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**Arid Agriculture University, Rawalpindi**



**Self-Assessment Report (2010-12)**

**Department of Botany**

**(M.Phil. Botany)**

**Programme Self-Assessment Team**

- **Prof. Dr. Muhammad Arshad (Coordinator)**
- **Dr. Noshin Ilyas (Member)**
- **Zia-ur-Rehman Mashwani (Member)**

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## Introduction

Department of Botany, PMAS Arid Agriculture Rawalpindi, has honour of being pioneer department of university. Department is continuously engaged in academic and research activities. M.Phil is one of the main programs being offered in department in addition to M.Sc and Ph.D. About 36 students are enrolled in M.Phil programme. The number of passed out students in M.Phil programme so far is 53. The Department is incessantly following HEC's recommendations for impost and updation of its activities. A course work of two semesters followed by research work and thesis write up is specialty of M.Phil degree programme. M.Phil scholars are actively involved in research activities in department. Students are working on diverse aspects of plant science including taxonomy, physiology, ethnopharmacology, phytochemistry and plant biochemistry. M.Phil students are also encouraged to participate in scientific gatherings like conferences, symposia and workshops to discuss and communicate their research findings with local as well as foreign experts in addition to learn new techniques and methodologies. Most of the students also submit and publish their research papers during this degree programme.

The department has dedicated and hardworking faculty comprising of 10 teachers. Out of them 7 are Ph.D, 2 are almost near to completion of their Ph.D and one is M.Phil. All faculty members are highly motivated and actively involved in research activities and academic progress. An extensive scheme of studies has been developed including all major aspects such as ecology, genetics, physiology, taxonomy, anatomy, molecular biology of plants and biochemistry. These classes are taught by faculty who enjoy teaching and have a commitment to education. Department is also offering courses to other departments like Biology, Environmental sciences, Agriculture, MBA (Agri-Business) and Department of Forestry and Range Management. Opportunities also exist for students to do independent or assist in faculty research projects on campus. Department of Botany prepares students for careers in industry, government agencies and teaching jobs.

Faculty in the Department of Botany is involved in collaborative research projects from HEC. Students have opportunities to participate in independent research projects in state-of-the-art faculty research laboratories, or research field sites.

## **SECTION 1 (this portion shares many common things with Ph.D section so may be rephrased)**

### **Components of Self-Assessment Process:**

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

### **Criterion-1: Program Mission, Objectives and Outcomes**

#### **Introduction**

The department of Botany is actively involved in training M.Phil students at expert proficiency level.

#### **Standards 1-1: Documented measurable objectives**

##### **Mission Statement of the Department**

Our Mission is to compromise an eminence and valuable guidance in the field of Botany. Our integrative encouragement reproduces the position of solid corrective and interdisciplinary methodologies in research and edification. The notable theme of the department is to regulate, indorse, and conduct acquaintance regarding basic plant biology and fetch supremacy in the biological sciences.

##### **Objectives**

1. The ability to formulate a specific research plan and carry out original independent research on a hypothesis to be tested in depth concerning novel ideas in the field of Botany
2. To commence essential and applied research plan and carry out original independent research on a hypothesis to be tested in depth concerning novel ideas in field of Botany
3. The presentation of the research results to the larger community of scholars nationally and internationally.
4. To transport inventive thinking in students to grow cost effective research accomplishments.

### **Main Element of The Strategic Plan To Achieve Program Mission And Objective.**

- To develop and maintain research programs those comprise the roots for teaching and provision, and sustain those activities at the forefront of emerging disciplines.
- Upgradation of research laboratories.
- Launching field trips to reconnoiter biodiversity rich areas.
- Regular and periodic process of updating scheme of studies
- Prominent and unique finding are to be published in ISI recognized journal regularly.
- To progress research environment by RESEARCH projects funded by the dissimilar distinguished agencies.

### **Outcomes:**

1. Preparation of research projects based on the identification of problems and use of scientific study techniques.
2. Communication skills through presentations, oral discussions, scientific and review articles, etc.
3. Enhancement of knowledge and vision in the field of Botany.
4. Contribution and extant papers in international and national conferences.
5. Scientific writing skills and publication of research papers in scientific journals.
6. Identification of priority problems in plant management/conservation and suggest appropriate solutions
7. Plagiarism free papers are being published successfully.
8. Students are attaining careers in numerous national research and teaching institutes.

| Sr. # | Objectives                          | How Measured                                                               | When Measured                     | Improvement Identified                                           | Improvement Made                                                                                     |
|-------|-------------------------------------|----------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| 1     | Essential and Functional Research   | Specialized faculty members in specific field.<br><br>Up gradation of labs | Incessant process                 | New research lines established                                   | Establishment of herbarium and botanical garden.<br><br>Vigorous research activities and publication |
| 2     | To ameliorate research environment  | Number of research publications and projects                               | It is generally measured annually | The no. of publications are increasing as the number of projects | At present several research projects are in progress.                                                |
| 3     | To instruct the mechanical evidence | Reflected by student efficacy                                              | At the end of projects            | Successful graduates are working in different organization       | By doing quality research.                                                                           |

| Programs objectives | Program Outcomes                                          |                                              |                                                                                       |
|---------------------|-----------------------------------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------|
|                     | 1                                                         | 2                                            | 3                                                                                     |
| 1.                  | Perfection of Academic background of successful graduates | Improved show in different competitive exams | Absorption of the graduates in different Government and Non-Governmental Organization |
| 2.                  | Faculty with specialization in relevant fields.           | Need oriented research projects are running  | Better performance of qualified graduate in knowledge application                     |

|    |                                                                                     |                                                                                                                                                     |                                                                                                    |
|----|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 3. | Collaboration with other departments                                                | Evaluation of thesis by External examiners                                                                                                          | A variety of thesis has been done in various field of botany.                                      |
| 4. | Students can use advance techniques.                                                | Research work involving advance techniques and new finding are in progress.                                                                         | Better performance of students in various institutes while applying advance analytical techniques. |
| 5. | Inculcation of interest and spirit in academics and research in the field of Botany | No. of research publications, techniques introduced; research projects submitted & completed; evaluation by students during the whole academic year | New courses to be included in curriculum, research on new problems                                 |

## **Program objectives**

### **Meeting Standards 1-2: Program Outcome Measurement**

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

#### **Program Assessment Results:**

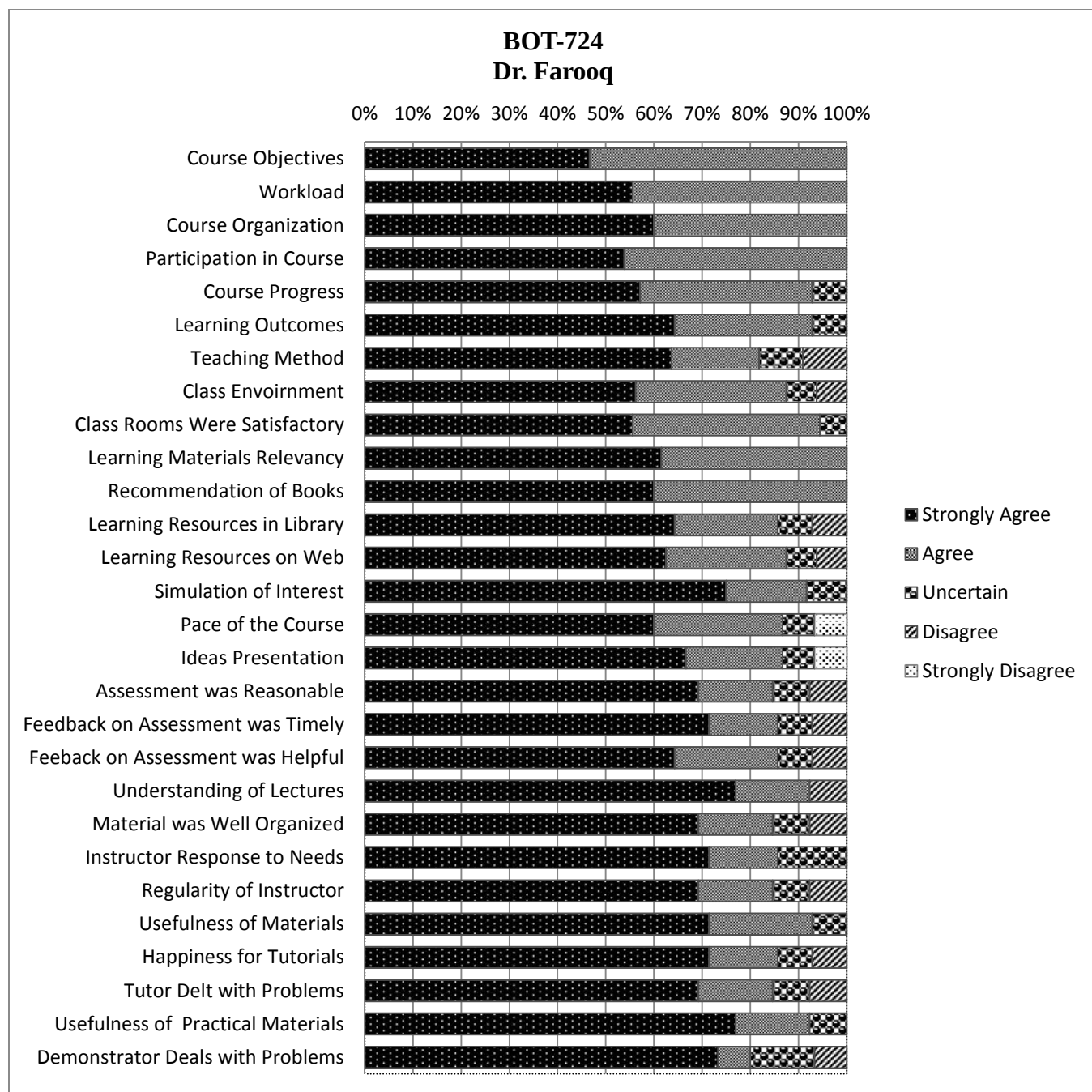
The outcomes of Program assessment by the SAR are presented in graphical method. However, the inclusive outcomes show that the students are contented with the Program and method of teaching.

#### **Student Course Evaluation**

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



STUDENTS COURSE  
EVALUATION  
PROFORMA

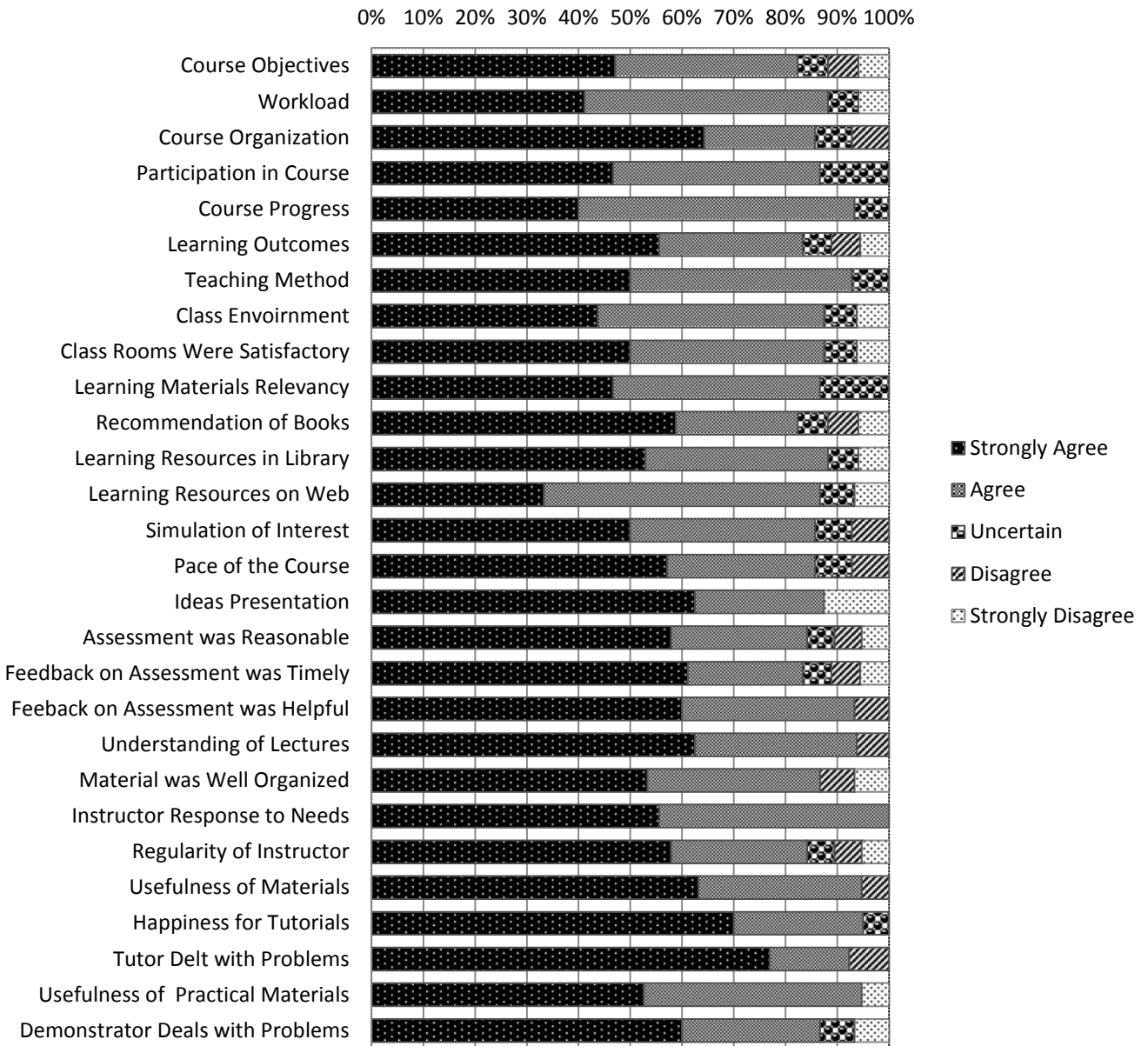


### General Comments of the Students about this Course

**Weaknesses:** Course objective was not very clear

**Strengths:** The tutor showed reasonable comportment and communication skill, confirmed participation of students in class discussion

**BOT-731**  
**Mr. Zia Ur Rehman Mashwani**

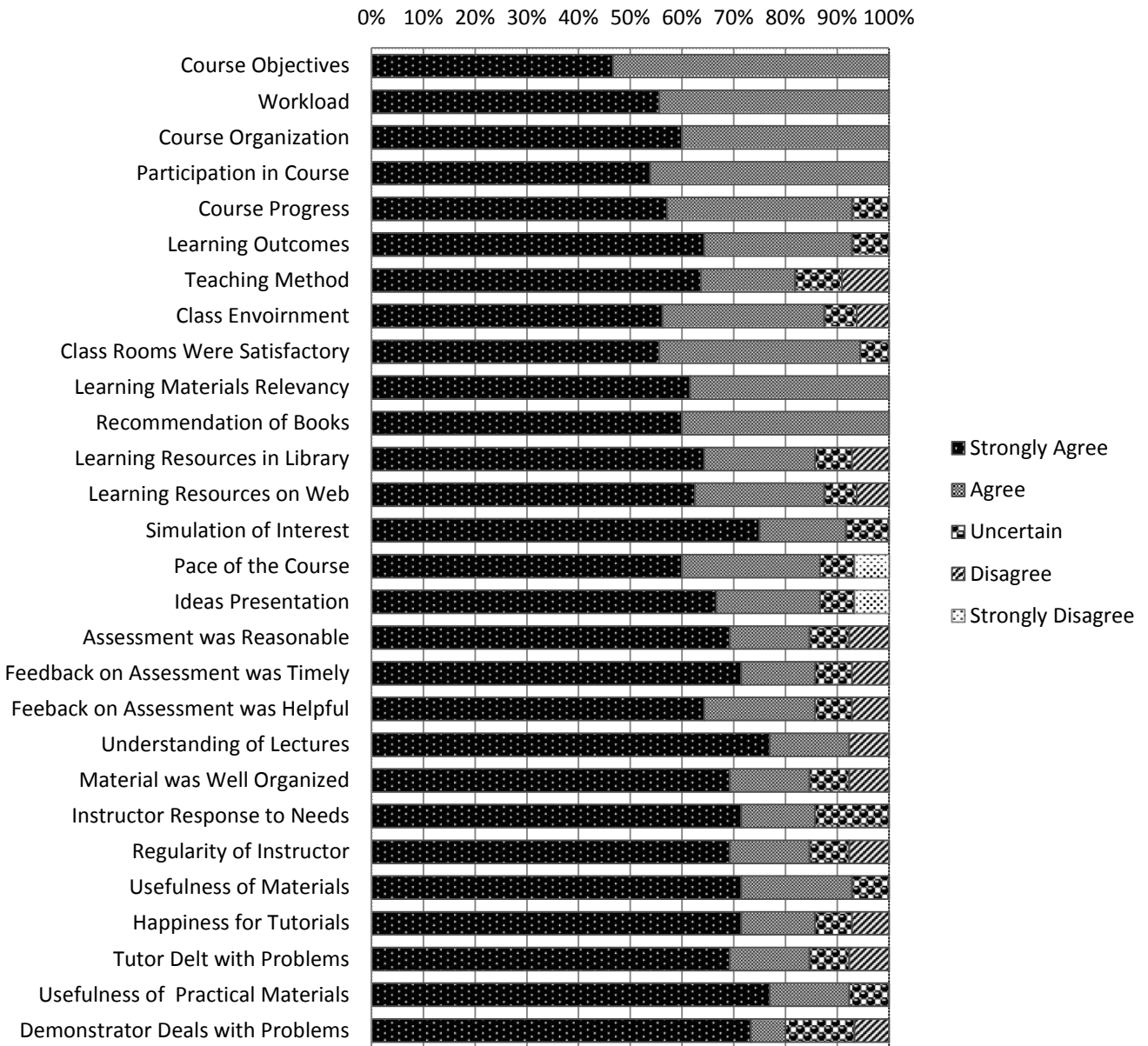


**General Comments of the Students about this Course**

**Weaknesses:** Some students indicated weakness about recommended books

**Strengths:** The tutor showed reasonable discussion, included recent materials in the course subject..

**BOT-732**  
**Dr. Noshin Ilyas**

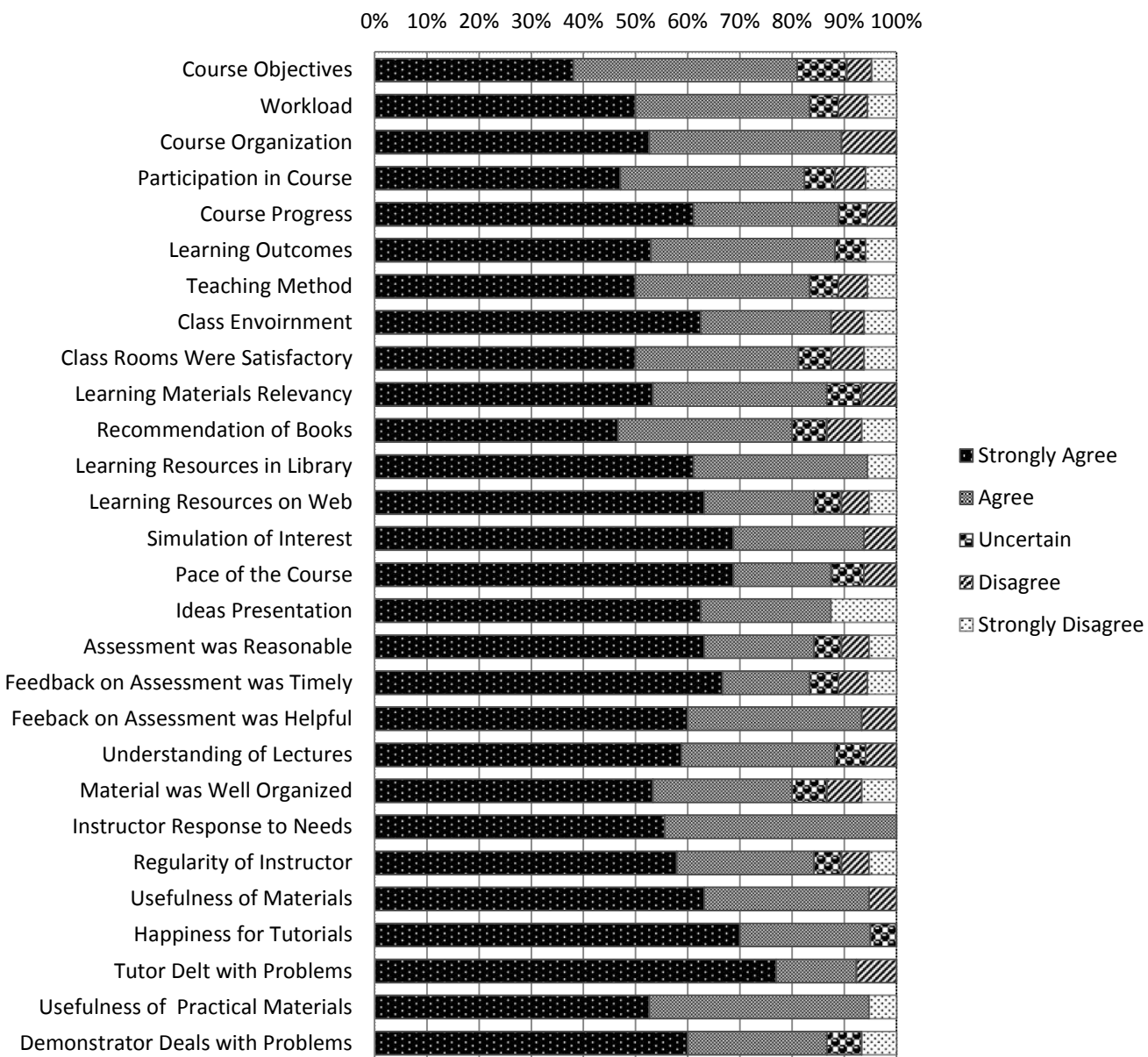


**General Comments of the Students about this Course**

**Weaknesses:** Some students indicated weakness about method of communication.

**Strengths:** The tutor simplified the course objectives. Students were happy with the amount of workload and course organization. Instructor ensured participation of students in class discussion. Suggested books and provided materials were applicable.

**BOT-733**  
**Dr. Naveed Iqbal Raja**

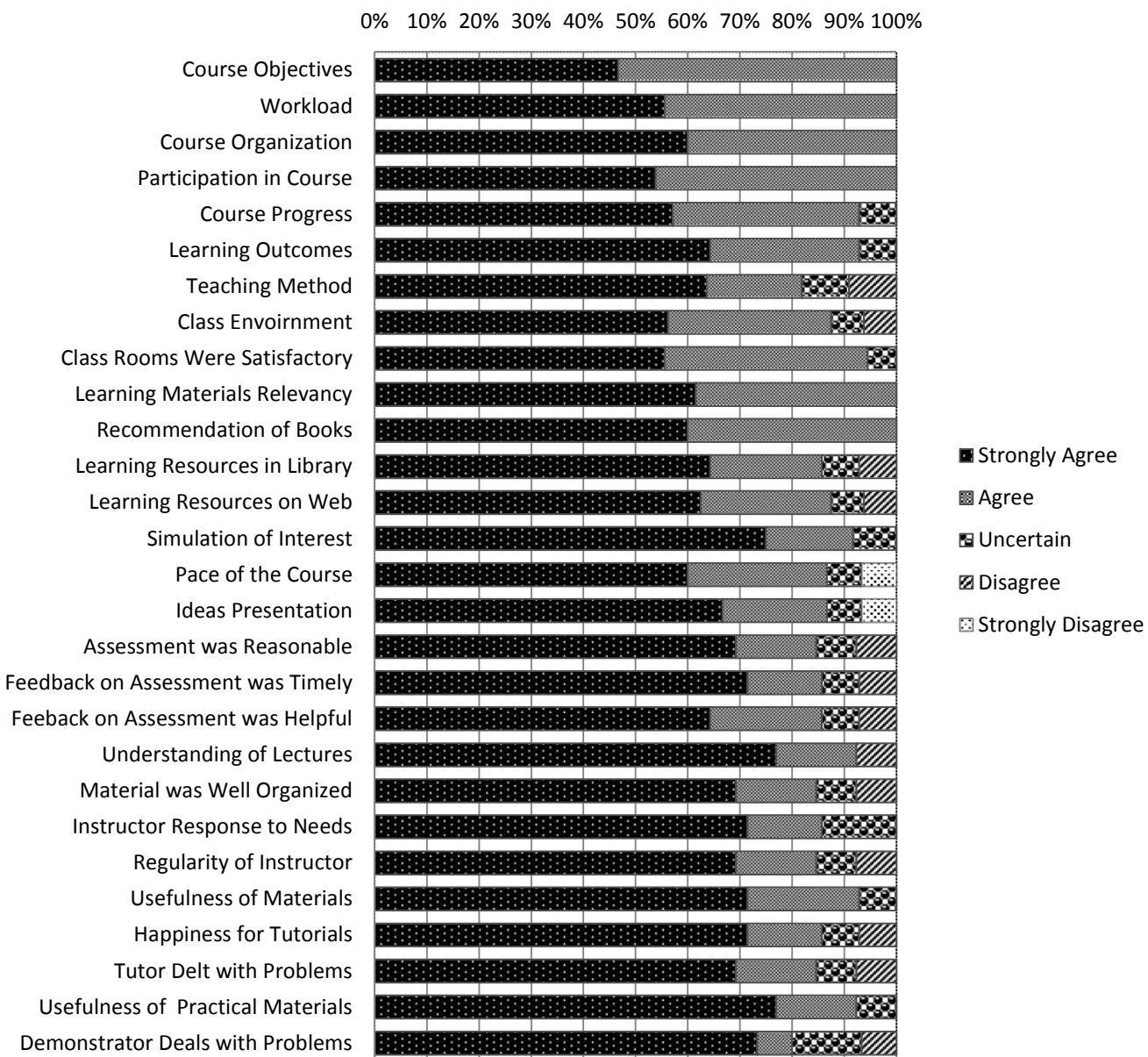


**General Comments of the Students about this Course**

**Weaknesses:** Some students indicated weakness about class rooms and recommended books

**Strengths:** The tutor showed good environment in class room, ensured participation of students in class discussion.

**BOT-734**  
**Dr. Abida Akram**

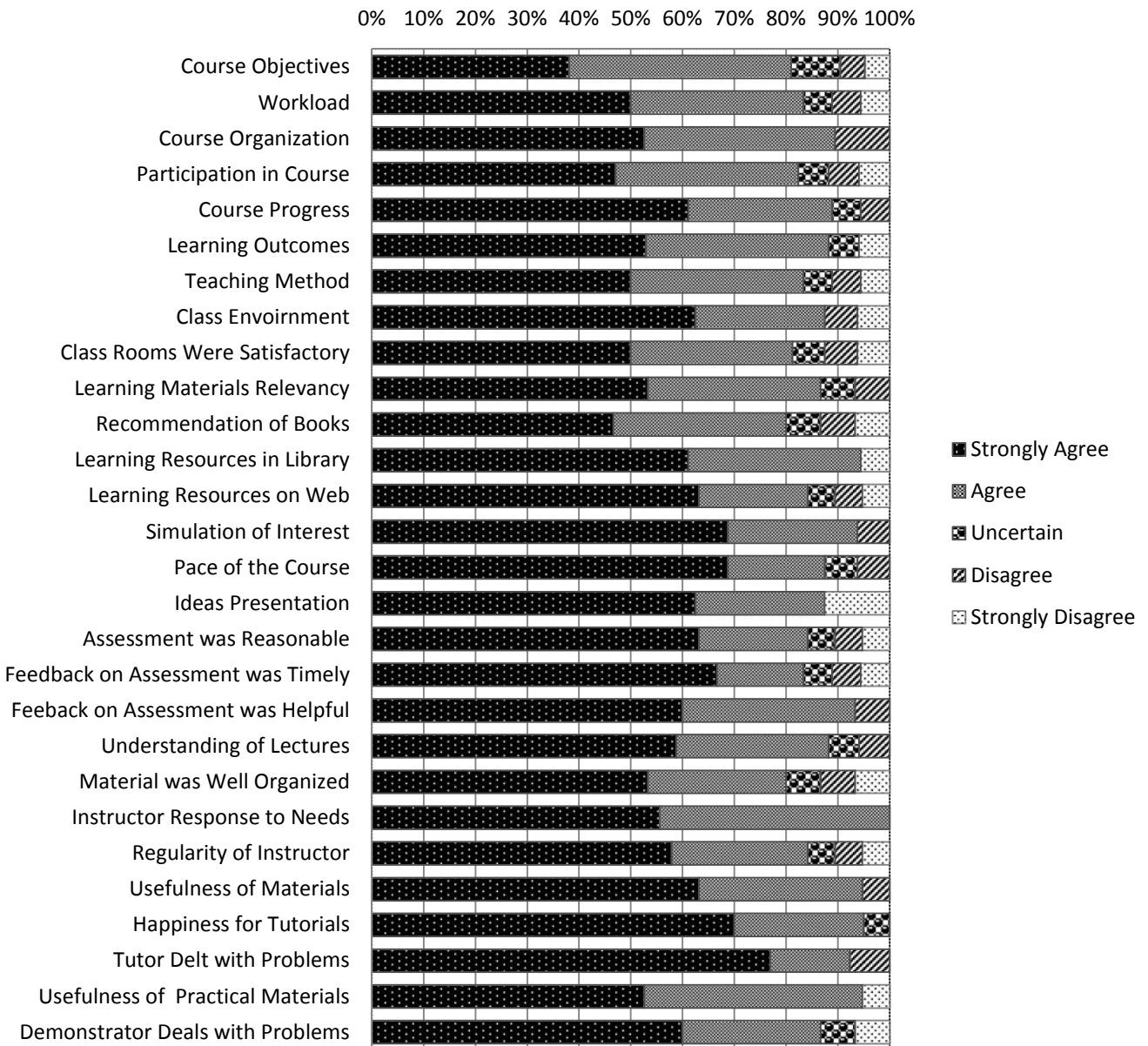


**General Comments of the Students about this Course**

**Weaknesses:** Some students were confused about the scheme of instructions.

**Strengths:** The ideas and concepts were reasonable.

**BOT-736**  
**Dr. Rehmatullah Qureshi**

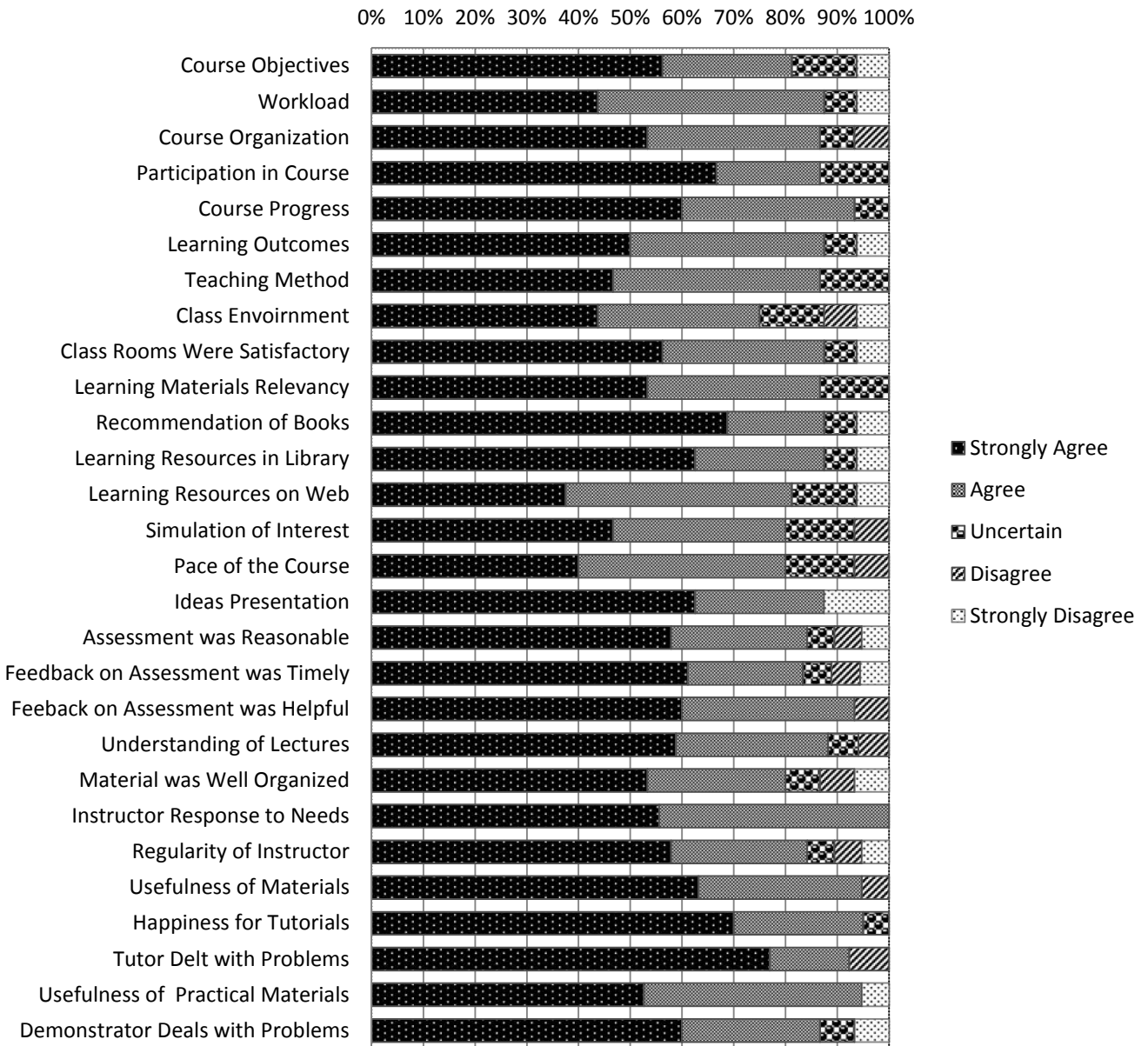


**General Comments of the Students about this Course**

**Weaknesses:** Students indicated weakness in course purposes and recommended books

**Strengths:** The tutor showed good communication skill, ensured participation of students in class discussion, included modern concepts/materials in the course contents, remained punctual.

**BOT-737**  
**Dr. Rehmatullah Qureshi**

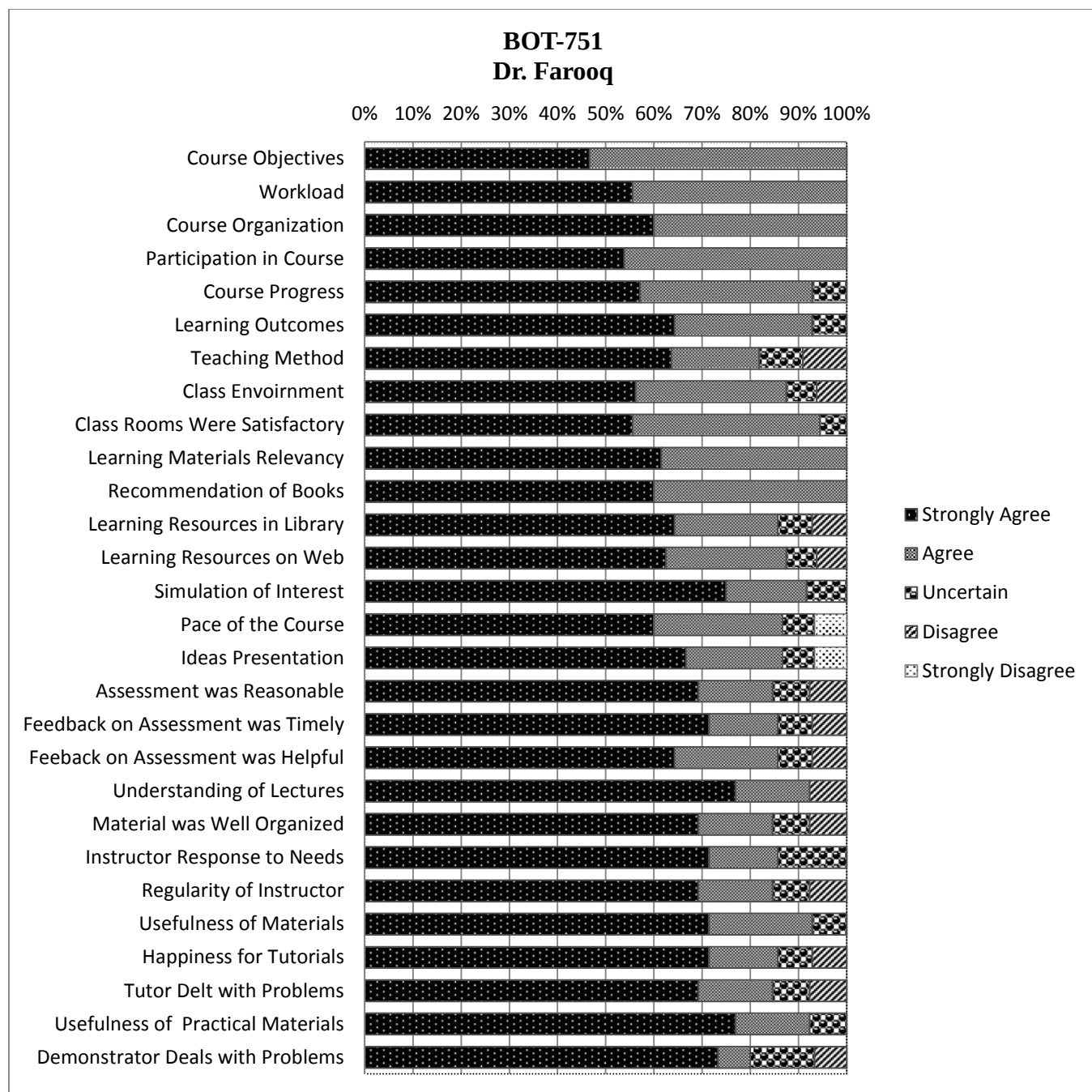


**General Comments of the Students about this Course**

**Weaknesses:** Students indicated weakness in the class environment and pace of the course

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



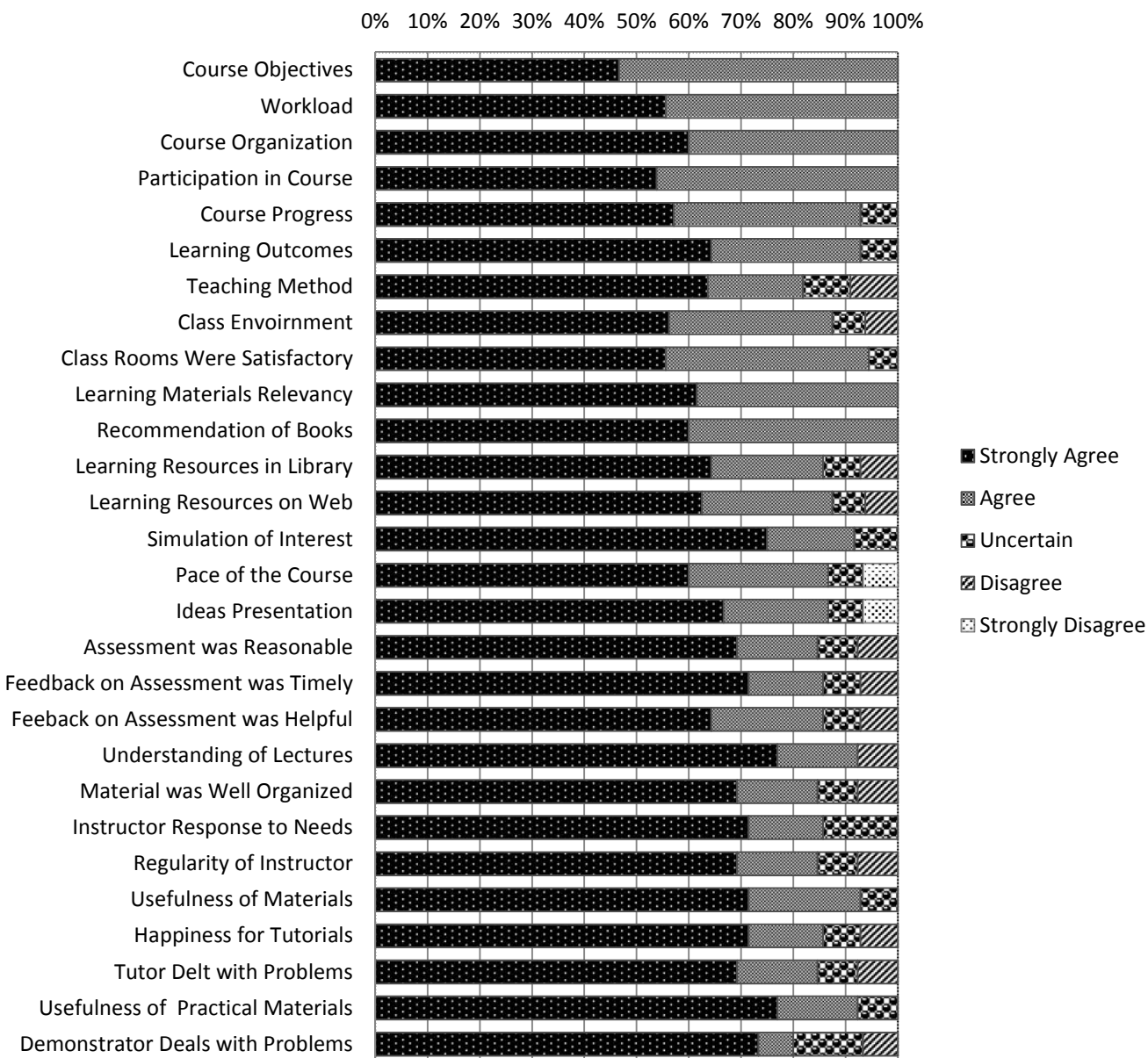


### General Comments of the Students about this Course

**Weaknesses:** The students described weakness in scheme of instruction

**Strengths:** The tutor showed reasonable attitude and communication skill, confirmed participation of students in class discussion

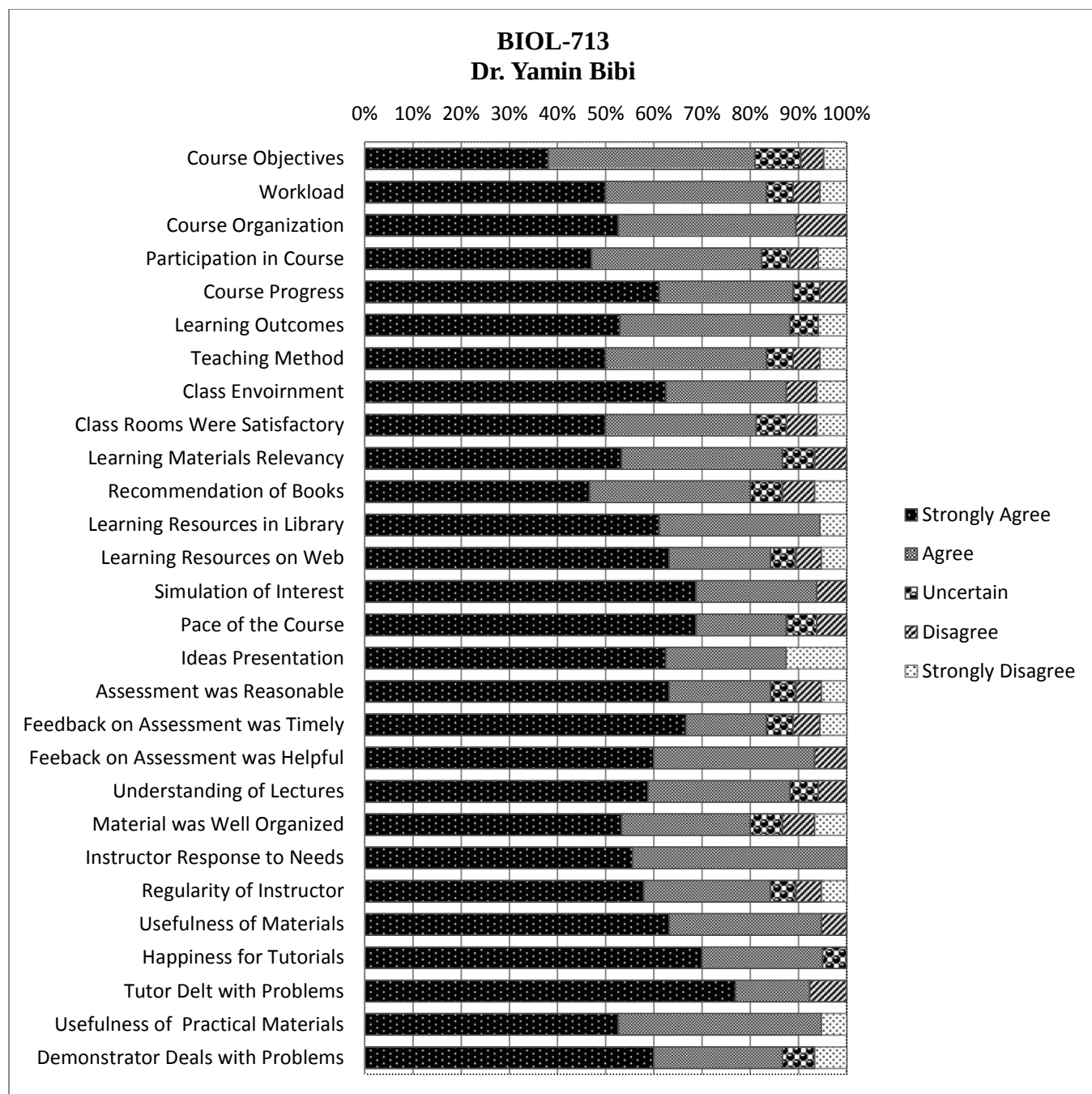
**BOT-751**  
**Dr. Naveed Iqbal Raja**



**General Comments of the Students about this Course**

**Weaknesses:** Students indicated weakness in scheme of instruction and assessment process.

**Strengths:** Course objective were clear. Workload was practicable. Course was well organized. Students were happy to participate in course activities. Learning materials provided were related to the course. And recommendation of books was proper.

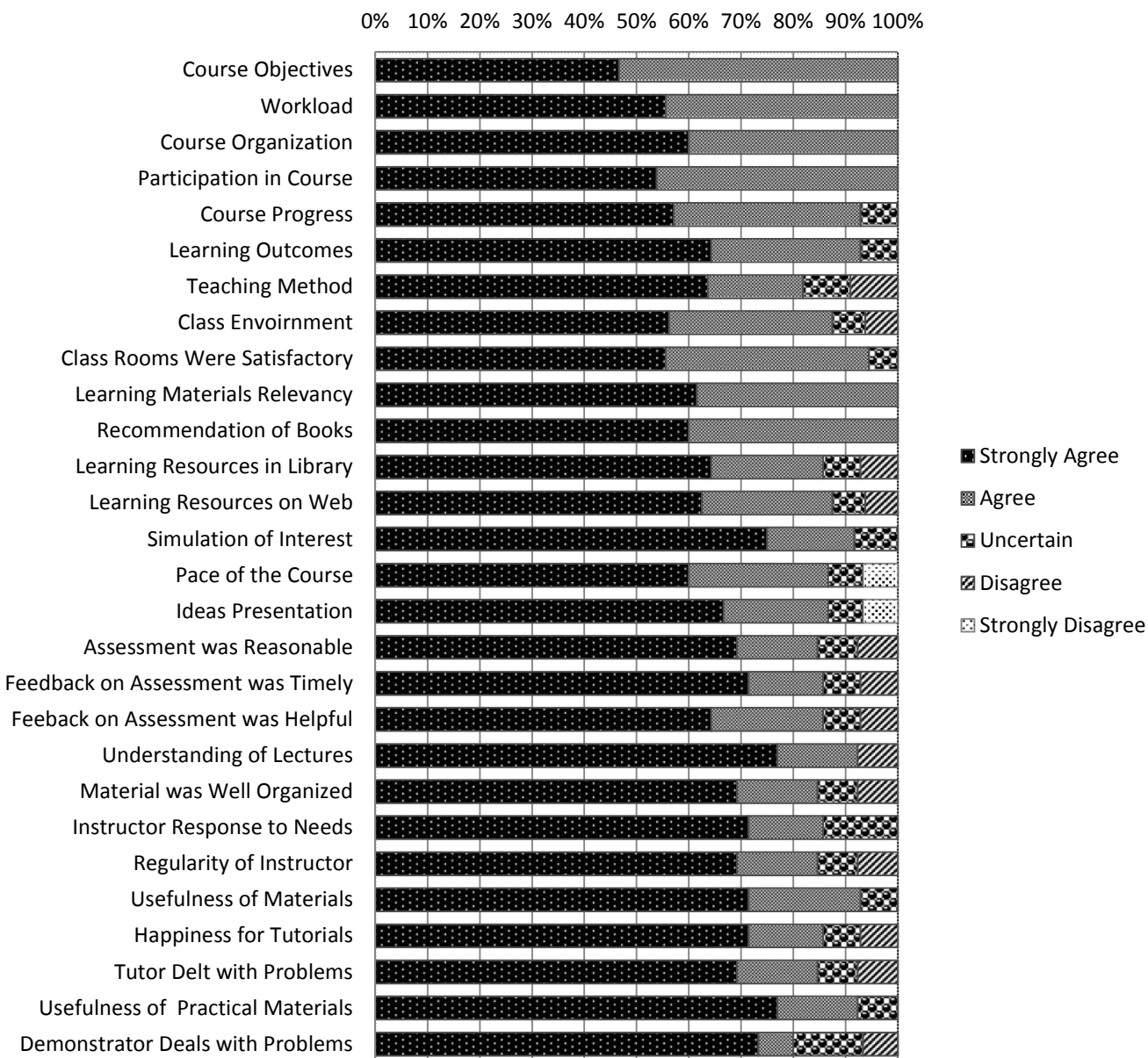


### General Comments of the Students about this Course

**Weaknesses:** The students showed their confusion about course objective and scheme of instructions. Class rooms were not satisfactory.

**Strengths:** The tutor presented good in the class, certified involvement of students in class conversations, and tried to deal with their difficulties. Practical resources were beneficial and tutor endured punctuality

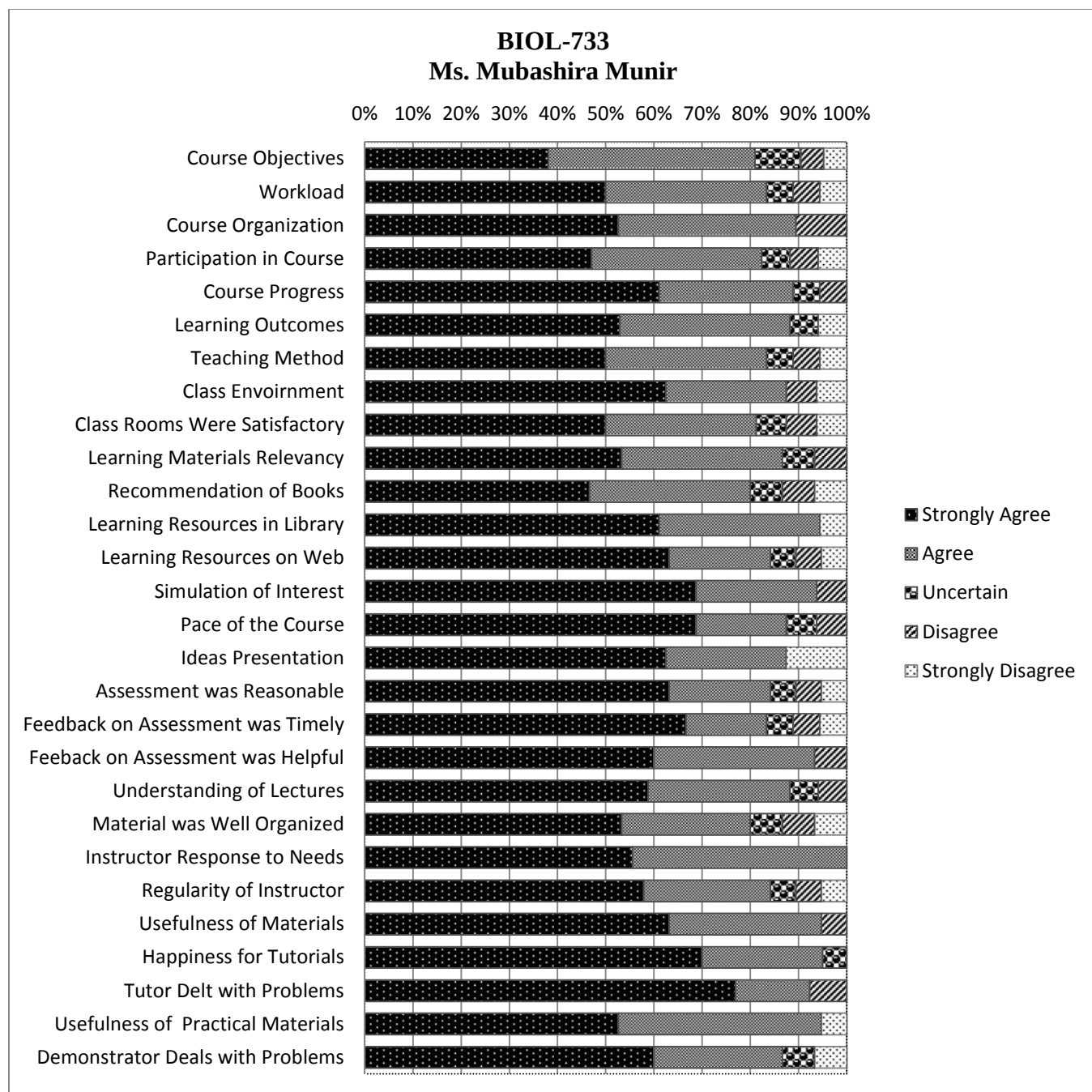
**BIOL-716**  
**Dr. Rehmatullah Qureshi**



**General Comments of the Students about this Course**

**Weaknesses:** The students indicated weakness in learning materials

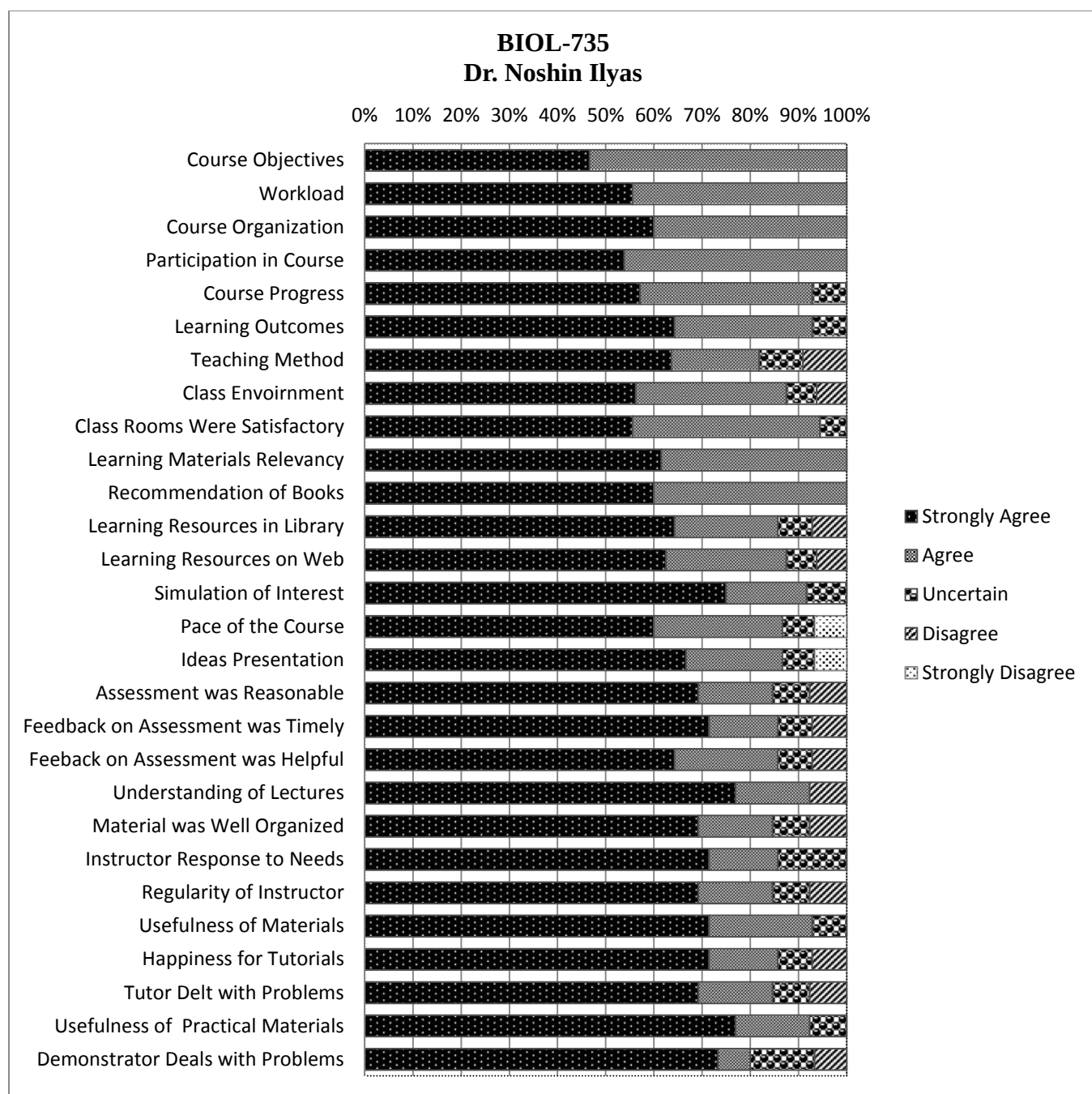
**Strengths:** The tutor presented respectable message ability, guaranteed contribution of students in class discussion, included modern concepts/materials in the course contents and workload was also practicable. Students enhanced in the held course.



### General Comments of the Students about this Course

**Weaknesses:** The student indicated weakness about course ideas, class rooms and recommended books.

**Strengths:** The tutor showed good communication skill, confirmed input of students in class debate, encompassed up-to-date concepts/materials in the course contents, remained punctual.

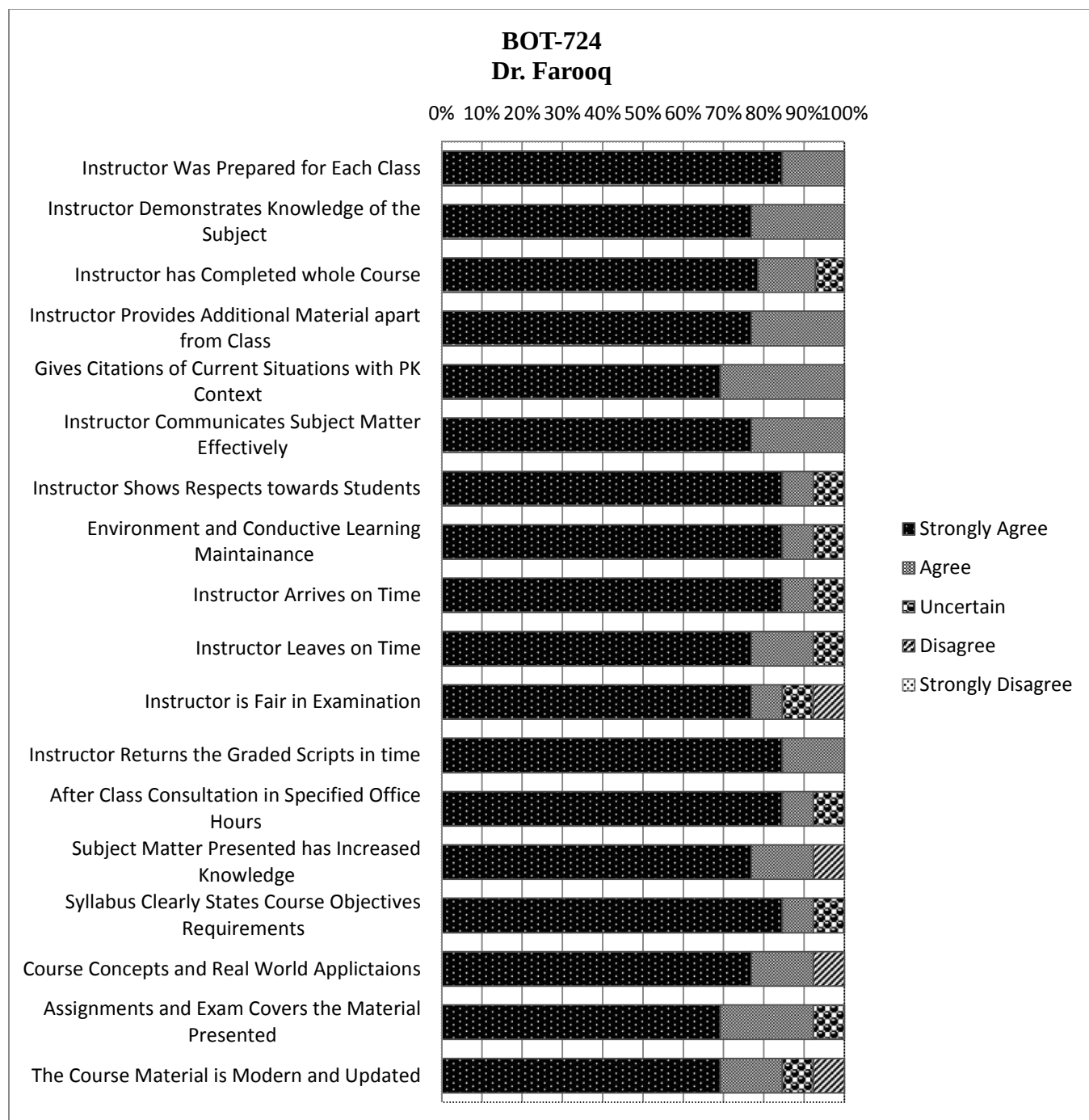


### General Comments of the Students about this Course

**Weaknesses:** Instructor should advance scheme of instruction in this course.

**Strengths:** The tutor showed proper statement skill, confirmed sharing of students in class conversation, remained punctual.

TEACHER  
EVALUATION  
PROFORMA



### General Comments of the Students about this Teacher

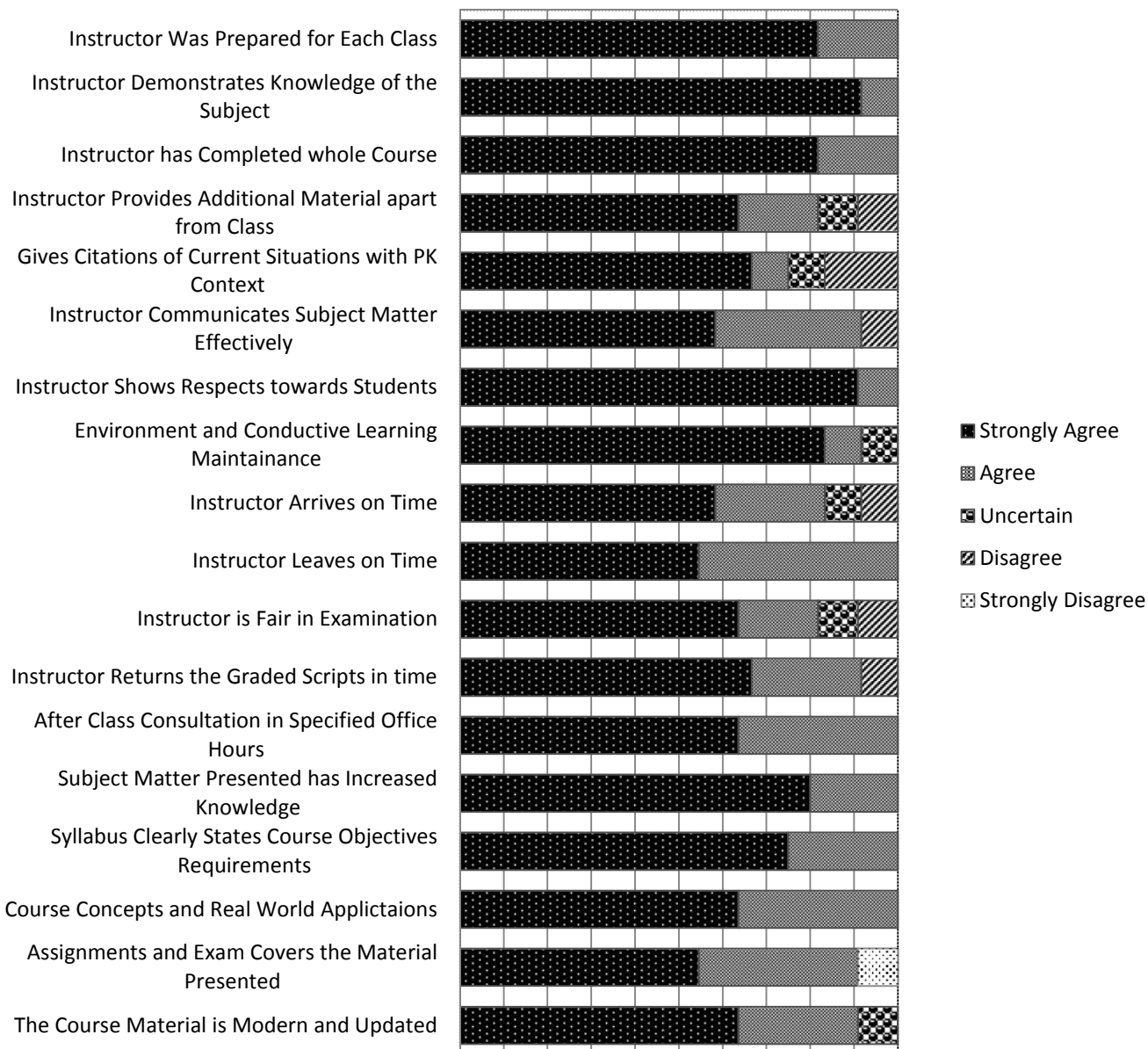
**Weaknesses:** No weakness was indicated by the students about the instructor.

**Strengths:** Instructor was prepared for each class and had the knowledge of the subject. Instructor delivered the supplementary materials and transferred the subject matter.



**BOT-732**  
**Dr. Noshin Ilyas**

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%



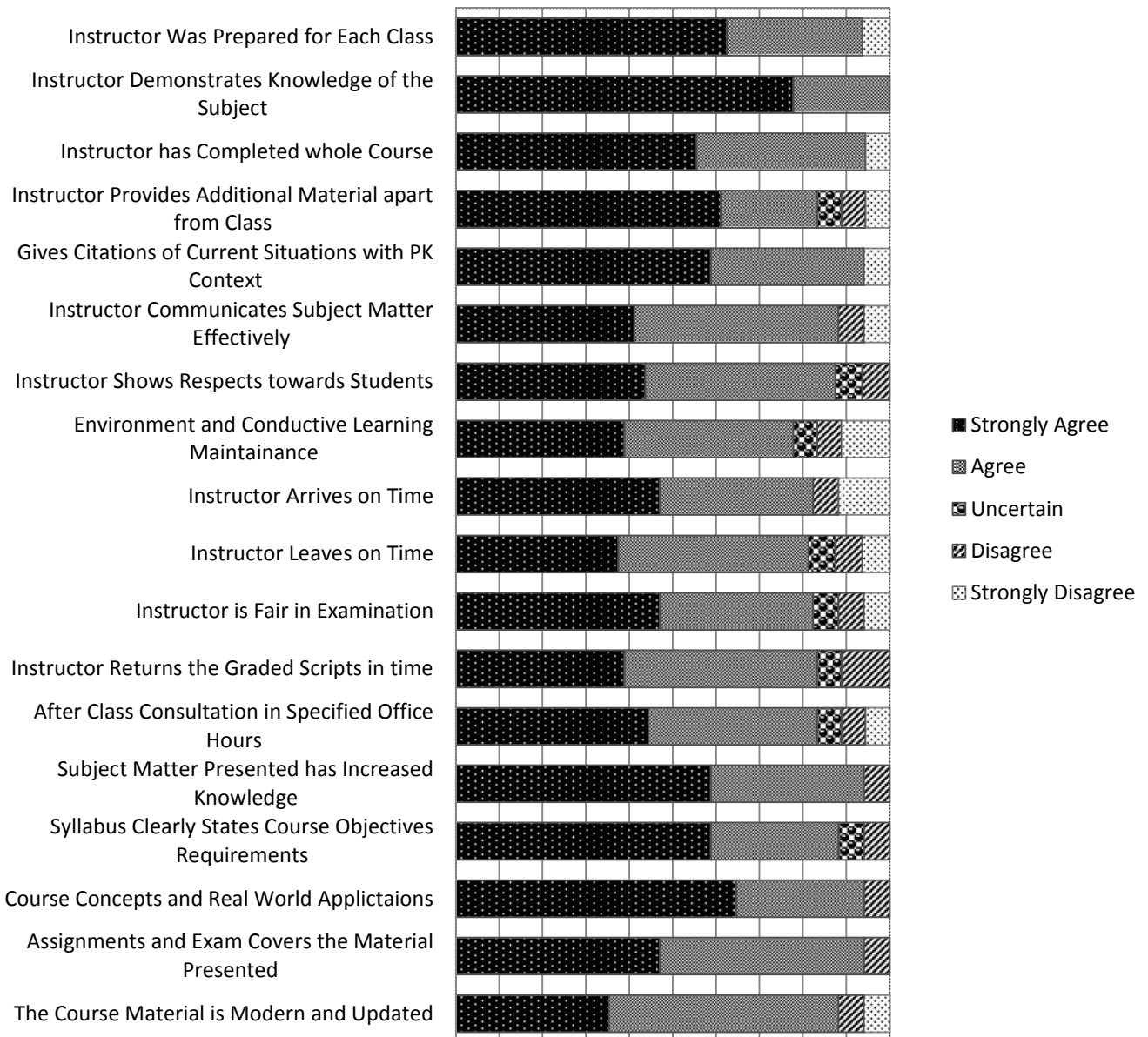
**General Comments of the Students about this Teacher**

**Weaknesses:** Current situations about course with background of Pakistan were required.

**Strengths:** Instructor was prepared for each class and presented the subject matter admirably. Instructor finalized the entire course & showed exciting respect to the students. Instructor was available for after class consultation & stated the course concepts. Students have improved their awareness in this course

**BOT-733**  
**Dr. Naveed Iqbal Raja**

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%



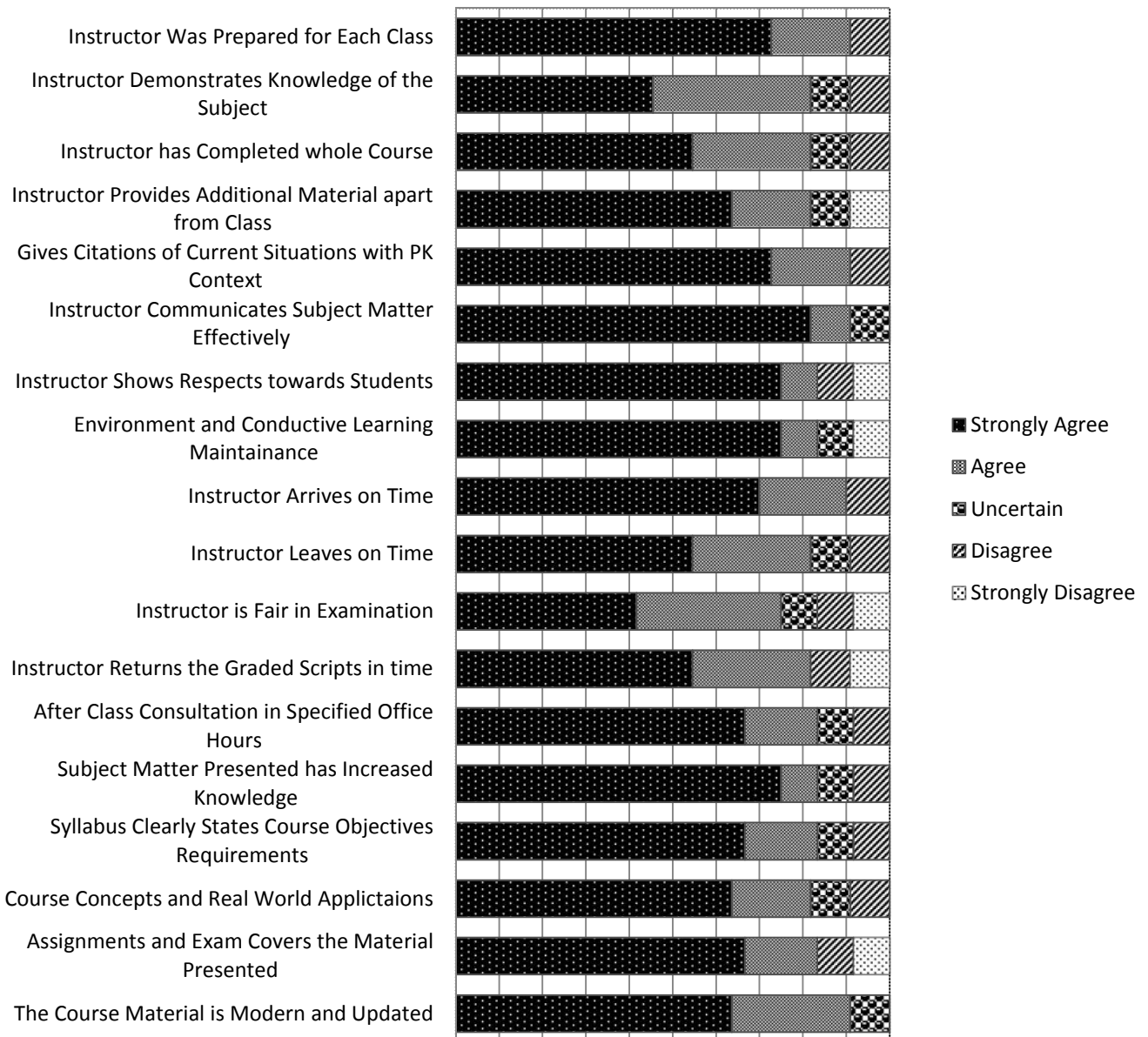
**General Comments of the Students about this Teacher**

**Weaknesses:** Environment and conducive learning needed more maintenance.

**Strengths:** Instructor recognized the knowledge of the subject and terminated the whole course. Citations of current situations with Pakistani context were presented and assignments and exam protected the material presented.

**BOT-734**  
**Dr. Abida Akram**

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

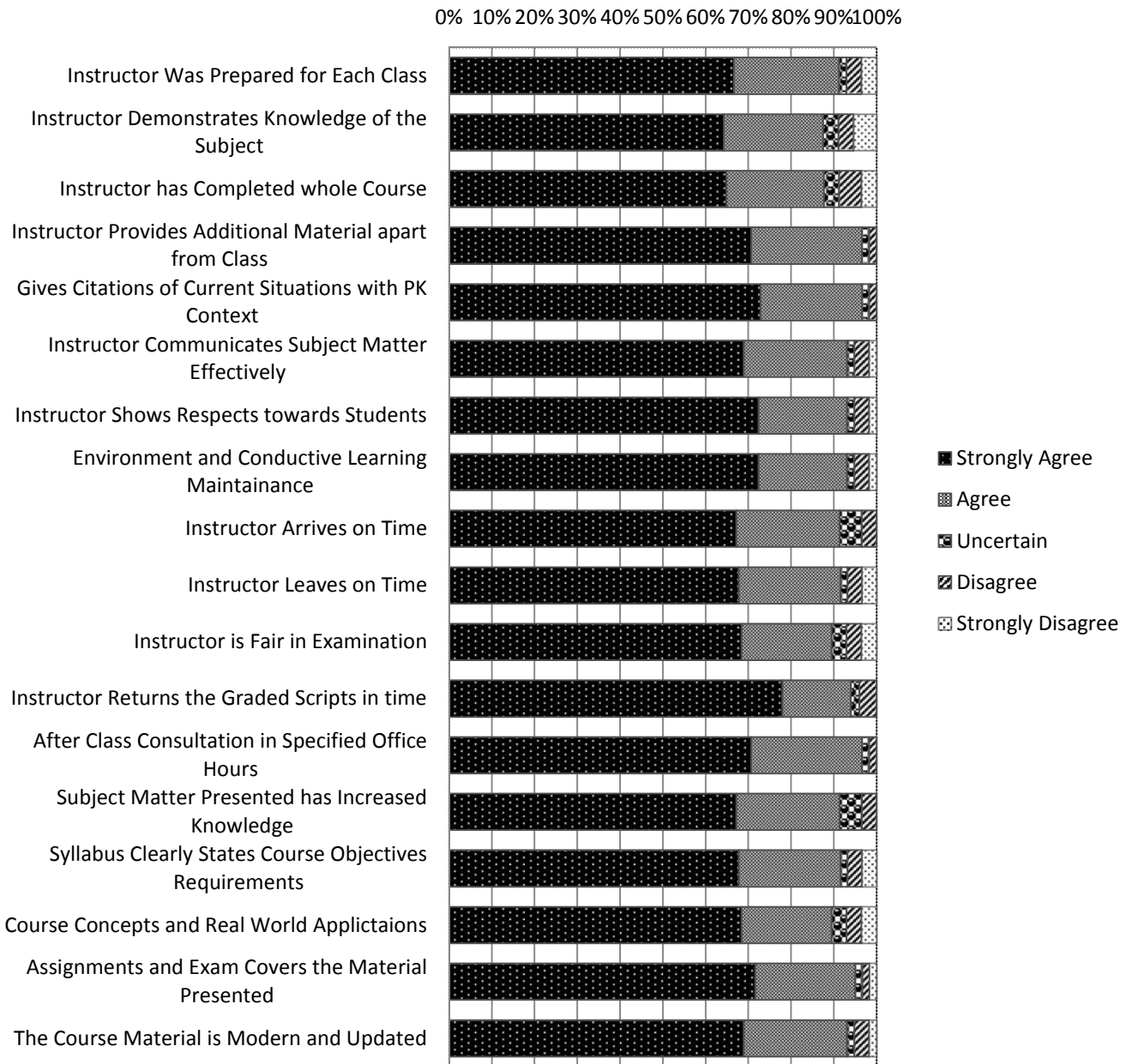


**General Comments of the Students about this Teacher**

**Weaknesses:** Whole course was not covered.

**Strengths:** Instructor was willing for each class. The course material was contemporary and modernized.

**BOT-736**  
**Dr. Rehmatullah Qureshi**



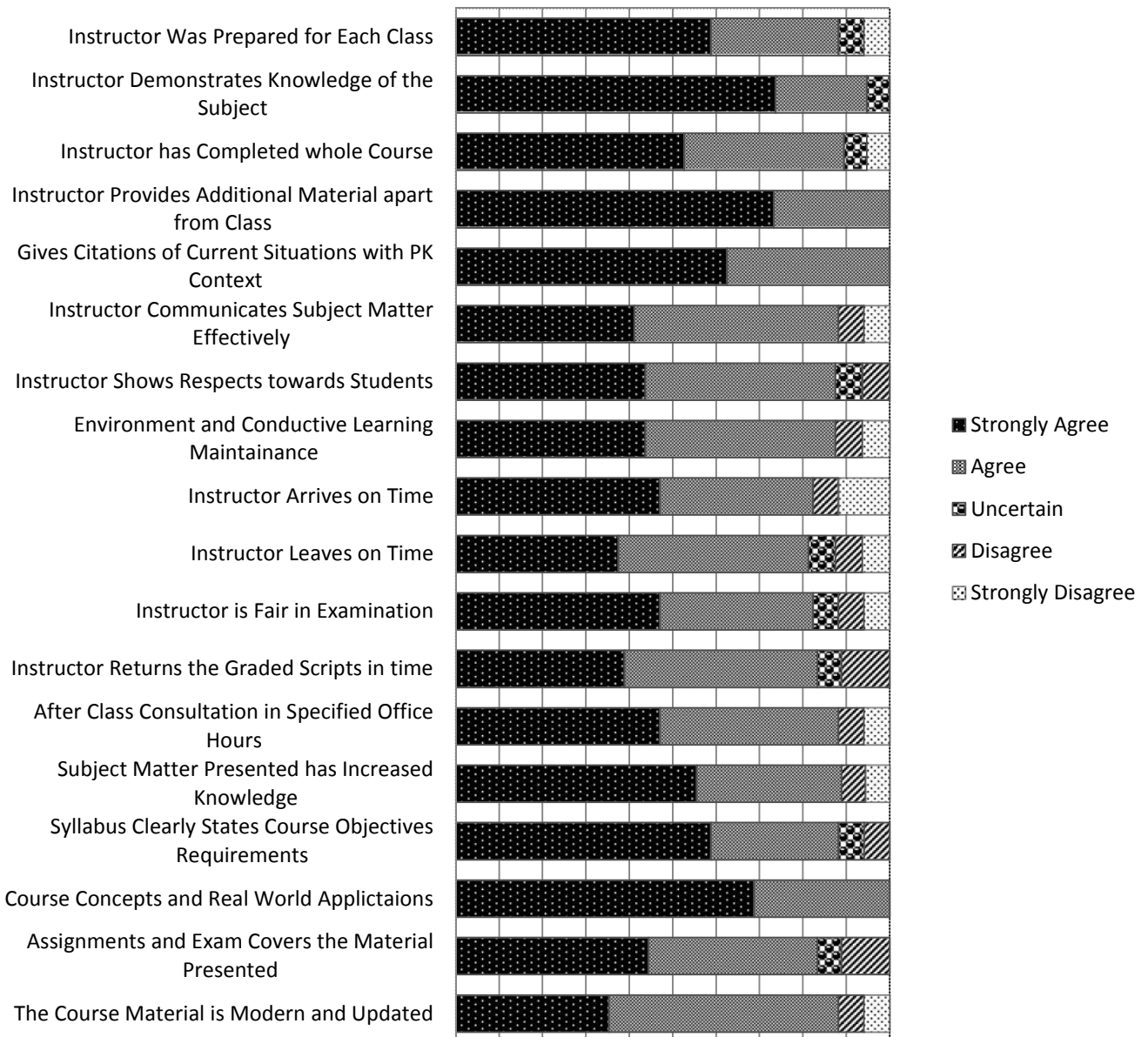
**General Comments of the Students about this Teacher**

**Weaknesses:** There was no weakness specified by the students.

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

**BIOL-713**  
**Dr. Yameen Bibi**

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

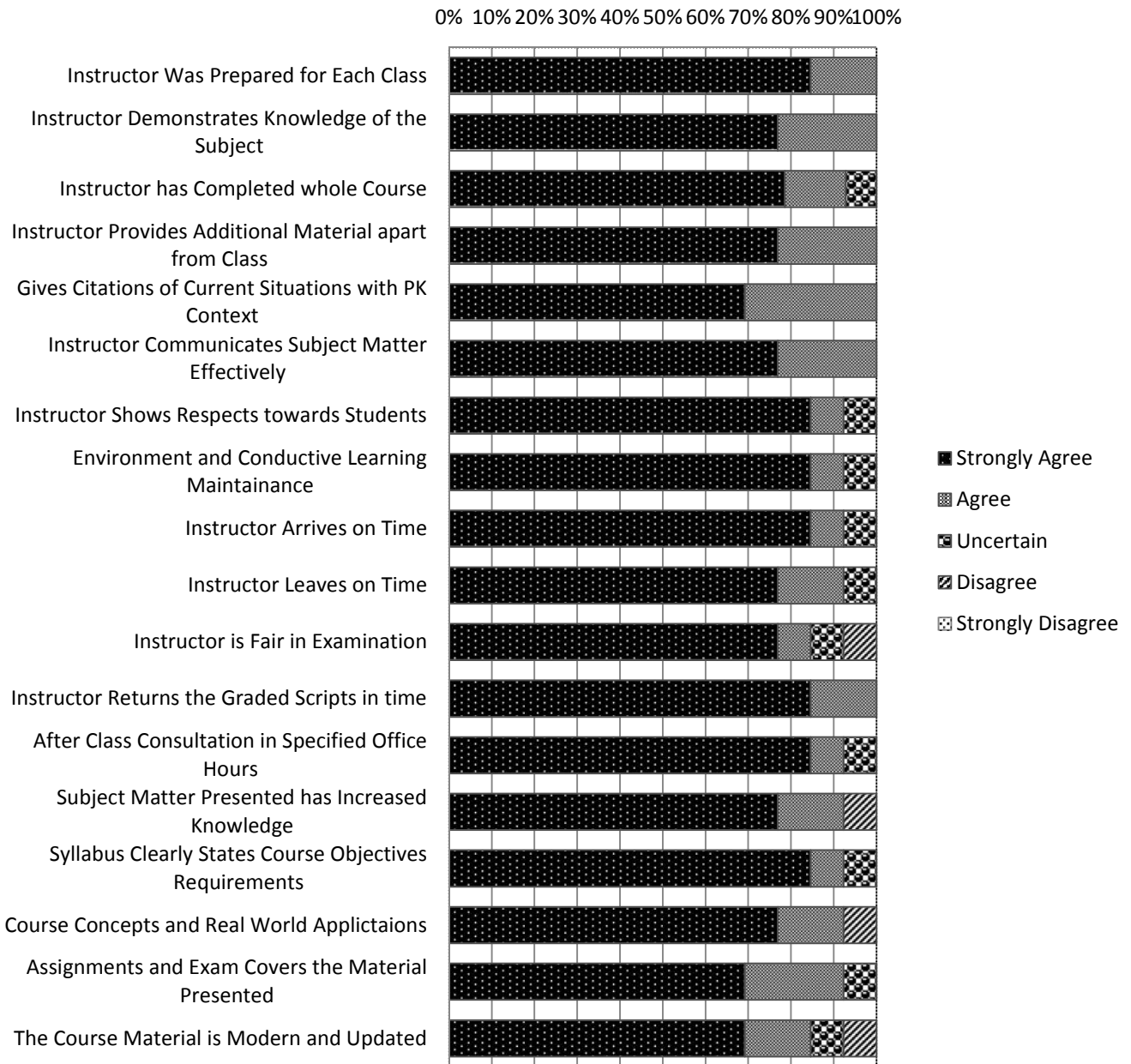


**General Comments of the Students about this Teacher**

**Weaknesses:** Instructor needed to improve graded scripts

**Strengths:** Instructor has demonstration of the knowledge in this course. Additional materials were provided. Course concepts reached the real world application.

**BIOL-716**  
**Dr. Rehmatullah Qureshi**



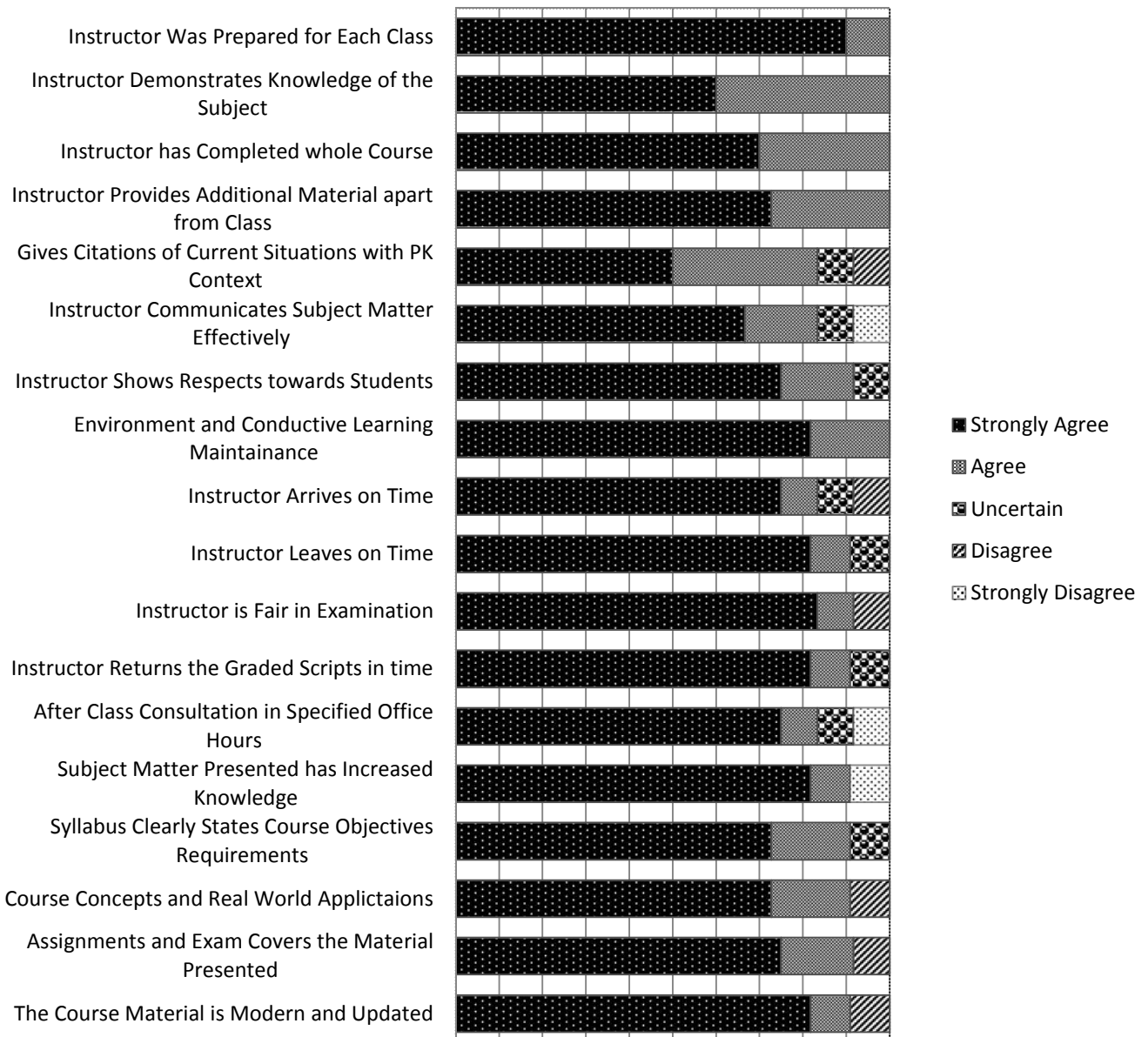
**General Comments of the Students about this Teacher**

**Weaknesses:** No weakness was indicated.

**Strengths:** Instructor linked the subject matter successfully. Instructor was available for after class consultation & graded scripts were returned in time. Course concepts were clear.

**BIOL-733**  
**Dr. Mubashira Munir**

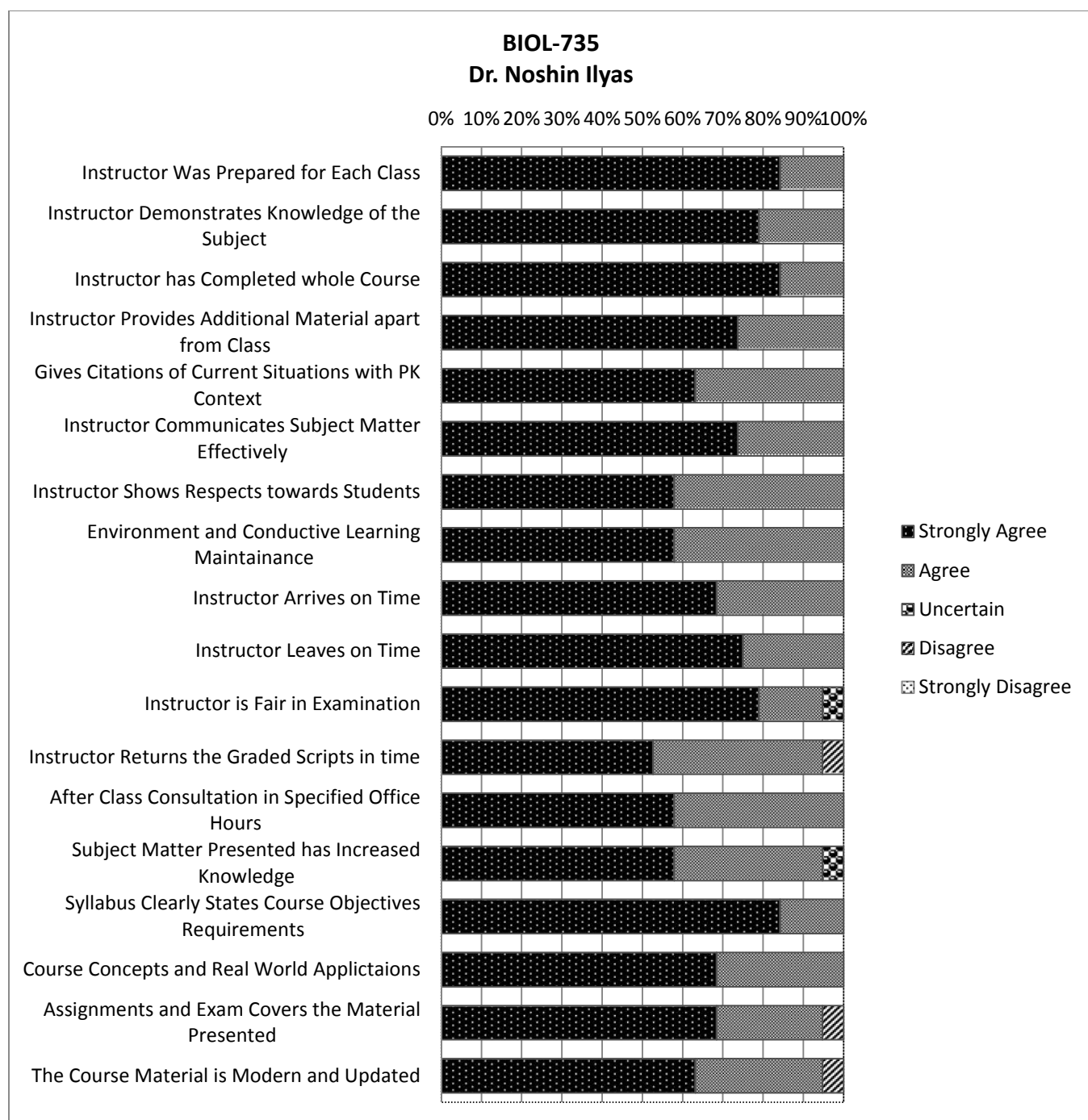
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%



**General Comments of the Students about this Teacher**

**Weaknesses:** Instructor should improve presenting subject matter and after class consultation.

**Strengths:** Instructor has finalized the whole course and demonstrated the knowledge in this course. Additional materials were provided. Environment of class was conducive for learning.



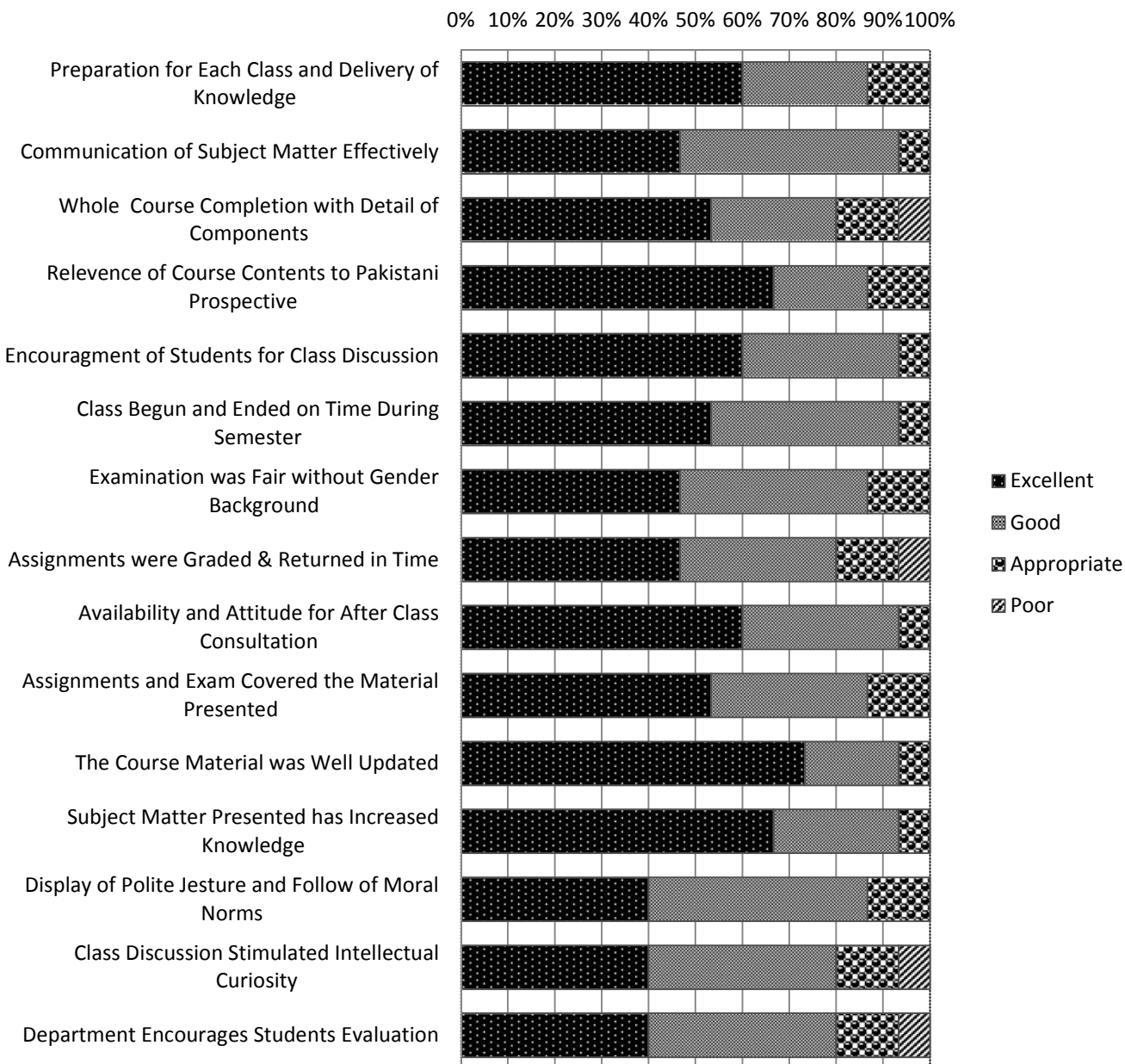
### General Comments of the Students about this Teacher

**Weaknesses:** Graph displays no deficiency of the instructor.

**Strengths:** Instructor has finalized the whole course and demonstrated the knowledge in this course. Additional materials were provided. Environment of class was conducive for education. This course has increased the knowledge of the students and students were pleased to study this course.



**BOT-737**  
**Dr. Rehmatullah Qureshi**

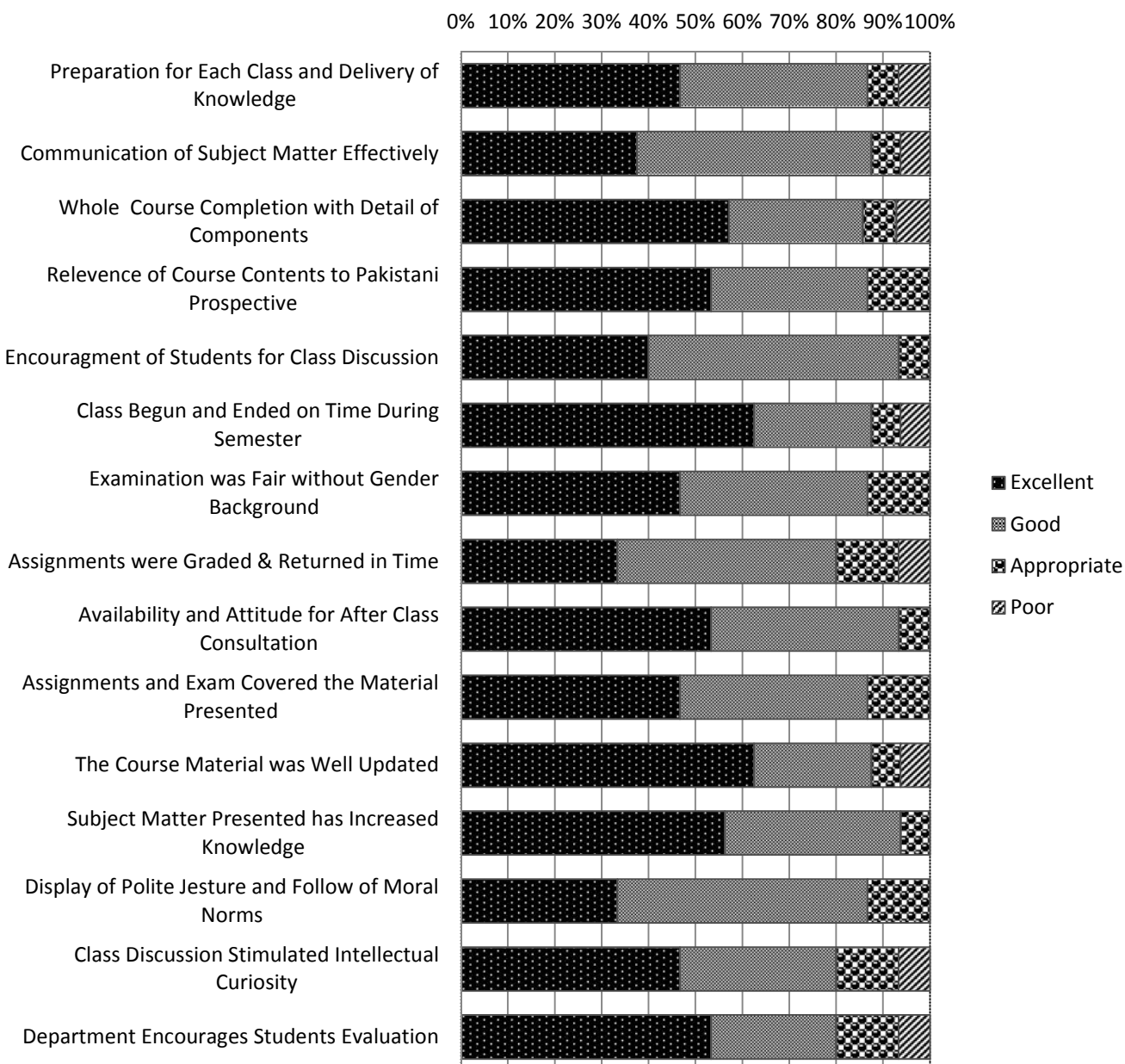


**General Comments of the Students about this Teacher**

**Weaknesses:** Instructor should assure course completion, graded scripts and class discussion.

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

**BOT-731**  
**Mr. Zia Ur Rehman Mashwani**



**General Comments of the Students about this Teacher**

**Weaknesses:** Instructor needed to improve on-time return of graded scripts and assignments.

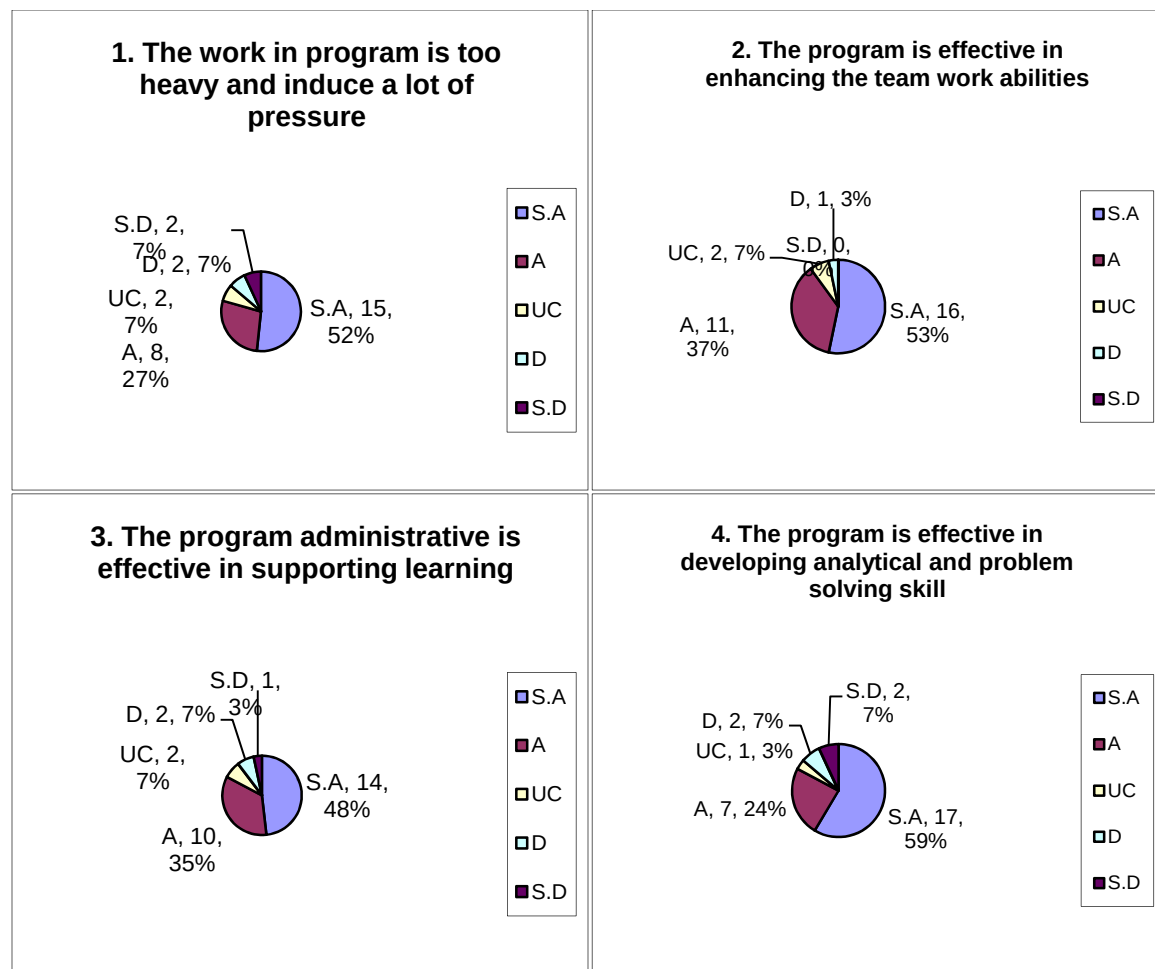
**Strengths:** Instructor delivered good knowledge and encouraged the students' participation in the class discussion. Instructor was available for after class consultation. Students have increased their knowledge in this course.

**Performa 2: FACULTY COURSE REVIEW REPORT**

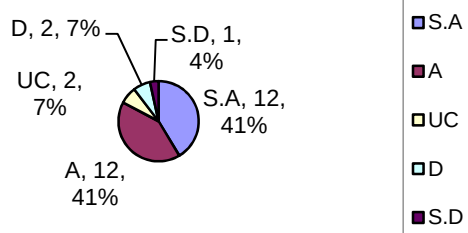
|                                                         |                                                                     |
|---------------------------------------------------------|---------------------------------------------------------------------|
| Department                                              | Botany                                                              |
| Faculty                                                 | Sciences                                                            |
| Courses                                                 | Described earlier in SAR                                            |
| Assessment method                                       | As per University rules and regulations                             |
| Distribution of Grades/Marks                            | As per University rules and regulations                             |
| Overview/Evaluation ( course Co-coordinator's comments) | Satisfied                                                           |
| Students (course evaluation survey)                     | Satisfied                                                           |
| External Examiner                                       | Student have sound theoretical knowledge                            |
| Student/Staff Consultative committee                    | N/A                                                                 |
| Curriculum                                              | In accordance with HEC guidelines                                   |
| Assessment                                              | Course objectives well defined and well achieved                    |
| Enhancement                                             | Proposed changes in earlier course review report incorporated       |
| Future changes                                          | New and modern practical approaches may be incorporated if possible |

### Proforma 3: GRADUATING STUDENTS SURVEY.

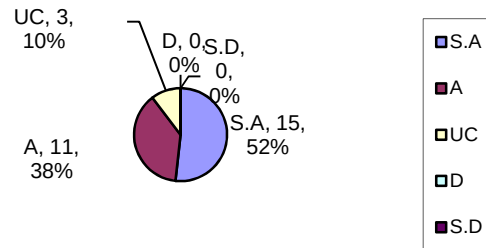
Results of survey of graduating students based on Proforma 3 show that 90% student agreed that the program is effective in enhancing the team working abilities. 83% students agreed that the program developed analytical and problem solving skills. 82% students showed their satisfaction over independent learning skills. 90% students agreed that the program developed writing skills in them. There was 83% agreement towards achievement of program objectives. There was 91% satisfaction towards curriculum. On average, there was 90% liking for faculty. However, there were reservation regarding co-curricular activities, scholarships and above all program workload.



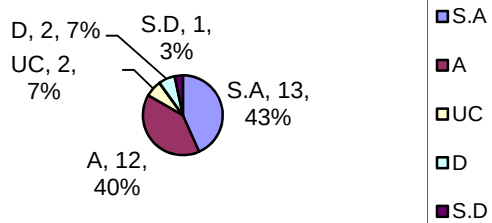
**5. The program is effective in developing independent thinking**



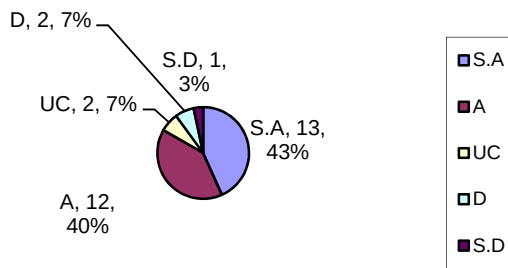
**6. The program is effective in developing written communication skill**



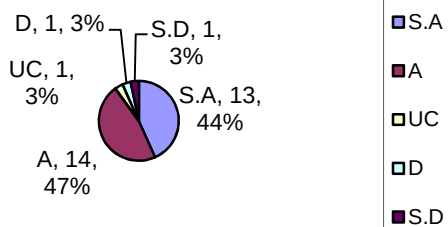
**7. The program is effective in developing planning abilities.**



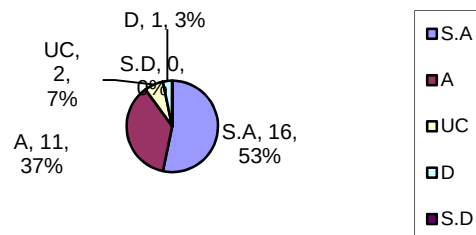
**8. The objective of the program have been fully achieved**



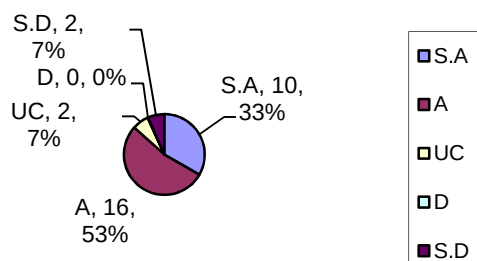
**9. Whether the contents of curriculum are advanced and meet program objectives**



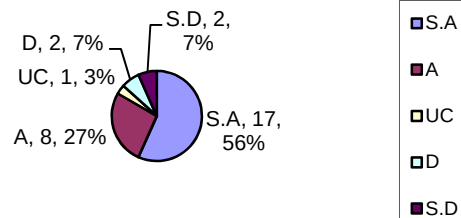
**10. Faculty was able to meet the program objectives**



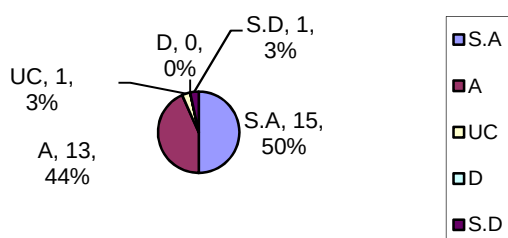
**11. . Environment is conducive for learning**



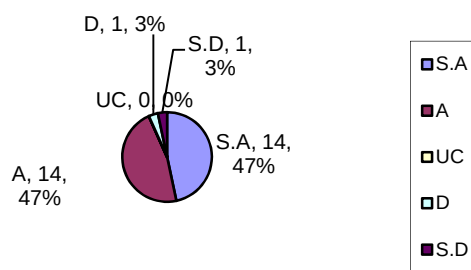
**12. Whether the infrastructure of the department was good**



**13. Whether the program was comprised of Co-curricular and extra cullicular activities**



**14. Whether Scholarship/grants were available to students in case of hardship**



#### **Proforma 4: RESEARCH STUDENTS PROGRESS REVIEW**

|   | <b>Question</b>                                                                                                                            | <b>Comments by Students</b>                                                                     |
|---|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 1 | Please outline details of your progress in your research since your last review                                                            | Majority students are in Progress to publish                                                    |
| 2 | Do you have any comments on the level of supervision received?                                                                             | Satisfied (100%)                                                                                |
| 3 | What do you plan to achieve over the next six months?                                                                                      | M.Phil (Complete their Lab. Work)                                                               |
| 4 | Do you have any comment on generic or subject specialist training you may have received or would like to receive internally or externally? | M.Phil(Interested in receiving any this sort of training internally or externally, as possible) |
| 5 | Do you have easy access to sophisticated scientific equipments?                                                                            | Yes (100%)                                                                                      |
| 6 | Do you have sufficient research material/commodities available?                                                                            | Yes (100%)                                                                                      |

The results of this proforma showed that most of the research students are satisfied with their research activities. All of the students had access to sophisticated issues and have sufficient research material and commodities available.

#### **Proforma 5: FACULTY SURVEY RESULTS**

The results of faculty survey showed that most of the faculty members were pleased with their level of academic and research work. All the faculty members have a decent and respectable communication among themselves and with the students. However, some of the faculty members have reservation for the mentoring available to them and also to the time they have for themselves and their family.

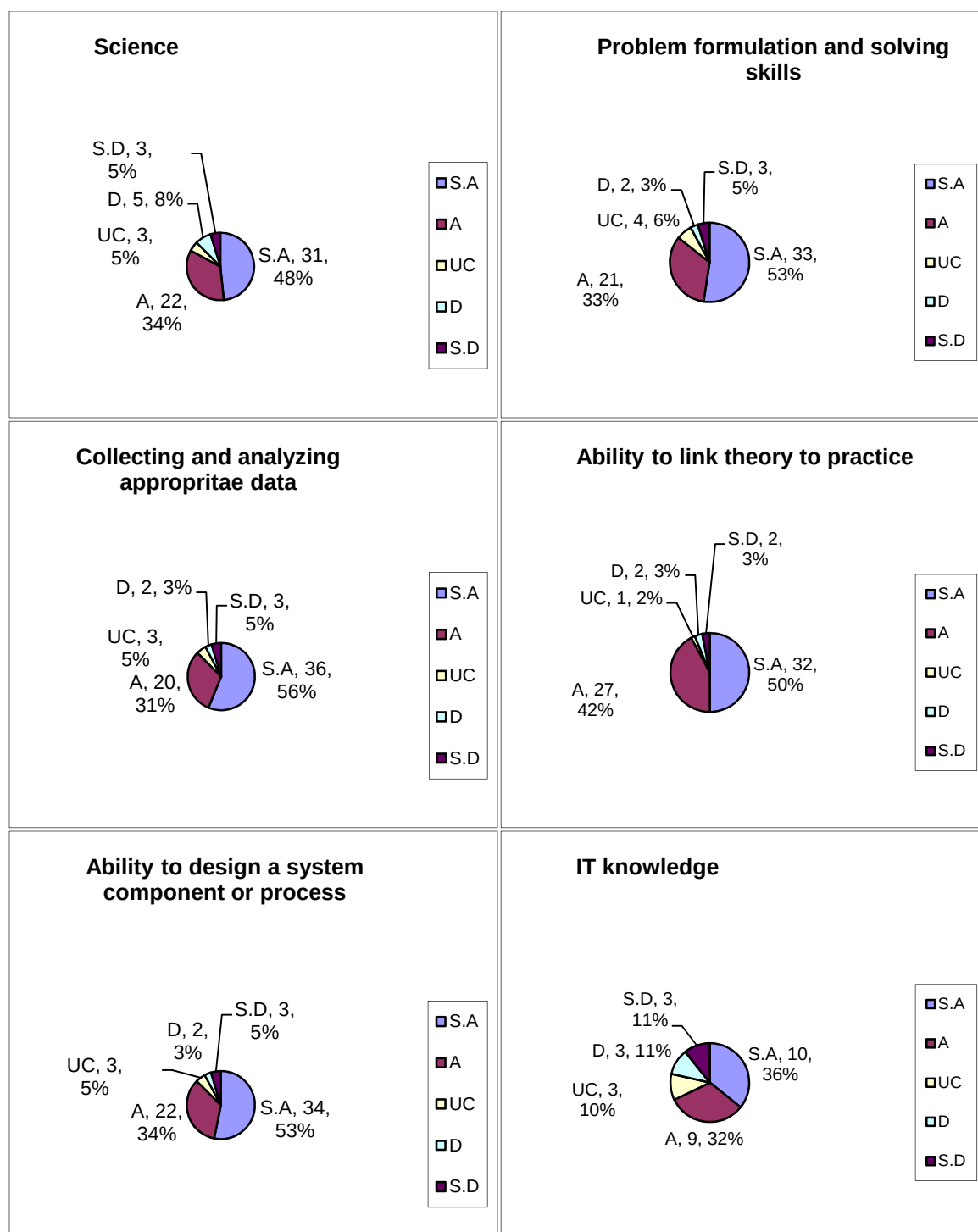
| S. No. | Parameter                                                 | Dr. M. Arshad | Dr. Abida | Dr. Rahmat | Dr. Noshin | Dr. Naveed | Dr. Yamin | Mr. Zia Ur Rehman | Ms. Mubashrah | Ms. Saira |
|--------|-----------------------------------------------------------|---------------|-----------|------------|------------|------------|-----------|-------------------|---------------|-----------|
| 1.     | Your mix of research, teaching and community service      | A             | B         | B          | B          | B          | B         | B                 | B             | B         |
| 2.     | The intellectual stimulation of your work                 | A             | B         | B          | B          | B          | B         | A                 | B             | B         |
| 3.     | Type of teaching/research you currently do.               | B             | B         | A          | A          | A          | A         | A                 | A             | B         |
| 4.     | Your interaction with students                            | B             | A         | A          | A          | A          | A         | A                 | A             | A         |
| 5.     | Cooperation you received from colleagues                  | A             | A         | A          | B          | B          | B         | B                 | A             | A         |
| 6.     | The mentoring available to you                            | B             | B         | C          | B          | B          | B         | A                 | C             | C         |
| 7.     | Administrative support from the department                | A             | B         | B          | A          | B          | B         | A                 | A             | A         |
| 8.     | Providing clarity about the faculty promotion process     | B             | B         | A          | A          | B          | B         | B                 | A             | A         |
| 9.     | Your prospects for advancement and progress through ranks | A             | B         | B          | A          | B          | B         | B                 | B             | B         |
| 10.    | Salary and compensation Packages                          | A             | B         | B          | B          | B          | B         | A                 | B             | B         |
| 11.    | Job security and stability at the department              | B             | B         | B          | A          | B          | B         | A                 | B             | B         |
| 12.    | Amount of time you have for yourself and family           | C             | B         | C          | B          | B          | B         | B                 | C             | B         |
| 13.    | The overall climate at the Department                     | B             | A         | B          | B          | A          | A         | A                 | A             | A         |



|     |                                                                   |   |   |   |   |   |   |   |   |   |
|-----|-------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|
| 14. | Whether the department is utilizing your experience and knowledge | B | B | B | B | A | A | A | B | B |
|-----|-------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|

Proforma 7:**ALUMNI SURVEY RESULTS:**

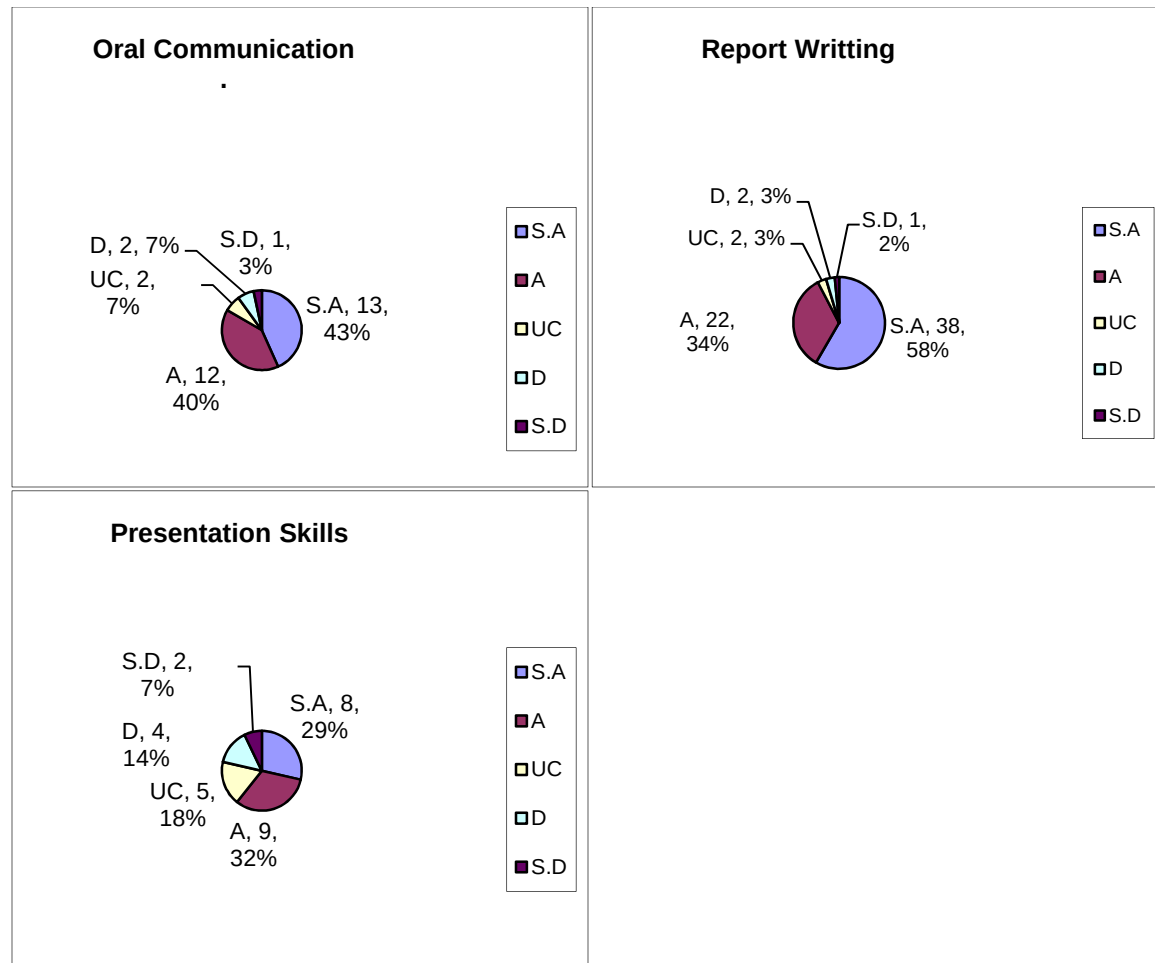
The graduates of Botany Department join mostly research institutes, universities or opt for academic jobs, so Proforma 7 was sent to concerned institutes and overall feedback results of program assessment by the Alumni are presented in the following figure.



**Figures: Knowledge**

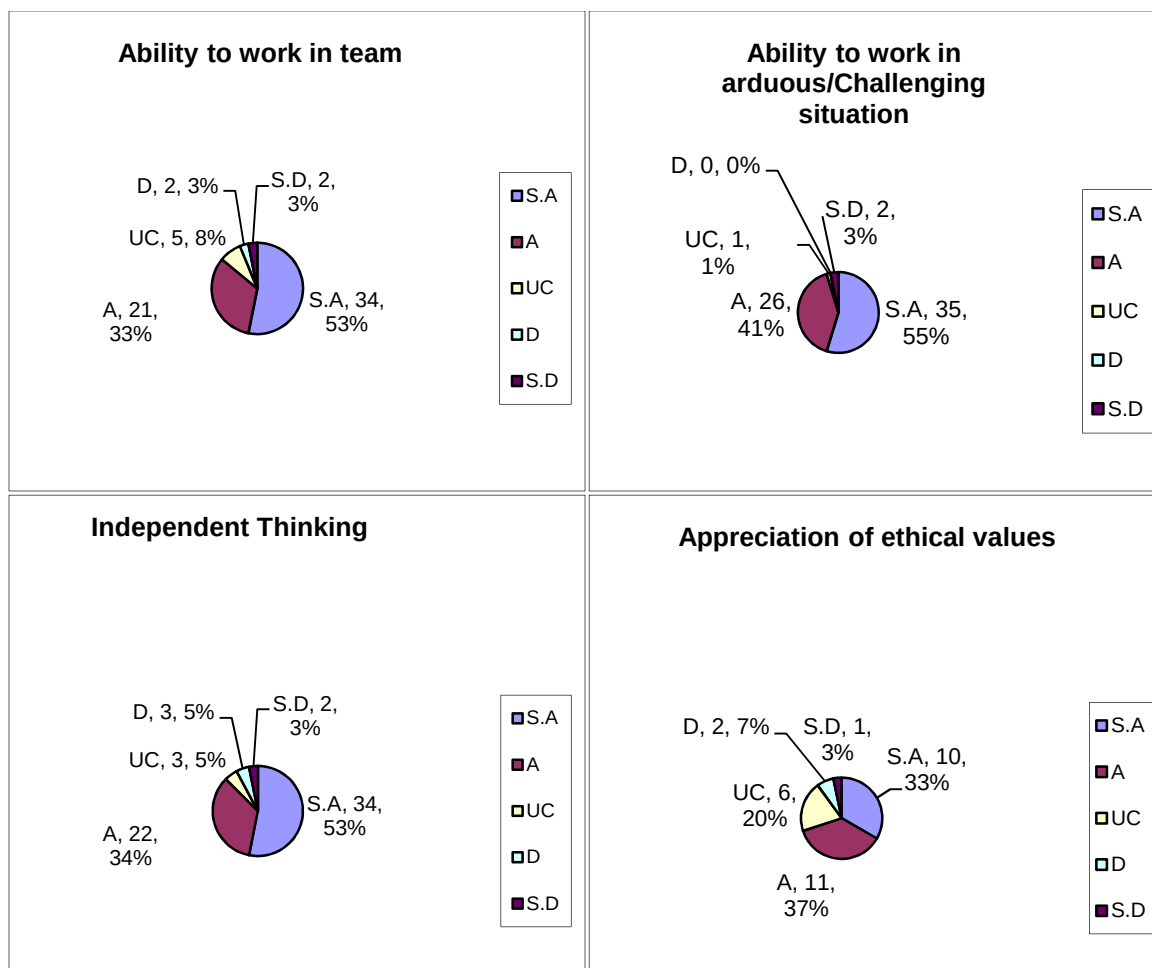
Results obtained from alumni survey showed that when the alumni were asked regarding the knowledge they obtained from this department, the overall response was satisfactory. 82% of the alumni agreed that they were well acquainted with scientific knowledge. 86% of the students

showed their agreement regarding learning problem formulation and solving skill. Most strong positive response was given by alumni regarding collection and analyze of data where 87% alumni showed agreement which means department was able to impart research skills in students. Regarding linking theory to practice 92% alumni showed agreement. Alumni showed agreement towards ability to design system components by 87%. There was a lack in IT knowledge as shown by disagreement of 22% alumni and 10% uncertain.



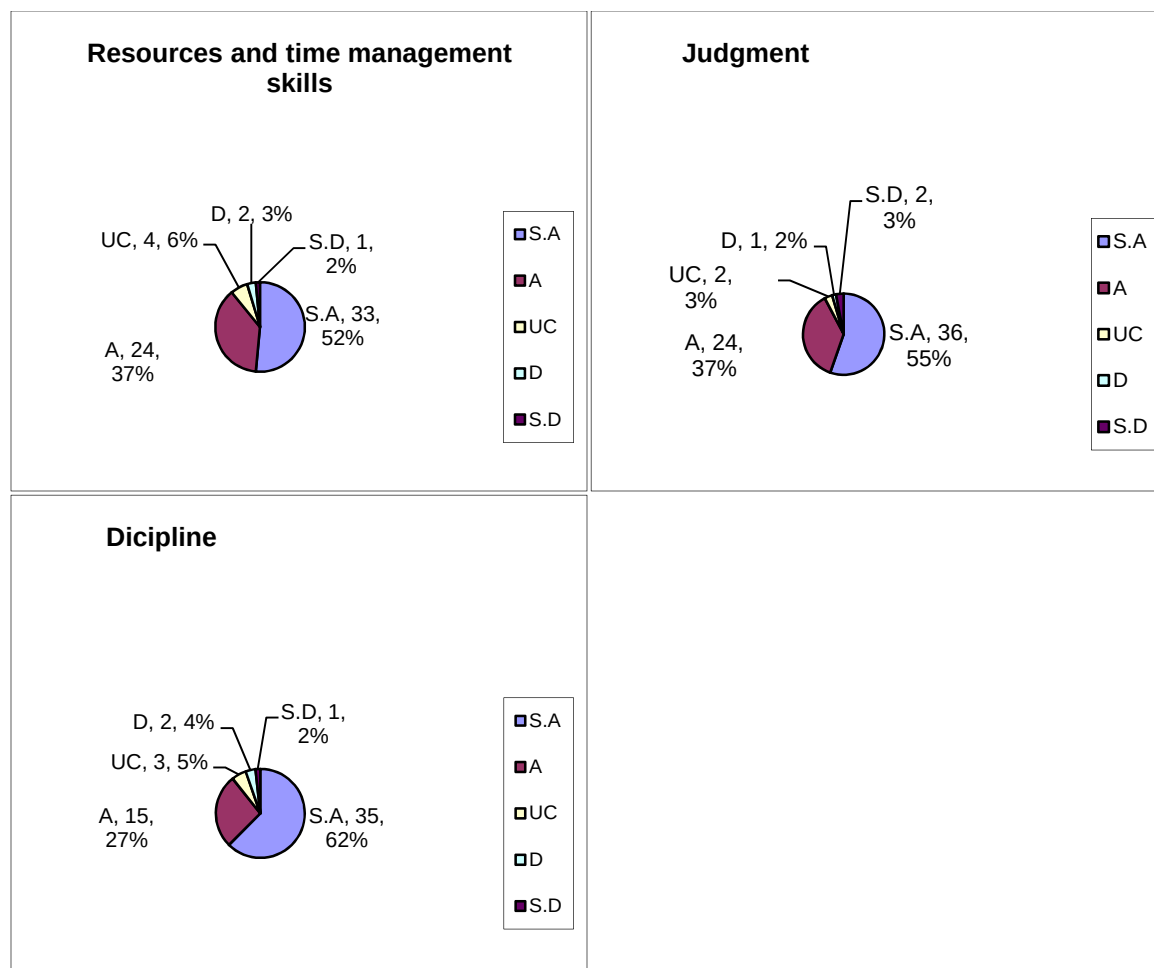
**Figures: Communication Skills**

It is evident from pie charts regarding writing skills 92% of the students were agreed, while 93 % students showed agreement in their oral communication; However 18% were uncertain for their presentation skills and 21% showed disagreement.



**Fig: Interpersonal Skills**

Regarding interpersonal skills, the feedback of the alumni showed that there was a 86% response in ability to learn in a team. Similarly, 96% agreed in their learning the ability to work under challenging conditions. 86% of students agreed to acquiring independent thinking, however 10% alumni disagreed regarding appreciation of ethical values and 20 % were uncertain.



**Fig: Management/Leadership Skills**

The chart regarding Management and Leadership skills s skills showed that 89 % of the students were agreed to resource and time management skills. 92% alumni were positive in learning judgment skills. Similarly 89% agreed regarding discipline.

## Proforma 08: EMPLOYER SURVEY

Feedback about employees was obtained from organizations viz. Education department, National Agriculture Research Centre Islamabad (NARC), PirMehr Ali Shah Arid Agriculture University Rawalpindi, Federal Seed Certification Department, Islamabad 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 skill these students have. Survey reflects that our graduates fall above average and in all areas. Their abilities were rated above 70%. This indicates that our graduates are well adaptable and show their better potential in any given environment. However, some employers have given general comments about some weaknesses, particularly the practical workability. The point has been well noted and will be tried to overcome for our future and current students.

As per Performa 8



## **PROGRAM OUTCOMES:**

### **Skills and capabilities Reflected In performance as Botanists:**

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

- .
- 
- Students shall learn to employ advanced analytical techniques.
- This skill development will lead them to apply given knowledge of plants.
- Students shall have an ability to use conventional as well as modern tools, techniques and skills necessary to conduct botanical research.
- Students shall learn to develop an insight for research design and projects.
- Students will learn to conduct research in economically thematic areas.
- Students shall have an understanding of professional and ethical responsibilities of a botanist.
- Students shall have an ability to work effectively in teams including multidisciplinary teams to solve problems relevant to their field.
- Students will be able to work as professionals.
- It will also build confidence to communicate and shall also develop the skill of effective writing.

### **Strength of the Department**

1. Faculty members are
  - fully qualified
  - Have good command of their subject.
  - And have specialization in their respective fields.
2. Labs are reasonably equipped.
3. Different project are going on in the department which are helping in strengthening of department.

### **Weaknesses Identified in the Program**

1. There is a need of short foreign training to faculty members
2. There is a lack of lectures halls.
3. Latest literature and review are hardly available
4. Lack of Gas supply in Laboratories
5. As an integral part of the department, it must have
  - Herbarium & botanic garden
  - Green house,
  - Computer Lab,
  - Departmental library
6. Lack of essential equipment like
  - Scanning electronic microscope,
  - Homogenizer,
  - PCR equipment and ultra-centrifuge.
7. There is lack of supporting staff.

### **Major Feature of Improvement Plans**

- To establish herbarium and Botanic garden in order to aid the students by physically observing plants in preserved and live state.
- To establish computer Lab for students
- To develop departmental library.

**Table 3: Quantitative Assessment of the Department (Year 2011-2012)**

| <b>Sr. No.</b> | <b>Particular</b>       | <b>No</b> | <b>Remarks</b>      |
|----------------|-------------------------|-----------|---------------------|
| 2              | M. Phil.                | 15        | In progress         |
| 4              | Students: Faculty rates | 1:20      | Fulfil HEC criteria |



| <b>Sr. No.</b> | <b>Particular</b>              | <b>No</b> | <b>Remarks</b>      |
|----------------|--------------------------------|-----------|---------------------|
| 5              | Technical : No technical ratio | 2: 4      | Fulfil HEC criteria |
| 6              | Average grade point            |           | 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).

**Table 4: Present performance Measures for Research Activities**

| <b>S. No</b> | <b>Faculty</b>             | <b>Journal Publication &amp; (National International)</b> | <b>Conference Publication (proceedings abstract)</b> | <b>Projects</b> |
|--------------|----------------------------|-----------------------------------------------------------|------------------------------------------------------|-----------------|
| <b>1.</b>    | Dr. M. Arshad              | 32 International<br>53 National                           | Nil.                                                 | 02              |
| <b>2.</b>    | Dr. Abida Akram            | 12 International<br>08 National                           | 03                                                   | 01              |
| <b>3.</b>    | Dr. Rahmatullah Qureshi    | 15 International<br>23 National                           | Proceeding 01                                        | 01              |
| <b>4.</b>    | Dr. Noshin Ilyas           | 10                                                        |                                                      | 01              |
| <b>5.</b>    | Dr. Naveed Iqbal Raja      | 11                                                        |                                                      | 01              |
| <b>6.</b>    | Dr. Yamin Bibi             | 10                                                        | 05                                                   | 01              |
| <b>7.</b>    | Ms. Mubashra Munir         | 03 National                                               | 0                                                    | 01              |
| <b>8.</b>    | Mr. Zia Ur Rehman Mashwani | 07                                                        | 15                                                   | 01              |
| <b>9.</b>    | Ms Saira Asif              | 2                                                         | Nil                                                  | Nil             |

The department is well staffed; distinguishing feature is the availability of all expertise (Genomics, Ecology, Taxonomy, Physiology, and Mycology).

### **Faculty Satisfaction Regarding the Administrative Services**

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

**Table 5: Degree requirements**

| <b>Degree</b> | <b>Pre-requisites</b>                                                                                                              |
|---------------|------------------------------------------------------------------------------------------------------------------------------------|
| M. Phil.      | M. Sc. Examination in aggregate with CGPA of not less than 2.50 or with 50% of the marks from a recognized institution, entry test |

## **SECTION 2**

### **Criterion 2: Curriculum Design and Organization**

#### **A. Title of Degree Program: M. Phil. in Botany**

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

#### **B. Definition of Credit Hour**

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

#### **C. Degree Plan**

Presently three degree programs including M. Phil are organized by the department.

- **M. Phil.**

The M. phil. degree programme consists of 02 academic years / 04 semesters. One full year is given to research work and final thesis write up.. Degrees are awarded after completing the required number of credit hours (courses) following by Comprehensive Examination.

**Table 6: Core Courses**

| <b>S. No.</b>           | <b>Course</b> | <b>Title</b>                                | <b>Credit</b> |
|-------------------------|---------------|---------------------------------------------|---------------|
| <b>1</b>                | BOT-701       | Diversity in Non- Vascular Plants           | 3(2-2)        |
| <b>2</b>                | BOT-702       | Plant and Cell Physiology-I                 | 3(2-2)        |
| <b>3</b>                | BOT-703       | Plant and Cell Physiology-II                | 3(2-2)        |
| <b>4</b>                | BOT-704       | Phytosociology                              | 3(2-2)        |
| <b>5</b>                | BOT-705       | Plant Taxonomy and Embryology               | 3(2-2)        |
| <b>6</b>                | BOT-706       | Diversity in Vascular Plants                | 3(2-2)        |
| <b>7</b>                | BOT-707       | Plant Anatomy                               | 3(2-2)        |
| <b>8</b>                | BOT-708       | Mycology and Plant Pathology                | 3(2-2)        |
| <b>9</b>                | BOT-709       | Plant Ecology                               | 3(2-2)        |
| <b>10</b>               | BOT-710       | Ethnobotany                                 | 3(2-2)        |
| <b>11</b>               | BOT-711       | Environmental Pollution                     | 3(2-2)        |
| <b>12</b>               | BOT-712       | Research Planning and Report Writing        | 3(1-4)        |
| <b>13</b>               | BOT-720       | Seminar                                     | 1(1-0)        |
| <b>Optional Courses</b> |               |                                             |               |
| <b>14</b>               | BOT-713       | Medicinal Plants of Pakistan                | 3(2-2)        |
| <b>15</b>               | BOT-714       | Molecular Plant Development                 | 3(3-0)        |
| <b>16</b>               | BOT-715       | Phytogeography                              | 3(2-2)        |
| <b>17</b>               | BOT-716       | Research Techniques and Instrumentation     | 3(2-2)        |
| <b>18</b>               | BOT-717       | Phytohormones                               | 3(2-2)        |
| <b>19</b>               | BOT-718       | Arid Zone Ecology                           | 3(2-2)        |
| <b>20</b>               | BOT-719       | Special Problem                             | 1(1-0)        |
| <b>21</b>               | BOT-720       | Seminar-I                                   | 1(1-0)        |
| <b>22</b>               | BOT-720       | Seminar-II                                  | 1(1-0)        |
| <b>23</b>               | BOT-721       | Stress Physiology                           | 3(2-2)        |
| <b>24</b>               | BOT-722       | Plant Nutrition                             | 3(2-2)        |
| <b>25</b>               | BOT-723       | Advance in Plant Physiology                 | 3(3-0)        |
| <b>26</b>               | BOT-724       | Molecular Basis of Morphogenesis            | 3(3-0)        |
| <b>27</b>               | BOT-725       | Molecular Advances in Phytosystematics      | 3(3-0)        |
| <b>28</b>               | BOT-726       | Environmental Toxicology and Bioremediation | 3(2-2)        |
| <b>29</b>               | BOT-727       | Environmental Biotechnology                 | 3(3-0)        |
| <b>30</b>               | BOT-728       | Principles of Genome Analysis and Genomics  | 3(3-0)        |

| S. No.                                                                                                             | Course  | Title                                         | Credit |
|--------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------|--------|
| 31                                                                                                                 | BOT-729 | Biology of Halophytes                         | 3(2-2) |
| 32                                                                                                                 | BOT-730 | Environmental Plant Physiology                | 3(2-2) |
| 33                                                                                                                 | BOT-731 | Conservation and Management of PlantResources | 3(1-4) |
| 34                                                                                                                 | BOT-732 | Plant Proteomics                              | 3(2-2) |
| 35                                                                                                                 | BOT-733 | Physiological Genetics of Plants              | 3(3-0) |
| 36                                                                                                                 | BOT-734 | Forensic Botany                               | 3(3-0) |
| 37                                                                                                                 | BOT-735 | Plant-microbe Interactions                    | 3(2-2) |
| 38                                                                                                                 | BOT-736 | Plant systematic                              | 3(2-2) |
| 39                                                                                                                 | BOT-737 | Applied Ethnobotany                           | 3(2-2) |
| 40                                                                                                                 | BOT-751 | Integrated Biological Resource Management     | 3(3-0) |
| All courses offered for M. Sc. Programmes can be offered to the Ph. D. students, depending upon their requirements |         |                                               |        |

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

#### Standard 2.1: Assessment of the Curriculum of Botany Department

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

#### Meeting Standard 2.1: Courses versus Program Outcomes

**Table 7: Course vs. Program Outcome**

| COURSE          | Outcomes   |            |            |
|-----------------|------------|------------|------------|
|                 | 1          | 2          | 3          |
| <b>BOT-707</b>  | <b>**</b>  | <b>**</b>  | <b>***</b> |
| <b>BOT-710</b>  | <b>***</b> | <b>**</b>  | <b>**</b>  |
| <b>BOT-703</b>  | <b>**</b>  | <b>**</b>  | <b>**</b>  |
| <b>BOT-708</b>  | <b>**</b>  | <b>**</b>  | <b>***</b> |
| <b>BOT-737</b>  | <b>***</b> | <b>**</b>  | <b>**</b>  |
| <b>Biol-302</b> | <b>***</b> | <b>**</b>  | <b>**</b>  |
| <b>BOT-706</b>  | <b>**</b>  | <b>**</b>  | <b>***</b> |
| <b>BOT-705</b>  | <b>**</b>  | <b>***</b> | <b>**</b>  |
| <b>BOT-702</b>  | <b>***</b> | <b>**</b>  | <b>***</b> |
| <b>BOT-708</b>  | <b>**</b>  | <b>**</b>  | <b>**</b>  |
| <b>BOT-712</b>  | <b>**</b>  | <b>**</b>  | <b>***</b> |

|                 |            |            |           |
|-----------------|------------|------------|-----------|
| <b>Biol-301</b> | <b>**</b>  | <b>***</b> | <b>**</b> |
| <b>BOT-701</b>  | <b>***</b> | <b>**</b>  | <b>**</b> |

|             |          |                                         |
|-------------|----------|-----------------------------------------|
| <b>*</b>    | <b>=</b> | <b>Relevant</b>                         |
| <b>**</b>   | <b>=</b> | <b>Relevant and satisfactory</b>        |
| <b>***</b>  | <b>=</b> | <b>Very relevant and satisfactory</b>   |
| <b>****</b> | <b>=</b> | <b>highly relevant and satisfactory</b> |

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

### **Standard 2-2: Elements Vs Courses**

#### **Meeting standard 2-2: Percentage of Elements in Courses**

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

### **Standard 2-3**

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

### **Standard 2-4**

The curriculum meets major requirements as approved by HEC.

### **Standard 2-7**

#### **Enhancing Oral and written Communication Skills of the students**

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

### SECTION 3

#### Criterion 3: LABORATORIES AND COMPUTING FACILITIES

There are four Laboratories in the department. The facilities and shortcomings of these laboratories are listed as under.

##### LAB-1

|                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Laboratory title</b>              | <b><i>Plant Ecology Lab.</i></b><br>(for the graduate and post graduate students)                                                                                                                                                                                                                                                                                                                                                 |
| <b>Location and Area</b>             | Faculty of Sciences, Department of Botany, 1 <sup>st</sup> floor, New Academic Block.                                                                                                                                                                                                                                                                                                                                             |
| <b>Objectives</b>                    | Laboratory is used for <ul style="list-style-type: none"><li>➤ Practical exercise and demonstration to master students in their introductory and major courses.</li><li>➤ Research work for the graduate and post graduate students.</li><li>➤ Used for implementing the funded projects by the university, HEC, PSF, PARC and other agencies.</li><li>➤ Laboratory is spacious and adequate for research and teaching.</li></ul> |
| <b>Major apparatus vizequipments</b> | Microscopes, oven, vacuum pump, thermograph, pH meter, electric balance, sieve shaker, refrigerator, pH and EC meter, etc.                                                                                                                                                                                                                                                                                                        |
| <b>Safely Regulations</b>            | Safely measures are unavailable against fire (extinguisher), minor hazards and accidents, injuries (First Aid Kit). However, the university maintains a Medical Dispensary for such incidents.                                                                                                                                                                                                                                    |

##### LAB-2

|                          |                                                                                            |
|--------------------------|--------------------------------------------------------------------------------------------|
| <b>Laboratory title</b>  | <b><i>Plant Physiology Lab</i></b><br>(for the graduate and post graduate students)        |
| <b>Location and Area</b> | Faculty of Sciences, Department of Botany, 1 <sup>st</sup> floor, New Academic Block.<br>. |
| <b>Objectives</b>        | Laboratory is used for                                                                     |

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                          | <ul style="list-style-type: none"> <li>➤ Practical exercise and demonstration to master students in their introductory and major courses.</li> <li>➤ Research work for the graduate and postgraduate research fellows.</li> <li>➤ Laboratory is spacious and adequate for teaching as well as research purpose.</li> <li>➤ Used for implementing the funded projects by the university, HEC, PSF, PARC and other agencies.</li> </ul> |
| <b>Major apparatus<br/>vizequipments</b> | Refrigerators, pH meter, EC meter, UV visible spectrophotometer, Osmometer, water potential apparatus, Leaf area meter, oven, Microscopes, elective balance, etc                                                                                                                                                                                                                                                                      |
| <b>Safely<br/>Regulations</b>            | Safely measures are unavailable against fire (extinguisher), minor hazards and accidents, injuries (First Aid Kit). However, the university maintains a Medical Dispensary for such incidents.                                                                                                                                                                                                                                        |

### **LAB-3**

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Laboratory title</b>                  | <b><i>Molecular Mycology Lab.</i></b><br>(For the master and post graduate research scholars.)                                                                                                                                                                                                                                                                                                                               |
| <b>Location and<br/>Area</b>             | Faculty of Sciences, Department of Botany, 1 <sup>st</sup> floor, New Academic Block.<br>.                                                                                                                                                                                                                                                                                                                                   |
| <b>Objectives</b>                        | <p>Laboratory is used for</p> <ul style="list-style-type: none"> <li>➤ Practical exercise and demonstration to master students in their introductory and major courses.</li> <li>➤ Research work for the graduate and post graduate research scholars.</li> <li>➤ Used for implementing the funded projects by the university, HEC, PSF, PARC and other agencies.</li> <li>➤ Laboratory is spacious and adequate.</li> </ul> |
| <b>Major apparatus<br/>vizequipments</b> | Research microscopes, autoclave, Laminar Flow, deep freezer, refrigerators, Test tube mixer, elective balance, HPLC, Phase contrast Microscope, Electrophoresis, etc.                                                                                                                                                                                                                                                        |

|                           |                                                                                                                                                                                                |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                                                                                                                                                                                                |
| <b>Safely Regulations</b> | Safely measures are unavailable against fire (extinguisher), minor hazards and accidents, injuries (First Aid Kit). However, the university maintains a Medical Dispensary for such incidents. |

#### **LAB-4**

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Laboratory title</b>                | <b><i>Plant Taxonomy &amp; Ethnobotany Lab.</i></b><br>(For the master and post graduate research scholars.)                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Location and Area</b>               | Faculty of Sciences, Department of Botany, 1 <sup>st</sup> floor, New Academic Block.<br>.                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Objectives</b>                      | Laboratory is used for <ul style="list-style-type: none"> <li>➤ Practical exercise and demonstration to master students in their introductory and major courses.</li> <li>➤ Research work for the graduate and post graduate research scholars.</li> <li>➤ Used for implementing the funded projects by the university, HEC, PSF, PARC and other agencies.</li> <li>➤ Laboratory is spacious and adequate for undertaking research and teaching in the relevant field.</li> </ul> |
| <b>Major apparatus vize equipments</b> | Hotplate, Microscopes, stereomicroscope, dissecting microscope, deep freezer, electric balance, sieve shaker, refrigerator, pH and EC meter, plant pressers, etc.                                                                                                                                                                                                                                                                                                                 |
| <b>Safely Regulations</b>              | Safely measures are unavailable against fire (extinguisher), minor hazards and accidents, injuries (First Aid Kit). However, the university maintains a Medical Dispensary for such incidents.                                                                                                                                                                                                                                                                                    |



**Standard 3-1: Laboratory Manuals:**

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

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

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

**Standard 3-3: Computing Infrastructure and Facilities**

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

However the department has the following shortcomings/ problems:

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

**SECTION 4:****Criterion 4: Student Support and Advising****Departmental Orientation**

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

**Student Advisor**

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

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

**Standard 4-1: Frequency of courses**

- Courses are taught as per approved scheme of study.

**Standard 4-2: Structure of the Courses**

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

**Theoretical portion** covered in teaching, assignments and presentations.

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

### **Standard 4.3: Guidance to the Students**

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

## **SECTION 5: PROCESS CONTROLL**

### **Standard 5.1: Admission Criteria for Programme**

- The process of admission well established and followed as per rules and criteria set by university. For this purpose an advertisement is given in the national papers by the Registrar office.
- Admission criteria:
  - o **M. Phil.** (M. Sc. Botany/Biology with CGPA 2.5 out of 4 or 50% marks under annual examination system and entry test.
- Admission criteria are revised every year before the announcement of admissions.

### **Standard 5.2: Process of Registration and Monitoring of Students.**

- The complete list of finally admitted candidate after fulfilling the admission criteria is to be forwarded to the registrar office for proper registration in the specific program. Registration numbers are issued to the students
- Students are registered once in a degree programme.
- Mid, Final, Practical exams and assignments are used to monitor student progress.

### **Standard 5.3: Recruiting Process for Faculty**

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

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

### **Retention of Excellent Faculty Members**

- At present, no procedure exists for retaining highly qualified faculty members.
- HEC also supports appointment of highly qualified members as foreign faculty professor, National Professors and deutes them in various departments of the university.

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

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

**5.5. Completion of Program Requirements**

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

## SECTION 6

### Criterion 6: FACULTY

#### Standard 6-1: Full Time Faculty

**Table 8: Faculty Distribution by Program Areas in Botany**

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

**Table 9: Faculty Specialization**

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

**Standard 6.2: Effective Programs for Faculty Development**

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

**Standard 6.3: Faculty member motivation**

- There is a calamitous necessity of motivation

**SECTION 7**  
**Criterion 7: Institutional Facilities**

**Standard 7-1 infrastructure**

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

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

**Standard 7-2 Library facilities**

The university central library has very limited number of books, journals and periodical, it's a small library in term of space and facilities no catalogue systems; it does not meet the standards of a university library. Department itself does not have a library.

**Standard 7.3 Class Room and Faculty Offices**

- Shortage of lecture halls
- Faculty offices are inadequate.

## **SECTION 8**

### **Criterion 8: Institutional Support**

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

#### **Standard 8-1 Support and Financial Resources**

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

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

#### **Standard 8-2 High Quality Graduate Students and Research scholars**

Graduate students are enrolled once in a year.. A strict merit policy adopted and GRE/NTS examination is implemented. Lately, details of the students and research scholars are given following tables.

**Table 12: Showing the Number of students obtaining degree in different programs from 2003-09.**

| <b>STUDENTS</b>           | <b>NOS</b> |      |      |      |      |      |      |      |      |      |
|---------------------------|------------|------|------|------|------|------|------|------|------|------|
|                           | 2003       | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| <b>M.Phil</b>             | --         | --   | --   | --   | --   | 13   | 09   | 13   | 14   | 14   |
| <b>Research Associate</b> |            |      |      | 01   | 02   |      |      |      |      |      |

|                                |      |                       |
|--------------------------------|------|-----------------------|
| <b>Students: Faculty ratio</b> | 1:20 | Fulfills HEC criteria |
|--------------------------------|------|-----------------------|

#### **Standard 8-3 Financial Resources:**

Total budget of the department for the financial year 2011-12 is Rs. 1, 00000/- (One Lac rupees only) which hardly fulfills the departmental needs particularly for the purchase of necessary chemicals, etc.

## **SUMMARY AND CONCLUSION**

This Self-Assessment Report (SAR) comprises plans and activities carried out for M. Phil. programme in department of Botany, Pir Mehr Ali Shah Arid Agriculture Rawalpindi from fall semester 2010-11 to fall 2011-12. . The main objective of Self-Assessment Report (SAR) was to overview the academic and research activities as perceived by students of M. Phil. in Department of Botany. This report contains the program mission, objectives, out comes, curriculum design and organization. Information about laboratories, figuring facilities, student provision, and supervision is also provided. Procedure control capacity of faculty members, institutional facilities, and provision information is also cited in the report.

Report demonstrates the major strengths and weaknesses of the programme. Students are in process of training towards higher profiles of research in accordance with the new challenges and requirements. Report evaluated the performance of teachers in an effective manner. Results are found to be satisfactory regarding course evaluation surveys. Faculty members have shown punctuality, well preparedness and better knowledge demonstration. Survey also indicates a good level of research work being conducted in the department. The Graduating and Alumni survey show high academic contentment among students. Curriculum design, development, and organization are based upon set, well defined and approved criteria. Pre-requisites are fully observed and examinations are conducted as per schedules. Teachers remain busy in designing advance courses for M. Phil. programme. The number of courses along with their titles and respective credit hours, course content for degree program is fully planned. As regards the process control covering admission registration, recruiting policy, delivery of material, academic requirements, performance and grading, ample effectiveness is evident. The rules formulated by university and HEC are properly followed regarding admission registration, performance and grading. The efficacy was measured through set standards and was found to be satisfactory.

During survey, it was observed besides main infrastructure, other shortcomings are also there. These include gas supply, library, classroom, and faculty offices. Absence of gas supply in research labs particularly is affecting the progress of work badly. Institutional facilities need to be strengthened. Glass house of department also needs to be linked with electric and water supply. Computer facilities are also required for research students to review the up-to-date



literature. Training of faculty members also need emphasis, to improve research skills and broadening of vision of the young and senior faculty members. Short term workshops and seminars can play a significant role here for betterment of department.

Although the limitations are there but still various research projects as well as research activities have been carried out in department. Research being pursued by M. Phil. students is also strengthening research activities in department. Students are encouraged and trained to publish research articles in impact factored and HEC recognized journals. Novel research findings are being published in ISI recognized impact factor journals with improved citation. The department is also trying to establish collaborations with other institutions and universities to boost up the research progress.

**Prepared by:**

**Zia-ur-Rehman Mashwani**

Lecturer

Department of Botany

Pir Mehr Ali Shah Arid Agriculture

University, Rawalpindi

**Dr. Noshin Ilyas**

Assistant Professor

Department of Botany

Pir Mehr Ali Shah Arid Agriculture

University, Rawalpindi

**Dr. Yamin Bibi**

Assistant Professor

Department of Botany

Pir Mehr Ali Shah Arid Agriculture

University, Rawalpindi

**Prof. Dr Muhammad Arshad**

Chairman

Department of Botany

Pir Mehr Ali Shah Arid Agriculture

University, Rawalpindi

**Checked By:**

**(Dr Ikram Ali Malik)**

Director,

Quality Enhancement cell

Pir Mehr Ali Shah Arid Agriculture

University, Rawalpindi

**Date of submission to HEC**

# Faculty Resume

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:             | Muhammad Arshad                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Personal:         | H. No. 12, UNIVERSITY COLONY NO. 2,<br>PMAS Arid Agriculture University Rawalpindi, Pakistan.<br>051-9290093                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Experience        | <p>Jan. 2010 to date Chairman</p> <p>Feb 2007 to date Professor Department of Botany, PMAS Arid Agriculture University, Rawalpindi, Pakistan.</p> <p>Dec 2004 to Feb. 2007 Associate Professor<br/>Department of Botany, University of Arid Agriculture, Rawalpindi, Pakistan.</p> <p>June 2004 to May 2005 Administrative Incharge<br/>Department of Botany,<br/>University of Arid Agriculture, Rawalpindi, Pakistan.</p> <p>Jan., 1998 to Dec 2004 Assistant Professor<br/>Department of Botany, University of Arid Agriculture, Rawalpindi, Pakistan.</p> <p>Jan., 1998 to Feb, 1998 Chairman,<br/>Department of Biological Sciences<br/>University of Arid Agriculture, Rawalpindi, Pakistan</p> <p>May 1986 to Jan., 1998 Lecturer<br/>Department of Botany, University of Arid Agriculture, Rawalpindi, Pakistan.</p> <p>June 1984 to May 1986 Junior Research Assistant (JRA)<br/>Department of Biological Sciences, Quaid-i-Azam<br/>University, Islamabad, Pakistan.</p> <p>Aug. 1980 to April 1981 Apprentice Chemist Hyesons<br/>Sugar Mills, Khanpur Distt. Rahim Yar Khan Pakistan.</p> |
| Honors and Awards | <p>Medalist scored first position in M. Phil., Quaid-i-Azam University, Islamabad Pakistan.</p> <p>Award Merit Scholarship during H.S.C.</p> <p>Member of Cricket team, Department of Botany, University of Punjab, Lahore, Pakistan.</p> <p>Awarded merit certificate for best performance during cricket championship organized by Student Union, University of Punjab, Lahore, Pakistan.</p> <p>Certificate of Service, the National Cadet Corps, Govt. College Chichawatni, Distt. Sahiwal, Pakistan.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Worked as Secretary, Department of Plant Protection, Barani Agricultural College Rawalpindi, Pakistan.</p> <p>Worked as Hostel Superintendent Form 1986 - 1989, Barani Agricultural College, Rawalpindi, Pakistan.</p> <p>Member of Examination Committee, Barani Agricultural College, Rawalpindi, Pakistan.</p> <p>President, Student Tutorial Group “Heaven” University of Arid Agriculture, Rawalpindi, Pakistan.</p> <p>Member of Board of Faculty, Faculty of Sciences, university of Arid Agriculture, Rawalpindi, Pakistan.</p> <p>Member of Environmental Friendly Club, University of Arid Agriculture, Rawalpindi, Pakistan.</p> <p>Incharge Sports (Badminton), University of Arid Agriculture, Rawalpindi, Pakistan.</p> <p>Academic supervisor of M.Sc. Botany students, University of Arid Agriculture, Rawalpindi, Pakistan.</p> <p>Member of Comprehensive Examination Committee of M.Sc. Botany students, University of Arid Agriculture, Rawalpindi, Pakistan.</p> <p>Incharge Administration, Department of Biological Sciences, University of Arid Agriculture, Rawalpindi.</p> <p>Member of advisory group of WWF project” Capacity building in ethnobotany applied to conservation and sustainable use of plants resources from 2001-2004.</p> <p>Member Scrutiny Committee of Synopsis of Ph.D/ M Phil. Botany Program.</p> <p>Approved Ph.D. Supervisor for Higher Education Commission.</p> <p>Paper setter Federal Public Service Commission for the subject of Botany.</p> <p>Member Board of Studies. Department of Botany, University of Azad Jammu and Kashmir, Muzzaferabad.</p> <p>Member Syndicate. University of Arid Agriculture, Rawalpindi for the period of two years (2005-2007).</p> <p>Member of University Finance and Planning Committee as a representative of Syndicate for the period of two years (2005-2007).</p> <p>Member of Advanced Studies and Research Board, Kohat University of Science and Technology, Kohat.</p> <p>Member of Board of Faculty of Crop and Food Sciences for the period of three years (August 2006 to August 2009) as a nominee of Academic council.</p> <p>Prepared the UAAR scheme of study for the courses of M.Sc. and M.Phil. Botany and Biology.</p> <p>Paper setter / Examiner of Botany for various universities of</p> |
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|  | <p>Pakistan.</p> <p>Resource person to establish National Data Base for the subject of Botany to National Testing Service (NTS) Pakistan.</p> <p>Enquiry officer for some enquiries at UAAR.</p> <p>Member of University Cafeteria Committee.</p> <p>Member of Board of Faculty of Forestry Range Management and Wildlife for the period of three years (Aug. 2007 to Aug. 2010) as a nominee of Academic Council.</p> <p>Member Pakistan Phytopathological Society.</p> <p>Member of synopsis scrutiny committee of Department of Environmental Sciences, Faculty of Forestry, Range Management and Wildlife for the period of three years i.e. from March 2008 to February 2011</p> <p>Member of Board of Studies, Dept. of Plant Sciences, QAU Islamabad</p> <p>Advisor/Subject Specialist, Punjab Public Service Commission, Lahore</p> <p>Member of comprehensive committee of M. Phil, Dept of Environmental sciences PMAS AAUR.</p> <p>Member of self assessment committee of tenure track system QAU Islamabad</p> <p>Member of self assessment committee, Dept of Botany, PMAS AAUR.</p> <p>Member of Board of Faculty of Crop and Food Sciences for the period of three years (August 2009 to August 2012) as a nominee of Academic council.</p> <p>Member of Board of Studies, Dept. of Plant Sciences, QAU Islamabad from May 2009 –May 2012</p> <p>Member Scrutiny Committee of Synopsis of Ph.D/ M Phil.Biology Program.</p> <p>Examiner for screening professional test conducted by Federal Public Commission.</p> <p>Member of Advance Study and Research Board of University as Nominee of Academic Council.</p> <p>Chairman purchase committee PMAS Arid Agric University Sep 2012</p> <p>Member Unfair Mean Control Committee PMAS Arid Agric. University Sept. 2012-14</p> <p>Organized one day seminar on Application of Proteomics to Investigate Stress-induced Proteins on June 11 2012 Speaker was, Dr. Setsuko Komatsu from Japan.</p> <p>Head of Departmental Tenure Review Committee.(DTRC)</p> <p>Member of Tenure Review Committee Dept. Plant Sciences QAU Islamabad.</p> <p>Subject specialist for federal Public service commission.</p> |
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|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                           | <p>Evaluation of applications for various positions at various universities.</p> <p>Paper setting for CCS examination for botanical discipline.</p> <p>Involved in Development/Revision of Syllabi for Central Superior Services(CSS) Competitive Examination 2012</p> <p>Reviewer for the evaluation of research projects of HEC and PSF.</p> <p>Papers reviewing of various national and international journals</p>                                                                                                                                                                                                                    |
| Memberships                                                               | <p>Member of Advisory Board of Ethnobotany Project, WWF.</p> <p>Member of Pakistan Ethnobotanical Society.</p> <p>Pakistan Botanical Society. Pakistan.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Graduate Students, Postdocs,<br>Undergraduate Students,<br>Honor Students | <p>PhD : 11</p> <p>M.Phil : 25</p> <p>M.Sc : 15</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Service Activity                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Brief Statement of Research<br>Interest                                   | <p>Phytosociological aspects of vegetation and ethnic approach with reference to their utilization.</p> <p>Gene transformation</p> <p>Bioactivities and Chemical Characterization of medicinal plants</p>                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Publications                                                              | <p>Book : 3</p> <p>Publication (Impact factor) : 49</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Research Grants and<br>Contracts                                          | <ol style="list-style-type: none"> <li>1. Ethnobotanical study of the Galliyat for botanical demography and bioecological diversification. Funded by University of Arid Agriculture, Rawalpindi, Pakistan. 0.1 million</li> <li>2. Ethnobotanical Study of Mountain Range of Kalla Chitta in Potohar Region , Pakistan Funded by WWF Pakistan. 0.4 million</li> <li>3. Exploration and Eco.Taxonomic Screening Of Fodder Grasses from Thal Desert ( Khushab) of Pakistan. 0.5 million</li> <li>4. Correlation of percentage disease resistance with level of gene expression in transgenic wheat with Xa 21 gene. 0.5 million</li> </ol> |
| Other Research or Creative<br>Accomplishments                             | Nil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Selected Professional                                                     | Nil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|               |  |
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| Presentations |  |
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|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:             | DR. RAHMATULLAH QURESHI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Personal:         | Associate Professor<br>Dept. Botany<br>+923006730496<br><a href="mailto:phytotaxonomist@gmail.com">phytotaxonomist@gmail.com</a><br><a href="mailto:rahmatullahq@yahoo.com">rahmatullahq@yahoo.com</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Experience        | <p>1). Associate Professor<br/>From 14<sup>th</sup> December, 2010 to Date.<br/>Department of Botany<br/>Pir Mehr Ali Shah<br/>Arid Agriculture University Rawalpindi</p> <p>2). Assistant Professor<br/>From 23<sup>rd</sup> May, 2007 to 13<sup>th</sup> December, 2010<br/>Department of Botany<br/>Pir Mehr Ali Shah<br/>Arid Agriculture University Rawalpindi</p> <p>3) Seed Certification Assistant (BPS-17) in Federal Seed Certification &amp; Registration Department from 4<sup>th</sup> January, 2002 to 22<sup>nd</sup> May, 2007.</p> <p>4) Research Associate in the Department of Botany, Shah Abdul Latif University Khairpur from 25<sup>th</sup> September 1998 to 31<sup>st</sup> December, 2001 (Sponsored by Pakistan Science Foundation Islamabad).</p>                                                                                                                                                                                                                            |
| Honors and Awards | <ol style="list-style-type: none"> <li>1. Elected as Vice President (Punjab) for the executive body/council of Pakistan Botanical Society for the session 2013-2015.</li> <li>2. Fellow of Royal Anthropological Institute, British Museum, London.</li> <li>3. Won award “Productive scientists of Pakistan” for the year 2012-13 by the Pakistan Council for Science &amp; Technology under category “E”.</li> <li>4. Won award “Productive scientists of Pakistan” for the year 2011-12 by the Pakistan Council for Science &amp; Technology under category “F”.</li> <li>5. Won award “Productive scientists of Pakistan” for the year 2010-2011 by the Pakistan Council for Science &amp; Technology under category “G”.</li> <li>6. HEC Recognized Ph.D. supervisor</li> <li>7. Member, Curriculum development of M. Sc. Botany/Biology at PMAS Arid Agriculture University.</li> <li>8. Member, Curriculum development of M.Sc./M. Phil./PhD of Botany/Biology at PMAS Arid Agriculture</li> </ol> |



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|                                                                           | <p>University.</p> <p>9. Member Selection Board, Federal Public Service Commission.</p> <p>10. Selected as jury for Intel Science Olympiad 2008-2009.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Memberships                                                               | <p>1. Pakistan Botanical Society (Life Time).</p> <p>2. Pakistan Wildlife Society (Founder Member)</p> <p>3. Weed Science Society of Pakistan (Life Time).</p> <p>4. Latifian Green Globe Forum, Shah Abdul Latif University, Khairpur. (Life Time).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Graduate Students, Postdocs,<br>Undergraduate Students,<br>Honor Students | <p>M.Phil : 31</p> <p>Ph.D (under supervision) : 08</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Service Activity                                                          | <p>1. Academic Council, PMAS-AAUR.</p> <p>2. Departmental Tenure Review Committee for TTS</p> <p>3. Board of Studies, Department of Botany.</p> <p>4. Board of Studies, Forestry &amp; Range Management Department, PMAS-AAUR since 01.11.2007 (as an external expert).</p> <p>5. Scrutiny committee of Botany, Plant Breeding &amp; Genetics, Mathematics &amp; Statistics, Horticulture and Wildlife departments for M. Phil. /PhD studies.</p> <p>6. Quality Enhancement Cell.</p> <p>7. Admission Committee for M. Sc./M. Phil.</p>                                                                                                                                                                                     |
| Brief Statement of Research<br>Interest                                   | <p>Plant Taxonomy</p> <p>Ethnobotany</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Publications                                                              | <p>Paper (Impact factor) : 61</p> <p>Paper (non-impact factor): 33</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Research Grants and<br>Contracts                                          | <p>1. Ethnobotanical survey of Thal Desert, Punjab Pakistan funded by Pakistan Science Foundation Islamabad (Three Years duration). (Principal Investigator).</p> <p>2. Floristic &amp; Ethnobotanical enumerations of Kallar Kahar Lake and its adjacent areas. 2010. Funded by Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi. (Principal Investigator).</p> <p>3. Floral Biodiversity of Khanpur Dam, District Hazara Khyber Pakhtunkhwa. 2010. Funded by WWF, Islamabad (Principal Investigator).</p> <p>4. Floristic Inventory of University Research Farm at Koont and its surrounding areas. 2008-2009. Funded by Pir Mehr Ali Shah Arid Agriculture University, Rawalpindi (Principal Investigator).</p> |

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|                                            | <ol style="list-style-type: none"> <li>5. Floristic Study of Arid Zone (Desert- Nara Region) Sindh, Pakistan, Sponsored by Pakistan Science Foundation, Project No. S-SALU/ENVR (45) during 1998-2001 (as Research Associate).</li> <li>6. Environmental Impact Assessment for Seismic operation in East Qadan wari gas field (Nara Desert) with reference to the vegetation. 2001. Sponsored by Hagler Bailey Pakistan (Pvt.) Limited, Islamabad (Co-Principal Investigator).</li> <li>7. Environmental Impact Assessment for Seismic operation in Gamabt Block with reference to the vegetation. 2001. Sponsored by Halcrow Pakistan (Pvt.) limited, Islamabad (Co-Principal Investigator).</li> <li>8. Environment Impact Assessment Study of Sawan Wari (Nara Desert) for OMV Gas Company with reference to the vegetation. 2001. Sponsored by Hagler Bailey Pakistan (Pvt.) Limited, Islamabad (Co-Principal Investigator).</li> <li>9. Assessment of Natural Vegetation of Hingol National Park, Balchistan. 2005-2006. Sponsored by WWF-Pakistan. (1st and 2nd Phases) (Co-Principal Investigator).</li> <li>10. Assessment of Natural Vegetation of Taunsa Barrage. 2005. Sponsored by WWF-Pakistan (Co-Principal Investigator).</li> <li>11. Floral Base-Line Study of Khunjerab National Park, Northern Areas. 2006. Sponsored by WWF-Pakistan (Principal Investigator).</li> <li>12. Preliminary Baseline Study of Chotiari and Pai forest Ecosystems of the Indus For All Programme (IFAP). 2005 Sponsored by WWF-Pakistan (Co-Principal Investigator).</li> <li>13. Detailed Vegetation Assessment Study of Ketu Bundar, Kenjhar Lake Chotiari Reservoir and Pai forest Ecosystems of the Indus For All Programme (IFAP). 2006. Sponsored by WWF-Pakistan (Co-Principal Investigator).</li> </ol> |
| Other Research or Creative Accomplishments | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Selected Professional Presentations        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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| Name:                                                                     | Dr. Abida Akram                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Personal:                                                                 | Associate Professor<br>Dept. Botany<br>0333-5320262<br><a href="mailto:abidauaar@hotmail.com">abidauaar@hotmail.com</a><br><a href="mailto:abidaakram@uaar.edu.pk">abidaakram@uaar.edu.pk</a>                                                                                                                                                                                                                                                                 |
| Experience                                                                | <p>1). Associate Professor<br/>From 28-05-2011 to date<br/>Department of Botany<br/>Pir Mehr Ali Shah<br/>Arid Agriculture University Rawalpindi</p> <p>2). Assistant Professor<br/>From 26-02-2005 – 27-05-2011<br/>Department of Botany<br/>Pir Mehr Ali Shah<br/>Arid Agriculture University Rawalpindi</p> <p>3). Lecturer<br/>From 13-10-1996 - 25-02-2005<br/>Department of Botany<br/>Pir Mehr Ali Shah<br/>Arid Agriculture University Rawalpindi</p> |
| Honors and Awards                                                         | List honors or awards for scholarship or professional activity                                                                                                                                                                                                                                                                                                                                                                                                |
| Memberships                                                               | Botanical Society of Pakistan<br>Pakistan Phytopathological Society.<br>Soil Science Society of Pakistan (UAAR-47)                                                                                                                                                                                                                                                                                                                                            |
| Graduate Students, Postdocs,<br>Undergraduate Students,<br>Honor Students | M.Phil : 14<br>Ph.D (under supervision) : 03                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Service Activity                                                          | List University and public service activities.                                                                                                                                                                                                                                                                                                                                                                                                                |
| Brief Statement of Research<br>Interest                                   | Recent working on mcoflora, mycotoxins<br>and mcotoxin management Strategies.                                                                                                                                                                                                                                                                                                                                                                                 |
| Publications                                                              | Paper (Impact factor) : 13<br>Paper (non-impact factor): 13                                                                                                                                                                                                                                                                                                                                                                                                   |

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| Research Grants and Contracts              | <p>1).13-02-2012<br/>Virulence analysis of <i>Xanthomonas campestris</i> pv sesame and <i>Pseudomonas syringae</i> pv sesame the casual organism of sesame (<i>Sesamum indicum</i> L.) bacterial blight.<br/>HEC Rs. 6,413,760/- (in progress)</p> <p>2). Screening of mycoflora and mycotoxins from some pulses of arid region.<br/>PMAS-AAUR Rs. 108000/-<br/>(Completed 2012)</p> <p>3). Molecular characterization of <i>Sclerotium rolfsii</i> Sacc. isolated from chickpea (<i>Cicer arietium</i> L.). Funded<br/>PMAS-AAUR Rs. 138,000/-<br/>(completed in 2009).</p> <p>4). Characterization to determine the adaptive role of dehydrins under drought stress in wheat (<i>Triticum aestivum</i> L.).<br/>ALP project PARC. Rs. 2.943 Million (completed in 2009).</p> |
| Other Research or Creative Accomplishments | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Selected Professional Presentations        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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| Name:                                                                     | Dr. Noshin Ilyas                                                                                                                                            |
| Personal:                                                                 | Department of Botany,<br>PNMAS-Arid Agriculture University Rawalpindi<br>0572032247<br><a href="mailto:noshinilyas@uaar.edu.pk">noshinilyas@uaar.edu.pk</a> |
| Experience                                                                | 22-02-2010 Lecturer Botany, PMAS-AAUR<br>01-01-2010 Assist Prof Botany, PMAS-AAUR                                                                           |
| Honors and Awards                                                         | <ol style="list-style-type: none"> <li>1. Gold medallist (M.Sc Botany)</li> <li>2. HEC indigenous scholarship</li> </ol>                                    |
| Memberships                                                               | Pakistan Botanical Society                                                                                                                                  |
| Graduate Students, Postdocs,<br>Undergraduate Students,<br>Honor Students | M.Phil : 09                                                                                                                                                 |

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| Service Activity                           | <ol style="list-style-type: none"> <li>1. Member SAR team</li> <li>2. Member of QEC team of department.</li> <li>3. Faculty in charge for CMS</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Brief Statement of Research Interest       | <ol style="list-style-type: none"> <li>1. Plant Physiology</li> <li>2. Plant Microbiology</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Publications                               | Paper (Impact factor) : 09<br>Book Chapter : 02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Research Grants and Contracts              | Date Title Agency / Organization Total Amount<br>Principal Investigator of HEC funded project “Exploration of Genetic Variations for Drought Tolerance in Wheat ( <i>Triticum aestivum</i> L) by Using Some Physiological and Biochemical Attributes”                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Other Research or Creative Accomplishments | 8 Accession numbers submitted at NCBI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Selected Professional Presentations        | <p>Oral presentation at 11<sup>th</sup> National Meeting of Plant Scientist at GC Lahore on 23 to 25<sup>th</sup> Feb</p> <p>Oral presentation at 1<sup>st</sup> International Conference on Biotechnology and microbiology at Bara Gali.</p> <p>Bano A. and Ilyas N. 2009. Production of bioactive metabolites by <i>Rhizobium</i> and <i>Azospirillum</i> strains isolated from maize grown in various moisture regimes in field. International conference on Positive Plant Microbe Interaction in Relation to Plant Performance and Ecosystem Functions. United Kingdom.</p> <p>Oral presentation at 9th Biennial Conference Advances in Biochemistry and Molecular Biology held on 17-20 December, 2008.</p> <p>Poster presentation in International Conference of Plant Scientists[10<sup>th</sup> National Meeting of Plant Scientists] held on April 21 to 24, 2008.</p> <p>Poster Presentaion in the International Symposium on “Microbial Technologies for Sustainable Agriculture” Exploring the hidden potential of microbes held at NIBGE, Faisalabad-Pakistan from 12-16 March, 2007.</p> <p><u>G) Training Courses and Workshops Attended</u></p> <p>Participated in workshop “Training worshop on abiotic stress tolerance in plants ‘ by NIAB, 5 to 9 Sep, 2011.</p> <p>Participated in International Workshop on Climate Change</p> |

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|  | <p>and Sustainability of Agro-Environment: Challenges and Interventions held at PMAS AAUR on June 3-4, 2010.</p> <p>Participated as an organizer in 2nd International Seminar on Medicinal Plants (ISMP) held in Lahore College for Women University on Jan 14-16, 2010.</p> <p>Participated in 6<sup>th</sup> Annual National Training Course on Modern Techniques in Biotechnology held at National Institute For Biotechnology And Genetic Engineering(NIBGE), Faisalabad, 5-9 May, 2008.</p> <p>Participated in International Thematic Workshop on Biofertilizer Technology held at COMSTECH, Islamabad January 22<sup>nd</sup> -28<sup>th</sup>, 2008.</p> <p>Participated in the training course on 'Nuclear &amp; other Techniques in Food &amp; Agricultural Research' at Nuclear Institute for Food &amp; Agriculture(NIFA), Peshawar, from 12<sup>th</sup> November to 23<sup>rd</sup> November, 2007.</p> <p>Participated in International Symposium on Strategies for Crop Improvement Against Abiotic Stress, An Event of Centenary, Celebration, University of Agriculture, Faisalabad, 18-20 september, 2006.</p> |
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| Name:                                                                     | Dr. Naveed Iqbal Raja                                                                                                                                            |
| Personal:                                                                 | Department of Botany,<br>PMAS-Arid Agriculture University Rawalpindi<br>+92-(0)313-5257004<br><a href="mailto:drnaveedraja@gmail.com">drnaveedraja@gmail.com</a> |
| Experience                                                                | 17-09-2010- to date Assist Prof Botany, PMAS-AAUR                                                                                                                |
| Honors and Awards                                                         | HEC indigenous scholarship                                                                                                                                       |
| Memberships                                                               | Pakistan Botanical Society                                                                                                                                       |
| Graduate Students, Postdocs,<br>Undergraduate Students,<br>Honor Students | M.Phil : 04                                                                                                                                                      |
| Service Activity                                                          | Date Sheet incharge                                                                                                                                              |
| Brief Statement of Research<br>Interest                                   | Plant biotechnology                                                                                                                                              |
| Publications                                                              | Paper (Impact factor) : 06                                                                                                                                       |
| Research Grants and<br>Contracts                                          | Correlation of percentage disease resistance with level of gene expression in transgenic wheat with Xa21 gene. Donar                                             |

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|                                            | agency: HEC, Worth: 0.5 Millions |
| Other Research or Creative Accomplishments | Nil                              |
| Selected Professional Presentations        |                                  |

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| Name:                                                               | Dr. Yamin Bibi                                                                                                                                                                                                                                    |
| Personal:                                                           | Email:<br><a href="mailto:dryaminbibi@uaar.edu.pk">dryaminbibi@uaar.edu.pk</a><br><a href="mailto:yamin.phd@gmail.com">yamin.phd@gmail.com</a><br><a href="mailto:roshni_yamin@yahoo.com">roshni_yamin@yahoo.com</a><br>phone number: 03035712234 |
| Experience                                                          | Contract: 09 month<br>Regular (BPS-19): 1 year and 3 months<br>Assistant Professor<br>Department of Botany<br>PMAS Arid agriculture University Rawalpindi                                                                                         |
| Honors and Awards                                                   | Gold Medalist (M.Sc. Botany)<br>PhD Indigenous Scholarship of HEC<br>IRSIP award for UK                                                                                                                                                           |
| Memberships                                                         | Pakistan Society for Microbiology                                                                                                                                                                                                                 |
| Graduate Students, Postdocs, Undergraduate Students, Honor Students | Nil.                                                                                                                                                                                                                                              |
| Service Activity                                                    |                                                                                                                                                                                                                                                   |
| Brief Statement of Research Interest                                | 1. Phytochemistry and biological evaluation of medicinal plants<br>2. Tissue Culture                                                                                                                                                              |
| Publications                                                        | Paper (impact factor) : 11                                                                                                                                                                                                                        |
| Research Grants and Contracts                                       | Title: Biological and phytochemical investigation of some ethanobotanically important plants of Pakistan.<br>Agency / Organization: HEC<br>Total Amount 0.5 million                                                                               |

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|                                            | Year : 2012                                                                                                                                                                                                      |
| Other Research or Creative Accomplishments | NA                                                                                                                                                                                                               |
| Selected Professional Presentations        | Oral Presentation I n National Science Conference at PMAS arid Agriculture University, 10 <sup>th</sup> Jan to 12 <sup>th</sup> Jan, 2012.<br>Poster presentation in British Pharmaceutical conference UK, 2009. |

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| Name:                                                                     | Zia-ur-Rehman Mashwani                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Personal:                                                                 | Department of Botany,<br>PMAS-Arid Agriculture University Rawalpindi<br>+92-(0)333-9022077<br><a href="mailto:zia.botany@gmail.com">zia.botany@gmail.com</a><br><a href="mailto:mashwani@uaar.edu.pk">mashwani@uaar.edu.pk</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Experience                                                                | 10-02-2010- to date Lecturer PMAS-AAUR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Honors and Awards                                                         | <ol style="list-style-type: none"> <li>1. Excellent Paper award in International Conference on Environment, Biomedical and Biotech. (ICEBB 2011) by organizing committee held at August 19-20, 2011 in Shanghai, China.</li> <li>2. Received Travel Grant from HEC To Participate and Present a Research Paper in International Conference On Environment, Biomedical and Biotech. (ICEBB 2011) At Shanghai (China)</li> <li>3. Distinction (Merit) certificate from University of Peshawar, on securing 2nd position in M.Sc (Botany) from Department f Botany, with 870/1200(72.5%)</li> <li>4. Fauji Foundation Merit Scholarship</li> <li>5. Quaid-i-Azam University Merit Scholarship</li> <li>6. Throughout first class academic carrier.</li> </ol> |
| Memberships                                                               | Pakistan Botanical Society                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Graduate Students, Postdocs,<br>Undergraduate Students,<br>Honor Students | M.Phil. : 06                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Service Activity                                                          | <ul style="list-style-type: none"> <li>• Teaching and Research</li> <li>· Supervisor of the Six (06) M.Phil students</li> <li>· Member Quality Enhancement Cell Self-Assessment Team from the Department of Botany</li> <li>· Member Admission Committee for Biology and Botany Department .</li> <li>· Member supervisory Committee for different M.Phil</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                       |



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|                                            | <p>students</p> <ul style="list-style-type: none"> <li>· Introduction and designing of new courses in the Department</li> <li>· Only Elected Member Executive Council (Faculty Representative, Sciences) of 1st Academic Staff Association, PMAS Arid Agriculture University, Rawalpindi (ASA-PMASAAUR)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Brief Statement of Research Interest       | <p>Ethnopharmacology</p> <p>Plant ecology and taxonomy</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Publications                               | <p>Paper (Impact factor) : 06</p> <p>Paper (non-impact factor): 03</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Research Grants and Contracts              | <p>Ecotaxonomic studies of the Grasses from Thal Desert Area of District Khushab, Pakistan. Co-Principal Investigator<br/>Funded by: Higher Education Commission, Pakistan (0.5 million)</p> <p>Diversity and Distribution pattern of Alpine vegetation along various alpine lakes in Western Himalaya.<br/>Partner: Pakistan Wetland Programme, Ministry of Environment, Govt. of Pakistan</p> <p>Evaluation of Antioxidant activities of the <i>Berberis lycium</i> Royle.<br/>Principal Investigator, Funded by: University Research Fund, PMAS Arid Agriculture University, Rawalpindi (0.128 million)</p>                                                                                                                                          |
| Other Research or Creative Accomplishments | Nil                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Selected Professional Presentations        | <ul style="list-style-type: none"> <li>• Oral presentation in “First national conference on poverty alleviation through sustainable management of biodiversity in Pakistan” September 29-30, 2012 Bara Galli, Organized by Institute of Plant Sciences and Biodiversity, Uni. Of Swat and HEC.</li> <li>• Five abstracts published in proceeding of “12<sup>th</sup> National &amp; 3<sup>rd</sup> International Conference of Botany”, published by Pakistan Botanical Society.</li> <li>• Oral and Poster presentations in “12<sup>th</sup> National &amp; 3<sup>rd</sup> International Conference of Botany”, September, 1-3, 2012 at Quaid-i-Azam University, Islamabad</li> <li>• Oral presentation and abstract published in “National</li> </ul> |

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|  | <p>Science Conference, Roadmap to cutting edge technology”, January 10-12, 2012 at PMAS Arid Agriculture University, Rawalpindi</p> <ul style="list-style-type: none"> <li>• One day research workshop on “Citation &amp; Referencing in Research using EndNote X5” on 25<sup>th</sup> August 2011 jointly organized by Quality enhancement Cell (QEC) of PMAS-AAUR and Research Centre for Training &amp; Development, IRP.</li> <li>• Oral presentation in “2011 International Conference on Environmental, Biomedical and Biotechnology-ICEBB”, August 19-20, 2011 at Shanghai, China organized by APCBEES.</li> <li>• Abstract published National Conference on "Sustainable Agriculture in Changing Climate", July 07-09, 2011, Peshawar University campus Bara Gali (Abbottabad.) organized by Pakistan Agricultural Scientist Forum.</li> <li>• Oral presentation in National Symposium on Biodiversity of Pakistan to be held on June 7-9, 2011 at Hotel Margala, Kashmir Highway. Islamabad. Organized by Pakistan Museum of Natural History, Garden Avenue, Islamabad.</li> <li>• Oral Presentation and abstract published in 3<sup>rd</sup> international Weed science Conference (April 18-20, 2011) at Department of Weed Sciences, Khyber Pukhtoonkhwa Agriculture University Peshawar.</li> <li>• Oral Presentation and abstract published in International Conference of the Plant Scientists (ICPS-2011), at Department of Botany, GC university Lahore (February 22-24, 2011).</li> <li>• Oral Presentation and abstract published in three days</li> </ul> |
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|  | <p>International conference (December 29-31, 2010) on “Biodiversity is our Life(IC Biour-Life)” at Centre of Biodiversity and Conservation, Shah Abdul latif University (SALU), Khairpur.</p> |
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