



UNIVERSITY OF KARACHI

Self-Assessment Report
Department of Botany
University of Karachi

Submitted to

Quality Enhancement Cell
University of Karachi

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INTRODUCTION

The Department of Botany at University of Karachi was established in 1953 and offers more than ninety different courses of studies at the undergraduate and post graduate levels with the aim providing beneficial in the fields of education, agriculture, environmental NGOs, pharmaceuticals and other industries. Department of Botany has seminar library with a large collection of an educational treasure that guides future students along with computer lab which has internet facility that helps students to enhance their skills updating latest research of twenty century. In the first and second year, major subject is botany along with two subsidiary subjects in other departments of the University. In their final year of study, students specialize in one of the branches of Botany that includes; **Applied Botany, Mycology & Plant Pathology, Plant Ecology, Phycology & Marine Botany, Plant Physiology, and Plant Taxonomy.**

The Department offers the following programmes:

- B.Sc (Hons)
- M.Sc
- M.Phil
- Ph. D.

Specialization in different branches of plant sciences offered by the Department is helpful in getting jobs in agriculture based organizations, teaching in various colleges and universities playing a vital role in the teaching system of the country as well as in non-government organizations such as World Wildlife Fund (WWF) and International Union for Conservation of Nature (IUCN). Graduate from the Department are employed throughout the country though some are working abroad too. The Department develops a large and productive research and teaching group in plant sciences. Members of the teaching faculty are working in many specialized fields of plant sciences and have been completed more than fifty research projects with the support of national and international funding agencies. Department of Botany published more than two thousand research papers in reputed journals (national and international journals) which is HEC based recognized and impact factor. Currently, several research projects and research publications are in progress.

Prof.Dr. Aliya Rehman

Chairperson

Department of Botany,
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CRITERION-1

PROGRAMMISSION, OBJECTIVES AND OUTCOMES

Criterion-1: Programme Mission, Objectives and Outcomes

Institutional Mission

Department of Botany aims to enhance the quality of agricultural crops benefits to human life and improved the student knowledge by providing awareness with latest research of national and international countries.

Programme Mission Statement

Main objective of this programme is to endow the students in plant diversity which increases the efficiency and productivity of agricultural crops. It also furnished the students to face the challenges of life and world.

Standard 1-1: The Programme must have documented measurable objectives that support college and Institution mission statements.

1. To impart professional knowledge about instead used of agrochemicals in agricultural crops, application of plant or sea weeds extracts recommended and its impact on the farmer income.
2. To develop leadership skills in students which are capable enough to design a system component or process for controlling pathogens attack on crops and soil pollution through intensive knowledge in anatomy, ecology, pathology and physiology.
3. To enable the students in applying theoretical knowledge in the practical field.
4. Providing friendly environment of learning on emphasizing a mutual trust between students and teacher.
5. To equip the students with developing analytical techniques and problem solving skills which enables to conduct research easily.

Table: Programme Objectives Assessment

S. No.	Objectives	How Measured	When Measured	Improvement Identified	Improvement Made
1.	To impart professional knowledge about instead using of agrochemicals in agricultural crops, application of plant or sea weeds extracts recommended and its impact on the farmer income.	Dedication towards research	Published in impact factor journal	Yes	Yes
2.	To develop leadership skills in students which are capable enough to design a system component or process for controlling pathogens attack on crops and soil pollution through intensive knowledge in physiology, ecology, anatomy and pathology.	Students survey	Not only implement on low scale but published in impact factor journal	Yes but still application required on commercial scale	Yes
3.	To enable the students in applying theoretical knowledge in the practical field.	Students take research in their master, M.Phil. and Ph.D. course	Published in impact factor journal	Yes	Yes
4.	Providing friendly environment of learning on emphasizing a mutual trust between students and teacher.	Students discuss their problems easily	Teachers guidance make them strong enough to cover up all their problems	It encourages the student to improve their status faster	Students then focus on their work without stress

5.	To equip the students with developing analytical techniques and problem solving skills which enables to conduct research easily.	Students listed all that chemicals or instruments which they needed	During their research	They complete their experiments	Yes, there time not waste
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Standard 1-2: The programme must have documented outcomes for graduating students. It must be demonstrated that the outcomes support the programme objectives and that graduating students are capable of performing these outcomes.

PROGRAMME OUTCOMES (After completion of the M.Sc., M.Phil. and Ph.D.)

The graduates of the department get jobs in different educational institutions, agricultural field, pharmacy, research officer etc. Graduating in botany, enable students to understand its medicinal properties of plants which can easily be applied on various cultures as food and medicine, and in fabrics as well as in agricultural field.

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

a) Strengths and Weaknesses of the Programme

i) Strengths:

- Students can further study and research as Ph.D. programme available.
- Department offers internship to the BS final year students.

ii) Weaknesses

- More research output is required.
- Students are weak in English.

b) Future Development Plans

- Department will improve more research skills by bringing molecular instruments.
- To enhance quality of higher education in the department through modern innovative teaching and assessment methods.

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

Pass out M.Sc. (Final), M. Phil. and Ph.D. students

S. No	Year	M.Sc. (Final)	M.Phil.	Ph.D.
1	2014	54	1	14
2	2015	77	0	11
3	2016	84	2	08

b) Student/Faculty Ratio

c) i) Time for B.Sc. (Hons.) in Department----(03 Years)

ii) Time for M.Sc. (Final) ---- (01/02 Years)

iii) Time for M.Phil.----- (02-03 Years)

iv) Time for Ph.D.----- (03-05 Years)

d) The average student grade point (CGPA) ---- 2.5 - 3.5

e) Employer's Satisfaction: Satisfied

f)Employer's Opinion Survey conducted: (Results are included in the report)

g) Student / Faculty Satisfaction Survey Conducted: (Results are included in the report)

h) Research Activities: CVs of Regular Faculty Members are included in the report.

CRITERION-2

CURRICULUM DESIGN AND ORGANIZATION

Criterion-2**Curriculum Design and Organization****Programme of Studies offered****1st Year (Semester I)**

S. No	Course Code	Course Title
1	Bot 311	Diversity of plants and related groups

1st Year (Semester II)

S. No	Course Code	Course Title
1	Bot 312	Plant Systematics, Anatomy and Development

2nd Year (Semester III)

S. No	Course Code	Course Title
1	Bot 411	Genetics and introduction to biotechnology
2	Bot 421	Cell biology and evolution

2nd Year (Semester IV)

S. No	Course Code	Course Title
1	Bot 412	Fundamental of Plant Physiology
2	Bot 422	Fundamental of Plant Ecology

3rd Year (Semester V)

S. No	Course Code	Course Title
B.S. (Hons.)		
1	Bot 511	Biostatistics
2	Bot 521	Virology and Bacteriology
3	Bot 531	Phycology
4	Bot 541	Mycology and Plant Pathology
5	Bot 551	Plant Diversity
S. No	Course Code	Course Title
M.Sc. (Previous)		
1	Bot 512	Plant systematic
2	Bot 522	Anatomy of Vascular Plants
3	Bot 532	Genetics
4	Bot 542	Plant Physiology
5	Bot 552	Plant Ecology

3rd Year (Semester VI)

S. No	Course Code	Course Title
B.Sc. (Hons.)		
1	Bot 510	Cytology, Evolution & Biodiversity
2	Bot 512	Plant Systematics
3	Bot 522	Anatomy of Vascular Plants
4	Bot 542	Plant Physiology
5	Bot 552	Plant Ecology
M.Sc. (Previous)		
1	Bot 509	Plant Genetics
2	Bot 521	Virology and Bacteriology
3	Bot 531	Phycology
4	Bot 541	Mycology and Plant Pathology
5	Bot 551	Plant Diversity

4th Year (Semester VII)

S. No	Course Code	Course Title
M.Sc. (Final)		
1	Bot 611-A	Plant Cell and Molecular Biology
2	Bot 621	Plant Biochemistry
Phycology		
3	Bot 641	Marine Algae of Karachi Coast-I
4	Bot 644	Marine phytoplankton
5	Bot 646	General Concepts of Marine Botany
Plant pathology		
6	Bot 651	Fungal Diseases
7	Bot 653	Seed Pathology
8	Bot 655	Plant Diseases and Diagnosis
9	Bot 656	Plant Disease Management
Applied Botany		
10	Bot 661	Plant Morphogenesis
11	Bot 663	Biological Nitrogen Fixation-I
12	Bot 665	Embryology of Vascular Plants

Plant Taxonomy		
13	Bot 672	Biodiversity Importance and Conservation
14	Bot 673	Palynology
15	Bot 675	Plant Taxonomy
Plant Physiology		
16	Bot 681	Stress Physiology
17	Bot 684	Plant Metabolism
18	Bot 685	Seed Biology
19	Bot 682	Mineral Nutrition
Plant Ecology		
20	Bot 691	Pollution Ecology
21	Bot 693	Ecosystem
22	Bot 695	Plant Community Ecology

4th Year (Semester VIII)

S. No	Course Code	Course Title
M.Sc. (Final)		
1	Bot 631	Research Methodology
Phycology		
2	Bot 642	Marine Algae of Karachi Coast-II
3	Bot 643	Economic Importance of Algae
4	Bot 645	Marine Phytoplankton-II
5	Bot 610	Physiology and Biochemistry of Algae
Mycology and Plant Pathology		
6	Bot 652	Advanced Plant Pathology
7	Bot 654	Plant Nematology
8	Bot 617	Fungal Physiology
9	Bot 658	Post Harvest diseases of fruits and vegetables
Applied Botany		
10	Bot 662	Plant Tissue Culture
11	Bot 664	Biological Nitrogen Fixation-II
12	Bot 666	Plant Cell Wall
Plant Taxonomy		
13	Bot 671	New Concepts in Flowering Plants Taxonomy
14	Bot 674	Pollination Biology
15	Bot 676	An Introduction to Economic Botany
16	Bot 632	Evolution
Plant Physiology		
17	Bot 683	Plant Responses to Environmental pollution

18	Bot 686	Advanced Plant Biochemistry
19	Bot 625	Developmental Physiology
20	Bot 628	Crop Physiology
Plant Ecology		
21	Bot 692	Edaphology
22	Bot 694	Statistical Ecology
23	Bot 696	Applied Ecology
24	Bot 636	Autecology

1st Year (M.Phil.)

S. No	Course Code	Course Title
1	ASR-701	Research Methodology
2	Bot 701	Plant Cell Wall
3	Bot 711	Fungal Biotechnology
4	Bot 726	Coastal Zone Management
5	Bot 732	Shoreline Ecology
6	Bot 744	Seed Physiology
7	Bot 747	Phytochemistry
8	Bot 758	Ethnobotany
9	Bot 725	Fresh Water Algae
10	Bot 742	Radiation Biology
11	Bot 717	Plant Virology
12	Bot 752	Chemotaxonomy

2nd Year (M.Phil.)

S. No	Course Code	Course Title
1	ASR-702	Research Methodology
2	Bot 704	Gymnosperms of Pakistan
3	Bot 714	Fungal Biotechnology
4	Bot 716	Plant Bacteriology
5	Bot 723	Plant Sociology
6	Bot 742	Radiation Biology
7	Bot 743	Crop Physiology
8	Bot 757	Economic Botany
9	Bot 755	Chemosystematics

1st Year (Ph.D.)

S. No	Course Code	Course Title
1	Bot 801	Research Seminar
2	Bot 802	Seminar on Current Advancement in Botany
3	Bot 811	Plant Quarantine and Improvement Diseases
4	Bot 812	Dendrochronology
5	Bot 814	Pharmaceutical Botany
6	Bot 817	Soil and Plant Analysis

2nd Year (Ph.D.)

S. No	Course Code	Course Title
1	Bot 801	Research Seminar
2	Bot 802	Seminar on Current Advances in Botany
3	Bot 810	Chemical Ecology of Algae
4	Bot 813	Medicinal Botany
5	Bot 818	Seed Science and Technology of Field Crops

Standard 2-1: The Curriculum must be consistent and support the programme's documented objectives

The following table manifests the programme content of course numbers indicate fulfillment of programme objectives.

Courses	Programme's Objectives (M.Sc.)				M.Phil.	Ph.D.
	1	2	3	4	5	6
Major Courses	Bot-311, 312	Bot-411,412, 421,422	Bot-509,510, 511	Bot-611-A,621,631	ASR-701,702	Bot-801,802
Elective Courses	---	---	Bot-521,531, 541, 551,512, 522, 532,542, 552	Bot-641,642,643, 644,645,646,610, 651,652,653,654, 655,656617,658,, 661,662,663,664, 665,666,671, 672,673,674, 632,675,681,682, 683,684,685,686, 625,628,691,692, 693,694,695,696, 636	Bot-701,704,711, 714,716,717, 723,725,726, 732,742,743, 744,747,755, 757,752	Bot-810.811, 812,813, 814,817, 818
Practical (Field and Lab)	--- Yes	Yes	Yes	Yes	Yes	Yes
Thesis/ Dissertation	---	----	----	Yes	Yes	Yes

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

Standard 2-3: The curriculum must satisfy the core requirements for the programme, as specified by the respective accreditation body.

&

Standard 2-4: The curriculum must satisfy the major requirements for the programme, as specified by the respective accreditation body/council.

The Department follows the program approved by the bodies including academic council, competent authority and statutory body.

2-5: The curriculum must satisfy the general education, arts and other discipline requirements for the Programme as specified by the accreditation body.

Programme of general education, arts and other discipline requirements does not apply in M.Sc.

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

Due to information technology, many students avails the benefit of the research connecting to the international countries.

Standard 2-7: Oral and written communication skills of the student must be developed and applied in the programme.

A compulsory course on communication skills has been introduced at M.Sc./M.Phil. and Ph.D. levels which is Bot 631 (Research methodology), ASR-701 (Research methodology), Bot 801 (Research seminar) and Bot 802 (Seminar on Current Advancement in Botany).

CRITERION-3

LABORATORY AND COMPUTING FACILITIES

CITERION-3: Laboratory and Computing Facilities

Departmental Library Facilities

For the improvement of student intellectual mind, library play significant role in the development of academic excellence. The seminar library provides the students with more than two thousand books including journals and magazines.

Computer and Internet Facilities

The department has a computer laboratory with the internet facility for the students. But these computers are not sufficient enough to furnish the needs of the students. Further, the Department also needed server and UPS to overcome the problem of voltage fluctuation and interruption of power supply. Computers that are available in department are Pentium-4 which is outdated, therefore Intel Core i7 are required.

Standard 3-1: Laboratory manuals/ documentation instruction for experiments must be available and readily accessible to faculty and students

Not Applicable

Standard 3-2: There must be adequate support personnel for instruction and maintaining the laboratories

Not Applicable

Standard 3-3: The University computing infrastructure and facilities must be adequate to support programme's objectives

- i) Computing Facilities:** Available but not sufficient for many students
- ii) Multimedia:** Available
- iii) Website:** The department has a link with the Karachi University website (www.uok.edu.pk)
- iv) Internet:** Available

CRITERION-4

STUDENT SUPPORT AND ADVISING

CRITERION-4**Student Support and Advising**

The Department of Botany has student adviser teacher available which interact the students on all critical stages during their programme and advising students about program requirements and career development.

Standard 4-1: Courses must have been offered with sufficient frequency and number for students to complete the programme in a timely manner.

The time-table is strictly followed to complete the program well in time.

First semester

Programme	Classes/ Week			Practical Classes/ Week		
	1 year	2 year	3 year	1 year	2 year	3 year
B.Sc (Hons.)	7	15	10	10	6	10
M.Sc.	Previous		Final	Previous		Final
	10		22	09		22
M.Phil.	8			8		
Ph.D.	3			3		

Second semester

Programme	Classes/ Week			Practical Classes/ Week		
	1 year	2 year	3 year	1 year	2 year	3 year
B.Sc (Hons.)	7	13	10	8	11	10
M.Sc.	Previous		Final	Previous		Final
	10		24	9		24
M.Phil.	9			9		
Ph.D.	3			3		

Standard 4-2: Course in the major must be structured to ensure effective interaction between students, faculty and teaching assistants.

As per specialization of the teacher (course allocation is decided in the faculty meeting). There is also available for extra tutorial classes for better interaction between students and teachers and particularly in unavoidable circumstances occur in the city.

Standard 4-3: Guidance on how to complete the programme must be available to all students and access to academic advising must be available to make course decisions and career choices

The Chairperson of the Department nominates a faculty member as '**Students Advisor**' who is available to all students for course decision and career choices. Students who have recently passed out can gain information regarding about career opportunities from teacher (student advisor).

- The Chairperson places on the Notice Board the opportunities regarding opportunities of job and related information of plants regularly.

CRITERION-5

PROCESS CONTROL

Standard 5-1: ADMISSION PROCESS

Eligibility

As per approved by the Academic Council.

Evaluation and Grading system

As per University regulations.

Rules Concerning the Promotion and Repetition

As per University regulations.

Standard 5-2: The process by which students are registered in the programme and monitoring of students progress to ensure timely completion of the programme must be documented. This process must be periodically evaluated to ensure that it is meeting its objectives.

The Central Admission Committee admits the students as eligibility criteria.

Standard 5-3: The process of recruiting and retaining highly qualified faculty members must be in place and clearly documented. Also processes and procedures for faculty evaluation, promotion must be consistent with institutional mission statement. These processes must be periodically evaluated to ensure that it is meeting with its objectives.

Higher Education Commission (HEC) rules with approval by the University Syndicate are applied for the appointment.

Appointments / Promotions Procedure:

Appointments are based on HEC rules given below.

a. Lecturer (BPS- 18):

Minimum Qualification

Master's Degree (first Class) in the relevant field with first division in the Academic Career from HEC recognized University/Institution.

b. Assistant Professor (BPS- 19):

Minimum Qualification

Ph.D. in the relevant field from HEC recognized University/Institution with 5 years teaching/research experience in a recognized university or a post-graduate institution.

c. Associate Professor (BPS- 20)

Minimum Qualification

Ph.D. in relevant field from HEC recognized University / Institution.

Experience

10-years teaching / research in HEC recognized University or a post-graduate Institution or professional experience in the relevant field in a National or International Organization **or** 5-years post Ph.D. teaching/research experience in HEC recognized University or a post-graduate Institution or professional experience in the relevant field in a National or International Organization.

Minimum Number of Publications

Five to ten research publications in internationally abstract journals having impact factor and nationally journals are recognized by the HEC.

d. Professor (BPS-21)

Minimum Qualification

Ph.D. from HEC recognized Institution in relevant field.

Experience

15-years teaching / research experience in HEC recognized University or post-graduate Institution or professional experience in the relevant field in a National or International Organization **or** 10-years post-Ph.D teaching/research experience in a recognized University or a post postgraduate Institution or professional experience in the relevant field in a National or International Organization.

Minimum Number of Publications

Ten to Fifteen research publications in internationally abstracted journals having impact factor and nationally journals are recognized by the HEC.

Bases for Appointments / Promotions

Four main areas where a candidate is evaluated for Tenure Track Scheme;

- Teaching
- Research
- Service at least 12 years
- Personal Characteristics

General Criteria for Appointment on TTS

All faculty members in any discipline are eligible to apply for appointment provided they fulfill the following minimum eligibility conditions;

a. Assistant Professor

Minimum Qualification

PhD from a recognized University with excellent communication/presentation skills.

b. Associate Professor

Minimum Qualification

PhD with 6 years' post - PhD teaching / research experience in a recognized University.

Minimum Number of Publications

Ten research articles published in journals having impact factor.

c. Professor

Minimum Qualification

PhD with eleven years' post-PhD teaching / research experience from a recognized University.

Minimum Number of Publications

Fifteen to twenty research articles published in journals having impact factor.

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

To ensure teaching and delivery of course material and promotion of active learning the following are observed strictly:

- a. Time table is strictly followed by all faculty members
- b. Course outlines and details of recommended books for each course are shared with students at the start of each semester.
- c. Chairperson of the department frequently gets feedback from the students during the semester.

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

- a. The department ensures that the graduates are punctual and fulfill the attendance requirement which is 75%.
- b. Promotion to the next year is granted only if 80% or more courses are cleared.
- c. Presentations, assignments, seminars, projects, thesis, subject tests and field trips are an integral part of evaluation of student performance based on which he/she is assessed.

CRITERION-6

FACULTY

Criterion-6

Faculty

Most of the faculty members of the Department of Botany are a good combination of experienced and young teachers which provides a pleasant atmosphere required for carrying out quality teaching and research in the field of plant science. Each faculty member covers the curriculum adequately at time and tries to keep side by side with latest knowledge in their respective fields of research.

Standard 6-1: There must be enough full time faculty who are committed to the programme to provide adequate coverage of the programme areas / courses with continuity and stability. The interest of all faculty members must be sufficient to teach all courses, plan, modify and update courses. The majority must hold a Ph.D. degree in the discipline.

Department of Botany has 19 full time faculty members including Professor, Associate Professor, Assistant Professor and Lecturers. Majority of faculty staff holds a Ph.D. degree except two assistant professor which hold M.Phil degree. All the faculty members are highly committed to the programme and regularly participate in various exercises aimed at development, modification and up gradation of courses.

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

Faculty members of department of Botany are active not only in teaching but also in research skills:

- a) Faculty members not only participate but attend in national and international seminars, conferences, workshops, delivering invited lectures, regular literature survey and reading, writing publications in national and international reputed journals.
- b) Teachers are always available in the office hours and are engaged in various skill development activities such as teaching, advising students, publication and going to field in sea or farm for collection of algae and fungal samples respectively, but for the herbarium specimen, herbarium department helps the students to visit the botanical garden so they can learn and understand taxonomy of plants clearly. Also students learn various medicinal properties of plants.
- c) The teachers also write and submit proposals to various funding agencies for carrying out active research and for development of their labs.
- d) All the faculty members are interested to avail the opportunities that come their way for their professional development including post doctoral studies.

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

The department of Botany facilitates faculty members' internal motivation and job satisfaction by simple strategies;

- i) Appointment of new faculty members and promotion according to HEC criteria which makes the process fair and merit based.
- ii) All faculty members are involved in the departmental affairs and appreciations are giving of their hard work and performance based evaluation.

CRITERION-7

INSTITUTIONAL FACILITIES

Criterion-7 Institutional Facilities

An institutional facility includes; library, class rooms, offices, computer lab, multimedia rooms, auditorium, physiology lab, ecology lab, pathology lab, taxonomy lab, phycology lab and applied botany lab are adequate enough to support the objectives of the programme which facilities the students.

Standard 7-1: The Institution must have the infrastructure to support new trends in learning such as E-learning.

a) Departmental library and Internet Facility

The department of Botany has well managed library and well equipped computer labs along with internet facility and a connection with main communication network of the University is also available to support its faculty staff and students in their academic and administrative activities. But due to large number of students, it's difficult to entertain this facility to each student, therefore more computer labs are required and recommended.

b) Main Library

Faculty members and students of the department are allowed to use the main library even after normal working hours which provides course books and digital library having access to journals and E-books. The main Dr. Mahmood Hussain library of University of Karachi has a good stock of books on the subject of plant science.

Standard 7-2: The library must possess on up-to-date technical collection relevant to the programme and must be adequately staffed with professional personnel.

The Seminar Library has a good number of books and collection of old and new journals covering a wide range of disciplines in soil environment, plant pathology, plant physiology changes in plant adaptations possessing new hybrid variety etc. Current editions of latest books are needed. Librarian in Botany department possesses professional skills in maintaining the check and balance of books.

Standard 7-3: Class rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibility.

c) Offices

Faculty members have separate rooms.

d) Class Rooms

Department of Botany classroom has white boards, overhead projectors and multimedia. An office room with necessary facilities is also available but it also required one conference room for organizing seminars and workshops.

CRITERION-8

INSTITUTIONAL SUPPORT

Criterion-8 Institutional Support

The institution's support and the financial resources for the programme are sufficient enough to carry out its objectives.

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

Department of Botany has one computer lab and good seminar library for research. However, financial resources for regular purchase of books are very limited which needs to be enhanced. The major financial source of the Department is the University of Karachi which allocates budget for the Department, whereas the University relies on HEC funding.

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

The following table shows the number of students enrolled in each program of the department.

Degree Programme	Years			
	2013	2014	2015	2016
B.Sc. (Hons.)	109	104	132	128
M.Sc.	25	53	37	33
M.Phil	07	05	13	16
Ph.D	---	01	--	--

Standard 8-3: Financial resources must be provided to acquire and maintain library holding, laboratories and computing facilities.

The University of Karachi provides financial resource to maintain library and computing facilities. The department, however, is not having the separate fund of its own to maintain and upgrade its library and computing facilities. HEC is also requested to provide additional financial resources for further strengthening of the Department of Botany.

Faculty CVs

Survey's Results