.</i> 1.Memeber Pakistan Phytopathological Society 2.Pakistan Botanical Society 3.Asian PGPR Society									
Graduate Students										

Postdocs Undergraduate Students	<i>List supervision of graduate students, postdocs and undergraduate honors theses showing:</i>
<i>Honour Students</i>	Years Degree Name Show other information as appropriate and list membership on graduate degree committees. PhD 03 completed 04 in pipe line MSc 19 completed 03 in pipe line
Service Activity	<i>List University and public service activities.</i> 1.Teaching and Research activities to Under and Post graduate students. 2.Director Advanced Studies

<i>Brief Statement of Research Interest</i>	<i>May be as brief as a sentence or contain additional details up to one page in length.</i> 1.Plant Bacteriology 2.Biological Control of Plant Diseases 3.IDM			
<i>Publications</i>	<i>List publications in standard bibliographic format with earliest date first.</i> ○ Manuscripts accepted for publication should be included under appropriate category as “in press;” ○ Segment the list under the following standard headings: • Articles published by refereed journals. • Books. • Scholarly and / or creative activity published through a refereed electronic venue. • Contribution to edited volumes. • Papers published in refereed conference proceedings. • Paper or extended abstracts published in conference proceedings. (refereed on the basis of abstract) • Articles published in popular press. • Articles appearing in in-house organs. • Research reports submitted to sponsors. • Articles published in non-refereed journals. • Manuscripts submitted for publication. (include where and when submitted). Total publications=65 i) 54 National ii) 11 International			
<i>Research Grants and Contracts.</i>	<i>Entries should include:</i> <table><tr><td>Date</td><td>Title</td><td>Agency / Organization</td></tr></table> Total Award Amount= 30.6 million Segment the list under following headings: • Completed, 01 HEC 1.2 million • Funded and in progress, 02 i) Endowment Fund 1.9 million ii) PSF 1.9 million iii) HEC 5.6 approved iv) PARB 20 million approved	Date	Title	Agency / Organization
Date	Title	Agency / Organization		

	• In review 02 i) Ministry S&T and Pak US
<i>Other Research or Creative Accomplishments</i>	<i>List patents, software, new products developed, etc.</i>
<i>Selected Professional Presentations</i>	

Publications	<u>(a) Published in Journals (HEC Recognized)</u> 1. Mukhtar, T., M. Z. Kayani and M. A. Hussain. 2013. Nematicidal activities of <i>Cannabis sativa</i> L. and <i>Zanthoxylum alatum</i> Roxb. against <i>Meloidogyne incognita</i>. Industrial Crops and Products. 42: 447-453. [Impact factor = 2.469]. 2. Mukhtar, T., M. Z. Kayani and M. A. Hussain. 2013. Response of selected cucumber cultivars to <i>Meloidogyne incognita</i>. Crop Protection 44: 13-17. [Impact factor = 1.402]. 3. Kayani, M. Z., T. Mukhtar, M. A. Hussain, and M. I. Haque. 2013. Infestation assessment of root-knot nematodes (<i>Meloidogyne</i> spp.) associated with cucumber in the Pothowar region of Pakistan. Crop Protection, DOI: 10.1016/j.cropro.2013.01.005. [Impact factor = 1.402]. 4. Kayani, M. Z., T. Mukhtar and M. A. Hussain. 2012. Evaluation of nematicidal effects of <i>Cannabis sativa</i> L. and <i>Zanthoxylum alatum</i> Roxb. against root-knot nematodes, <i>Meloidogyne incognita</i>. Crop Protection, 39: 52-56. [Impact factor = 1.402]. 5. Kayani, M. Z., T. Mukhtar and M. A. Hussain. 2012. Association of root-knot nematodes (<i>Meloidogyne</i> spp.) with cucumber in the Pothowar region of the Punjab province of Pakistan. International Journal of Biology and Biotechnology, 9 (1-2): 23-29. 6. Kayani, M. Z., T. Mukhtar, M. A. Hussain, M. I. Haque and R. Perveen. 2012. Incidence and severity of root-knot nematodes (<i>Meloidogyne</i> spp.) in district Rawalpindi. Pakistan Journal of Phytopathology. 24 (2): 122-128. 7. Begum, N., M. I. Haque, T. Mukhtar, S. M. Naqvi, J. F. Wang. 2012. Status of bacterial wilt caused by <i>Ralstonia solanacearum</i> in Pakistan. Pakistan Journal of Phytopathology. 24 (1): 11-20. 8. Hussain, M. A., T. Mukhtar, M. Z. Kayani, M. N. Aslam and M. I. Haque. 2012. A survey of okra (<i>Abelmoschus esculentus</i>) in the Punjab province of Pakistan for the determination of prevalence, incidence and severity of root-knot disease caused by <i>Meloidogyne</i> spp. Pakistan Journal of Botany, 44 (6): 2071-2075. [Impact factor = 0.907]. 9. Irshad, U., T. Mukhtar, M. Ashfaq, M. Z. Kayani, S. B. Kayani, M. Hanif and S. Aslam. 2012. Pathogenicity of citrus nematode (<i>Tylenchulus semipenetrans</i>) on <i>Citrus jambhiri</i>. Journal of Animal and Plant Sciences, 22 (4): 1014-1018. [Impact factor = 0.585]. 10. Hussain, M. A., T. Mukhtar and M. Z. Kayani. 2011. Assessment of the damage caused by <i>Meloidogyne incognita</i> on okra. Journal of Animal and Plant Sciences, 21 (4): 857-861. [Impact factor = 0.585]
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11. Hussain, M. A., **T. Mukhtar** and M. Z. Kayani. **2011**. Efficacy evaluation of *Azadirachta indica*, *Calotropis procera*, *Datura stramonium* and *Tagetes erecta* against root-knot nematodes *Meloidogyne incognita*. **Pakistan Journal of Botany**, 43 (Special Issue): 197-204. [Impact factor = 0.907]
12. Rahoo, A. M., **T. Mukhtar**, S. R. Gowen and B. Pembroke. **2011**. Virulence of Entomopathogenic Bacteria *Xenorhabdus bovienii* and *Photorhabdus luminescens* Against *Galleria mellonella* Larvae. **Pakistan Journal of Zoology**, 43(3): 543-548. [Impact factor = 0.338]
13. Iqbal, U., **T. Mukhtar**, S. M. Iqbal, M. I. Haque and S.R. Malik. **2010**. Host Plant Resistance in Blackgram against Charcoal Rot (*Macrophomina Phaseolina* (Tassi) Goid). **Pakistan Journal of Phytopathology**, 22 (2): 126-129.
14. **Mukhtar, T.**, A. Rashid, M. Z. Kayani and M. Ashfaq. **2008**. Interaction of *Azadirachta indica* and *Calotropis procera* leaf extracts with *Verticillium chlamydosporium* in the control of *Meloidogyne javanica*. **International Journal of Nematology**, 18: 21-24.
15. Ashfaq, M., M. A. Khan, S. M. Mughal, N. Javed, **T. Mukhtar** and M. Bashir. **2007**. Evaluation of urdbean germplasm for resistance against urdbean leaf crinkle virus. **Pakistan Journal of Botany**, 39(6): 2103-2111. [Impact factor = 0.290]
16. Hussain, M. A., **T. Mukhtar**, M. I. Haque and M. Z. Kayani. **2007**. Mycoflora associated with lentil (*Lens esculenta* Moench) seeds from five localities of the Punjab, Pakistan. **Pakistan Journal of Botany**, 39 (3): 903-906. [Impact factor = 0.290].
17. Bashir, S., M. I. Haque, **T. Mukhtar**, G. Irshad and M. A. Hussain. **2007**. Pathogenic variation in *pseudomonas syringae* and *Xanthomonas campestris* pv. *Sesame* associated with blight of sesame. **Pakistan Journal of Botany**, 39(3): 939-943. [Impact factor = 0.290].
18. Ahmad, R. and **T. Mukhtar**. **2007**. Root invasion of different plant hosts by juveniles of *Meloidogyne* species encumbered with *Pasteuria penetrans* spores. **Pakistan Journal of Nematology**, 25 (1): 199-206.
19. Ahmad, R. and **T. Mukhtar**. **2007**. Investigations on the management of *Meloidogyne javanica* by *Pasteuria penetrans* isolates over three crop cycles of egg plant. **Pakistan Journal of Nematology**, 25 (1):157-167.
20. Iqbal, M. A., **T. Mukhtar** and R. Ahmad. **2007**. Effect of soil types on the movement and infection of citrus nematode, *Tylenchulus semipenetrans*. **Pakistan Journal of Nematology**, 25 (1): 69-72.
21. **Mukhtar, T.**, R. Ahmad, M. Z. Kayani and G. Irshad. **2007**. Occurrence

	of citrus nematode (<i>Tylenchulus semipenetrans</i>) in Sargodha district. Pakistan Journal of Phytopathology, 19 (1): 40-43. 22. Khan, H. U., T. Mukhtar, R. Ahmad and M. A. Iqbal. 2006. Studies on the distribution and control of root-knot nematodes (<i>Meloidogyne</i> spp.) in Faisalabad and Lahore divisions, Pakistan. Pakistan Journal of Nematology, 24 (1): 57-64. 23. Iqbal, M. A., T. Mukhtar, R. Ahmad and H. U. Khan. 2006. Ecological prevalence of <i>Tylenchulus semipenetrans</i> in four districts of the Punjab province, Pakistan. Pakistan Journal of Nematology, 24 (1): 19-26. 24. Ashfaq, M., M. A. Khan and T. Mukhtar. 2006. Antiviral activity of plant extracts and chemicals against Urdbean Leaf Crinkle Virus (ULCV). Pakistan Journal of Phytopathology, 18 (2): 148-155. 25. Iqbal, M. A., T. Mukhtar, R. Ahmad and H. U. Khan. 2005. Relative susceptibility / resistance of citrus rootstocks to citrus nematode (<i>Tylenchulus semipenetrans</i>). Pakistan Journal of Nematology, 23 (2): 311-315. 26. Hussain, R., T. Mukhtar and R. Ahmad. 2005. Screening of some selected sunflower cultivars against root-knot nematode (<i>Meloidogyne incognita</i>) and its chemical control. Pakistan Journal of Nematology, 23 (2): 251-257. 27. Mukhtar, T., I. Pervaz, R. Ahmad and H. U. Khan. 2005. Management of <i>Meloidogyne javanica</i> by cropping sequence and effects on <i>Pasteuria penetrans</i>. Pakistan Journal of Nematology, 23 (1): 173-180. 28. Khan, H. U., T. Mukhtar and R. Ahmad. 2005. Geographical distribution of root-knot nematodes (<i>Meloidogyne</i> spp) in the Punjab province of Pakistan. Pakistan Journal of Nematology, 23 (1): 133-140. 29. Iqbal, M. A., T. Mukhtar and R. Ahmad. 2005. Potentiality of some plants to control Citrus nematode (<i>Tylenchulus semipenetrans</i>). Pakistan Journal of Phytopathology, 17 (1): 36-42. 30. Khan, H. U., T. Mukhtar, R. Ahmad and M. A. Iqbal. 2005. Estimation of optimum dose and effectiveness of <i>Paecilomyces lilacinus</i> against <i>Meloidogyne incognita</i>. Pakistan Journal of Phytopathology, 17 (1): 22-26. 31. Iqbal, M. A., R. Ahmad, T. Mukhtar and H. U. Khan. 2004. Interrelationship of citrus nematode (<i>Tylenchulus semipenetrans</i> Cobb) population and seasonal fluctuations in Sargodha district. Pakistan Journal of Phytopathology, 16 (1): 60-62. 32. Asghar, M. N., R. Ahmad, N. A. Khan and T. Mukhtar. 2004. Effects of
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	Pathology, pp. 116-121.A 54. Mukhtar, T., R. Ahmad and H. U. Khan. 1999. Effect of leaf extracts of some plants on the growth of nematophagous fungus <i>Verticillium chlamydosporium</i>. Proceedings of 2nd Conference of Plant Pathology, 179-182. 55. Mukhtar, T., R. Ahmad and S. R. Gowen. 1999. Effect of a cropping sequence on the management of <i>Meloidogyne javanica</i> and <i>Pasteuria penetrans</i> build up. Proceedings of 2nd Conference of Plant Pathology, pp. 175-178. <u>(c) Technical articles</u> 56. Mukhtar, T. 2000. Biological control of root-knot disease. The Sun International, 1(131):11. 57. Chaudhry, N. A., M. A. Ansari and T. Mukhtar. 1992. Diseases infecting citrus plants and their control. Progressive Farming, 12 (6): 27-34. <u>(d) Reports</u> 58. Mukhtar, T. 2008. First Annual Technical Progress Report of the Endowment Fund Project entitled “Studies on the Distribution and Management of Root-Knot Nematodes (<i>Meloidogyne</i> Spp.). 59. Mukhtar, T. 2009. Second Annual Technical Progress Report of the Endowment Fund Project entitled “Studies on the Distribution and Management of Root-Knot Nematodes (<i>Meloidogyne</i> Spp.). 60. Mukhtar, T. 2010. Final Technical Progress Report of the Endowment Fund Project entitled “Studies on the Distribution and Management of Root-Knot Nematodes (<i>Meloidogyne</i> Spp.). <u>(e) Abstracts</u> 61. Mukhtar, T., M. Z. Kayani and M. A. Hussain. 2012. Evaluation of nematicidal effects of <i>Cannabis sativa</i> L. and <i>Zanthoxylum alatum</i> Roxb. against root-knot nematodes, <i>Meloidogyne incognita</i>. National Science Conference Roadmap of Cutting Edge Technologies. Organized by Pakistan Academy of Sciences, Islamabad and Hosted by Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi held on January 10-12, 2012. 62. Mukhtar, T., Kayani, M. Z., M. A. Hussain. 2012. Effect of <i>Cannabis sativa</i>. and <i>Zanthoxylum alatum</i> roxb. On the hatchability and mortality of root-knot nematodes, <i>Meloidogyne incognita</i>. Pakistan Congress of Zoology (International) organized by Zoological Society of Pakistan and Government College University, Lahore held on March 6-8, 2012. 63. Kayani, M. Z., T. Mukhtar and M. A Hussain. 2012. Assessment of the damage caused by <i>Meloidogyne incognita</i> on cucumber at different
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	inoculum levels. Pakistan Congress of Zoology (International) organized by Zoological Society of Pakistan and Government College University, Lahore held on March 6-8, 2012. 64. Mukhtar, T., M. A. Hussain and M. Z. Kayani. 2012. Characterization of okra germplasm for resistance to root-knot nematode (<i>Meloidogyne incognita</i>). 36th All Pakistan Science Conference organized by Pakistan Association for Advancement of Science held on November 12-13, 2012. 65. Kayani, M. Z. and T. Mukhtar. 2012. Interaction between nematode inoculum densities and plant ages on growth and yield of cucumber and reproduction of <i>Meloidogyne incognita</i>. 36th All Pakistan Science Conference organized by Pakistan Association for Advancement of Science held on November 12-13, 2012. 66. Irshad, U., T. Mukhtar, M. Ashfaq, M. Z. Kayani, S. B. Kayani and S. Aslam. 2011. Pathogenicity of Citrus nematode (<i>Tylenchulus semipenetrans</i>) on <i>Citrus jambhiri</i>. Abstract. 31st Pakistan Congress of Zoology (International), April 19-21, 2001. pp. 170. 67. Hussain, M. A., T. Mukhtar, M. Z. Kayani and M. I. Haque. 2011. Management of <i>Meloidogyne incognita</i> infecting okra (<i>Abelmoschus esculentus</i> L.) with some organic amendments. Abstract. 31st Pakistan Congress of Zoology (International), April 19-21, 2001. pp. 166-167. 68. Hussain, M. A., T. Mukhtar and M. Z. Kayani. 2011. Efficacy of bio-control agents against root-knot nematode, <i>Meloidogyne incognita</i>. Abstract. 31st Pakistan Congress of Zoology (International), April 19-21, 2001. pp. 168. 69. Kayani, M. Z., T. Mukhtar, M. A. Hussain and M. I. Haque. 2011. Response of cucumber cultivars to root-knot nematode, <i>Meloidogyne incognita</i>. Abstract. 31st Pakistan Congress of Zoology (International), April 19-21, 2001. pp. 168-169. 70. Mukhtar, T., I. Arshad, M. Z. Kayani, M. A. Hussain and A. M. Rahoo. 2009. Relationship of inoculum densities of <i>Meloidogyne incognita</i> and plant age on tomato. Abstract. Advances in Nematology held on 15-12-2009 at Linnean Society of London, UK. pp. 3.
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Research Grants and Contracts.					
	Date	Title	Agency/ Organization	Amount in Rs	Status
	2008 to 2010	Distribution and Management of Root-knot nematodes	Endowment Fund, University of Agriculture Faisalabad	2.222 Millions	Completed
	2010 to 2013	Genetic diversity and phylotyping of <i>Ralstonia solanacearum</i> strains causing bacterial wilt of chillies in major chilli growing areas of Pakistan	Higher Education Commission, Islamabad	5.347 Millions	In progress
Other Research or Creative Accomplishments	NIL				
Selected Professional Presentations	Many				

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Faculty Resume



<i>Name</i>	
<i>Personal</i>	Dr. Muhammad Ashfaq E.mail address: mashfaq@uaar.edu.pk , mashfaq1642@gmail.com Phone No.: +92 (0) 51 9062627, +92 (0) 51 9290239 Cell No. +92 (0) 312 5251187
<i>Experience</i>	List current appointment first, each entry as follows: Teaching and Research experience from 1-7-2004 to date. Assistant professor: 01-04-2010 Lecturer: 05-10-2006 at PMAS-AAUR Lecturer: 01-07-2004 at UAF
<i>Honor and Awards</i>	- Secured 1st position in M.Sc. (Hons.) Agric. Plant Pathology with CGPA 3.95/4.00 (87.77%) in 2001-03 and got Silver Medal. - Secured 1st position in B.Sc. (Hons.) Agric. Plant Pathology in the department of - Plant Pathology in 2001 . - Secured merit scholarship for the session 2001-2003. - Secured merit scholarship in matriculation examination. - Stood 1st in the Centre in Middle standard examination. - Secured “Fauji Foundation scholarship” from 1997 to 2003. - HEC PhD Approved Supervisor. - Reviewer of National and International Scientific Journals. Submission of Tobacco rattle virus-SYM segment RNA2, genomic RNA sequence to GenBank with accession Number FR854197 Reported three novel genes (ORFs) of TRV SYM isolate. Reports from M. Ashfaq and Colleagues Advance Knowledge in Virology. Life Science Weekly (USA based Newspaper) November 8, 2011 (Highbeam Research) - Added as Scientific Expert in Scientific Experts list

	by (http://www.labome.org/exp/ashfaq/muhammad-ashfaq-1775568.html)	Labome.Org															
Memberships	➤ Life membership of Pakistan Botanical Society (PBS), University of Karachi, Karachi. ➤ Life membership of Pakistan Phytopathological Society (PPS) University of Agriculture, Faisalabad																
Graduate Students Postdocs Undergraduate Students Honour Students	List supervision of graduate students, postdocs and undergraduate honors theses showing: <table><tr><td>Years</td><td>Degree</td><td>Name</td></tr><tr><td>2007</td><td>M.Sc(Hons)</td><td>Humma Saffdar</td></tr><tr><td>2008</td><td>M.Sc(Hons)</td><td>Shomaila Iqbal</td></tr><tr><td>2010</td><td>M.Sc(Hons)</td><td>Usman Irshad</td></tr><tr><td>2010</td><td>M.Sc(Hons)</td><td>Anum Saleem</td></tr></table>		Years	Degree	Name	2007	M.Sc(Hons)	Humma Saffdar	2008	M.Sc(Hons)	Shomaila Iqbal	2010	M.Sc(Hons)	Usman Irshad	2010	M.Sc(Hons)	Anum Saleem
Years	Degree	Name															
2007	M.Sc(Hons)	Humma Saffdar															
2008	M.Sc(Hons)	Shomaila Iqbal															
2010	M.Sc(Hons)	Usman Irshad															
2010	M.Sc(Hons)	Anum Saleem															
Service Activity	Teaching and Research.																
Brief Statement of Research Interest	May be as brief as a sentence or contain additional details up to one page in length. • Molecular Plant Virology, Functional study of viral genes, Development of transgenic plants resistant to virus infection, Study of virus-encoded silencing suppressor proteins, Virus- Plant interactions, Biochemistry and Physiology of Viral Diseased Plants, Epidemiology of Plant Viruses, Integrated Disease Management.																

<i>Publications</i>	List publications in standard bibliographic format with earliest date first. ○ Manuscripts accepted for publication should be included under appropriate category as “in press;” ○ Segment the list under the following standard headings: ● Articles published by refereed journals. Irshad, U., T. Mukhtar, M. Ashfaq, Z. H. Kayani, S. B. Kayani and S. Aslam. 2012. “Pathogenicity of citrus nematode (<i>Tylenchulus semipenetrans</i>) on <i>Citrus jambhiri</i>”. JAPS. 12(4):1014-1018. Iqbal, S., M. Ashfaq, H. Shah, M. I. Haq and Aziz-Ud- Din. 2012. Prevalence and distribution of Cucumber mosaic cucumovirus (CMV) in major chili growing areas of Pakistan. Pak. J. Bot., 44(5): 1749-1754. Ashfaq, M., W. McGavin and S. A. MacFarlane. 2011. RNA2 of TRV SYM breaks the rules for tobamovirus genome structure. Virus Res., 160: 435-438. Iqbal, S., M. Ashfaq and H. Shah.. 2011. Biological characterization of Pakistani isolates of Cucumber mosaic cucumovirus (CMV). Pak. J. Bot., 43(6): 3041-3047. Iqbal, S., M. Ashfaq and H. Shah. 2011. Diversity among Pakistani isolates of Cucumber mosaic cucumovirus (CMV) infecting chilli pepper. Pak. J. Bot., (Accepted). Ashfaq, M., M. Aslam Khan, N. Javed, S. M. Mughal, M. Shahid and S.T. Sahi. 2010. Effects of Urdbean Leaf Crinkle Virus Infection on Total Soluble Protein and Antioxidant Enzymes in Blackgram Plants. .Pak. J. Bot., 42(1):447-454. Saffdar, H., M. Ashfaq, S. Hameed, I. U. Haque and A. Mujeeb-Kazi. 2009. Molecular analysis of genetic diversity in elite II synthetic hexaploid wheat screened against Barley yellow dwarf virus. Afr. J. Biotchnol., 8(14): 3244-3250. Ashfaq, M., M. Aslam Khan and N. Javed. 2008. Characterization of environmental factors conducive for urdbean leaf crinkle (ULCV) disease development. Pak. J. Bot., 40(6):2645-2653. Mukhtar, T., A. Rashid, M. Z. Kayani and M. Ashfaq. 2008. Interactions of <i>Azadirachta indica</i> and <i>Calotropis procera</i> leaf extracts with <i>Verticillium</i>
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	chlamydosporium in the control of <i>Meloidogyne javanica</i>. Intl. J. Nematol., 18(1): 21-24. Javed, N., S. A. Anwar, S. Fayyaz, M. M. Khan and M. Ashfaq. 2008. Effect of neem formulations applied as soil drenching on the development of root-knot nematode, <i>Meloidogyne Javanica</i>, on roots of tomato. Pak. J. Bot., 40(2):905-910. Ashfaq, M., M. Aslam Khan, S. M. Mughal, N. Javed, T. Mukhtar and M. Bashir. 2007. Evaluation of urdbean germplasm for resistance against Urdbean leaf crinkle virus. Pak. J. Bot., 39(6):2103-2111. National Publications Khan, S. H., A. Riaz., S. M. Iqbal and M. Ashfaq. 2008. Screening of mung bean germplasm against charcoal rot and morphological and cultural characterization of <i>Macrophomina phaseolina</i> isolates. Pak. J. Phytopathol., 20 (2): 234-236. Ashfaq, M., M. Aslam Khan and T. Mukhtar. 2006. Antiviral activity of plant extracts and chemicals against urdbean leaf crinkle virus (ULCV). Pak. J. Phytopathol. 18 (2):148-155. Javed. N., S.R.Gowen, H. U. Khan, S.A. Anwar and M. Ashfaq. 2006. Response of free eggs and infected juvenile of root-knot nematode <i>Meloidogyne javanica</i> through the neem) <i>Azadirachta indica</i> A.Juss) amended soil. Pak. J. Nematol. 24 (2): 171-182. Javed. N., S.R.Gowen, M. Ashfaq and H. U. Khan. 2006. Effect of neem products on the development of <i>Meloidogyne Javanica</i>, root-knot nematodes when they were washed off after treatment. Pak. J. Nematol. 24 (1): 117-120. Ashfaq, M., Y. Iftikhar; S. M. Mughal and M. A. Khan. 2005. Occurrence, distribution and transmission of yellow vein clearing virus (YVCV) of lemon in Faisalabad. Pak. J. Phytopathol., 17 (1):101-104. Ashfaq, M., S. M. Mughal, Y. Iftikhar, M. A. Khan, and N. A. Khan. 2004. Study on host range, serology and inclusion bodies of yellow vein clearing virus (YVCV) of lemon. Pak. J. Phytopathol., 16 (1): 1-4.
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	Iftikhar, Y., S. M. Mughal, M. Ashfaq. M. A. Khan and I.U. Haq. 2004. Some biological and physical properties of yellow vein clearing virus of lemon. Pak. J. Phytopathol., 16 (1): 5-8. Khan, N. A., S. M. Khan and M. Ashfaq. 2004. Bio-conversion of rice husk into edible fungus, Oyster Mushroom(Pleurotus ostreatus). Pak. J. Phytopathol., 16 (1): 9-12. Javed. N., M. J. Imran, R. Ahmad and M. Ashfaq. 2002. Effect of green manuring on the population of Meloidogyne incognita (kofoid and white) chitwood in gram. Pak. J. Phytopathol., 14 (2): 117-119. Javed. N., H. Abbas, R. Ahmad and M. Ashfaq. 2002. Use of different botanical products for the control of citrus nematode (Tylenchulus semipanatrans). Pak. J. Phytopathol., 14 (1): 51-53. Javed. N., F. F. Qureshi, R. Ahmad and M. Ashfaq. 2001. Evaluation of products of bionature against root-knot nematodes Meloidogyne javanica (Treub) on tomato. Pak. J. Phytopathol., 13 (2): 155-159. B: In Other than HEC Recognized Journals Javed. N., H. U. Khan, Z. Hussain and M. Ashfaq.2002. Effect of temperature, soil pH, agitation intervals and soil types on the spore attachment of Pasteuria penetrans to root-knot nematodes (Meloidogyne javanica). Pak. J .Plant Pathol., 1 (2-4):66-67 • Books. • Scholarly and / or creative activity published through a refereed electronic venue. • Submission of Tobacco rattle virus-SYM segment RNA2, genomic RNA sequence to GenBank with accession Number FR854197 • Reported three novel genes (ORFs) of TRV SYM isolate. • Reports from M. Ashfaq and Colleagues Advance Knowledge in Virology. Life Science Weekly (USA based Newspaper) November 2011 (Highbeam Research) • Added as Scientific Expert in Scientific Experts list by Labome.Org (http://www.labome.org/exp/ashfaq/muhammad-ashfaq-
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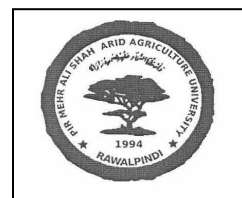
	1775568.html) • • Contribution to edited volumes. • Papers published in refereed conference proceedings. Javed, N., S. R. Gowen, T. Mukhtar and M. Ashfaq. 2002. Effect of neem products on hatching, mobility, mortality and development of juveniles of <i>Meloidogyne javanica</i>. Proceedings of National Symposium of Nematology, 67-75. • Paper or extended abstracts published in conference proceedings. (refereed on the basis of abstract) Ashfaq, M., and S. A. MacFarlane. 2011. A pathogenicity protein is encoded among three novel genes carried on RNA2 of TRV isolate SYM. "8th Nat. Conf. of Pak. Phytopathol. Soc.," 28-29 November, 2011, University of Agriculture Faisalabad, Pakistan Ashfaq, M., M. A. Khan and N. Javed. 2008. Characterization of environmental factors conducive for urdbean leaf crinkle (ULCV) disease development." Intl. Conf. Plant Scientists". 21-24 April, 2008, University of Agriculture Faisalabad, Pakistan: Ashfaq, M., M. A. Khan, N. Javed and M. Shahid. 2008. Changes in the activities of antioxidants in susceptible and resistant cultivars of blackgram due to urdbean leaf crinkle virus infection." Intl. Conf. Plant Scientists". 21-24 April, 2008, University of Agriculture Faisalabad, Pakistan: Ashfaq, M., M. A. Khan and S. M. Mughal. 2007. Reaction of mashbean germplasm against urdbean leaf crinkle virus (ULCV) in spring and summer seasons. " Intl. Conf. Achieving Sustainable Pulses Production in Pakistan. March 20-22, 2007, NARC, Islamabad (Abst.): 16 Ashfaq, M., M. A. Khan and S. M. Mughal. 2007. Antiviral activity of some plant extracts and chemicals against urdbean leaf crinkle virus (ULCV). "Intl. Conf. Achieving Sustainable Pulses Production in Pakistan. March 20-22, 2007, NARC, Islamabad (Abst.) : 36
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	• Articles published in popular press. Ashfaq, M. and M. A. Khan. 2006. Potato diseases and their management. In daily Express newspaper. • Articles appearing in in-house organs. • Research reports submitted to sponsors. Submission of First Annual (2011-2012) Technical Report of Project No.: PSF/RES/P-PMAS.AAU/Agr(396) to PSF • Articles published in non-refereed journals. • Manuscripts submitted for publication. (include where and when submitted).
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Research Grants and Contracts.	Entries should include: <table><tr><th>Date</th><th>Title</th><th>Agency / Organization</th></tr><tr><td></td><td>Title: “Characterization of biochemical factors in relation to resistance against <i>Mungbean yellow mosaic virus</i> (MYMV) and its management” Funded by PMAS-AAUR (Completed)</td><td></td></tr><tr><td></td><td>Title: “Studies on characterization and management of leaf crinkle virus infecting blackgram”. (Ongoing, PSF-2011)</td><td></td></tr><tr><td></td><td>Title: “Prevalence, identification and partial characterization of major mosaic viruses infecting ornamental plants in Rawalpindi and Islamabad cities” (Ongoing, PMAS-AAUR-2011)</td><td></td></tr><tr><td></td><td>Title: “Molecular studies on complex of potyviruses Infecting Tomato and Chili Crops in Pakistan”. (Approved , International- starting date 01-12-2012)</td><td></td></tr><tr><td></td><td>Title: “Genetic Variability and molecular characterization of solanaceous viruses in Pakistan”. (Submitted to HEC-2012)</td><td></td></tr></table>	Date	Title	Agency / Organization		Title: “Characterization of biochemical factors in relation to resistance against <i>Mungbean yellow mosaic virus</i> (MYMV) and its management” Funded by PMAS-AAUR (Completed)			Title: “Studies on characterization and management of leaf crinkle virus infecting blackgram”. (Ongoing, PSF-2011)			Title: “Prevalence, identification and partial characterization of major mosaic viruses infecting ornamental plants in Rawalpindi and Islamabad cities” (Ongoing, PMAS-AAUR-2011)			Title: “Molecular studies on complex of potyviruses Infecting Tomato and Chili Crops in Pakistan”. (Approved , International- starting date 01-12-2012)			Title: “Genetic Variability and molecular characterization of solanaceous viruses in Pakistan”. (Submitted to HEC-2012)	
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Other Research or Creative Accomplishments	List patents, software, new products developed, etc.																		
Selected Professional Presentations	Ashfaq, M., and S. A. MacFarlane. 2011. A pathogenicity protein is encoded among three novel genes carried on RNA2 of TRV isolate SYM. ” 8th Nat. Conf. of Pak. Phytopathol. Soc.,” 28-29 November, 2011, University of Agriculture Faisalabad, Pakistan Ashfaq, M., M. A. Khan, N. Javed and M. Shahid. 2008. Changes in the activities of antioxidants in suceptible and resistant culivars of blackgram due to urdbean leaf crinkle virus infection.” Intl. Conf. Plant Scientists”. 21-24 April, 2008, University of Agriculture Faisalabad, Pakistan:																		

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Faculty Resume



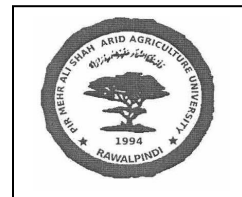
Name	Dr. Farah Naz																														
Personal	Department of Plant Pathology University of Arid Agriculture, Rawalpindi, Pakistan Ph: 92-51-9062626, Cell 92-300-5075319 Email: nazfrh@yahoo.co.uk farahnaz@uaar.edu.pk																														
Experience	List current appointment first, each entry as follows: <i>Date, Title, Institution.</i> 2003-2006 Research Associate PMAS-AAUR 2007-2010 Lecturer PMAS-AAUR 2010-todate Assistant Professor PMAS-AAUR																														
Memberships	<i>Life time member "Pakistan Botanical Society"</i> <i>Life time member "Pakistan Phytopathological Society"</i>																														
Graduate Students Postdocs Undergraduate Students <i>Honour Students</i>	<table border="1"> <thead> <tr> <th>Years</th><th>Degree</th><th>Name</th></tr> </thead> <tbody> <tr> <td>2009</td><td>MSc. Hons.</td><td>M. Noman</td></tr> <tr> <td>2009</td><td>MSc. Hons.</td><td>Sania Jaleel</td></tr> <tr> <td>2009</td><td>MSc. Hons.</td><td>Imran Idrees</td></tr> <tr> <td>2009</td><td>MSc. Hons.</td><td>Khola Rafiq</td></tr> <tr> <td>2010</td><td>MSc. Hons.</td><td>M. Irfan</td></tr> <tr> <td>2010</td><td>MSc. Hons.</td><td>Ayesha Irfan</td></tr> <tr> <td>2011</td><td>MSc. Hons.</td><td>Kashif Riaz</td></tr> <tr> <td>2011</td><td>MSc. Hons.</td><td>Shazia Shahzaman</td></tr> <tr> <td>2012</td><td>MSc. Hons.</td><td>Sania Shaukat</td></tr> </tbody> </table>	Years	Degree	Name	2009	MSc. Hons.	M. Noman	2009	MSc. Hons.	Sania Jaleel	2009	MSc. Hons.	Imran Idrees	2009	MSc. Hons.	Khola Rafiq	2010	MSc. Hons.	M. Irfan	2010	MSc. Hons.	Ayesha Irfan	2011	MSc. Hons.	Kashif Riaz	2011	MSc. Hons.	Shazia Shahzaman	2012	MSc. Hons.	Sania Shaukat
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2012	MSc. Hons.	Sania Shaukat																													
Service Activity	<i>List University and public service activities.</i>																														

<i>Brief Statement of Research Interest</i>	Fungal biology, fungal plant pathology, genetic variation in plant pathogenic fungi, soil-borne diseases, on-farm participatory research, integrated disease management, impact assessment and plant disease diagnosis.
<i>Publications</i>	<i>List publications in standard bibliographic format with earliest date first.</i> Khola Rafique, Awais Rasheed, Alvina Gul Kazi, Hadi Bux, Farah Naz, Tariq Mahmood and Abdul Mujeeb-Kazi. 2012. Powdery mildew resistance in some new wheat amphiploids (2n = 6x = 42) derived from and S-genome diploid progenitors. Plant Genetic Resources, 10(1):1-16 Kishwar Sultana, Chaudhary Abdul Rauf, Abid Riaz, Farah Naz, Gulshan Irshad and Muhammad Irfan Ul-Haque. (2011). Check list of <i>Agarics</i> of Kaghan Valley-I. Pak.J. Bot. 43(3):1777-1787 Aqsa Aslam, Farah Naz, Muhammad Arshad, Rahmatullah Qureshi and C.A.Rauf. 2010. <i>In vitro</i> antifungal activity of selected medicinal plant diffusates against <i>Alternaria solani</i>, <i>Rhizoctonia solani</i> and <i>Macrophomina solani</i>. Pak.J. Bot., 42(4): 2911 - 2919) Farah Naz, C. A. Rauf., N.A. Abbasi., I. Ahmad, and I. Ha (2008) Influence of inoculum levels of <i>Rhizoctonia solani</i> (AG 3) and susceptibility on new potato germplasm. Pak.J. Bot., 40(5): 2199 - 2209) Farah Naz and M. Ashraf. 2006. Histopathology of sunflower seedlings infected with <i>Macrophomina phaseolina</i>. Int. J. Biol. Biotech., 3(1):107-112 Farah Naz, C. A. Rauf., I. Haque. and I. Ahmad. (2006) Management of <i>Rhizoctonia solani</i> with plant diffusates and chemicals. Pak. J. Phytopathol., 18(1):36-43 Abid Riaz, J. Nicklin, I. Haque, C.A.Rauf, G.Qadir and Farah Naz. (2012). Toxicity induced by solanapyrone in chickpea shoots and its metabolism through glutathione/glutathione-s-transferase system. Pak.J. Bot., 44(6) (Accepted)

	Abid Riaz, Abdul Rauf, M.I.Haque and Farah Naz. 2006. Effect of Plant age and inoculum concentration on Ascochyta blight development in chickpea. <i>Pak. J. Phytopathol.</i>, 18(1):47-50, Farah Naz and M. Ashraf. 2005. Karyological studies of three cultivars of sunflower (<i>Helianthus annuus</i>). <i>Int. J. Biol. Biotech.</i>, 2(4):989-994 Farah Naz, C.A.Rauf, I. Ahmad, I.U.Haque and A. Riaz. 2011. Management of black scurf of potato with effective microbes, biological potassium fertilizer(BPF), and <i>Trichoderma harzianum</i>. Submitted (<i>Pak.J. Bot.</i>) Jaleel, S. Farah Naz S.M.Mughal , T. Shakeel,M.I. Haque and M. Ashfaq. 2011. Induction of resistance in potato against potato virus Y by systemic chemicals. Shahzaman S., Farah Naz, M.I.Haque and C.A.Rauf. 2011. Pathogenic variations and characterization of <i>Streptomyces scabies</i> isolates from potato tubers in Rawalpindi District. Submitted (<i>Pak.J. Bot.</i>)
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SAR Proforma 9

Faculty Resume



<i>Name</i>	DR ABID RIAZ
<i>Personal</i>	Mailing address PMAS Arid Agriculture University, Murree Road, Rawalpindi, 46300, Pakistan E-mail abidriaz@uaar.edu.pk riaz_abid50@hotmail.com Telephone office: +92 9062624
<i>Experience</i>	Jan., 2004 to date Assistant Professor Department of Plant Pathology, PMAS- Arid Agriculture University, Rawalpindi- 46300, Pakistan Dec., 1999 to Dec.2003 Lecturer PMAS- Arid Agriculture University, Rawalpindi- 46300, Pakistan March 1996 to November, 1999 Assistant Research officer (Plant Pathology) Agriculture Department. Govt. of the Punjab
<i>Honor and Awards</i>	• Obtained competitive Indigenous Scholarship from Higher education Commission, Pakistan for Ph. D. in 2001. • Got competitive International research support initiative programme (IRSIP) award from HEC, Pakistan in 2004. • Obtained Post Doc. Scholarship from Higher education Commission in 2007. • Higher Education Commission approved supervisor for Ph. D. in the area of Plant Pathology(Since 2010)

<i>Memberships</i>	• Life Member of Pakistan Botanical Society • Life Member of Pakistan Phytopathological Society • Member (unopposed) of Academic Council, PMAS- Arid Agriculture University, Rawalpindi • Member Faculty Board, Faculty of Food and Crop Sciences, PMAS- Arid Agriculture University, Rawalpindi																																										
Graduate Students Postdocs Undergraduate Students <i>Honour Students</i>	List supervision of graduate students, postdocs and undergraduate honors theses showing: <table><tr><th>Years</th><th>Degree</th><th>Name</th></tr><tr><td>2006</td><td>M.Sc.(Hons.)Agri</td><td>Shahid Hussain</td></tr><tr><td>2007</td><td>M.Sc.(Hons.)Agri.</td><td>AbdurRehman Arif</td></tr><tr><td>2007</td><td>M.Sc.(Hons.)Agri.</td><td>Muhammad Ali</td></tr><tr><td>2010</td><td>M.Sc.(Hons.)Agri.</td><td>Muhammad Asad Farooq</td></tr><tr><td>2010</td><td>M.Sc.(Hons.)Agri</td><td>Saira Hina Malik</td></tr><tr><td>2010</td><td>M.Sc.(Hons.)Agri</td><td>Zobia Jabeen</td></tr><tr><td>2010</td><td>M.Sc.(Hons.)Agri</td><td>Shahzad Shakoor</td></tr><tr><td>2010</td><td>M.Sc.(Hons.)Agri</td><td>Faisal saeed</td></tr><tr><td>2011</td><td>M.Sc.(Hons.)Agri</td><td>Adnan Riaz</td></tr><tr><td>2011</td><td>M.Sc.(Hons.)Agri</td><td>Faizan Saeed</td></tr><tr><td>2012</td><td>M.Sc.(Hons.)Agri</td><td>Wahab Nazir</td></tr><tr><td>2012</td><td>M.Sc.(Hons.)Agri</td><td>Farzana Maqbool</td></tr><tr><td>2012</td><td>M.Sc.(Hons.)Agri</td><td>Raees Ahmed</td></tr></table>	Years	Degree	Name	2006	M.Sc.(Hons.)Agri	Shahid Hussain	2007	M.Sc.(Hons.)Agri.	AbdurRehman Arif	2007	M.Sc.(Hons.)Agri.	Muhammad Ali	2010	M.Sc.(Hons.)Agri.	Muhammad Asad Farooq	2010	M.Sc.(Hons.)Agri	Saira Hina Malik	2010	M.Sc.(Hons.)Agri	Zobia Jabeen	2010	M.Sc.(Hons.)Agri	Shahzad Shakoor	2010	M.Sc.(Hons.)Agri	Faisal saeed	2011	M.Sc.(Hons.)Agri	Adnan Riaz	2011	M.Sc.(Hons.)Agri	Faizan Saeed	2012	M.Sc.(Hons.)Agri	Wahab Nazir	2012	M.Sc.(Hons.)Agri	Farzana Maqbool	2012	M.Sc.(Hons.)Agri	Raees Ahmed
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2006	M.Sc.(Hons.)Agri	Shahid Hussain																																									
2007	M.Sc.(Hons.)Agri.	AbdurRehman Arif																																									
2007	M.Sc.(Hons.)Agri.	Muhammad Ali																																									
2010	M.Sc.(Hons.)Agri.	Muhammad Asad Farooq																																									
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Service Activity	1. Teaching of courses to undergraduate and post graduate classes. 2. Supervision of Ph. D. and M. Sc.(Hons.) Students. 3. Execution of research projects(lab./field trials)																																										
<i>Brief Statement of Research Interest</i>	<i>Aspects related to:</i> 1. Plant disease epidemiology 2. Plant disease management 3. Mycotoxins analysis of agricultural and food products																																										

<i>Publications</i>	1. Anwar, S.A., M.V. Mckenry, A. Riaz and M. S. A. Khan.2001.Evalaution of wheat cultivars for <i>Anguina tritici</i> resistance , development and influence of nematodes on wheat growth . Internat.Jour. nematol. 11:150-156. 2. Anwar, S. A., M.V. Mckenry, A. Riaz and M. S. A. Khan.2001. The development and influence of <i>Anguina tritici</i> on wheat. Phytopath.91:S129.Publication No.P-2001-0004-SON. 3. Anwar , ,S.A., M.V. Mckenry, A. Riaz and M.S.A.Khan. 2001. Reaction of wheat cultivars to <i>Anguina tritici</i>. Phytopath.91:S129.Publication No.P-2001-0005-SON. 4. Ijaz, A., S. A.Anwar, A. Riaz. and M.S.A.Khan.2001.seed borne pathogens associated with wheat and their role in poor germination. Pakistan Journal of Phytopathology. 13(2):102-106. 5. Asif, S.S.A.Anwar, A. Riaz and M.S.A Khan .2001.Seedborne microorganisms of soybean and their relation to seedling emergence. Pakistan Journal of Phytopath.13(2):107-111 6. Khalid, N., S.A Anwar, M I. Haque, A. Riaz and M.S.A.Khan.2001.Seedborne fungi and bacteria of rice and their impact on seed germination .Pakistan Journal of Phytopathology. 13(2):82-90. 7. Khalid , M. J., S. A. Anwar, A.Riaz and M.S.A Khan. 2001.Microflora associated with cotton seed and their impact on seed germination .Pakistan Journal of Phytopathology. 13;82-90 8. Khalid, N., S. A. Anwar, M. I. Haque and A. Riaz. 2002. Study on occurrence of seed borne fungi and their impact on five forest trees. Pakistan Journal of Phytopathology. 14(1):47-50 9. Riaz. A., A. S. Khan and M.I. Haque. 2002. Frequency of seed borne mycoflora of groundnut and their impact on seed germination. Pakistan Journal of Phytopath. 14(1)36-39. 10. Riaz, A., Rauf, C.A., M.I. Haque and F. Naz. 2006. Effect of plant age and inoculum concentration on Ascochyta blight development in chickpea. Pak. J. of Phytopath. 18(1):41-45.
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	11. Ansar, M., M. Ashraf, Z. I. Ahmed and A. Riaz. 2006. Effect of sowing density on Septoria leaf Blotch development and its effect on yield component of wheat. Pak. J. Phytopath. 18(2): 129-135. 12. Ansar, M., Z.I. Ahmad, M. Ashraf and A. Riaz. 2007. Effect of nitrogen levels on <i>Septoria tritici</i> development on three cultivars of wheat. Pakistan Journal of Phytopathology. 19 (1):7-14. 13. Riaz, A., S. H. Khan , S. M. Iqbal and M. Shoaib. 2007. Pathogenic variability among <i>Macrophomina phaseolina</i> (Tassi) Goid, isolates and identification of sources of resistance in mash against charcoal rot. Pakistan Journal of Phytopathology. 19 (1): 44-46. 14. S. H. Khan, A. Riaz, S.M. Iqbal and C.A. Rauf. 2007. Screening of mungbean (<i>Vigna radiata</i> L.) germplasm against charcoal rot and morphological and cultural characterization of <i>Macrophomina phaseolina</i> isolates. Pak. J of Phytopath. 19 (2):51-53. 15. Javed, N., M. Javed, M.M. Khan and A. Riaz. 2008. Influence of soil pH on the movement and infection rate of juveniles of citrus nematode. Pakistan Journal of Phytopathology. 20(1) 156-158. 16. Sultana, K., C. A. Rauf, A. Riaz, F. Naz, G. Irshad and M. I. Haque. 2011. Checklist of agarics of Kaghan valley. Pak. J. Bot. 43(3): 1777-1787. 17. Shakoor, S., S. Chohan, A. Riaz, R. Perveen, S. Naz, M. A. Mehmood, M. S. Haider and S. Ahmad. 2011. Screening of systemic fungicides and biochemicals against seed borne mycoflora associated with <i>Momordica charantia</i>. Afric. J. Biotech. 10(36) 6933-6940. 18. Ijaz, M., I.U. Haque, C. A. Rauf, F. U. Hasan, A. Riaz and S. M. Mughal. 2011. Correlation between humid thermal ratio and epidemic of Cercospora leaf spot of Peanut in Potohar Pak. J. Bot. 43(4): 2011-2016. 19. Yasmin, T., S. Iqbal, A. Farooq, M. Zubair and A. Riaz. 2011. Prevalence, Distribution and incidence of major sugarcane infecting viruses in NWFP and Punjab. Pakistan
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	Journal of Phytopathology. 23(1): 24-30. 20. Mian Abdur Rahman Arif, Hadi Bux, Alvina Gul Kazi, Awais Rasheed, Abdul Aziz Napar, Abid Riaz and Abdul Mujeeb-Kazi. 2012. Stripe rust analysis of D-genome synthetic wheats ($2n = 6x = 42$, AABBDD) and their molecular diversity. Archives Phytopath. & Plant Protect. 45 12, 1479-1487 21. Ismail, M., S. A. Anwar and A. Riaz. 2012. Incidence of <i>Meloidogyne incognita</i> in Cucumber Fields. Pakistan J. Zool., 44(5), pp. 1383-1387 22. Riaz A., J. Nicklin., I. Haque, C. Abdur Rauf, G. Qadir and F. Naz.. 2012. Toxicity induced by solanapyrone and in chickpea shoots and its metabolism through glutathione/ glutathione-s-transferase system. Pakistan J. of Botany. 44 (6) 1339-43. 23. Jabeen. Z., A. Riaz, K. Sultana, A. Ikram, M. Ansar, I. Hassan and I. Ahmad. 2012. Incidence of Aspergillus flavus and extent of aflatoxin contamination in peanut samples of Pothwar region of Pakistan. African journal of microbiology 6(9):1942-1946. 24. Nazir, W. S. M. Iqbal, M. S. Bhatti, N. Khalid and A. Riaz. 2012. Evaluation of yield parameters and nutritional aspects of different strains of oyster (<i>pleurotus ostreatus</i>) mushroom. J. Chem. Soc. Pak. 34(6) :1491-1497.
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<i>Research Grants and Contracts.</i>	<i>Entries should include:</i> <table><tr><td>Date</td><td>Title</td><td>Agency / Organization</td></tr></table> Total Award Amount Funded and in progress Since March 2012 Surveillance and epidemiology of Wheat head/seed diseases and morphological characteristics of species involved in the parasitic complexes” funded by University of Arid Agriculture Rawalpindi.	Date	Title	Agency / Organization
Date	Title	Agency / Organization		
<i>Other Research or Ceative Accomplishments</i>	-----			
<i>Selected Professional Presentations</i>	- Seminar was delivered on “Disease development mechanism of Ascochyta blight” at Birkbeck University of London in November, 2004. - Delivered lecture on “role of Solanapyrone toxins in Ascochyta blight development” at UAAR in June, 2005. - Delivered lecture about “ mass culturing of entomopathogenic fungus Metarrhizium anisopleae - future prospects” in University of Swansea, Wales, U.K. in 2008. - Read and defended research paper titled “chemical control of Meloidogyne incognita through environment-friendly pesticides Abamectin and Abamectin Benzoate on eggplant cultivar Baigan Xlangzue-6” in 31st congress of zoology (international) held on 19-21st april, 2011 at muzaffarabad, azad jammu & kashmir			

SAR Proforma 9



Faculty Resume

<i>Name</i>	<i>Prof. Dr. Abdul Rauf</i>		
<i>Personal</i>	Professor/Chairman Department of Plant Pathology PMAS - Arid Agriculture University, Shamsabad, Rawalpindi, Pakistan Tel: +92-51-9290239 Fax: +92-51-9290461 Email: abdul.rauf@uaar.edu.pk		
<i>Experience</i>	Date	Title	Institution
	June 14, 2012 to date	Chairman, Department of Plant Pathology	PMAS-Arid Agriculture University, Rawalpindi
	January 5, 2008 to date	Professor, Department of Plant Pathology	PMAS-Arid Agriculture University, Rawalpindi
	December 4, 2004 to January 5, 2008	Associate Professor, Department of Plant Pathology	PMAS-Arid Agriculture University, Rawalpindi
	Sept 01, 1989 to December 3, 2004	Assistant Professor, Department of Plant Pathology	PMAS-Arid Agriculture University, Rawalpindi
	May 20, 1989 to August 31, 1989	Assistant PlantPathologist	Barani Agri. Research Institute, Chakwal
	July 10, 1988 to May 20, 1989	Lecturer, Department of Plant Pathology	Barani Agricultural College, Rawalpindi

	September 4, 1986 to July 9, 1988	Research Of fic er,	Barani Agri. Research Institute, Chakwal
		Plant Pathology	
<i>Honor and Awards</i>	<u>ADMINISTRATIVE RESPONSIBILITIES</u> - Started postgraduate program in the Department of Plant Pathology, University of Arid Agriculture, Rawalpindi, during 1996 and supervised 1st eight students who successfully completed their M.Sc. (Hons.) in Plant Pathology. - Strengthening and upgrading of laboratory facilities by running Pakistan Science Foundation, Islamabad, funded projects. - Longest stay and service in the history of Department of Plant Pathology, University of Arid Agriculture, Rawalpindi (1994 to-date), previously Barani Agricultural College, Rawalpindi (1988-1993) in various capacities.		
<i>Memberships</i>	Memberships - Life Member, Pakistan Phyto-pathological Society, University of Agriculture, Faisalabad - Life Member, Pakistan Society of Nematologists, University of Karachi, Pakistan - Canadian Phyto - pathological Society - Mycology and Plant Pathology Society of Pakistan, University of the Punjab, Lahore - Founder Member, Crop Protection Association of Pakistan, Islamabad.		
Graduate Students Postdocs Undergraduate Students <i>Honour Students</i>	S #	Year	Degree Name As Supervisor of M.Sc(Hons.) Agri. Students
	1	1998	M.Sc (Hons.) Agri. Plant Pathology
	2	1998	//
			Ali Raza Jamali Bashir Ahmad

	3	1998	//	Azhar Rashid
	4	1998	//	Muhammad Rizwan
	5	2000	//	Faisal Sohail Fateh
	6	2000	//	Muhammad Zakria
	7	2001	//	Syed Irshad Hussain
	8	2003	//	Muhammad Khalid
	9	-	//	Tahira Sadozai
	10	-	//	Muhammad Shuaib
	11	2005	//	Sajid Farooq
	12	2005	//	M. Ziaullah
	13	2004	//	Kashif Zeeshan Alvi
	14	2006	//	Naveed Ahmad
	15	2006	//	M. Shahzad
	16	2012	//	Javeria Aqeel
	17	2012	//	Muhammad Rehan
	18	2012	//	Asia Ashraf
	19	2012	//	Rabia Tajamal
	20	2010	//	Javeria Chaudhary
	As Supervisor of Ph.D Students			
	1	2006	Ph.D	Farah Naz
	As Co-Supervisor of Ph.D Students			
	1	2011	Ph.D	Hafiz M. Zia Ullah
	2	2011	//	Muhammad Ijaz
	3	2006	//	Abid Riaz
	As Co-Supervisor of M.Sc(Hons.) Students			

	1	M.Sc (Hons.) Agri. Plant Pathology	Shazia Kausar
	2	2003 //	Ammara Ijaz
	3	- //	Muhammad Ayub
	4	2004 //	M.Naveed Aslam
	5	- //	Abdul Hamad Khan
	6	- //	Adeela Shaukat
	7	2006 //	Saima Iram Farooq
	8	- //	Aniqa Iram
	9	- //	Muhammad Asif
	10	- //	Iffat Ara
	11	- //	Sofia Rashid
	12	2011 //	Wahab Nazir
	13	2011 //	Hira Ghazal
	14	2003 //	Muhammad Imtiaz
	15	2012 //	Sania Shaukat
	16	- //	Maqbool Hussain
	17	2011 //	Kashif Nazeer
	18	- //	Asia Kanwal
	19	- //	Khadija Arif
	20	- //	Rabia Kanwal
Service Activity	▪ Chairman/ Professor, Department of Plant Pathology PMAS - Arid Agriculture University, Rawalpindi ▪ Member, University Syndicate (2011-2014) ▪ Hall Warden of the University (2008 to date) ▪ Member, Benevolent Fund Committee, PMAS-AAUR (2011 to date) ▪ Member Synopsis Scrutiny Committee, Department of Range Management & Forestry, PMAS-AAUR, November 2005- 2008 ▪ Secretary Seminars, Faculty Crop & Food Sciences, PMAS-AAUR during 2005-2006		

	▪ Councilor, Executive Council, Phyto-pathological Society (PPS), University of Agriculture, Faisalabad (2004-2005) ▪ Member, Academic Council, PMAS-AAUR (2004 to date) ▪ Joint Secretary, Executive Council, Phyto-pathological Society, University of Agriculture, Faisalabad (2000-2003) ▪ Tutor, Tutorial Group “G” students, PMAS-AAUR 1997-2003 ▪ Member, Faculty Board, Faculty of Sciences, PMAS-AAUR, 1997-2003 ▪ Elected Member (Cadre: Assistant Professor), Academic Council, PMAS-AAUR, 1999-2002 ▪ Elected Member, University Syndicate (Cadre: Assistant Professor), PMAS-AAUR, 2000-2002 ▪ Member, University Purchase Committee, UAAR, 1995-2002 ▪ Member/Secretary, National Curriculum Revision Committee - Plant Pathology, HEC, Islamabad, 2000 ▪ Member Faculty Board, Faculty of Crop & Food Sciences, PMAS-AAUR, 1997-to date ▪ Professor Incharge, Plant Pathology Laboratory, UAAR, 1989-1996. ▪ Acting Chairman, Department of Plant Pathology, UAAR, 1997-1999 ▪ Acting Chairman, Board of Study, Department of Plant Pathology, UAAR, 1997-1999 ▪ Started postgraduate program in the Department of Plant Pathology, University of Arid Agriculture, Rawalpindi, during 1996 and supervised 1st eight
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	students who successfully completed their M.Sc. (Hons.) in Plant Pathology. ▪ Strengthening and upgrading of laboratory facilities by running Pakistan Science Foundation, Islamabad, funded projects. ▪ Longest stay and service in the history of Department of Plant Pathology, University of Arid Agriculture, Rawalpindi (1994 to-date), previously Barani Agricultural College, Rawalpindi (1988-1993) in various capacities.
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<i>Brief Statement of Research Interest</i>	<u>RESEARCH PRIORITIES</u> ▪ Fungal biology, ▪ Fungal plant pathology, ▪ Genetic variation in plant pathogenic fungi, ▪ Soil-borne diseases, on-farm participatory research, ▪ Integrated disease management, impact assessment and plant disease diagnosis.
<i>Publications</i>	1. Batool, S. K., Naqvi, S. A., C. A. Rauf and S. M. Saqlain Naqvi. 2013. Amplification and Sequencing of Internal Transcribed Region 1 & 2, and 5.8S rDNA from local isolated of <i>Fusarium</i> Species. <i>Pak. J. Bot.</i>, 45(SI): 00-00. 2. Abid Riaz, J. Nicklin, I.Haque, C. A. Rauf, G.Qadir and F. Naz. 2013. Toxicity induced by solanapyrone in chickpea shoots and its metabolism through glutathione/glutathione-s-transferase syatem. <i>Pak. J. Bot.</i> (accepted). 3. Ziaullah, H. M., M. I. Haque, C. A. Rauf. H. Akhtar, and M. Munir. 2012. Comparative virulence in isolates of <i>Tilletia indica</i> and host resistance against karnal bunt of Wheat. <i>JAPS</i> 22 (2): 467-472. 4. Abbas, M. F., S. Hameed, C. A. Rauf, Q. Nosheen, A. Ghani, A. Qadir and Sheznaz Zakia. 2012. Incidence of six viruses in potato growing areas of Pakistan. <i>Pak. J. Phytopathol.</i> 24 (1): 44-47. 5. Sultana, K., C.A. Rauf, A. Riaz, F. Naz, G. Irshad and M. I. Haque. 2011. Checklist of agarics of Kaghan Valley. <i>Pak. J. Bot.</i>, 43(3):1777-1787. 6. Ijaz, M., M.I. Haque, C.A. Rauf, Fayyaz-ul-Hassan, A. Riaz, and S.M. Mughal. 2011. Correlation between humid thermal ratio and epidemics of cercospora leaf spot of peanut in pothwar. <i>Pak. J. Bot.</i>, 43(4):2011-2016. 7. Aslam, M., F. Naz, M. Arshad, R. Qureshi and C. A. Rauf. 2010. <i>In vitro</i> antifungal activity of selected medicinal plant diffusates against <i>Alternaria solani</i>, <i>Rhizoctonia solani</i> and <i>Macrophomina solani</i>. <i>Pak. J.</i>

	<i>Bot.</i>, 42(4): 2911-2919. 8. Afzal, S. N., M.I. Haque, A. Rauf, I. Ahmad and S. S. Firdous, 2010. Vulnerability of Pakistani wheat (<i>Triticum aestivum</i> L.) varieties against stripe rust under rain-fed climate of the northern Punjab and NWFP. <i>Pak. J. Bot.</i> 42(3): 2029-2042. 9. Afzal, S. N., M. I. Haque, M.S. Ahmedani, M. Munir, S. S. Firdous, C. A. Rauf, I. Ahmad, A.R. Rattu and M. Fayyaz. 2009. Resistance potential of wheat germplasm (<i>Triticum aestivum</i> L.) against stripe rust disease under rainfed climate of Pakistan. <i>Pak. J. Bot.</i>, 41(3): 1463-1475. 10. Naz, F., C. A. Rauf, N. A. Abbasi, I. U. Haque and I. Ahmad. 2008. Influence of inoculum levels of <i>Rhizoctonia solani</i> and susceptibility on new potato germplasm. <i>Pak.J.Bot.</i>, 40 (5): 2199-2209. 11. Akram, A., S. M. Iqbal, C. A. Rauf and R. Aleem. 2008. Detection of resistant sources for collar rot disease in chickpea germplasm. <i>Pak. J. Bot.</i> 40(5): 2211-2215. 12. Afzal, S. N., M. I. Haque, M. S. Ahmadani, C. A. Rauf, M. Munir, S. S. Firdous, A. Rattu and I. Ahmad. 2008. Impact of stripe rust on kernel weight of wheat varieties sown in rainfed areas of Pakistan. <i>Pak. J. Bot.</i>, 40(2): 923-929. 13. Akram, A., S. M. Iqbal, R. A. Qureshi and C.A. Rauf. 2008. Variability among the isolates of <i>Sclerotium rolfsii</i> associated with collar rot disease of chickpea in Pakistan. <i>Pak. J. Bot.</i> 40(1): 453-460. 14. Rauf, C. A., I. Ahmad and M. Ashraf. 2007. Anastomosis groups of <i>Rhizoctonia solani</i> Kühn isolates from potato in Pakistan. <i>Pak. J. Bot.</i> 39(4): 1335-1340. 15. Rauf, C. A., M. Ashraf and I. Ahmad. 2007. Occurrence and distribution of black scurf of potato in Pakistan. <i>Pak. J. Bot.</i> 39(4): 1341-1352. 16. Rauf, C. A., M. Ashraf, and I. Ahmad. 2007. Management of black scurf disease of potato. <i>Pak. J. Bot.</i> 39(4): 1353-1357.
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	17. Khan, S.H., A. Riaz, S.M. Iqbal and C.A. Rauf. 2007. Screening of mung bean (<i>Vigna radiata</i> L.) germplasm against charcoal rot and morphological and cultural characterization of <i>Macrophomina phaseolina</i> isolates. <i>Pak. J. phytopathol.</i> 19(2):51-53. 18. Naz, F., C. A. Rauf, I. U. Haque and I. Ahmed. 2006. Management of <i>Rhizoctonia solani</i> with plant diffusates and chemicals. <i>Pak. J. Phytopathol.</i> 18(1): 36-43. 19. Riaz, A., A. Rauf, M. I. Haque and F. Naz. 2006. Effect of plant age and inoculum concentration on Ascochyta blight development in chickpea. <i>Pak. J. Phytopathol.</i> 18(1): 47-50. 20. Jamali A. R., S.M. Iqbal, C. A. Rauf, and A. Akram. 2005. Studies on the pathogenic variability in <i>Ascochyta pisi</i>. <i>Int. J. Agri. Biol.</i> 7(2): 272-274. 21. Farooq, S., S. M. Iqbal and C. A. Rauf. 2005. Physiological studies on <i>Fusarium oxysporum</i> f. sp. <i>ciceri</i>. <i>Int. J. Agri. Biol.</i> 7(2): 275-277. 22. Farooq, S., S. M. Iqbal and C. A. Rauf. 2005. Pathogenic variability in <i>Fusarium</i> wilt of chickpea. <i>Pak. J. Phytopathol.</i> 17(2):149 -153. 23. Rauf, C. A., S. I. Yasin, H. U. Khan and F. Rahman. 2005. Varietal screening of potato against <i>Rhizoctonia solani</i>. <i>Int. J. Biol. Biotech:</i> 2 (3): 701-704. 24. Rauf, C. A., M. Ziaullah, S. I. Yasin and F. Rahman. 2005. Effect of graded inoculum of <i>Rhizoctonia solani</i> on root, shoot length and yield of three potato varieties. <i>Int. J. Biol. Biotech.</i> 2(4): 925-928. 25. Iqbal, S.M., C. A. Rauf and M. I. Sheikh. 2005. Yield performance of oyster mushroom on different substrates. <i>Int. J. Agri. Biol.</i> 7(6): 900-903 26. Iqbal, S. M., C.A. Rauf, A. Bakhsh and U. Iqbal. 2005. Variability in <i>Fusarium oxysporum</i> f. sp. <i>ciceri</i>. <i>Mycopath.</i> 3(1&2): 47-51. 27. Rauf, C. A. and S. M. Iqbal. 2005. Investigations on the spawn production of <i>Pleurotus ostreatus</i> L. <i>PJST.</i>, 1(6):
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	29. Rashid, A., I. Ahmad, S. Iram, J. I. Mirza and C. A. Rauf. 2004. Efficiency of different neem (<i>Azadirachta indica</i> A.Juss) products against various life stages of <i>Phytophthora Infestans</i> (Mont.) De Bary. <i>Pak. J. Bot.</i> 36(4): 881-886.
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	32. Rauf, C. A., and F. Rahman. 2003. Effect of various bio-pesticides on mycelial growth of <i>Rhizoctonia solani</i> and management of black scurf of potato. <i>Mycopath</i> . 1(2): 131-135.
	33. Iqbal, S. M., C. A. Rauf, N. Ayub and A. Ghafoor. 2002. Morphological characters of chickpea cultivars related to resistance against blight. <i>Int. J. Agri. Biol.</i> 4(4): 496-499.
	34. Iqbal, S.M., C. A. Rauf and A. Bakhsh. 2002. Effect of infected seed and debris on chickpea blight. <i>Pak J. Pl. Pathol</i> . 1(2-3): 63-65.
	35. Iqbal, S. M., A. R. Jamali, C. A. Rauf, and A. Akram. 2001. Screening of pea (<i>Pisum sativum</i> L.) germplasm against blight disease caused by <i>Ascochyta pisi</i> . <i>Pak. J. Phytopathol</i> . 13(1): 64-66.
	36. Rizwan, M., M. I. Haque., C. A. Rauf and S. Mehmood. 1999. Evaluation of suitable carriers for antagonistic strains of <i>Agrobacterium radiobacter</i> used for biological control of crown gall disease on stone fruits. <i>Pak. j. arid agric</i> . 2(2): 1-5.
	37. Rauf, C. A., S. M. Iqbal and A. Shakoar. 1998.

	Evaluation of fungicides against mycelial growth of <i>Macrophomina phaseolina</i>. <i>Pak. j. arid agric.</i> 1(1): 19-21. 38. Iqbal, S. M., M. Zulkiffal, C. A. Rauf, and T. Mehmood. 1998. Screening of pea for resistance against powdery mildew under rainfed conditions. <i>Pak. j. arid agric.</i> 1(1): 33-35. 39. Iqbal, S. M., M. Bashir, C. A. Rauf, and B. A. Malik. 1996. Efficacy of fungicides against soil- borne pathogens of chickpea. <i>Pak. J. Phytopathol.</i> 8(1): 65-67. 40. Rauf, C. A., M. R. Malik, S.M. Iqbal, S. Rahat and S. Hussain. 1996. Fungicides: An economic tool to enhance productivity and net returns in chickpea crop. <i>Sarhad J. Agric.</i> XII (4): 445-448. 41. Rauf, C. A., S. M. Iqbal, and S. Rahat. 1996. Fungicidal efficacy against <i>Ascochyta lentis</i>. <i>Pak. J. Phytopathol.</i> 8(1): 49-51 42. Anwar, S. A., C. A. Rauf, S. Mahmood, M. A. Hashmi, N. Hussain, and M. S. Khan. 1996. Seed-borne pathogens of mungbean. <i>Pak. J. Phytopathol.</i> 8(1): 43-45. 43. Anwar, S. A., S. F. Abbas, M. M. Gill, C. A. Rauf, S. Mahmood, and A. R. Bhutta. 1995. Seed-borne fungi of soybean and their effect on seed germination. <i>Pak. J. Phytopathol.</i> 7 (2): 184-190. 44. Anwar, S. A., A. R. Bhutta, C. A. Rauf and M. S. A. Khan. 1994. Seed-borne fungi of pea and their role in poor germination of pea seed. <i>Pak. J. Phytopathol.</i> 6(2): 135-139. 45. Iqbal, S. M., C. A. Rauf, S. Rahat, and C. M. Akhtar. 1994. Antagonism to <i>Colletotrichum falcatum</i> Went, the cause of sugarcane red rot. <i>Sarhad J. Agric.</i> X(5): 575-579. 46. Anwar, S. A., S. D. Gorski and C. A. Rauf. 1993. Nematode diseases of rice in the Punjab. <i>Pak. J. Agric. Res.</i> 14 (2&3): 184-191. 47. Rahat, S., S. M. Iqbal, C. A. Rauf and S. Hussain. 1993.
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	Efficacy of fungicides against <i>Ascochyta fabae</i>. FABIS Newsletter 33: 20-22. 48. Anwar, S. A., C. A. Rauf and S. D. Gors. 1992. Weeds as alternate hosts of phytonematodes. <i>Int. J. Nematology</i> (previously Afro-Asian J. Nematology) 2(1&2): 41-4 49. Rauf, C. A., S. M. Iqbal and S. A. Anwar. 1992. Effect of fungicide (Tilt) on seed-borne <i>Ascochyta rabiei</i> and control of chickpea blight. <i>J. Agric. Res.</i> 30 (3): 403-407. 50. Aftab, M., S. M. Iqbal and C. A. Rauf. 1992. Effect of lentil strain of pea seed-borne mosaic virus on lentil. LENS Newsletter 19(2): 51-53. 51. Rauf, C. A., S. A. Anwar and S. M. Iqbal. 1991. Effect of fungicides on seed-borne fungi, seed germination and seedling vigor in chickpea. <i>Sarhad J. Agric.</i> VII (3): 369-372. 52. Anwar, S. A., M. Idrees, M. A. Akhtar, C. A. Rauf and Pakeeza. 1990. Phytopathogenic nematodes of peanut in the Punjab, Pakistan. <i>Proceedings of Parasitology</i>. 10: 225-230. 53. Perveen, R., C.A. Rauf, M.A. Mehmood, S. Chohan, Ateeq-ur-Rehman and G. Yasmin. 2013. Relationship of epidemiological factors with white rust of crucifers. JAPS (Submitted). 54. Farah, N., S. Shahzaman and C. A. Rauf. 2012. Pathogenic Variations and Characterization of <i>Streptomyce scabies</i> isolates from potato tubers in Rawalpindi District. <i>Environmental Science and Technology B</i>. (accepted) 55. Jaleel, S., F. Naz, S.M. Mughal, M.I. Haque, C.A. Rauf. 2013. Induction of resistance in potato against potato virus Y by systemic chemicals. <i>Pak. J. Bot.</i> (Submitted). 56. Naz, F., C.A. Rauf, I. Ahmad, I.U. Haque and A. Riaz. 2013. Management of black scurf of potato with effective microbes, biological potassium fertilizer
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	(BPF), and <i>Trichoderma harzianum</i> . <i>Pak. J. Bot.</i> (Submitted). 57. Naz, F., C.A. Rauf and G. Irshad. 2013. Inhibition of <i>Rhizoctonia solani</i> with isothiocyanates produced by Brassicaceae species. <i>Pak. J. Bot.</i> (Submitted).		
<i>Research Grants and Contracts.</i>	Date (1997-2000) completed (2002-2003) completed (2003-2006) completed (2011 –2013) In progress	Title Biology and Management of Black Scurf of Potato Epidemiology and Management of <i>Rhizoctonia</i> Stem Canker of <i>Solanum tuberosum</i> L. Management of Black Scurf of Potato Disease mapping and characterization of lentil wilt pathogen in Pakistan Grant amount = 32 lacs	Agency/Organization Pakistan Science Foundation, Islamabad University of Arid Agriculture, Rawalpindi Pakistan Science Foundation, Islamabad Pakistan Science Foundation, Islamabad
<i>Other Research or Creative Accomplishments</i>	-		
<i>Selected Professional Presentations</i>	Investigations on <i>Fusarium</i> Wilt of Lentil. Sixth Canadian Pulse Research Workshop organized by Department of Plant Sciences, University of Saskatchewan, Hilton Garden Inn, Saskatoon, Nov 1-3, 2006, Canada.		

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

Strengths found in the programme

The department is having the faculty of all specialties regarding main components of plant pathology viz., Fungal plant pathology, Plant Bacteriology, Plant Nematology, Plant Virology, Plant Disease Epidemiology and Disease management, with full acquaintance of their respective subjects, having vast knowledge of local agriculture production systems and disease problems. Most of the faculty members did their post doctorate in recent past from the world renowned universities and equipped themselves with latest techniques in their respective fields of specialization. Most of the faculty members have local degrees and are experts in local field problems. Their work has been published in national and international Journals (Annexure 11). They have also implemented national research projects and are highly conscious about the upcoming problems in the field of plant pathology. They are trying to highlight these problems through the surveys of the farmers fields so that the undergraduate students can pick up these problems in their post graduate research. Induction (Interim placement by Higher Education Commission (HEC), Pakistan) of Assistant professor Dr. Mian Abdur Rehman Arif (Ph.D. from Germany) has further enhanced the performance of the department. Each of the major disciplines has an independent laboratory. Internet access to the faculty and the students has played important role in broadening their vision.

Weaknesses Identified in the Program

Although department is making progress in teaching, research and community services but advanced research is still handicapped due to lack of important equipment as PCR equipment, ELISA Reader, plate washer, homogenizers, and ultracentrifuge. Latest useful literature(full-text papers)and reviews are rarely available. There is a need for short term foreign training to young faculty members.. The students' work indicates that there is some room for improving communication skills and the focusing on the practical aspects. Green-house and animal-house facilities are also lacking. Lecture rooms, common rooms, post-graduate laboratories, library and survey / field diagnostic aids are also lacking.

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

Performance of the faculty members pertaining to research activities indicates that there are -
----- research papers and ---- other publications and ----- projects in the credit of faculty members of the plant pathology department (Table-2).

Table 2. Present Performance Measures for Research Activities

<i>Faculty</i>	<i>Publications</i>	<i>Others</i>	<i>Projects</i>
Dr. Irfan Ul-Haque	47	20	3
Dr. Abdul Rauf	57	40	3
Dr Inam ul Haq	65	10	3
Dr. Tariq Mukhtar	55	7	1
Dr. Abid Riaz	25	6	1
Ms. Gulshan Irshad	8	0	1
Dr. Muhammad Ashfaq	22	7	3
Dr. Farah Naz	13	2	1
Total	292	92	16

Major Future Improvement Plans

- To equip the post-graduate laboratories (Mycology, Nematology, Bacteriology and Virology) with the modern and more sophisticated equipments.
- Human Resource development in Plant Pathology to meet future challenges for sustainable agriculture leading to self sufficiency in food.
- To impart quality education in Plant Pathology through audio visual aids and modern tools along with provision of latest literature, journals, books and reviews

- To extend facilities for plant disease diagnosis, herbarium, museum, culture bank and develop extension material.
- To prepare hand-outs, brochures and pamphlets for the farmers and advisory services
- Overall enhancement of knowledge and skills of faculty members in relation to the latest global advancements in this discipline through exchange programs, short training and collaborative research projects within and outside Pakistan.
- To emphasize problem oriented research on specific diseases prevalent in the arid areas of the country.

Community Services Provided by the Department

The department is providing following community services:

- Advisory services to the farmers as and when desired.
- Advisory services to protected farming in tunnels.
- Supervision of students on internship in various organizations in the Punjab.
- Advisory services on disease diagnosis and management to provincial agriculture department (local).
- Guidance and supervision of students of various departments.

Evaluation of the Administrative Services Offered by the Department

- The department maintains a ratio of 4:1 for the academic (technical) and administrative non-technical staff which fulfils the standard set by the HEC (Table 3).
- Administrative meetings (departmental, university, academic council, and syndicate) are attended as and when required. Generally two meetings of academic council are held per month. Board of studies of the department meets quarterly.
- Quick office disposal; no complaint pertaining to delay has ever received from authorities.
- Proper record of individual students, their theses etc. are maintained.

Students are happy about the administrative services provided by the department as shown from the graduating student's survey.

Table 3 Quantitative Assessment of the Department at undergraduate level (Last two years, 2010-2012)

Sr. #	Particular	No.	Remarks
I	Undergraduates (B.Sc. Hons.) produced	50	85% of them joined M.Sc, 5% did not continue their education.10% got jobs soon after the degree.
ii	Students: Faculty ratio	10:1	
iii	Technical : Non Technical ratio	4:1	
iv	Average grade point	3	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).

Criterion 2: CURRICULUM DESIGN AND ORGANIZATION

Degree Title: B.Sc. (Hons) Agriculture (Plant Pathology)

Intent: All the courses for degree program were developed by a National curriculum development committee constituted by the Higher Education Commission, Pakistan. The committee consisted of experts and learned professors, subject specialists from renowned universities and research organizations from Pakistan. When and if needed, curriculum for the Department of Plant Pathology is revised/updated through different bodies. At department level, Board of Studies, which comprised of senior faculty members, is responsible for updating the curriculum. This body is authorised to formulate syllabus and course contents. The chairperson of the Department is the convener of this body. The courses are then sent to the Faculty board for approval. The Dean of the Faculty, who is also the Convener, conducts meeting. As per university rules courses after the approval from the Faculty Board, are placed before the University Academic Council for their approval.

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/week). One credit hour carries 20 marks.

Degree plan

Presently three degree programs are organized by the department. One of them is B.Sc. (Hons.) Agri. majoring in Plant Pathology. The B.Sc. (Hons) degree program consists of 4 academic years/ 8 semesters.

Pre-requisites: minimum academic requirements

A person holding intermediate science certificate (Pre-Medical/Pre-Engineering) or an equivalent certificate from any recognized institute with at least second division or overall 45 % marks is eligible to be a candidate. The candidates domiciled in the Barani Areas of Punjab are eligible for admission. However, some seats are also reserved for other provinces. The admission to the university is on merit which is determined solely on the academic performance in intermediate or equivalent examination.

Degree requirements

As a whole a student has to study 140 credit hours. In first four semesters, students study minor courses (Agriculture Sciences, Information Technology and Veterinary Sciences etc.).

After the completion of four semesters, students choose a specialized field (major) of study. In the next four semesters courses of major specialized subject are taught including some other courses of other departments (Table 8????). In the final semester includes 15 credit hours. Students are placed in research institutes to learn research techniques practically. Degrees are awarded after completing the required number of credit hours (courses) followed by internship report and its presentation.

Minimum Grade Point Average (GPA) for obtaining the degree in 2.50. To remain on the roll of the university a student shall be required to maintain the following minimum Cumulative Grade Point Average (CGPA) in each semester to be on the roll of the University.

Semester	CGPA
First	0.75
Second	1.00
Third	1.25
Fourth	1.50
Fifth	1.75
Sixth	2.00
Seven	2.25
Eight	2.50

Examination and Weightage

a) Theory

In theory paper, students' evaluation is done by mid-term examination, assignments/ quizzes and final examination. Both the mid-term and final examinations are compulsory. A student who misses the mid-term examination is not allowed a make-up examination and is awarded zero marks in that examination. In case a student does not appear in the final examination of a course, he/she will be deemed to have failed in that course. In theory, weightage to each component of examination is as prescribed here under:

Mid Examination	30%
Assignments	10%
Final Examination	60%

b) Practical

For practical examination (if applicable) 100% weightage is given to practical in final examination

Eligibility for Examination

A student is eligible to sit for the examination provided that he/she has attended not less than 75 % of the classes in theory and practical, separately. The minimum pass marks for each course are 40% for undergraduate.

Scheme of studies and Course contents of B. Sc. (Hons.) Agriculture

Scheme of studies for B.Sc. (Hons.) Agri. is given in (Table. 4). Detailed course contents of under-graduate schemes of studies are given in Annexure 11 and 12, respectively.

Table 4 Scheme of studies and Course titles of B. Sc. (Hons.) Agriculture for 2010-11

GENERAL COURSES

FIRST SEMESTER

AEC-301	Principles of Agricultural Economics	3(3-0)
AGR-301	Basic Agriculture	3(2-2)
ENG-301	Functional English	3(3-0)
HORT-301	Introductory Horticulture	3(2-2)
SSH-301	Pakistan Studies	2(2-0)
MATH-301 / BIOL-301	Mathematics-I / Biology-I	
	3(3-0) / 3(2-2)	
SS-301	Introduction to Soil Science	<u>3(2-2)</u> 20

SECOND SEMESTER

AGR-302	Summer Crops	3(2-2)
ENG-302	Communication Skills	3(3-0)
FT-302	Introduction to Food Science	2(2-0)
HORT-302	Horticultural Crop Production	2(1-2)
IS-302 / ET-302	Islamic Studies / Ethics	
	2(2-0)	
IT-302	Introduction to Information Technology	3(1-4)
MATH-302 / BIOL-302	Mathematics-II / Biology-II	3(3-0) /
	3(2-2)	
AS-302	Animal Husbandry	<u>3(2-2)</u>

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THIRD SEMESTER

AEN-401	Farm Mechanization & Water Conservation Engineering	3(2-2)
AGR-401	Winter Crops	3(2-2)
ENT-401	Introductory Entomology	2(1-2)
FT-401	Food Processing and Preservation	
	3(2-2)	
PBG-401	Introductory Genetics	2(1-2)
PP-401	Introduction to Plant Pathogens	2(1-2)
SS-401	Instrumentation and Laboratory Techniques	2(0-4)
STAT-401	Introduction to Statistics	<u>3(3-0)</u>
		20

FOURTH SEMESTER

AE-402	Introduction to Agricultural Extension Education	
	3(3-0)	
ENT-402	Applied Entomology	3(2-2)
FR-402	Introduction to Forestry and Range Management	
	3(2-2)	
PBG-402	Introductory Plant Breeding	3(2-2)
PP-402	Introduction to Plant Pathology	3(2-2)
SS-402	Soil and Water Conservation	2(2-0)
STAT-402	Experimental Designs	2(1-2)
MGT-402	Introduction to Agri. Business Management	<u>2(2-0)</u>
		21

FIFTH SEMESTER

PLANT PATHOLOGY

PP-501	Introductory Mycology	3(2-2)
PP-503	Introduction to Plant Parasitic Nematodes	3(2-2)
PP-505	Introduction to Plant Prokaryotes	3(2-2)
PP-507	Introduction to Plant Viruses	3(2-2)
PP-509	Abiotic Diseases of Plants	3(2-2)

Total Credit Hours 15

SIXTH SEMESTER

PP-502	Diseases of Field Crops	3(2-2)
PP-504	Diseases of Vegetable Crops	3(2-2)
PP-506	Diseases of Fruits and Ornamentals	3(2-2)
PP-508	Plant Disease Diagnosis	3(2-2)
PP-510	Plant Resistance to Diseases	3(2-2)
Total Credit Hours		15

SEVENTH SEMESTER

PP-601	Plant Disease Management	3(2-2)
PP-603	Introductory Forest Pathology	3(2-2)
PP-605	Seed and Post Harvest Pathology	3(2-2)
PP-607	Plant Disease Epidemiology	3(2-2)
ENTO-603	Plant Resistance to Insect Pests	3(2-2)
Total Credit Hours		15

EIGHTH SEMESTER

PP-602	Beneficial Microorganisms	3(2-2)
PP-604	Pesticides, Their Action and Application	3(2-2)
PP-606	Introduction to Molecular Plant Pathology	3(2-2)
PP-608	Project Planning, Execution and Scientific Writing	4(1-6)
Total Credit Hours		13

PP-401 2(1-2)	INTRODUCTION TO PLANT PATHOGENS
Learning Objectives: To acquaint students with basic concepts and identification of plant pathogens	
Course Contents: Theory Introduction; economic importance; general characteristics (morphology and ecology); Identification of plant pathogens including fungi, bacteria and mollecutes, viruses and viroids, nematodes Practical Orientation of laboratory equipment; preparation of media and isolation of different plant pathogens; study of characteristics of various plant pathogens through slides, live specimens and their comparative account/study	
Recommended Books: 1. Agrios, G.N. 2005. Plant Pathology, 5th edition. Academic Press, New York, USA. 2. Alexopoulos, C.J., C.W. Mims and M. Blackwell. 1996. Introductory Mycology. 4th edition, John Wiley and Sons, Inc., New York, USA 3. Khan, J.A. and J. Dijkstra. 2002. Plant Virus as Molecular Pathogens. The Haworth Press Inc. USA. 4. Mehrotra, R.S. and A. Agarwal. 2003. Plant Pathology. 2nd Edition. TATA McGraw Hill. Pub. Company Ltd. New Delhi. 5. Singh, R.S. 1982. Plant Pathogens: The Fungi. Oxford and IBH Publishing Company, New Delhi, India 6. Singh, R.S. 1989. Plant Pathogens: The Prokaryotes. Oxford and IBH Publ. Company, New Delhi, India. 7. Trigiano, R.N., M.T. Windham and A.S. Windham. 2008. Plant Pathology: Concepts and Laboratory Exercises. 2nd edition. CRC Press. 8. Vidhyasekram, P. 2004. Concise Encyclopedia of Plant Pathology. Food product Press and Haworth Press Inc. Binghamton, New York, USA.	

PP-402 3(2-2)	INTRODUCTORY PLANT PATHOLOGY	
Learning Objectives: To acquaint students with basic concepts of Plant Pathology		
Course Contents:		
Theory Introduction and history of plant pathology; definition of disease in plants; economic importance of plant diseases; nature and cause of (biotic and abiotic) diseases; Components of plant disease development; Principles of plant disease management; Symptoms, etiology, mode of infection, disease cycle and management of representative diseases of field and horticultural crops		
Practical Collection, preservation and identification of plant diseases based on symptoms; Demonstration of Koch's postulates; Demonstration of plant pathological laboratory equipment		
Recommended Books: 1. Agrios, G.N. 2005. Plant Pathology, 5 th edition, Academic Press, New York, USA. 2. Ahmad, I. and A.R. Bhutta. 2005. A Text Book of Introductory Plant Pathology. Published by National Book Foundation, Islamabad, Pakistan. 3. Hafiz, A. 1986. Plant Diseases. Pakistan Agricultural Research Council, Islamabad, Pakistan. 4. Mathew, J.D. 2003. Molecular Plant Pathology. Bios Scientific Publishers Ltd. UK. 5. Mehrotra, R.S. and A. Agarwal. 2003. Plant Pathology, 2 nd Edition. TATA McGraw Hill. Pub. Company Ltd. New Dehli. 6. Chaube, H.S. and R. Singh. 2002. Introductory Plant Pathology. International Book Distributing Co. 7. Strange, R.N. 2003. Introduction to Plant Pathology. John Willey & Sons, New York.		

PP-501 2)	INTRODUCTORY MYCOLOGY	3(2-
Prerequisites: Introductory Plant Pathology		
Learning Objectives: To study the basic and applied aspects of fungi and fungi like organisms		
Course Contents:		
Theory History, significance and evolution of classification of fungi and fungi-like organisms; General Characters; methods of reproduction and economic importance of various phyla; Study of morphology and classification of economically important fungi and fungi-like organisms belonging to Plasmodiophoromycota, Oomycota, Chytridiomycota, Zygomycota, Ascomycota, Basidiomycota and Deuteromycota.		
Practical Collection, isolation, identification and preservation of fungi from various sources; Use of		

diagnostic keys for identification of important fungi; Comparative study of representatives of various phyla.

Recommended Books:

1. Alexopoulos, C.J., C.W. Mims and M. Blackwell. 1996. Introductory Mycology. 4th edition, John Wiley & Sons, Inc. New York, USA.
2. Barnett, H.L. 1998. Illustrated Genera of imperfect Fungi. ACS, Washington, DC, USA.
3. Carlile, M.J., S.C. Watkinson and G.W. Gooday. 2001. The Fungi. Academic Press.
4. Deacon, J. 2005. Fungal Biology 4th edition. Blackwell.
5. Johri, R.M. 2005. A Text Book of Fungi. Dominant Publishers and Distributors, India.
6. Rai, M. 2010. Progress in Mycology. Springer.
7. Swanton, E.W. 2004. Hand Book of Fungi. Reprint Publication, India.
8. Ulloa, M. and R.T. Hanlin. 2000. Illustrated Dictionary of Mycology, American Phytopathological Society, St. Paul, Minnesota, USA.
9. Webster, J. and R. Weber. 2007. Introduction to Fungi. Cambridge University Press.

PP-503 3(2-2)	INTRODUCTION TO PLANT PARASITIC NEMATODES
Prerequisites: Introductory Plant Pathology	
Learning Objectives: To acquaint the students with basic and applied aspects of plant parasitic nematodes	
Course Contents: Theory Introduction and importance of plant parasitic nematodes; Nematode morphology, anatomy and their various systems including digestive, reproductive and nervous; taxonomy of plant parasitic nematodes; Nematode feeding habits, types of plant parasitic nematodes according to feeding habits and cellular changes brought during feeding; Impact of important nematodes on plant health and their management. Practical Sampling, extraction, staining and identification of nematodes from soil and infested plant materials; Preparation of temporary and permanent slides to study morphological features of nematodes; Staining of nematodes and their egg masses in roots; Demonstration of nematode inflicted foliage and root symptoms.	
Recommended Books: 1. Agrios, G.N. 2005. Plant Pathology. 5th edition. Academic Press. 2. Bridge, J. and J.L. Starr. 2007. Plant Nematodes of agriculture importance: A color hand book. Manson Publishing. 3. Dropkin, H.V. 1980. Introduction to Plant Nematology. A Wiley-Interscience Publication, New York. 4. Hunt, D.J. 1993. Aphelenchida, Longidoridae and Trichodoridae: Their Systematics and Bionomics. CABI Publishing. 5. Noe, P. J. 2003. Plant-parasitic Nematodes. pp 61-67. In: Plant Pathology: Concepts and Laboratory Exercises. R. N. Trigiano, M. T. Windham, and A. S. Windham. (Eds.). CRC Laboratory Press, USA. 6. Noe, P.J. 2003. Pathogenicity and Isolation of Plant-parasitic Nematodes. pp 69-73. In: Plant Pathology: Concepts and Laboratory Exercises. R. N. Trigiano, M. T. Windham, and A. S. Windham. (Eds.). CRC Press, USA. 7. Saeed, M. 1990. Development of Phytonematology in Pakistan. pp 515-525. In: Progress in Plant Nematology. S. K. Saxena, A. Rashid, and R. M. Khan. (Eds.). CBS Publications Pvt. Ltd. Delhi. 8. Siddiqui, M.R. 2000. Tylenchida: Parasites of Plants and Insects. 2nd ed. Wallingford, CABI Publishing.	

PP-505 3(2-2)	INTRODUCTION TO PLANT PROKARYOTES
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Prerequisites: Introductory Plant Pathology
Learning Objectives: To introduce basic and applied concepts of Plant associated bacteria and mollicutes.
Course Contents: Theory Introduction, economic importance, general characteristics; morphology, reproduction and physiology; cultural characteristics; mode of infection and transmission of bacteria and mollicutes and their management; Study of specific prokaryotic plant diseases in Pakistan. Practical Isolation, purification, identification and preservation of plant pathogenic prokaryotes; hypersensitive reactions and pathogenicity tests; Inoculum preparation and testing with known concentration.
Recommended Books: 1. Agrios, G.N. 2005. Plant Pathology. 5th edition. Academic Press, New York, USA. 2. Dworkin, M., S. Falkow, E. Rosenberg and K.H. Schleifer. 2006. The Prokaryotes: A Handbook on the Biology of Bacteria: Symbiotic Associations, Biotechnology, Applied Microbiology. 3rd edition. Springer 3. Elliott, C. 2008. Manual of bacterial plant pathogens. The Williams & Wilkins Company. 4. Jackson, R.W. 2009. Plant Pathogenic Bacteria: Genomics and Molecular Biology. Caister Academic Press 5. Janse, J.D. 2008. Phytobacteriology: Principles and Practice. CABI Publishing. 6. Mishra, R.S. 2003. Bacterial Plant Diseases. Discovery Publication House, India. 7. Mukesh, S. 2006. Introductory Phytobacteriology. Eastern Book Corporation.

PP-507	INTRODUCTION TO PLANT VIRUSES
3(2-2)	
Prerequisites: Introductory Plant Pathology	
Learning Objectives: To introduce to the students the basic and applied concepts of plant viruses	
Course Contents: Theory Introduction, history and importance, morphology, composition and structure; virus transmission and movement; symptomatology; serology and serological methods; ecology and epidemiology; management; study of specific virus diseases in Pakistan Practical Field visits and study of virus infected plants; methods of virus transmission (mechanical	

inoculation, grafting, insect vectors); Virus detection through biological (indicator hosts and host range) and serological methods (ELISA, Immunodiffusion)

Recommended Books:

1. Bashir, M. and S. Hassan. 1998. Diagnostic Methods for Plant Viruses. Pakistan Agricultural Research Council, Islamabad, Pakistan.
2. Compendia of different crops. American Phytopathological Society, St. Paul, Minnesota, USA.
3. Hadidi, A., R. K. Khetarpal and H. Koganezawa (Eds.). 1998. Plant Virus Disease Control. APS, USA.
4. Hull, R. 2009. Comparative Plant Virology. 2nd edition. Academic Press.
5. Loebenstein, G. and G. Thottappilly (Eds.). 2004. Virus and Virus-like Diseases of Major Crops in Developing Countries. Springer Press.
6. Matthews. R.E.F. 1991. Plant Virology. 3rd revised edition. Academic Press.
7. Thresh, M. (Ed.). 2006. Plant Virus Epidemiology. Academic press.
8. Walkey, D.G.A. 1985. Applied Plant Virology. John Wiley & Sons

PP-509	ABIOTIC DISEASES OF PLANTS	3(2-2)
Prerequisites: Introductory Plant Pathology		
Learning Objectives: To acquaint students with the basic concepts of abiotic plant diseases and their management		
Course Contents: Theory Types of abiotic stresses (temperature, soil moisture and light conditions, lack of oxygen, pollution, mineral deficiencies and toxicities, soil pH and improper cultural practices, etc.); Symptomatology (differentiating features from biotic diseases); Macro and micro nutrients and their effect on plants; Management of major abiotic diseases.		
Practical Collection of samples of abiotic diseased plants, identification and preservation. Studies on effect of abiotic factors on plants and their management.		
Recommended Books: 1. Bergstron, L. and H. Kirchmann. 1998. Carbon and nutrient dynamics in natural and agricultural tropical ecosystem. CAB Inc. UK. 2. Haard, N.F. and D.K. Salunkle. 1980. Symptoms on post harvest biology and handling of fruits and vegetables. The AUI Publishing Co. Inc. West Post Connecticut, USA. 3. Hill, M.K. 2004. Understanding Environmental Pollution, 2nd Ed., Cambridge Press, UK. 4. Shurtleff, M.C. and C.W. Averre. 1997. The Plant Disease Clinic and Field Diagnosis of Abiotic Diseases. American Phytopathological Society Press, St. Paul, Minnesota, USA. 5. Tandov, H.L.S and R.N. Roy. 2004. Integrated Nutrient Management. A Glossary of Terms. FAO, UN, Rome.		

PP-502 2)	DISEASES OF FIELD CROPS	3(2-
Prerequisites: Introductory Plant Pathology		
Learning Objectives: To study the important diseases of field crops and their management		
Course Contents:		
Theory		
Importance of field crop diseases; detailed study of symptoms, etiology, nature and extent of losses; disease cycle, methods of perpetuation, epidemiology and management of major diseases of cereal, pulses, fodder, oil seed, fiber and sugar crops; integrated crop and disease management; field sanitation program and good agricultural practices (GAP).		
Practical		
Field surveys; collection, preservation of diseased specimens; identification of diseases based on symptoms and microscopic studies; isolations of major pathogens of above mentioned crops.		
Recommended Books:		
1. Bhutta. A.R. 2010. Text book of Introductory Seed Pathology. HEC Pakistan. 2. Compendia of wheat, barley, rice, maize, cotton, sorghum, pea, peanut diseases. American Phytopathological Society, St. Paul, Minnesota, USA. 3. Dickson, J. G. 2008. Diseases of Field Crops Biotech Books; Reprint of McGraw Hill. 4. Gupta, G. P. 2004. Textbook of Plant Diseases. DPH, India. 5. Hafiz, A.1986. Plant Diseases. Pakistan Agricultural Research Council, Islamabad. 6. Mew, T. W. and P. Gonzales. 2002. A Hand Book of Rice Seed Borne Diseases. IRRI, Science Publication, Philippine. 7. Nyal. R. F. 1989. Field Crops Disease Handbook. AVI Publishing Company Inc. Westport, Connecticut, USA. 8. Rangaswami, G. and A. Mahadevan. 2004. Diseases of Crop Plants in India. Prentice Hall, India. 9. Sharma R. S. 2000. Plant Disease. Campus Book International, Delhi, India. 10. Vidhyasekram, P. 2004. Concise Encyclopedia of Plant Pathology. Kaganviva, India. 11. Zadoks, J.C. 2004. Modern Crop Protection. International Book Distribution Co, India.		

PP-504 DISEASES OF VEGETABLE CROPS	3(2-2)
Prerequisites: Introductory Plant Pathology	
Learning Objectives: To study basic and applied aspects of economically important diseases of vegetable crops of Pakistan	
Course Contents: Theory Importance and symptoms of various vegetable diseases; disease cycle; methods of perpetuation and control of major diseases of okra, pea, solanaceous (chilies, potato, tomato, eggplant), crucifers (radish, turnip, cabbage, cauliflower), cucurbits (gourd, cucumber, squash, melon), bulbs (onion, garlic), lettuce, spinach, carrot and non traditional vegetables Practical Identification of diseases on the basis of symptoms and isolation of pathogens; Field visits, collection and preservation of diseased specimens; preparation of permanent mounts.	
Recommended Books: 1. Bhutta. A.R. 2010. Text book of Introductory Seed Pathology. HEC Pakistan. 2. Compendia of cucurbits, onion and garlic, potato, tomato and pea diseases. American Phytopathological Society, St. Paul, Minnesota, USA. 3. Dixon, D.R. 1981. Vegetable Crop Diseases. McMillan Press, London, UK. 4. Gupta, V.K. and Y.S. Paal. 2001. Diseases of vegetables crops. Kalyani Publishers, New Dehli, India. 5. Hafiz, A. 1986. Plant Diseases. Pakistan Agricultural Research Council, Islamabad, Pakistan. 6. Koike, S., P. Gladders and A. Paulus. 2006. Vegetable Diseases: A Colour Handbook Manson Publishing Ltd. 7. Leslie, A.R. 1994. Handbook of Integrated Pest Management for Fruit and Ornamentals. CRC Press, London. 8. Mukerji, K.G. 2004. Fruit and Vegetable Diseases. Springer. 9. Naqvi, S.A.M.H. 2004. Diseases of Fruits and Vegetables: Diagnosis and Management. Vol. 1 & 2. Kluwer Academic Publishers. 10. Sherf, A. F. and A. A. MacNab. 1986. Vegetable Diseases and their Control. John Wiley & Sons Inc.	

PP-506 DISEASES OF FRUITS AND ORNAMENTALS
2)

3(2-

Prerequisites: Introductory Plant Pathology

Learning Objectives:

To study basic and applied aspects of economically important diseases of fruit and ornamental plants and their management

Course Contents:

Theory

Importance, symptoms, disease cycle, methods of perpetuation; management of major diseases of tropical (banana and papaya), subtropical (guava, mango and citrus) and temperate (pome, stone and nut fruits, grapes) fruits and common ornamental plants.

Practical

Field visits, collection and preservation of diseased specimens; Identification of diseases on the basis of symptoms; isolation of pathogens and preparation of permanent mounts; orientation with management practices.

Recommended Books:

1. Alford, D.V. 2003 A Color Atlas of Pests of Ornamental Trees, Shrubs, and Flowers [Illustrated]. Timber Press.
2. Chase A. R. 1987. Compendium of foliage ornamental plant diseases. APS USA.
3. Compendia of apple and pear, citrus, grapes, stone fruits and tropical fruits diseases. American Phytopathological Society, St. Paul, Minnesota, USA.
4. Compendium of ornamental plants, Foliage plant diseases, 1988. American Phytopathological Society, St. Paul, Minnesota, USA.
5. Gupta, V.K. and S.K. Sharma. 2000. Diseases of fruit crops. Kalyani Publishers New Delhi, India
6. Leslie, A.R. 1994. Handbook of Integrated Pest Management for Fruit and Ornamentals. CRC Press, London.
7. Machardv, W.E. 1996. Apple Scab. Biology, Epidemiology and Management. American Phytopathological Society, St. Paul, Minnesota, USA.
8. Pathak, V.N. 1981. Diseases of Fruit Crops. Oxford and IBH Publishing Company, New Delhi, India.
9. Plootz, R.C. 2003. Diseases of Tropical Fruit Crops. CABI – UK.
10. Singh, R.S. 2001. Diseases of Fruit Crops. Science Publ. Inc.
11. Stefrud, A. 2005. Diseases of Fruits and Nuts. Biotech Book, Delhi.

3(2-2)

Prerequisites: Introductory Plant Pathology

Learning Objectives:

To impart knowledge about concepts and techniques of plant disease diagnosis

Course Contents:

Theory

Plant disease clinic and its requirements; Expert-client interaction; Methods for collection, handling, transport and preservation of disease specimens; Equipment, glassware, chemicals and reagents for plant disease clinic; Diagnostic protocols; Isolation and identification of plant pathogens from disease samples; Maintenance and preservation of cultures; Pre- and post-harvest handling to reduce losses in vegetables and fruits.

Practical

Isolation, identification and characterization of the causal agents from disease samples; Recommendations and report preparation for the clients; Maintenance and preservation of cultures.

Recommended Books:

1. Ahmad, I., M. Aslam and A. Munir. 1992. Phytopathological Diagnostic Techniques. Pakistan Agricultural Research Council, Islamabad, Pakistan.
2. Bashir, M. and S. Hassan. 1998. Diagnostic methods for plant viruses. PARC, Islamabad.
3. Fox, R.T.V. 1994. Principles of Diagnostic Techniques in Plant Pathology. CAB International, UK.
4. Hampton, R., E. Ball and DeBoer, S. 1990. Serological methods for detection and identification of viral and bacterial plant pathogens - A Laboratory Manual. American Phytopathological Press, Saint Paul, Minnesota, USA
5. Hawksworth, D.L. 2000. Plant pathologist pocket book 3rd ed. IMI, Egham, UK.
6. Naqvi, S.A.M.H. 2004. Diseases of Fruits and Vegetables: Diagnosis and Management vol. 2. Springer.
7. Narayanasamy, P. 2001. Plant Pathogen-Detection & Disease Diagnosis. 2nd ed. CRC Press.
8. Schots, A., F.M. Dewey and F. Oliver. 1994. Modern Detection Assays for Plant Pathogenic Fungi. CAB International, UK.
9. Walker, J.M. 1998. Plant clinic handbook. CAB International. Ferry lane, Kew, UK.

Prerequisites: Introductory Plant Pathology

Learning Objectives:

To introduce students about various resistance mechanisms involved in plant against pathogens.

Course Contents:

Theory

Importance of plant resistance against various pathogens; types and mechanisms of resistance; transgenic approaches for crop protection; induced systemic resistance; screening of germplasm and resistance mitigation by using different rating scales/parameters and disease modeling.

Practical

Preparation of inocula; inoculation techniques for various plant pathogens; demonstration of hypersensitive reaction, resistance and susceptibility; screening of germplasm in field and green house against major plant pathogens by using different rating scales/parameters and disease modeling.

Recommended Books:

1. Agrios, G.N. 2005. Plant Pathology, 5th edition, Academic Press, New York, USA.
2. Boland, G.J., L. David and Kuykendall. 1998. Plant Microbe Interactions and Biological Control. Marcel Dekker, Inc, USA.
3. Moore, D. and L.A.N. Frazer. 2002. Essential Fungal Genetics. Springer Verlag, New York, USA.
4. Punja, Z.K. and Z. Punja. 2004. Fungal Disease Resistance in Plants: Biochemistry, Molecular Biology, and Genetic Engineering. CRC Press.
5. Russel, G.C. 1981. Plant Breeding for Pest and Disease Resistance. Butterworths and Company, Ltd., London, UK.
6. Sadasivan, S. and B. Thayumanavan. 2003. Molecular Host Plant Resistance to Pest. Marcel Dekker, USA.
7. Singh, D. P. 2002. Breeding for Resistance to Biotic Stress, International Books Distribution Co. India.
8. Slusarenko, A.J., R.S.S. Fraser and L.C. Van Loon. 2000. Mechanisms of Resistance to Plant Diseases. Kluwer Academic Publishers.
9. Staples, C.R. and G.H. Toenniessen. 1981. Plant Disease Control Resistances and Susceptibility. John Wiley & Sons, Inc. New York, USA.
10. Stubbs, R.W., J.M. Prescott, E.E. Sarri and H.J. Dubin. 1986. Cereal Disease Methodology Manual. CIMMYT, Mexico.

PP-601
3(2-2)

PLANT DISEASE MANAGEMENT

Prerequisites: Introductory Plant Pathology

Learning Objectives:

To introduce the students about plant disease management practices

Course Contents:

Theory

Principles and methods of plant disease management based on avoidance, exclusion, eradication of pathogens, protection (preventive and curative) and resistance (pathogen derived resistance, host resistance); Management of plant diseases with emphasis on regulatory, cultural, biological, physical and chemical strategies; integrated disease management (IDM) seed health certification system; philosophy of TOF (Training of Facilitators) and FFS (Farmer Field School); epidemiological basis of disease management strategies, concept of field biodiversity, conservation and crop appraisal.

Practical

Demonstration of different disease management practices; Equipment and machinery used for disease management and their calibration; safety measures for disease managing chemicals; handling and application procedures; Crop Agro Ecosystem Analysis.

Recommended Books:

1. Agrios, G.N. 2005. Plant Pathology 5th ed. Academic Press New York.
2. Ahmad, I. and A.R. Bhutta. 2005. Textbook of Introductory Plant Pathology. National Book Foundation, Islamabad, Pakistan.
3. Atwal, A.S and G.S. Dhaliwal. 2008. Agricultural Pests of South East Asia and their Management. Kalyani Publishers, Ludhiana. India
4. Bhutta, A.R. 2010. Text book of Introductory Seed Pathology. HEC, Pakistan.
5. Gadewarr, A.V. 2006. Plant protection in new millennium. Vol.1. Hardcover Publisher.
6. Helyer, N., K. Brown and N.A. Cattlin. 2003. Biological Control in Plant Protection (A Colour Hand Book). Manson Publication Ltd, London, UK.
7. Narayanasamy, P. 2008. Molecular Biology in Plant Pathogenesis and Disease Management: Disease Management. Volume 3. Springer.
8. Singh, R.S. 2001. Plant Disease Management. Science Pub. Inc. India.

PP-603
3(2-2)

INTRODUCTORY FOREST PATHOLOGY

Prerequisites: Introductory Plant Pathology

Learning Objectives:

To introduce students on range and forest diseases and their management

Course Contents:

Theory

Economic importance of forest and shade tree diseases; development, epidemiology and management of important forest and shade tree diseases caused by biotic and abiotic agents; management of forest nursery diseases; mycorrhizae, their significance and application in forestry; management of important tree diseases in Pakistan.

Practical

Visit to forest plantation; collection of disease samples and identification based on symptoms and identification of causal agents of important diseases in tree deterioration of timber and other forest trees; preservation of specimens of tree diseases; seed health testing of forest and shade tree seed; seed treatment and their effect on nursery seedlings/plants.

Recommended Books:

1. Bhutta, A.R. 2010. Text book of Introductory Seed Pathology. HEC Pakistan.
2. Khan, A.H. 1989. Pathology of Trees, Vol. II, Univ. of Agriculture, Faisalabad.
3. Manion, P.D. 1991. Tree Disease Concepts, 2nd Ed. Prentice Hall.
4. Sharma, R.C. and G.N. Sharma. 2006. Challenging Problems in Horticultural and Forest Pathology. Indus Publishing Company, India.
5. Sharma, V.K. 2004. Trees and Protection of Environment. Deep and Deep Publication (Pvt.) Ltd. India.
6. Strouts, R.G. and T.G. Winter. 1994. Diagnosis of ill-health in trees. HMS Office. London.
7. Tainter, F.H. and F.A. Baker. 1996. Principles of Forest Pathology. John Wiley & Sons. USA.
8. Zabel, R. and J.J. Morell, 1992. Wood Microbiology: Decay and its Preservation. Academic Press, San Diego. California, USA.

PP-603
3(2-2)

INTRODUCTORY FOREST PATHOLOGY

Prerequisites: Introductory Plant Pathology

Learning Objectives:

To introduce students on range and forest diseases and their management

Course Contents:

Theory

Economic importance of forest and shade tree diseases; development, epidemiology and management of important forest and shade tree diseases caused by biotic and abiotic agents; management of forest nursery diseases; mycorrhizae, their significance and application in forestry; management of important tree diseases in Pakistan.

Practical

Visit to forest plantation; collection of disease samples and identification based on symptoms and identification of causal agents of important diseases in tree deterioration of timber and other forest trees; preservation of specimens of tree diseases; seed health testing of forest and shade tree seed; seed treatment and their effect on nursery seedlings/plants.

Recommended Books:

9. Bhutta, A.R. 2010. Text book of Introductory Seed Pathology. HEC Pakistan.
10. Khan, A.H. 1989. Pathology of Trees, Vol. II, Univ. of Agriculture, Faisalabad.
11. Manion, P.D. 1991. Tree Disease Concepts, 2nd Ed. Prentice Hall.
12. Sharma, R.C. and G.N. Sharma. 2006. Challenging Problems in Horticultural and Forest Pathology. Indus Publishing Company, India.
13. Sharma, V.K. 2004. Trees and Protection of Environment. Deep and Deep Publication (Pvt.) Ltd. India.
14. Strouts, R.G. and T.G. Winter. 1994. Diagnosis of ill-health in trees. HMS Office. London.
15. Tainter, F.H. and F.A. Baker. 1996. Principles of Forest Pathology. John Wiley & Sons. USA.
16. Zabel, R. and J.J. Morell, 1992. Wood Microbiology: Decay and its Preservation. Academic Press, San Diego. California, USA.

Prerequisites: Introductory Plant Pathology

Learning Objectives:

To study seed borne and post harvest diseases and their management

Course Contents:

Theory

Morphology and anatomy of healthy and infected seed; seed-borne diseases and their effect on seed germination and planting value; histopathology of infected seed; seed transmission of pathogen and mechanism of infection; effect of biotic and abiotic stresses and storage/ transit conditions on shelf life of seed and perishables; seed health testing; mycotoxins and their hazards; types of post harvest losses, economic importance of post harvest in seed, fruit and vegetables. Factor effecting post harvest losses (physical, physiological, biochemical and pathological concentration); management of seed and post harvest diseases; storage structure and method of storage at farm and public level; inspection and suitability of building and commodity; grain storage management and fumigation technology.

Practical

Seed health testing - different techniques of isolation and identification of microorganisms associated with seeds and their effect on germination; post harvest losses estimation/ assessment. Visit of cold storage and food storage; collection and identification of biotic and abiotic disease specimen/sample of perishables; use of safe chemicals for management of seed and post-harvest diseases; demonstration of spray and fumigation.

Recommended Books:

1. Bartz, J.A. and J.K. Brecht. 2002. Post-harvest Physiology and Pathology of Vegetables. Marcel Dekker. India
2. Bhutta, A.R. and I. Ahmad. 2001. Seed Pathological Techniques and their Application. National Book Foundation, Islamabad, Pakistan
3. Bhutta, A.R., A. Hussain and M.R. Rahman. 2004. Hand book on Seed Processing and Storage. Federal Seed Certification and Registration Department, Islamabad, Pakistan.
4. Bhutta.A.R. 2010. Text Book of Introductory Seed Pathology. HEC, Pakistan.
5. Dennis, S.H. 2002. Pests of stored foodstuffs and their control. Kluwer Academic publishers. India
6. [Gullino](#), M.L. and D. [Prusky](#). 2009. Post-Harvest Pathology (Plant Pathology in the 21st Century). Springer.
7. Singh, T. and K. Agrawal. 2001 Seed Technology and Seed Pathology. Pointer Publishers, India

3(2-2)

Prerequisites: Introductory Plant Pathology

Learning Objectives: To study the development of plant disease epidemics

Course Contents:

Theory

Introduction, history, importance and types of plant disease epidemics; Principles and components of epidemics; factors influencing dynamics of epidemics; Monitoring of plant disease epidemics; Epidemic growth curve and growth rate; Forecasting of Epidemics and their modeling; Disease warning systems.

Practical

Recording temperature, humidity and rain. Use of expert systems for monitoring epidemic development; Crop loss assessment methods.

Recommended Books:

1. Agrios. G.N. 2005. Plant Pathology. 5th Ed. Academic Press N.Y. USA.
2. Campbell, C.L. and L.V. Modden. 1990. Introduction to Plant Disease Epidemiology. John Wiley & Sons, Inc. New York, USA.
3. Kranz, J. 2002. Comparative Epidemiology of Plant Diseases. Springer;
4. Kranz, J., 1990. Epidemics of Plant Diseases: Mathematical Analysis and Modeling. Springle Publ. London, UK.
5. Leonard, J.F. and D.A. Neher. 1997. Exercises in Plant disease Epidemiology. American Phytopathological Society Press, St. Paul, Minnesota, USA.
6. Savary, S. and B.M. Cooke. 2006. Plant Disease Epidemiology: Facing Challenges of the 21st Century: Under the aegis of an International Plant Disease Epidemiology Workshop held at Landernau, France, 10-15th April, 2005. Springer.

PP-602

BENEFICIAL MICROORGANISMS

3(2-2)

Prerequisites: Introductory Plant Pathology

Learning Objectives:

To acquaint the students with beneficial aspects of microbes

Course Contents:

Theory

Introduction to beneficial microorganisms; Role of microorganisms in bioremediation and

biodegradation of agricultural and industrial by-products/wastes; Use of microorganisms (bacteria, cyanobacteria, nematodes and fungi inclusive of mycorrhizae) in bio-geochemical cycling and biocontrol of plant diseases; Cultivation of edible fungi and yeasts.

Practical

Isolation and identification of microorganisms from various substrates and screening of industrially important microbes; Isolation, identification and mass multiplication of mycorrhizal fungi; Demonstration of antagonism, competition and antibiosis; Isolation and identification of nitrogen fixing bacteria; Spawn production and cultivation of edible mushrooms; Identification of edible and poisonous mushrooms.

Recommended Books:

1. Bahl, N. 1988. Handbook on Mushroom. 2nd edition. Oxford and IBH Publishing Company New Delhi, India.
2. Burges, H.D. 1998. Formulation of microbial biopesticides: beneficial microorganisms, nematodes and seed treatments. Kluwer Academic press.
3. Chang, S.T. and P.G. Miles. 2004. Mushroom cultivation, nutritional value, medicinal effect and environmental impact. CRC Press, NYC, USA.
4. Nasim, G. and R. Bajwa. 2010. Glomalean spore flora of Pakistan. HEC, Islamabad, Pakistan.
5. Podila, K. and D.D. Douds, 2000. Current advances in mycorrhizae research. APS Press, USA.

PP-604
3(2-2)

PESTICIDES - THEIR APPLICATION AND ACTION

Prerequisites: Introductory Plant Pathology

Learning Objectives:

To study the pesticides - their application and mode of action in plants

Course Contents:

Theory

Introduction and history of pesticides; major groups of pesticides and their classification; Formulation and mode of action; Residues, resistance and phytotoxicity problems of pesticides (fungicides, bactericide, and nematicides, etc.); Equipment and different methods of application; FAO code of conduct for pesticide use and handling; Pesticide regulation in Pakistan; Major hazards of pesticides and their safety measures.

Practical

Demonstration of different groups of pesticides used for control of plant diseases; Preparation and formulation; Use of various equipment and their calibration; *In vitro* comparison of systemic and protectant pesticides; Visits of pesticides testing labs and warehouses; Protective measures and first aid.

Recommended Books:

1. Bazmi, M.H. 2002. Manual of Agricultural Pesticides. Manzoor Law Book House, Lahore, Pakistan.
2. Biddle, A. 2001. Seed Treatment, Challenges and Opportunities. The BCPC Publications, UK.
3. Harris, J. 2000. Chemical Pesticide Markets, Health Risks and Residues. CABI, UK.
4. Jorgen, S. 2004. Chemical Pesticide. Mode of action and Toxicology. CRC Press, London.
5. Mathews, G.A. and M.A. Meladen. 2000. Pesticides Application Methods. 3rd ed. Blackwell Science Publication, New York.
6. Parmar, B.S. and S.S. Tomar. 2003. Pesticides Formulation. Theory and Practices. CBS Publ. Co. India.
7. Robert, T. 2000. Metabolism of Agro-chemicals in Plants. John Willey & Sons. USA.
8. Thompson, W.T. 1993. Agricultural Chemicals. Book IV. Fungicide. California, USA.
9. Tomlin, C. 2003. The Pesticide Manual. 13th Edition. BCPC – UK.

PP-606
3(2-2)

INTRODUCTION TO MOLECULAR PLANT PATHOLOGY

Prerequisites: Introductory Plant Pathology

Learning Objectives:

To acquaint the students with basic concepts and techniques of molecular plant pathology

Course Contents:

Theory

Introduction to molecular techniques and their application; Molecular mechanisms of pathogenesis with a focus on plant diseases; Molecular biology of host parasite interaction and biochemical mechanisms of pathogenesis; Molecular approaches to control pathogens.

Practical

Methods in molecular plant pathology including the use of molecular approaches to investigate plant diseases; Familiarization to common molecular techniques used in plant pathology including DNA/ RNA isolation, hybridization, sequence analysis, various PCR reactions, library construction and screening, protein isolation and plant transformation.

Recommended Books:

1. Ansari, T.M. 2008. Molecular Plant Pathology. Pearl Books, India.
2. De Roberties, E.D.P. and E.M.T. DeRoberties, Jr. 1992. Cell and Molecular Biology. 8th ed. John Willey & Sons, USA.
3. Desi, L. 2007. Molecular Plant Pathology. Paragon International.
4. Devi, P. 2005. Principles and Methods of Plant Molecular Biology, Biochemistry, Biotechnology and Genetics. Student Edition, India.
5. Gurr, S.J., M.J. Pherson and D.J. Bowles. 1991. Molecular Plant Pathology: A Practical Approach. Oxford University Press.
6. Hafeez, F., Y. Zafar and A. M. Khalid. 2005. Modern Techniques in Biotechnology. A Theoretical Manual. NIBGE, Faisalabad.
7. Lakshman, D. 2007. Molecular Plant Pathology. Paragon, International Publishers.
8. Mathew, J.D. 2003. Molecular Plant Pathology. Bios Scientific Publishers, Ltd., UK.
9. Pena, L. 2005. Transgenic Plants. Methods and Protocol. Humana, USA.
10. Rastogi, S.C. 2006. Cell and Molecular Biology. New Age Publications (Academic).

PP-608 4(0-8)	INTERNSHIP / PROJECT STUDY
Prerequisites: Introductory Plant Pathology	
Learning Objectives: It is intended to apprise students of the basis of how to conduct research as well as technical report writing and presentation. Further, it covers a wide spectrum of experiments designed for students at undergraduate level. The experiments are selected to	

provide insight to the students into the basic principles and techniques of plant pathology.
Course Contents:
Proposal development, on spot field training and report writing and project presentation. (Format as per thesis manual of the university concerned).
Recommended Books:
Relevant latest literature on target issues

Standard 2-1: The curriculum must be consistent and support the program’s documented objectives.

Following table depicts that the curriculum of the plant pathology department is consistent with the program objectives.

Table 5 Courses versus Outcomes

Courses	Outcomes					
	1	2	3	4	5	6
PP-504, PP-506, PP-508, PP-510, PP-601, PP-603	x xx	xx	xx	xxx	xxx	xx
PP-502, PP-507, PP-509	xx	xxx	xxx	xx	xx	xxx
PP-605, PP-609	xxx	x	xxx	x	xx	xxx
PP-401, PP-402, PP-501, PP-503, PP-505,	xxx	xxx	x	xx	xxx	xx

x = Moderately satisfactory

xx = Satisfactory

xxx = Highly satisfactory

Assessment of the Plant Pathology Curriculum

The assessment of curriculum (the courses) has been done and every course is cross tabulated according to the program outcomes.

- The curriculum has been adopted from HEC, Pakistan with little modifications duly recommended by academic bodies of the university and fits very 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 disciplines required for the program according to demands and requirements set by the Higher Education Commission of Pakistan.

Standard 2-2: Theoretical backgrounds, problem analysis and solution design must be stressed within the program's core material.

The table-6 indicates courses that play vital role in building theoretical background, problem analysis and solution design.

Table 6: Detail of courses representing theoretical background, problem analysis and solution design.

Elements	Courses	Title of the Courses
Theoretical background	PP-401	Introduction to Plant Pathogens
	PP-402	Introduction to Plant Pathology
	PP-501	Introductory Mycology
	PP-503	Introductory Plant Nematology
	PP-505	Introduction to Prokaryotes
	PP-507	Introduction to Plant Viruses
	PP-502	Introduction to Molecular Plant Pathology
	PP-601	Principles and Methods of Plant Disease Management
Problem analysis	PP-504	Diseases of Field Crops
	PP-506	Diseases of Horticultural crops
	PP-603	Range and Forest Pathology
	PP-605	Seed and Post Harvest Pathology
Solution design	PP-508	Clinical Plant Pathology
	PP-509	Beneficial Microorganisms
	PP-510	Plant Resistance to Diseases
	PP-609	Project Planning and Scientific Writing
	PP-602	Internship Including Report writing and Presentation

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

After the recommendation of National curriculum committee and subsequent approval of university academic bodies all aspects of information technology were considered and after a critical analysis, relevant aspects were integrated into the program as:

- Three computer and I.T. courses (6 credit hours) and two courses of statistics (6 credit hours) based on computer practical usage were included in the curriculum to fulfill the I.T. requirements for the students of B.Sc (Hons) Agric. degree.
- Internet facilities have been made available to the students at the campus and in hostels round the clock.

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

- A course of 2 credit hours developing communication skills has been integrated in the curriculum of B.Sc. (Hons) Agriculture level.
- Assignments are essential part of the course and are given to B.Sc. (Hons) Agric. students on specific titles which are presented orally and are submitted as written report, to increase their oral and written communication skills.

Criterion 3: Laboratories and Computing Facilities

For undergraduate classes there is only one laboratory in the department. The facilities and shortcomings of this laboratory are listed as under.

a. **Laboratory Title:** General Laboratory

- **Location and Area:** Faculty of Agriculture and Food Sciences, B-Block, 2nd Floor, Main Campus
- **Objectives:** Used for practical exercise and demonstrations to under-graduate students in their major courses.
- **Facilities:** Almost all the facilities are shared with post graduate laboratories.
- **Shortcoming:** Laboratory (including postgraduate laboratories) is not spacious and provided with inadequate facilities for general classes. Being on the top floor a lot of expensive material goes in vain because of contamination and high temperature as no cooling units are installed in laboratories. The standard requirements in view of equipment, chemicals and other resources are also not enough. Major apparatus viz. microscopes, autoclave, incubator, deep freezer, refrigerators, laminar flow cabinet, pH meter, electric balance, slide and overhead projectors, shaker, pipettes are available but when become out of order, there is no in time /quick maintenance system.
- **Safety Regulations:** The department is located on the 2nd floor; there are no emergency exits for the labs. No fire extinguishers have been installed in any laboratory. No first aid kits / facilities for minor hazards and accidents/injuries are provided in the laboratories/department.

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

Laboratory manuals for each subject (Mycology, Nematology, Virology, Bacteriology, disease diagnosis and diseases management) are now available.

In nutshell there are no proper safety arrangements and no security plan is available in case of emergency. The laboratories are not spacious and inadequate. Equipments regarding molecular approaches are lacking e.g. Stereoscope, centrifuge, PAG-Electrophoresis apparatus, H.P.L.C.& relevant software, chemicals and biochemicals. P.C.R and Spectrophotometer etc.

Standard-3.2: There must be support personal for instruction and maintaining the laboratories.

Currently department is having three laboratory attendants and one laboratory assistant. They do not have the relevant knowledge. Repairing of equipments involves a lot of money. Therefore, there is a dire need of appointing a skilled technician and if one is there at the campus, he should be given training for handling specialized equipments intermittently.

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

- **Computing facilities support:** Available to some faculty members.
- **Shortcoming in computing infrastructure:** Computers with internet facilities should be available to all faculty members

Criterion 4: Student Support and Advising

Our University organizes support programs for students and provide information regarding admission, scholarship schemes etc. Department in its own capacity arranges orientation and guided tours of the department. Director Students Affairs is also there and arranges various cultural activities and solves the students' problems. However, currently there is no Parent/Teacher association.

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

- Courses are taught as per criteria of HEC.
- At undergraduate level subjects/courses are offered as per scheme of study provided by the HEC and approved by Academic Council.
- Elective courses are offered as per policy of HEC and the University.

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

Both theoretical and field/practical aspects are focused to prepare the students for field challenges. Theoretical problems are explained and assignments are also given to the students whereas, practical are carried out in the labs and filed. Field visits and study tours to various research organizations are also organized to keep them updated on the latest developments in the area and to stimulate them for discussion through teacher/student interaction.

- Courses are structured and decided in the board of studies meeting.
- At commencement of each semester, faculty members interact frequently among themselves and with students. Students are welcome to ask questions in class and even after the class.
- Emphasis is always given for an effective interaction between each section of B.Sc. (Hons) classes.

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

Several steps have been taken to provide guidance to students by different ways such as:

- Students are informed about the program requirement through the chairman office.
- Through the personal communication of the teachers with the students.

- Intermittent meetings are organized by the head of the department for counseling of the students. In addition, students can also contact with the relevant teachers whenever they face any problem.
- In case of some problem, Director Student Affairs appointed by the university helps the students. Tutorial System in all departments has also been introduced. Two periods on Thursday are reserved for extracurricular activities. Due to great significance, students must be motivated to participate in such activities. However, there is no such counseling cell in the department.
- Student can interact with the teachers/scientist in universities or research organization whenever they need and there is an open option for the students to get the membership in the professional societies like Pakistan Phytopathological Society, Mycology and Plant Pathology Society, Pakistan Society of Nematologists, Pakistan Botanical Society and other relevant professional societies.

Criterion 5: Process Control

It includes students' admission, registration and faculty recruitment activities, which are dealt by various statutory bodies and the university administration.

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

- The process of admission is well established and is followed under the relevant rules and criteria set by HEC. For this purpose an advertisement is published in the National News Papers by the Registrar Office.
- Admission criteria for B.Sc. (Hons) Agri. are F.Sc. pre medical or pre engineering with minimum of second division.
- Admission criteria are revised every year before the announcement of admission.

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

- The student name, after completion of the admission process, is forwarded to the Registrar Office for proper registration in the specific program and the registration number is issued to the student.
- After the 4th semester students are allotted different majors (e.g. Plant Pathology, Entomology etc.) by the Dean Faculty of Crop and Food Sciences.
- Students are evaluated through Mid, Final and Practical exams and through assignments.
- Registration is done for one time for each degree but evaluation is done through the result of each semester. Only those students, who fulfill the criteria of the University, are promoted to the next semester.
- In general, the students are registered on competition bases keeping in view their academic standings.

Standard-5.3: The process of recruiting and retaining highly qualified faculty members must be in place and clearly documented. Also processes and procedures for faculty evaluation,

promotion must be consistent with institution mission statement. These processes must be periodically evaluated to ensure that it is meeting with its objectives.

Recruitment policy followed by the University is the same as recommended by the HEC. Induction of all posts is done as per rule.

- Vacant and newly created positions are advertised in the national newspapers, applications are received by the Registrar office, scrutinized by the scrutiny committee, and call letters are issued to the short-listed candidates on the basis of experience, qualification, publications and other qualities/activities as determined by the University.
- The candidates are interviewed by the University Selection Board, and Principal and alternate candidates are selected.
- Selection of candidates is approved by the Syndicate for issuing orders to join within a specified period.
- Induction of new candidates depends upon the number of approved vacancies.
- At present, no procedure exists for retaining highly qualified faculty members. However, the revised pay scales structure is quite attractive.
- HEC also supports appointment of highly qualified members as foreign faculty Professors, National Professors and deutes them in concerned departments of the University.

Standard 5-4: The process and procedures used to ensure that teaching and delivery of course material to the students emphasizes active learning and that course learning outcomes are met. The process must be periodically evaluated to ensure that it is meeting its objectives.

- To provide high quality teaching, department periodically revises the curriculum in views of field requirements, innovations and new technology.
- With the emergence of new fields, new courses are introduced and included in the curriculum.
- Students usually buy cheap Asian editions of technology books. These are also available in the University library, where documentation, copying and internet facilities are available.
- Notes are also prepared by the teachers and given to the students.
- Most of the lectures are supplemented by overheads, slides and pictures. Department has also one multimedia which remains in use by the faculty for delivery of lectures/ demonstrations.

- All efforts are made that the courses and knowledge imparted meet the objectives and outcome. The progress is regularly reviewed in the staff meetings.

Standard 5-5: The process that ensures that graduates have completed the requirements of the program must be based on standards, effective and clearly documented procedures. This process must be periodically evaluated to ensure that it is meeting its objectives.

The controller of examinations announces the date regarding commencement of examination. After each semester, the controller office notifies results of the students. The evaluation procedure consists of quizzes, mid and final examinations, practicals, assignments, reports, oral and technical presentations. The minimum pass marks for each course is 40% for undergraduate in theory and practical, separately.

- In theory, weightage to each component of examination is as prescribed here under:

Mid Examination	30%
Assignments	10%
Final Examination	60%

- Grade points are as follows

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

- Gold, Silver and bronze medals are awarded to the students who secure highest marks on overall degree basis i.e., our students has to compete with students of other majors. Degrees are awarded to the students on the convocation that is held every year.

Criterion 6: Faculty

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

At present there are two professors, two associate professors, four assistant professors (one on ex-Pakistan leave) and one lecturer are working in the programme. Except two all are having Ph.D. degree. Both (one assistant professor and one lecturer) are pursuing for Ph.D. Most of the Faculty having Ph.D. have done post doctorate studies in recent past. Their field of specialization is mycology, plant virology, phytonematology and plant bacteriology (Table 7.

Table 7. Faculty Distribution by Program Areas in Plant Pathology

Program area of specialization	Courses in the area at undergraduate level and average number of sections per year	Number of faculty members in each area	Number of faculty with Ph.D. degree
General Plant Pathology	20	-	-
Mycology	02	04	03
Plant Virology	01	01	01
Phyto nematology	01	01	01
Plant Bacteriology	01	02	01
Others	03	-	-
Total	28	08	6

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

- Professional training and availability of adequate research and academic facilities are provided to the faculty members according to the available resources.
- In recent past, 04 faculty members did post doctoral fellowship sponsored by the HEC where as one member is doing his Ph.D. in UK.

- Incentives in the form of allowances to these supervisors have been given to promote high standard research.
- Existing facilities include mainly internet access, which is available through local area network. In addition library facility with latest books is also available.
- A university-funded program of research projects is providing financial support to the young faculty members.
- Support for attending conferences can lead to enhancement of research initiatives at the university as presently no financial support for attending inland seminars/ conferences is available.

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

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

Results of faculty survey employing Proforma 5 (Annexure-V) were summarized and are depicted in Fig.7 and table 8. Their satisfaction level upon the queries pertaining in proforma 5 revealed that all the teachers were found satisfied over most of the parameters. However, they had concern that the laboratory conditions should be improved, level of monitoring, and cooperation with colleagues and of teachers also need to be addressed.

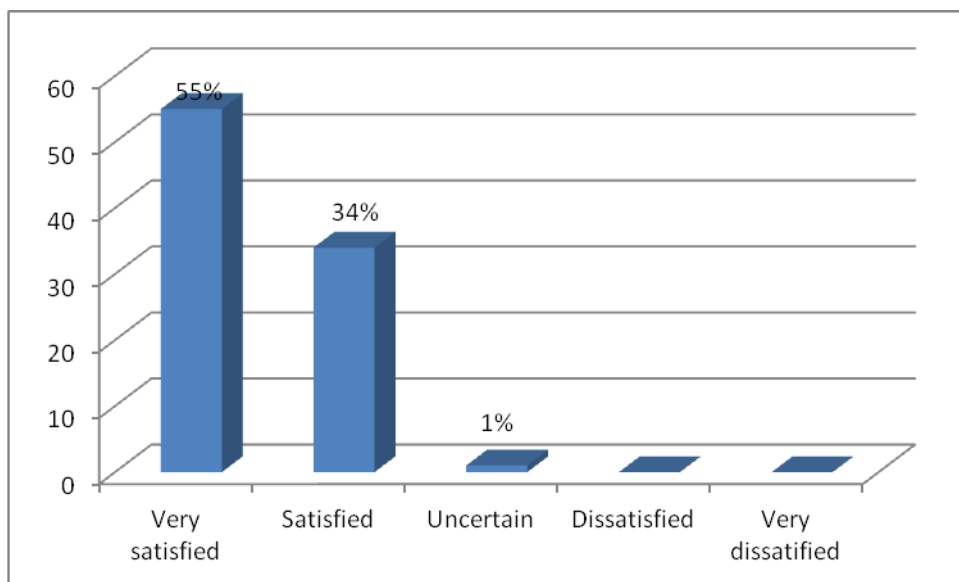


Fig. 7. Faculty Survey as per parameters mentioned in proforma 5, conducted in April, 2012

Table 8. Results of Faculty Survey

S #	Parameter	Dr. Irfan-Ul-Haque	Dr. Abdul Rauf	Dr. Tariq Mukhtar	Dr.M.Inam-ul-Haq	Dr. Abid Riaz	Dr. M. Ashfaq	Dr. Farah Naz	Ms. Gulshan Irshad
1	Your mix of research, teaching and community service	A	B	A	A	B	A	B	B
2	The intellectual stimulation of your work	B	B	A	A	A	A	A	A
3	Type of teaching/research you currently do.	B	B	B	B	A	A	A	B
4	Your interaction with students	A	B	B	B	A	A	A	A
5	Cooperation you received from colleagues	A	A	A	B	B	B	B	A
6	The mentoring available to you	B	B	A	B	B	B	B	B
7	Administrative support from the department	B	B	B	B	A	B	A	A
8	Providing clarity about the faculty promotion process	A	B	A	B	B	B	B	A
9	Your prospects for advancement and progress through ranks	B	B	B	A	C	B	B	B
10	Salary and compensation packages	B	A	B	B	A	B	A	A
11	Job security and stability at the department	A	A	B	A	A	B	A	A
12	Amount of time you have for yourself and family	B	B	B	A	A	B	C	C
13	The overall climate at the department	A	B	A	B	B	B	A	A
14	Whether the department is utilizing your experience and knowledge	A	B	A	B	A	A	A	A
15	what are the best programs/ factor currently available in your department that enhance your motivation and job satisfaction.	Applied knowledge/ Respect of colleagues	cooperation of the colleagues and the staff	Applied knowledge	Discipline at the campus	knowledge friendly environment	Working environment	Friendly environment	Working, and friendly environment
16	Suggest programs/factors that could improve your motivation and job satisfaction	Lab. facilities need to be improved	High profile research & teaching collaboration at international level	--	--	In time advancement through ranks	--	Budget for the practical of major and general classes should be increased	Provide extra lab facilities for better performance.

A: very satisfied B: Satisfied C: Uncertain D: Dissatisfied E: Very dissatisfied

Criterion 7: Institutional Facilities

Among the institutional facilities, the institution must have the amenities to support new trends in learning such as library, e-learning including digital publications, journals etc.

- The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personnels. Insufficient library's technical collection of books with increasing number of the students the recommended books and research journals of the programs are not enough for the students.
- These aspects need to be strengthened in number and space.
- Well equipped class rooms and offices must be adequate to enable faculty to carry out their responsibilities.

Standard wise description of this criterion is given a under

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

Department is benefitting fully from HEC National Digital Library's e-resources of superior quality peer-reviewed, full text, academic and research material in the shape of e-journals as well as e-books. Our faculty has the access to Springer Link, Project MUSE, Cambridge Uni. Press, Science Online, Wiley, Interscience, IEEE, JSTOR, Ebrary, McGraw Hill Professional, ISI Web of Science, Science Direct and Emerald.

This is very helpful for the high quality education and producing research of international standard. They also have access to the internet. However the department has the following shortcomings/problems:

- Majority of the faculty members do not have access to the PCs. Ones who have some they have their own computer and are not provided by the university.
- The internet services provided by the university are very poor. The speed of internet is slow and often internet does not work. The intercom is connected with the internet and the services are often breached.

- Breach of power intermittently, due to which research and academic work both are suffered.
- Latest and modern molecular equipments or apparatus are lacking.
- Untrained supporting staff.
- Faculties lack practical knowledge of modern and molecular techniques.
- Minor electronic faults are not properly and timely removed.

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

Recent Extension in its space, increasing no. of books and other facilities, University Central Library has more worth than before. It has limited number of books, international journals and periodicals. It's a medium-sized library in term of space and facilities with no catalogue systems. However, department itself owns few books in its library.

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

Currently, the class rooms are not enough and the space is not only limited but also some facilities are lacking. Multimedia is now available but due to unavailability of the lecture room, it has no fix place and is kept moving from one place to another thus some times become problematic Practical lab. space is also lacking. This affects the quality of teaching. The faculty offices are another serious problem of the department. Some faculty members are sharing small rooms and the other are having their desks in the laboratories.

Criterion 8: Institutional Support

The university administration has been struggling hard to strengthen all the departments, upgrade them and establish new faculties and Institutes. The university is also trying to attract highly qualified faculty.

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

- At present department is having a very meager financial resource from university main budget to maintain the present needs of the department. Individual research grants for students and faculty are mainly supporting the departmental research activities. Senior faculty members have research projects supporting the needs of the department partially. There is a dire need for increasing the financial resources allocated to the department to establish a departmental library, laboratories and computer facilities. Suggestions and factors that can contribute to the motivation of the faculty are given as follows:
- Research grants for young faculty members may be allocated.
- Foreign trainings should be arranged for the faculty members.
- Department's share from university budget should be increased.

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

The intake of B.Sc. (Hons) students is once in a year. A strict merit policy is applied during admission. Option to take the major subjects in third year (5th Semester) is provided to the students. Preference of the subject of choice is taken from every student. Generally around 20 students opt for Plant Pathology major as per decision take by the Dean office based on merit cum choice.

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

Total budget of the department in 2007-08 was just Rs 32,000/- Rs., which was amplified upto 4,20,000/- Rs. in 2009-10. Which has improved the financial condition of the department and the department can now purchase the equipments and chemicals for laboratories which are used for conducting the practical. Some books are also purchased for the department library.

Conclusion:

Unfortunately, some aspects of institutional support are very weak such as;

- Unavailability of class rooms, classes are taken in the labs.
- Faculty offices are inadequate and therefore, two teachers (in some cases) have one office room.
- Space limitation is the major constraint in the development and strengthening of discipline.
- The department at present avails all the human resources assigned with the addition of one interim placement. Moreover, the up gradation of existing teaching cadre also provided and added advantage in retaining the present faculty.
- Insufficient technical staff and office equipment are among major constraints.

SUMMARY AND CONCLUSIONS

This Self Assessment Report-2010-12 -3rd cycle (undergraduate level) presents detailed historical and chronological developments of the Department of Plant Pathology, Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi, since the establishment of Barani Agriculture College in 1979. With its limited and meager role from supporting under-graduate courses of college to University level in 1994, a full fledged department of Plant Pathology was established initiating M.Sc. and Ph.D. degree programmes in 1997 and 1999, respectively. Since then, the discipline has progressed remarkably and made significant contribution in several aspects mainly, the identification of disease problems in the area, curricula development, research methodology and human resource development. The department now provides a variety of programmes such as Mycology, Bacteriology, Virology, Nematology and has produced eminent scientists who work in various universities, research institutes, agricultural extension departments and private organizations of Pakistan as well as abroad.

This Self Assessment Report (SAR) presents the progress of Department at under graduate level, for the academic years 2010-12. Surveys were conducted at the end of each semester i.e., Fall semester (2010-11), Spring (2011), Fall semester (2011-12) and Spring (2012). This Self Assessment Report (SAR) is based on eight criteria. The first criterion provides the program mission and objectives followed by criterion 2 that gives an insight in to the curriculum development. Criterion 3 catalogues the laboratories and other relevant information. The information about students' support and advising is mentioned in the fourth criterion whereas the last fourth criteria give the information about process control, faculty characteristics and institutional facilities and support.

Since the discipline's mission is to produce high quality graduates which can play their role in boosting production of healthy crop plants, so it has emphasized on imparting quality education, introducing new and innovative techniques and conduct research, so that effects of diseases are alleviated. For this purpose, six specific objectives were sought which are measurable, achievable and analyzed through and according to the criteria set by Higher Education Commission. The program mission objectives and outcomes have been assessed and strategic plans are presented to achieve the goal, which are measurable through definite standards. Programme outcomes appeared to be

satisfactory. Teachers' evaluation revealed satisfactory standards, the score of eight teachers of the department ranged from 73.02 to 81.41%. Alumni surveys revealed variable results with regards to knowledge, interpersonal skills, management and leadership skill. Weaknesses were identified which are related to space, laboratories and equipment and improvements in this regard have been suggested. Community services provided by the department are summarized and employer survey indicated that the graduates fall above average in understanding and dispensing their duties. However internship experience was not satisfactory. Curriculum design, development and organization are based upon set, well defined and approved criteria. Pre-requisites are fully observed, examinations are conducted as per schedules and academic schemes are fully prepared in advance. The number of courses, along with their titles and credit hours for each semester, course contents for degree programme is fully planned. Their efficacy was measured through different standards and it was found to range between satisfactory to highly satisfactory.

The facilities and shortcomings in the laboratories have been discussed. It was concluded that proper laboratory and computer facilities are needed to further strengthen the discipline on scientific lines. Proper steps are taken to guide the students for programme requirements, communication, meetings, tutorial system, tours, students-teacher interaction etc. They are well informed of relevant scientific societies, job opportunities and other such activities. Some improvements have been suggested.

As regards the process control covering admission, registration, recruiting policy, courses and delivery of material, academic requirements, performance and grading, university as well as Higher Education Commission have set forth proper rules, which are properly followed. At present there are eight faculty members and all are highly qualified in their fields. However, faculty members need motivation for advanced knowledge and research. Faculty survey results were variable but still satisfactory. Internship experience was not found satisfactory during the report period. .

Institutional facilities were measured through criterion 3; infrastructure, library, class room and faculty offices and in each case, shortcomings and limitations are highlighted. Institutional facilities need to be strengthened. Accordingly, institutional support will greatly promote and strengthen academic, research, management and leadership capabilities.

Conclusions:

Efficiency of the department may be further improved through adopting various steps. Some of the salient ones are as under.

1. Laboratories not only need new equipments but the old one should be repaired, so that the graduate and postgraduate students may carry out their research without any difficulty..
2. Existing number of class rooms are not sufficient. Available rooms need improvement to provide conducive environment for student's learning.
3. The department needs a project for strengthening of the program. After that department may provide more facilities to the graduate and post graduate students.
4. There is also a need to improve level of cooperation among the faculty members as well as students for better results.
5. Faculty members have pointed out that salaries and compensation may be improved for more satisfactory job performance.
6. There is also a need to improve mix of research and teaching proportion to produce professionally sound graduates.
7. Professional and behavioral training of the supporting staff should be held periodically. Such sort of training will improve their utility in carrying out research and teaching quality.
8. For the departmental library allocation of sufficient funds will be helpful in subscription of reputed journals and purchase of recent books that will ultimately boost quality of learning, teaching and research.

9. Survey has also pointed out a shortage of personal computers and slow speed of internet. Improvement in this area will also boost the level of research and teaching.

Professional training of the faculty through HEC/ other sponsors is helpful to carryout research on latest trends in plant pathology / molecular aspects of plant pathology. HEC is requested to arrange this type of foreign trainings for the rest of the faculty members for improving skills, broadening vision of the faculty.

Proforma - 1
Student Course Evaluation Questionnaire
 (To be filled by each Student at the time of Course Completion)



Department _____ Course No _____
 Course Title _____ Teacher Name _____
 Year of Study _____ Semester / Term _____

Please give us your views so that Course quality can be improved. You are encouraged to be frank and constructive in your comments

CORE QUESTIONS

Course Content and Organization	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1. The course objectives were clear	☐	☐	☐	☐	☐
2. The Course workload was manageable	☐	☐	☐	☐	☐
3. The Course was well organized (e.g. timely access to materials, notification of changes, etc.)	☐	☐	☐	☐	☐
4. Comments					

Student Contribution	☐ <20%	☐ 21-40%	☐ 41-60%	☐ 61-80%	☐ >81%
	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
5. Approximate level of your own attendance during the whole Course					
6. I participated actively in the Course	☐	☐	☐	☐	☐
7. I think I have made progress in this Course	☐	☐	☐	☐	☐
8. Comments					

Learning Environment and Teaching Methods	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
9. I think the Course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.)	☐	☐	☐	☐	☐
10. The learning and teaching methods encouraged participation.	☐	☐	☐	☐	☐
11. The overall environment in the class was conducive to learning.	☐	☐	☐	☐	☐
12. Classrooms were satisfactory	☐	☐	☐	☐	☐
13. Comments					

Learning Resources	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
14. Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful.	☐	☐	☐	☐	☐
15. Recommended reading Books etc. were relevant and appropriate	☐	☐	☐	☐	☐
16. The provision of learning resources in the library was adequate and appropriate	☐	☐	☐	☐	☐
17. The provision of learning resources on the Web was adequate and appropriate (if relevant)	☐	☐	☐	☐	☐
18. Comments					

Quality of Delivery	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
19. The Course stimulated my interest and thought on the subject area	☐	☐	☐	☐	☐
20. The pace of the Course was appropriate	☐	☐	☐	☐	☐
21. Ideas and concepts were presented clearly	☐	☐	☐	☐	☐
22. Comments					

Assessment	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
23. The method of assessment were reasonable	☐	☐	☐	☐	☐
24. Feedback on assessment was timely	☐	☐	☐	☐	☐
25. Feedback on assessment was helpful	☐	☐	☐	☐	☐
26. Comments					

Additional Core Questions

Instructor / Teaching Assistant Evaluation	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
27. I understood the lectures	☐	☐	☐	☐	☐
28. The material was well organized and presented	☐	☐	☐	☐	☐
29. The instructor was responsive to student needs and problems	☐	☐	☐	☐	☐
30. Had the instructor been regular throughout the course?	☐	☐	☐	☐	☐

Tutorial	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
30. The material in the tutorials was useful	☐	☐	☐	☐	☐
31. I was happy with the amount of work needed for tutorials	☐	☐	☐	☐	☐
32. The tutor dealt effectively with my problems	☐	☐	☐	☐	☐

Practical	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
33. The material in the practicals was useful	☐	☐	☐	☐	☐
34. The demonstrators dealt effectively with my problems.	☐	☐	☐	☐	☐

Overall Evaluation 35. The best features of the Course were: 36. The Course could have been improved by:

Equal Opportunities Monitoring (Optional) 37. The University does not tolerate discrimination on any irrelevant distinction (e.g. race, age, gender) and is committed to work with diversity in a wholly positive way. Please indicate below anything in relation to this Course which may run counter to this objective:

Demographic Information: (Optional)			
38. Full/part time study:	Full Time ☐	Part Time ☐	
39. Do you consider yourself to be disabled:	Yes ☐	No ☐	
40. Domicile:			
41. Gender:	Male ☐	Female ☐	
42. Age Group:	less than 22 ☐	22-29 ☐	over 29 ☐
43. Campus:	Distance Learning/ Collaborative ☐		

THANK YOU

PROFORMA 2

Faculty Course Review Report

(To be filled by each teacher at the time of Course Completion)



For completion by the course instructor and transmission to Head of Department of his/her nominee (Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:			Faculty:		
Course Code:		Title:			
Session:		Semester:	Autumn ☐	Spring ☐	Summer ☐
Credit Value:		Level:		Prerequisites:	
Name of Course Instructor:		No. of Students Contact Hours	Lectures	Other (Please State)	
			Seminars		
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)					

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Original ly Registere d	%Grade A	%Grade B	%Grad e C	D	E	F	No Grad e	Withdraw al	Total
No. of Students										
Post-Graduate	Original ly Registere d	%Grade A	%Grade B	%Grad e C	D	E	No Grade		Withdraw al	Total
No. of Students										

Overview/Evaluation (Course Co-coordinator's Comments)

Feedback: first summarize, then comment on feedback received from:

(These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires(Proforma-1)

2) External Examiners or Moderators (if any)

3) Student /staff Consultative Committee (SSCC) or equivalent, (if any)

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

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

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

7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt :

Proforma 3

Survey of Graduating Students



11. Environment was conducive for learning
- A B C D E
12. Whether the Infrastructure of the department was good.
- A B C D E
13. Whether the program was comprised of Co-curricular and extra-curricular activities
- A B C D E
14. Whether scholarships/ grants were available to students in case of hardship
- A B C D E

Answer question 9 if applicable.

9. The internship experience is effective in enhancing
- | | | | | | | |
|----|--------------------------------------|-----|-----|-----|-----|-----|
| a. | Ability to work in teams | (A) | (B) | (C) | (D) | (E) |
| b. | Independent thinking | (A) | (B) | (C) | (D) | (E) |
| c. | Appreciation of ethical Values | (A) | (B) | (C) | (D) | (E) |
| d. | Professional development | (A) | (B) | (C) | (D) | (E) |
| e. | Time management skills | (A) | (B) | (C) | (D) | (E) |
| f. | Judgment | (A) | (B) | (C) | (D) | (E) |
| g. | Discipline | (A) | (B) | (C) | (D) | (E) |
| h. | The link between theory and practice | (A) | (B) | (C) | (D) | (E) |

10. What are the best aspects of your program?

11. What aspects of your program could be improved?

You may use additional sheets for questions 10 & 11 if needed.

Proforma 4

**RESEARCH STUDENT PROGRESS
REVIEW FORM**



(To be filled out by Master/ M.Phil / Ph.D Research Students on six monthly basis)

To be submitted by the HoD / Dept. Quality Officer to the QEC

For Research Student to Complete:

1. Date of admission to the department
2. Date of initiation of research
3. Date of completion of Course work
4. Number of credit hours completed
5. Date of Synopsis Defense
6. Cumulative Grade Point Average (CGPA) secured
7. Please outline details of progress in your research since your last review (including any research publications):
8. Do you have any comments on the level of supervision received?
9. What do you plan to achieve over the next 6 months?
10. Do you have any comments on generic or subject-specialist training you may have received or would like to receive internally and / or externally?
11. Do you have easy access to sophisticated scientific equipment?
12. Do you have sufficient research material / commodities available?

Student _____

Date: _____

Supervisory Committee Comments

(Please comment on and benchmark the student's progress against your University's internal and external HEC Quality Criteria for Master/PhD/MPhil Studies)

Principal Supervisor: _____

Date: _____

Co-Supervisor: _____

Date: _____

Co-Supervisor: _____

Date: _____

Head of Department Comments:

Signature: _____

Date: _____

Director, Board of Research Studies (or equivalent) Comments:

Signature: _____

Date: _____

Dean/Director, QEC Action: (including monitoring of Follow-up action) Date: _____



Proforma 6

SURVEY OF DEPARTMENT OFFERING Ph.D. PROGRAMS

The following information is required for EACH Department in which a Ph.D. program is offered.

1	General Information:	
1.1	Name of Department	
1.2	Name of Faculty	
1.3	Date of initiation of Ph.D. program	
1.4	Total number of academic journals subscribed in area relevant to Ph.D. program.	
1.5	Number of Computers available per Ph.D. student	
1.6	Total Internet Bandwidth available to all the students in the Department.	
2	Faculty Resources:	
2.1	Number of faculty members holding Ph.D. degree in the department.	
2.2	Number of HEC approved Ph.D. Advisors in the department.	
3	Research Output:	
3.1	Total number of articles published last year in International Academic Journals that are authored by faculty members and students in the department.	
3.2	Total number of articles published last year in Asian Academic Journals that are authored by faculty members and students in the department.	
3.3	Total number of ongoing research projects in the department funded by different organizations	
3.4	Number of post-graduate students in the department holding scholarships/fellowships.	
3.5	Total Research Funds available to the Department from all sources.	
3.6	Number of active international linkages involving exchange of researchers/students/faculty etc. (Attach Details).	

4	Student Information:	
4.1	Number of Ph.D. degrees conferred to date to students from the Department during the past three academic years.	
4.2	Number of Ph.D. students currently enrolled in the department.	
4.3	Ratio of number of students accepted to total number of applicants for Ph.D. Program.	
5	Program Information	
5.1	Entrance requirements into Ph.D. Program (M.Sc. / M.Phil.) Indicate subjects or M.Sc. / M.Phil.	
5.2	Is your Ph.D. program based on research only? (Y/N)	
5.3	Maximum number of years in which a Ph.D. degree has to be completed after initial date of enrollment in Ph.D. program.	
5.4	Total number of post M.Sc. (16 year equivalent) courses required for Ph.D.	
5.5	Total number of M.Phil. level courses taught on average in a Term / Semester.	
5.6	Total number of Ph.D. level courses taught on average in a Term / Semester.	
5.7	Do your students have to take/write:	
	a. Ph.D. Qualifying examination (Y/N)	
	b. Comprehensive examination (Y/N)	
	c. Research paper in HEC approved Journal	
	d. Any other examination (Y/N)	
5.8	Total number of International examiners to which the Ph.D. dissertation is sent.	
5.9	How is the selection of an examiner from technologically advanced countries carried out?	
5.10	Is there a minimum residency requirement (on campus) for award of Ph.D. degree?	
6	Additional Information	
6.1	Any other information that you would like to provide.	

Proforma 7



Alumni Survey

(To be filled by Alumni - after the completion of each academic year)

The purpose of this survey is to obtain alumni input on the quality of education they received and the level of preparation they had at University. The purpose of this survey is to assess the quality of the academic program. We seek your help in completing this survey.

A: Excellent B: Very good C: Good D: Fair E: Poor

I. Knowledge

1. Math, Science, Humanities and professional discipline, (if applicable)

(A) (B) (C) (D) (E)

- | | | | | | |
|--|-----|-----|-----|-----|-----|
| 2. Problem formulation and solving skills | (A) | (B) | (C) | (D) | (E) |
| 3. Collecting and analyzing appropriate data | (A) | (B) | (C) | (D) | (E) |
| 4. Ability to link theory to practice. | (A) | (B) | (C) | (D) | (E) |
| 5. Ability to design a system component or process | (A) | (B) | (C) | (D) | (E) |
| 6. IT knowledge | (A) | (B) | (C) | (D) | (E) |

II Communications Skills

- | | | | | | |
|------------------------|-----|-----|-----|-----|-----|
| 1. Oral communication | (A) | (B) | (C) | (D) | (E) |
| 2. Report writing | (A) | (B) | (C) | (D) | (E) |
| 3. Presentation skills | (A) | (B) | (C) | (D) | (E) |

III Interpersonal Skills

- | | | | | | |
|--|-----|-----|-----|-----|-----|
| 1. Ability to work in teams. | (A) | (B) | (C) | (D) | (E) |
| 2. Ability to work in arduous /Challenging situation | (A) | (B) | (C) | (D) | (E) |
| 3. Independent thinking | (A) | (B) | (C) | (D) | (E) |
| 4. Appreciation of ethical Values | (A) | (B) | (C) | (D) | (E) |

IV Management /Leadership Skills

- | | | | | | |
|--|-----|-----|-----|-----|-----|
| 1. Resource and Time management skills | (A) | (B) | (C) | (D) | (E) |
| 2. Judgment | (A) | (B) | (C) | (D) | (E) |
| 3. Discipline | (A) | (B) | (C) | (D) | (E) |

V General Comments

Please make any additional comments or suggestions, which you think would help strengthen our programs. (New courses that you would recommend and courses that you did not gain much from)

Proforma 8



Employer Survey

(To be filled in by Employer - after the completion of each academic year)

The purpose of this survey is to obtain employers' input on the quality of education University of Arid Agriculture, Rawalpindi is providing and to assess the quality of the academic program. The survey is with regard to University of _____ graduates employed at your organization. We seek your help in completing this survey.

A: Excellent B: Very good C: Good D: Fair E: Poor

I. Knowledge.

1. Math, Science, Humanities and professional discipline, (if applicable)

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
2. Problem formulation and solving skills

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
3. Collecting and analyzing appropriate data

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
4. Ability to link theory to Practice

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
5. Ability to design a system component or process

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
6. Computer knowledge.

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----

II. Communication Skills:

1. Oral communication

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
2. Report writing

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
3. Presentation skills

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----

III. Interpersonal Skills:

1. Ability to work in teams

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
2. Leadership

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
3. Independent thinking

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
4. Motivation

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
5. Reliability

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
6. Appreciation of ethical values

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----

IV. Work skills:

1. Time management skills

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
2. Judgment

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----
3. Discipline

(A)	(B)	(C)	(D)	(E)
-----	-----	-----	-----	-----

General Comments

Please make any additional comments or suggestions, which you think would help strengthen our programs for the preparation of graduates who will enter your field. Did you know as to what to expect from graduates?

This image shows a full page of primary-ruled paper designed for handwriting practice. It features multiple sets of horizontal lines across the page. Each set consists of three lines: a solid top line, a dashed middle line, and a solid bottom line. These sets are repeated down the page, providing ample space for practicing letter formation and alignment. The paper is otherwise blank, with no margins or additional markings.

Information About Organization

1. Organization Name _____
2. Type of Business _____
3. Number of Graduates (specify the program) in your Organization: _____



Proforma 9

Faculty Resume

Name							
Personal	<i>May include address(s) and phone number(s) and other personal information that the candidate feels is pertinent.</i>						
Experience	List current appointment first, each entry as follows: <i>Date, Title, Institution.</i>						
Honor and Awards	List honors or awards for scholarship or professional activity.						
Memberships	<i>List memberships in professional and learned Societies, indicating offices held, committees, or other specific assignments.</i>						
Graduate Students Postdocs Undergraduate Students Honour Students	<i>List supervision of graduate students, postdocs and undergraduate honors theses showing:</i> <table border="0"> <thead> <tr> <th>Years</th> <th>Degree</th> <th>Name</th> </tr> </thead> <tbody> <tr> <td colspan="3">Show other information as appropriate and list membership on graduate degree committees.</td> </tr> </tbody> </table>	Years	Degree	Name	Show other information as appropriate and list membership on graduate degree committees.		
Years	Degree	Name					
Show other information as appropriate and list membership on graduate degree committees.							
Service Activity	<i>List University and public service activities.</i>						

<i>Brief Statement of Research Interest</i>	<i>May be as brief as a sentence or contain additional details up to one page in length.</i>						
<i>Publications</i>	<i>List publications in standard bibliographic format with earliest date first.</i> ○ Manuscripts accepted for publication should be included under appropriate category as “in press;” ○ Segment the list under the following standard headings: • Articles published by refereed journals. • Books. • Scholarly and / or creative activity published through a refereed electronic venue. • Contribution to edited volumes. • Papers published in refereed conference proceedings. • Paper or extended abstracts published in conference proceedings. (refereed on the basis of abstract) • Articles published in popular press. • Articles appearing in in-house organs. • Research reports submitted to sponsors. • Articles published in non-refereed journals. • Manuscripts submitted for publication. (include where and when submitted).						
<i>Research Grants and Contracts.</i>	<i>Entries should include:</i> <table border="0"> <thead> <tr> <th>Date</th> <th>Title</th> <th>Agency / Organization</th> </tr> </thead> <tbody> <tr> <td colspan="3">Total Award Amount</td> </tr> </tbody> </table> <i>Segment the list under following headings:</i> • Completed • Funded and in progress • In review	Date	Title	Agency / Organization	Total Award Amount		
Date	Title	Agency / Organization					
Total Award Amount							
<i>Other Research or Creative Accomplishments</i>	<i>List patents, software, new products developed, etc.</i>						
<i>Selected Professional Presentations</i>							



Proforma 10

Teacher Evaluation Form

(To be filled by the student)

Course Title and Number: _____

Name of Instructor: _____ Semester _____

Department: _____ Degree _____

Use the scale to answer the following questions below and make comments

A: Strongly Agree B: Agree C: Uncertain D: Disagree E: Strongly Disagree

Instructor:					
1. The Instructor is prepared for each class	A	B	C	D	E
2. The Instructor demonstrates knowledge of the subject	A	B	C	D	E
3. The Instructor has completed the whole course	A	B	C	D	E
4. The Instructor provides additional material apart from the textbook	A	B	C	D	E
5. The Instructor gives citations regarding current situations with reference to Pakistani context.	A	B	C	D	E
6. The Instructor communicates the subject matter effectively	A	B	C	D	E
7. The Instructor shows respect towards students and encourages class participation	A	B	C	D	E
8. The Instructor maintains an environment that is conducive to learning	A	B	C	D	E
9. The Instructor arrives on time	A	B	C	D	E
10. The Instructor leaves on time	A	B	C	D	E
11. The Instructor is fair in examination	A	B	C	D	E
12. The Instructor returns the graded scripts etc. in a reasonable amount of time	A	B	C	D	E
13. The Instructor was available during the specified office hours and for after class consultations	A	B	C	D	E
14. Course:					
15. The Subject matter presented in the course has increased your knowledge of the subject	A	B	C	D	E
16. The syllabus clearly states course objectives requirements, procedures and grading criteria	A	B	C	D	E
17. The course integrates theoretical course concepts with real-world applications	A	B	C	D	E
18. The assignments and exams covered the materials presented in the course	A	B	C	D	E
19. The course material is modern and updated	A	B	C	D	E

Comments:

Instructor: _____

Course: _____
