

GOMAL CENTRE OF BIOCHEMISRY AND BIOTECHNOLOGY (GCBB)

Mission Statement:

Gomal Centre of Biochemistry and Biotechnology is aimed to produce manpower that can contribute to the development of Pakistan particularly in science and technology and to develop sound and strong knowledge of biotechnological and genetic engineering techniques, promote scientific skills, ethical values, economical and ecofriendly processes and high professional knowledge for the welfare and prosperity of mankind.

(Program Mission, Objectives and Outcomes)

Standard 1-1: The program must have documented measurable objectives that support faculty / college and institution mission statements

Biotechnology integrates life sciences into a rigorous curriculum that inspires students toward open-minded participation in the global community and prepares students for higher education and leadership in an increasingly demanding workplace, through scholarly research and to produce excellence and creativity in innovating and developing biotechnological applications to accomplish scientific and economic benefits.

Program Objectives:

The Centre has the objectives to provide the knowledge in modern biotechnological Sciences on both theoretical and practical lines so that they can meet the future challenges and to be able:

1. To strengthen teaching and research in the field of biotechnology.
2. To produce well trained scientific manpower.
3. To enable the students to undertake research to solve our own problems.
4. To provide the students with strong foundation in theoretical as well as practical knowledge in modern biotechnological fields.
5. To enable students to improve their oral and written communication skills to provide hands on experience of using statistical techniques for research and data analysis.
6. To develop teamwork and problem solving skills for success in the evolving workplace.
7. To be able to use the techniques, skills, and modern biotechnological tools.
8. To enable to take professional, ethical, societal, environmental, and economic responsibility, for example, by active membership in professional organizations.
9. To develop knowledge and comprehension of core concepts, this includes but is not limited to knowledge of cellular biology, biochemistry, genetics, molecular biology.

Standards1-2: The program must have documented outcome for graduating students .It must be demonstrated that the outcome support the program objective and that graduating students are capable of performing these outcomes.

Program Outcomes

Program objectives will result in following outcomes and graduated students are expected:

1. To become highly trained & skilled biotechnologist.
2. Use biotechnologies to achieve food safety and health security.
3. To understand, analyze and evaluate original research literature and to communicate this understanding using appropriate technology.
4. Strengthen the relationship between the biotechnology programs and Society individually and/or collaboratively.
5. To have proficiency in laboratory techniques essential to biotechnology.
6. To have knowledge and comprehension of core concepts, ethical principles regarding the use of biotechnology.
7. To be able to protect the biodiversity resources through the development of appropriate biotechnology applications.
8. Transfer and develop settings that encourage creativity and investment in the field of biotechnology.
9. To have the ability to clearly define questions or problems and develop comprehensive solutions to that problems.
10. Enable to have effective communication and interpersonal skills essential for personal growth.

Objectives versus Outcomes

Program Objectives	Program Outcomes									
	1	2	3	4	5	6	7	8	9	10
1	√	√								
2		√	√	√	√					√
3			√							√
4			√		√		√			
5					√					√
6						√				√
7				√	√	√	√	√	√	
8						√		√	√	
9				√					√	

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

- **List future development plan for the program**
 - Course division (lecture wise)
 - Currently started M. Phil program
 - Stress on Research Work
 - Latest Labs Equipments
 - To start Ph.D programme

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

Present student's enrolment in BS (4 year) Biotechnology in Gomal Centre of Biochemistry and Biotechnology (GCBB)

Sessions	Years	No of students	No of graduate students
2006-10	2010	54	47
2007-11	2011	48	43
2008-12	2012	54	45

Criterion 2: Curriculum Design & Organization

- A. Title of Degree Program: BS(4-year) Biotechnology**
- B. Definition of credit hour:** One credit hour equals a class of one hour and 2 hours lab work per week.
- C. Degree Plan:** The table (a) shows the prerequisites, core, and elective courses of the program.
- D. Curriculum breakdown:** The table (a) shows curriculum breakdown in terms of mathematics and basic sciences, major requirements, social sciences and other requirements.

Table (a)

SEMESTER	Course No.	Category (Credit Hours)				
		Math and Basic science		Core courses	Humanities and Social Sciences	Technical Electives
1 ST		Math	Basic science			
	BIOTECH-01		General Biology(for pre engineering) 3(2-1)			
	BIOTECH-02	Mathematics (for pre medical) 3(3-0)				
	BIOTECH-03			Physical chemistry 3(2-1)		
	BIOTECH-04			Introductory biotechnology I 3(3-0)		
	BIOTECH-05			Basics in Computer 2(2-0)		
	BIOTECH-06				English Composition I 2(2-0)	
	BIOTECH-07				Pakistan Studies 2(2-0)	
Total Credit Hours = 18						

SEMESTER	Course No.	Category (Credit Hours)				
		Math and Basic science		Core courses	Humanities and Social Sciences	Technical Electives
2nd		Math	Basic science			
	BIOTECH-08			Plant Sciences 3(2-1)		
	BIOTECH-09			Animal Sciences 3(2-1)		
	BIOTECH-10			Organic Chemistry I 3(2-1)		
	BIOTECH-11				English Composition II 2(2-0)	
	BIOTECH-12			Islamic Studies 2(2-0)		
	BIOTECH-13			Introductory biotechnology II 2(2-0)		
Total Credit Hours = 15						

SEMESTER	Course No.	Category (Credit Hours)				
		Math and Basic science		Core courses	Humanities and Social Sciences	Technical Electives
3rd		Math	Basic science			
	BIOTECH-14			Biological Chemistry I 3(2-1)		
	BIOTECH-15			Cell Biology 3(2-1)		
	BIOTECH-16			Microbiology 3(2-1)		
	BIOTECH-17			Organic Chemistry II 3(2-1)		
	BIOTECH-18	Biomathematics 3(3-0)				
Total Credit Hours = 15						

SEMESTER	Course No.	Category (Credit Hours)				
		Math and Basic science				
4th		Math	Basic science	Core courses	Humanities and Social Sciences	Technical Electives
	BIOTECH-19			Biological Chemistry II 3(2-1)		
	BIOTECH-20			Principles of Genetics 3(2-1)		
	BIOTECH-21			Plant Physiology 3(2-1)		
	BIOTECH-22			Enzymology 3(2-1)		
	BIOTECH-23	Biostatistics 3(3-0)				
Total Credit Hours = 15						

SEMESTER	Course No.	Category (Credit Hours)				
		Math and Basic science				
5th		Math	Basic science	Core courses	Humanities and Social Sciences	Technical Electives
	BIOTECH-24			Metabolism I 3(2-1)		
	BIOTECH-25			Molecular Biology 3(2-1)		
	BIOTECH-26			Microbial Genetics 3(2-1)		
	BIOTECH-27			Elements of Biotechnology 3(2-1)		
	BIOTECH-28			Techniques of Biotechnology 3(2-1)		
Total Credit Hours = 15						

SEMESTER	Course No.	Category (Credit Hours)				
		Math and Basic science		Core courses	Humanities and Social Sciences	Technical Electives
6th		Math	Basic science			
	BIOTECH-29			Metabolism II 3(2-1)		
	BIOTECH-30			Recombinant DNA Technology 3(2-1)		
	BIOTECH-31			Plant Biotechnology 3(2-1)		
	BIOTECH-32			Animal Biotechnology 3(2-1)		
	BIOTECH-33			Principles of Biochemical engineering 3(2-1)		
Total Credit Hours = 15						

SEMESTER	Course No.	Category (Credit Hours)				
		Math and Basic science		Core courses	Humanities and Social Sciences	Technical Electives
7th		Math	Basic science			
	BIOTECH-34			Bioinformatics 3(3-0)		
	BIOTECH-35			Immunology 3(2-1)		
	BIOTECH-36			Industrial Biotechnology 3(2-1)		
	BIOTECH-37			Environmental Biotechnology 3(2-1)		
	BIOTECH-38			Skills and Research methodology for Biotechnologies 3(3-0)		
Total Credit Hours = 15						

SEMESTER	Course No.	Category (Credit Hours)				
		Math and Basic science				
8th		Math	Basic science	Core courses	Humanities and Social Sciences	Technical Electives
	BIOTECH-39			Medical Biotechnology 2(2-0)		
	BIOTECH-40			Food Biotechnology 3(2-1)		
	BIOTECH-41				Economic and Business application 2(2-0)	
	BIOTECH-42					Thesis 8(0-8) OR Four Optional Courses
	BIOTECH-43					Protein Structure Function and Engineering 2(2-0)
	BIOTECH-49					Agricultural Biotechnology 2(2-0)
	BIOTECH-50					Waste Management Biotechnology 2(2-0)
	BIOTECH-51					Pharmaceutical Biotechnology 2(2-0)
Total Credit Hours = 15						

- **Total no. of credit hours: 123**
- **Duration: 4years**
- **Semesters: 8**
- **Course load per semester: 15-18 Cr hr**
- **No. of courses per semester: 5-7**

Following matrix links courses in the program to program outcomes

Table 1: Courses versus program outcomes

Courses	Program Outcomes								
	1	2	3	4	5	6	7	8	9
1st Semester									
General Biology	√						√		
Mathematics (for pre medical)			√					√	
Physical chemistry			√		√				√
Introductory biotechnology I	√	√		√					
Basics in Computer				√	√				
English Composition I						√			√
Pakistan Studies				√				√	
2nd Semester									
Plant Sciences	√			√			√		
Animal Sciences				√			√		
Organic Chemistry I		√	√					√	
English Composition II									√
Islamic Studies						√			
Introductory biotechnology II	√	√		√					
3rd Semester									
Biological Chemistry I	√	√			√				
Cell biology				√					
Microbiology		√			√				
Organic chemistry II			√						
Biomathematics			√					√	
4th Semester									
Biological chemistry II	√	√			√				

Principles of Genetics	√					√	√		
Plant Physiology						√			
Enzymology	√	√			√				
Biostatistics			√						√
5th Semester									
Metabolism I			√		√				
Molecular Biology	√				√	√			
Microbial Genetics		√				√			
Elements of Biotechnology	√					√			
Techniques of Biotechnology	√								
6th Semester									
Metabolism II					√				
Recombinant DNA Technology	√								√
Plant Biotechnology	√								
Animal Biotechnology	√						√		
Principles of Biochemical Engineering		√	√						
7th Semester									
Bioinformatics	√								
Immunology					√				
Industrial Biotechnology			√		√				
Environmental Biotechnology	√		√				√		
Skills & Research methodology for Biotechnologies	√		√				√	√	
8th Semester									
Medical Biotechnology	√	√							
Food Biotechnology		√		√					
Economics & Business Application				√					√
Thesis OR 4 Optional courses	√		√		√	√			
Protein Structure Function and Engineering	√	√							

Agricultural Biotechnology	√	√							
Waste Management Biotechnology					√		√		
Pharmaceutical Biotechnology	√	√							

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

Table 2: Course division

Automation and Control Concentration (Regular Stream)	
Elements	Courses
Theoretical	Introductory biotechnology I-II, Bioinformatics, Skills and Research methodology for Biotechnologies, Economic and Business application, Protein Structure Function and Engineering, Agricultural Biotechnology, Waste Management Biotechnology, Pharmaceutical Biotechnology, Medical Biotechnology, Mathematics ,Islamic Studies, Pakistan Studies, Biomathematics, Biostatistics, English Composition I-II,
Problem Analysis	Biomathematics, Waste Management Biotechnology, Bio-statistics and Basics in Computer, Food Biotechnology, Organic Chemistry I-II, Microbiology, Microbial Genetics, Molecular Biology, Cell Biology, Physical Chemistry, Biological Chemistry I-II, Enzymology, Metabolism I-II, Principles of Genetics, Environmental Biotechnology, Industrial Biotechnology, Immunology, General Biology, Animal Sciences, Plant Sciences, Plant Physiology, Recombinant DNA Technology, Animal Biotechnology, Plant Biotechnology, Principles of Biochemical engineering, Techniques of Biotechnology, Elements of Biotechnology
Solution Design	Economic and Business application, Skills and Research methodology for Biotechnologies, Principles of Biochemical engineering, Techniques of Biotechnology, Bioinformatics, Biomathematics, Biostatistics, Elements of Biotechnology, Basics in Computer, Micro Biology, Immunology, Bio Chemistry, Molecular Biology and Biotechnology,

Table 2: Fulfilling requirements in standard 2-2

Standard2-3: The curriculum must satisfy the core requirements for the program as specified by the respective accreditation body

The curriculum fully satisfies the core requirements for the programme.

Standard 2-4: The curriculum must satisfy the major requirements for the program as specified by the respective accreditation body

As the curriculum in the program is adopted by the Centre is approved by HEC and academic council of Gomal University so it fulfills the major requirements of the program.

Standard 2-5: The curriculum must satisfy humanities, social sciences, arts, ethical, professional and other discipline requirements for the program as specified by the respective accreditation body

Table (a) shows how the GCBB program satisfies requirements in standards 2-3, 2-4 and 2-5. It's clear from the table that all requirements are met but only in the area of Social sciences needs little attention.

GCBB	Mathematics and Basic Sciences		GCBB Topics				Humanities and Social Sciences	
			Core		Elective			
	Required	Present	Required	Present	Required	Present	Required	Present
	2	2	41	41	4	4	3	3

Table.3: Standard 2-3, 2-4, 2-5 requirements

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

Bio informatics and Basics in computer is taught in the programme which delivers the knowledge of different software and computerized lab equipments, which improves the computing skills of the students. This area fulfills the requirements.

Standard 2-7: Oral and written communication skills of the students must be developed and applied in the program

English Courses are present and taught which improves the oral and written communication skills.

Criterion 03: GCBB Labs

Lab Title	Location & area	Objectives	Adequacy for Instruction	Courses Taught	Major apparatus and Equipments	Safety regulations and first aid box
Microbiology Lab	WxL 20x36	To train the GCBB students practically in the field of microbiology, immunology	adequate	<ol style="list-style-type: none"> 1. General Biology 2. Micro Biology Bacteriology 3. Immunology 4. Animal Sciences 5. Plant physiology 	<ol style="list-style-type: none"> 1. Autoclave 2. Dessicator 3. Incubator 4. Ultra low refrigerator 5. Magnetic stirrer 6. shaker Incubator 7. Light microscope 8. Shaking Water bath 9. Centrifuge 10. Analytical Balance 	Not available
Molecular Biology Lab	WxL 10x20	To train the students in the practical field of Molecular biology and Genetics.	adequate	<ol style="list-style-type: none"> 1. Molecular biology 2. Recombinant DNA Technology, 2. Animal Biotechnology, 3. Plant Biotechnology, 4. Techniques of Biotechnology, 5. Genetics 	<ol style="list-style-type: none"> 1. Gel documentation system. 2. Gel Electrophoresis apparatus (Horizontal, Vertical). 3. Real time PCR Machine 4. Thermal cycler 5. Genetic analyzer 6. Biolistic Gene gun 	Not available
Biochemistry Lab	WxL 20x36	To train the students practically in the field of Biochemistry	adequate	<ol style="list-style-type: none"> 1. Biochemistry 2. Organic chemistry 3. Metabolism 4. Enzymology 5. Cell biology 	<ol style="list-style-type: none"> 1. Refrigerator 2. Water distillation plant 3. Capillary centrifuge 4. Shaking water bath 5. Biological safety cabinet 6. Ice machine 7. Electronic balance 8. Tissue Homogenizer 9. Vortex mixer 10. pH meter 11. Ultra low Refrigerator 	Not available
General Lab	WxL 23x28	To train the students practically in various fields of biotechnology	adequate	<ol style="list-style-type: none"> 1. Environmental Biotechnology 2. Elements of biotechnology 3. Physical chemistry 4. Food Biotechnology 	<ol style="list-style-type: none"> 1. Refrigerator 2. Microwave oven 3. UV-Vis Spectrophotometer 4. Electronic Balance 5. Muffle furnace 6. Dessicator 	Not available

Fume Hood Lab	WxL 12x10	To train the students practically in the field of microbiology, immunology	adequate	Microbiology	Laminar flow cabinet	Not available
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Standard- 3-1: (Lab manuals/documentation/instruction for experiments must be available and readily accessible to faculty and students.

Lab manuals, rules and regulations for safety protocol are available except the fire extinguisher.

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

Laboratory staff is available for students and faculty who assist the students and faculty during practical and research work.

Standard 3-3: The University computing infrastructure and facilities must be adequate to support programs objectives.

To meet the program objectives in information technology computers are not available to students.

However a demand has been submitted to the finance section of Gomal University to purchase computers for the establishment of computing lab. Improvement needs in this area.

Criterion 4: Student Support and Advising

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

The courses taught in GCBB are those approved and recommended in the HEC curriculum. However this curriculum has been discussed in the Board of Studies and Research, then in the Faculty Board of studies & Research. After that this curriculum has been approved by the Academic council and Syndicate of the Gomal University.

Standard 4-2: Courses in the major areas of study must be structured to ensure effective interaction between student, faculty and teacher assistants.

There is sufficient material and interaction between students and faculty.

Standard 4-3 Guidance on how to complete the program must be available to all students and access to academic advising must be available to make course decisions and careers choices.

Faculty is advised time to time by the Director GCBB to ensure the completion of courses on time i.e. 12 to 16 week semester.

Information regarding jobs and career are displayed time to time on notice board.

Criterion 5: Process Control

Standard 5-1: The process by which students are admitted to the Program must be based on quantitative and qualitative criteria and clearly documented. The process must be periodically evaluated to ensure that it is meeting its objectives.

A very transparent system for admission in B.S Biotechnology program is present. Test and interview is taken for admission. Admission in this program based on the following selection criteria.

Eligibility criteria:

1. At least 45% marks in F. Sc
2. Age limit is 22 years for admission (Relax able up to 5 year in genuine cases).

Academic merit: 60%

Entry test: 40%

Merit formula:

i. %age of marks obtained in SSc *1 = X

ii. %age of marks obtained in F.Sc*2 = Y

$$\text{Total} = X+Y / 3$$

iii. %age of academic merit*0.6 = P

iv. %age of Test marks*0.4 = Q

$$\text{Final Merit} = P+Q$$

2. For admission in **M.Phil Biotechnology**, following criteria is observed:

Merit formula:

i. %age of marks obtained in SSc *1 = X

ii. %age of marks obtained in F.Sc*2 = Y

iii. %age of marks obtained in BS(4 year)*7 = Z

iv.

$$\text{Total} = X+Y+Z / 10$$

v. %age of academic merit*0.6 = P

vi. %age of Test marks*0.4 = Q

Final Merit = P+Q

Standard 5-2: The process by which students are registered in the program and monitoring of students progress to ensure timely completion of the program must be documented.

At the start of semester applications are invited through leading newspapers and Gomal University website. After getting the applications students are scrutinized with reference to pre-requisite of the program. Merit list of eligible candidates is made according the formula given in standard 5-1.

To monitor the students' performance we have Test, Assignments, Mid Exam and Terminal exam evaluation system. The result is based over the combined assessment of the students.

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.

To recruit the faculty in the GCBB the vacant posts are advertised in the daily English and Urdu newspapers. As per the application received, the scrutiny committee short list the applicants for the evaluation test as per the criteria advertised. A third party is involved for conducting the test to make the process transparent and successful candidates of the test are further passed through a selection board in which a panel of experts interviews the candidate. After the selection board syndicate gives the approval of these selections, there after appointment is offered to the faculty.

There was no systematic process before to evaluate the faculty members, now after establishment of QEC each faculty member is evaluated by the students via "Teacher Evaluation Questionnaire".

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

Director GCBB frequently observe the class teaching in order to ensure that the teaching is effective, he sits in the classroom during the lectures to check the quality of the lecture delivered by the faculty.

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

Student's abilities are judged through tests, assignments, quizzes, written and oral exams and finally their abilities are assessed through achieved GPA and CGPA (grading system).

Criterion 06: Faculty

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

The following tables indicate program areas and number of faculty in each area

Program Area	Courses in the area and average number of sections per year	Number of faculty members in each area	Number of faculty with PhD
Molecular Biology/ Biochemistry	4	2	1
Analytical chemistry/ Agronomy	3	1	1
Agriculture/Environmental Biotechnology	1	2	One member PhD is near completion
Pharmaceutical Biotechnology	1	1	Nil
Animal Sciences	2	1	1
Microbiology	2	1	Nil
Organic Chemistry	2	2	Nil
Total :		10	3

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

Gomal Centre of Biochemistry and Biotechnology currently started the M.Phil research programme. Majority of the faculty members are M. Phil or Ph.D degree holders. To promote research in the area of biotechnology, research work is conducted in well-furnished laboratories.

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

There are different programs for faculty benefits and their motivation i.e.

- 1) Attractive salary packages.
- 2) Paid vacations.
- 3) Hard area allowance.
- 4) Reasonable work load and class size as per the HEC requirement for getting quality in education.

Faculty Comments:

Q.14 What are the best program/factors currently available in your department that enhance your motivation and job satisfaction?

1. Research facilities in the field of biotechnology.
2. Initiation of M.Phil and Ph.D Program providing chances to improve the qualification.
3. (i) Teacher training programs for practical work.
(ii) Availability of proper setup for Research work.
4. Library, internet availability and Multimedia facilities are available.
5. Co-operation among teachers in Teaching and Research programs is the main motivation and job satisfaction factor.

6. Job nature is permanent.
7. Research work & HEC funded projects are running in the department.
8. Good teaching and research and very handsome pay are the main factor of satisfactory.
9. The pleasant teaching environment co-operation from colleague interaction with community is the positive aspect of this department.
10. Availability of faculty development scholarships for higher education.

Q15. Suggest program/factors that could improve your motivation and job satisfaction?

1. Availability of Hi-tech instruments.
2. Availability of multimedia to each class & lab. Refresher courses for teaching staff. Sound system in each class & lab.
3. Availability of Skilled full persons for Laboratories.
4. Availability of Facilities of Equipped laboratories.
5. Training, Seminars, Workshops, should be arranged for Faculty members.
6. Faculty members should be strongly support to launch research projects.
7. Teacher's Training programs, Seminars/Symposia/Workshops, Refresher Courses, Salary should be attached with price inflation. Promotions must be based on Merit, teaching experience as well as research skills, Research Publications, Positive feedback from all concerned. Curricular as well as Co-Curricular activities must be held on regular basis.
8. Latest facilities of equipments & other laboratory requirement are provided.
9. Training in the well-known national but preferably in the foreign institutions is provided.

Criterion 07: Institutional Facilities

Standard 7-1: The institution must have the infrastructure to support new trends in learning such as e-learning

The e-learning facilities are not sufficient to fulfill the requirements to meet the new challenges. Computer Lab is not available for program. Improvement needs for this section.

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

The departmental library has the collection of latest books. The total numbers of books in the library are

Name of Item	Quantity
Books	1789

Central Library:

The central library has also the facility to facilitate the GCBB department graduate students but with small number of books.

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

1. Class rooms are well furnished.
2. **Multimedia:** Multimedia present.
 - Lectures are delivered via white board and multimedia.
 - Offices have adequate facilities that enable faculty to carry out their responsibilities.

Criterion 08: Institutional Support

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 scholar.

All the financial matters of GCBB run by University Finance Directorate and very little is left at department level. The university provides all the financial support needed to run the programs of studies in the Gomal Centre of Biotechnology and Biochemistry. Salaries of the faculty as well as supporting staff are facilitated by the university.

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

Currently M. Phil Programme has been started and to start the Ph.D. program is in future plan.

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

At the moment the departmental library has almost 1789 books, all are latest in different fields.

The department has no computer lab but internet facility is available in Centre for the students.

Usually students bring their laptops for the use of internet.

The department is well equipped with request to latest instant and the student has the facility to perform the experiments.