Dow University
of Health Sciences

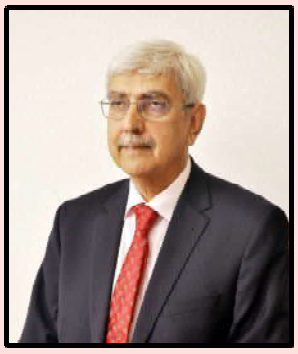
PROSPECTUS

BS BIOTECHNOLOGY

Session 2021-22

DOW COLLEGE
OF BIOTECHNOLOGY
(DCOB)

email: admissions@duhs.edu.pk
website: www.duhs.edu.pk



Prof. Mohammed Saeed Quraishy
Vice Chancellor
Dow University of Health Sciences

MESSAGE BY VICE CHANCELLOR

It gives me joy to write this message for the prospectus of the Dow University of Health Sciences, Karachi. DUHS was established in 2004, with just three constituent colleges, and today we are a University with over 30 constituent and affiliated institutions and the most comprehensive health system in Pakistan.

This year, I am also proud to announce that Dow University of Health Sciences, Karachi has continued to enhance the vision of this University by striving to be the pre-eminent academic institution committed to changing and saving lives, as we have continued to place in the QS World University Rankings 2021, with an overall Rank of 401-450. This is a credit to the faculty of DUHS, and their commitment to enhance the learning experience offered to our students that we have achieved progress and prosperity globally, in particularly within Asia.

This is also the year we are celebrating our 75th Anniversary of the founding of Dow Medical College, a symbol of scholarship and service to the community that has evolved into DUHS, with expanded program offerings, such as in the fields of the allied health and biomedical sciences, such as pharmacy, physical therapy, medical technology, biotechnology, nursing, public health, business administration, and course in radiology technology, nutritional sciences, midwifery, and optometry.

Furthermore, our symbol of academic excellence is fortified by our adoption of the latest technology, and affordable state of the art healthcare offered, which informs the delivery of quality patient care at Dow University Hospital and our many affiliated healthcare centers and research and diagnostic laboratories. We stand committed to providing and creating a state of the art infrastructure that fosters innovation, research and is evolving to meet the needs of the future, along with providing superior healthcare services today.

Today, we are striving to play a pivotal role in the early diagnosis and treatment of Covid-19 and in the future, I also stand committed to make Dow University of Health Sciences an empowered institution offering the best of the medical knowledge and quality health services.

I am confident that the doctors and health professionals of this institution will go on to contribute to this nation and serve globally with sincerity and ethics, in order to restore faith and humanity to the delivery of healthcare.

Good Luck to the incoming freshmen!

Dr. Mushtaq Hussain
Principal
Ph.D. in Genetics,
Genomics and Systems
Medicines
University of Glasgow, UK

Message By Principal

It gives me immense pleasure to welcome the new batch of Dow College of Biotechnology. The world of science is fast moving and progressing with teeming pace. Resultantly, many new branches of science have been developed to entertain the need of time and to address emerging problems of modern-day world. Biotechnology is by all means one such branch of science, amalgamating classical and modern disciplines of both natural and physical sciences with particular It gives me immense pleasure to welcome the new batch of Dow College of Biotechnology. The world of science is fast moving and progressing with teeming pace. Resultantly, many new branches of science have been developed to entertain the need of time and to address emerging problems of modern-day world. Biotechnology is by all means one such branch of science, amalgamating classical and modern disciplines of both natural and physical sciences with particular focus on seeking and developing practical applications of theoretical knowledge. Dow College of Biotechnology, an institute of prestigious Dow University of Health Sciences, holds the same core theme in its foundation. The college is well reputed for imparting both academic and practical skills amongst the students.

Dow College of Biotechnology has progressed exceptionally well and now known for its academics and research throughout the country. In recent times, research conducted at Dow College of Biotechnology during the COVID-19 pandemic has been praised both nationally and internationally and leads to some of the best research publications from Pakistan on SARS-CoV-2 with considerable theoretical and practical insights.

The college holds a large sum of PhD faculty which are actively engaged in research alongside the teaching activities. To ensure translation of theoretical knowledge into practical application, students are encouraged to get engaged with small to advance level research projects with faculty as they move along during four years of their studies. This approach makes Dow College of Biotechnology unique amongst the contemporaries. One testimony is that the graduates of DCOB along with the faculty have extensively published in the peer reviewed international scientific journals in last two years.

Dow College of Biotechnology maintain strong linkage with the industries in order to keep students aware of their recent development and demands. The college has recently developed linkage and student exchange programs with some of the prestigious international universities. With the team of highly competent faculty and supporting staff, I am confident that we will extend our utmost support to the students to excel in their respective carriers.

I wish all the best to the prospective students of Dow College of Biotechnology, God Speed.

VISION STATEMENT DUHS

To Be a Pre-Eminent Academic Institution Committed to Changing and Saving Lives.

MISSION STATEMENT

Providing Outstanding Patient Centered Education, Training and Clinical Care Informed by Cutting Edge Research and Innovation Generating and Disseminating New Knowledge.

INTRODUCTION OF DOW COLLEGE OF BIOTECHNOLOGY

DOW COLLEGE OF BIOTECHNOLOGY

Dow College of biotechnology (DCOB) is a constituent College of Dow University of Health Sciences. The college is located in the graceful building of Dow international medical college. Currently, a four-year BS Biotechnology program is conducted at DCOB. The College has excellent teaching faculty comprised of foreign qualified PhD scientists who are extensively involved in research activities and hence are well aware of the recent developments in the field of science. Teaching methodology at DCOB is a well planned blend of theory and practical skills learned in laboratories, therefore, for students who have a passion for becoming scientists; Dow College of Biotechnology provides an excellent platform. The BS-Biotechnology course has been extensively designed to produce competent human resource in the field of biotechnology, and to train the graduates to apply scientific knowledge to address locally prevalent health, environmental, food and industrial issues.

Scope of Biotechnology in Pakistan

Biotechnology is one of the most growing and exciting field of sciences in the world. Biotechnology is the application of any biological system (living organisms or their derivatives) to address any problem related to human life. It is a multidisciplinary science which utilizes knowledge generated in the field of genetic engineering, genetics, tissue culture, stem cell, molecular biology, microbiology, biochemistry, vaccinology, virology, and bioinformatics to address existing issues. Biotechnology students are trained for innovation, creative thinking, entrepreneurship and multidisciplinary approach to develop products for the benefit of human life. There are different branches of biotechnology which includes food biotechnology, health and medical biotechnology, microbial biotechnology, agricultural biotechnology, environmental biotechnology, pharmaceutical biotechnology, industrial biotechnology, marine biotechnology, animal biotechnology etc.

Due to strong academic and practical training provided to biotechnology graduates, they are among the top choice of academic, research and industrial employer. Demand of biotechnology products is rising in Pakistan and therefore there is a huge scope for biotechnology students in terms of jobs and entrepreneurship. Following are some of the applications of biotechnology:

- To produce r-DNA products, monoclonal antibiotics, vaccines, diagnostics, anticancer drugs, insulin, skin grafting and development of tissue specific delivery methods.
- To produce safe, efficient and cost effective industrial chemicals and enzymes for textile, paper, sugar and food industries, biodegradable plastics etc.
- To produce wide range of GM crops, bio fertilizers, bio pesticides.
- To improve environmental conditions through soil and water remediation, oil spillage, water and sewerage treatment.
- To produce fermentation based products, cheese, yeast, wine, beer, yogurt, food additives etc.

Eligibility Criteria of the Candidate:

- HSSC Intermediate Science (Pre-Medical or Pre-Engineering)
  / A-Level or Equivalent, Min. 60% marks or equivalent only certified by IBCC
- Candidate's Domicile of Sindh

Seat Distribution for BS-Biotechnology Course at Dow College of Biotechnology

Dow college of Biotechnology offers total 100 seats, which are filled totally om merit basis.

Rules for payment fee:

1. Fee deposited is only refundable as per HEC rules.

2. Pay order of two semester's tuition fee (of the respective category) will have to be paid within one week after the start of 3rd, 5th, 7th and 9th Semesters.

3. In case the fee is not submitted during the given specified time late payment charges will be charged as follows:

- First month (after lapse of first week).....**2.5 % of tuition fee**

- Second month .....**5.0 % of tuition fee**

- Third month .....**7.5 % of tuition fee**

- Fourth month .....**10.0 % of tuition fee**

AFTER FOUR MONTHS OF NON PAYMENT THE SEAT IS LIABLE TO BE CANCELLED AND STUDENT WILL NOT BE ALLOWED TO APPEAR IN ANY EXAMINATION.

4. Fee of all categories will increase by 10% every year.

5. Fee may be revised by the university at any time during the course of the study

Recognition by Governing Bodies/Councils

The BS-Biotechnology program is approved by syndicate of Dow University of Health Sciences and the curriculum is approved by Higher Education Commission, Pakistan. The curriculum has been designed following centralized BS-Biotechnology curriculum of HEC with availability of series of quality based laboratories are one of the chief factors in deciding the success of the program. The laboratories available at the DUHS are state-of-the-art and sufficiently equipped to facilitate the learning objectives of this curriculum.

Curriculum

BS Biotechnology at DUHS is a Four year degree program comprising of eight semesters in total. The course lay out is prescribed by the Higher Education Commission (HEC) of Pakistan, which consists of 47 courses of 134 credit hours. In this program, great emphasis is placed upon integrating theory with practice as the curriculum is divided into both theoretical and laboratory-based learning. It is to enable students in attaining the required level of expertise, before further practically testing out class room knowledge through experiments.

STRUCTURE

Categories	Number of Courses	Credit hours
Compulsory courses (Student has no choice)	9	24
General courses	8	24
Biotechnology specific foundation courses	13	39
Major courses (including research project/internship)	13	35
Elective courses	4	12
Total	47	134

- **Total number of credit hours:** 134
- **Duration:** 4 years
- **Number of semesters:** 8
- **Semester duration:** 16-18 weeks
- **Number of courses per semester:** 5-6

BS-BIOTECHNOLOGY (4-YEAR) CURRICULUM DESIGN

Compulsory Requirements **(i.e., Student has no choice)**		**General Courses** **To be chosen from other Department**	
9 Courses		**8 Courses**	
24 Credit Hours		**24 Credit Hours**	
subject	**Cr. hr**	**subject**	**Cr. hr**
1. English I	3+0	1. Physical & Inorganic Chemistry	2+1
2. English II	3+0	2. Organic Chemistry	2+1
3. English III	3+0	3. Basic Anatomy & Physiology I	2+1
4. Pakistan Studies	2+0	4. Basic Anatomy & Physiology II	3+0
5. Islamic Studies	2+0	5. General Pathology	3+0
6. Biosafety & Bioethics	2+0	6. Pharmacology	2+1
7. Mathematics- I (Pre-calculus)/Into to Biology	3+0	Two social science courses:	
8. Biomathematics	3+0	7. Economics	3+0
9. Introduction to computer science	2+1	8. Marketing	3+0
	24		24

Discipline Specific Foundation Courses		Major Courses (including research project/Internship)		Elective Courses within the major	
13 Courses		13 Courses		Any 4 to be selected	
39 Credit Hours		35 Credit Hours		12 Credit Hours	
subject	Cr. hr	subject	Cr. hr	subject	Cr. hr
1. Microbiology	2+1	1. Principle of Biochemical Engineering & Thermodynamics	2+1	1. Pharmaceutical Biotechnology	3+0
2. Biochemistry-I	2+1	2. Agriculture Biotechnology	2+1	2. Cell and Tissue Culture	2+1
3. Biochemistry-II	2+1	3. Health Biotechnology	3+0	3. Hospital Waste Management	3+0
4. Cell & Molecular Biology-I	3+0	4. Environmental Biotechnology	3+0	4. Marine Biotechnology	3+0
5. Classical Genetics	3+0	5. Food Biotechnology	3+0	5. Animal Biotechnology	3+0
6. Probability & Biostatistics	3+0	6. Genomics & Proteomics	3+0	6. Molecular Diagnostics	3+0
7. Analytical Chemistry & instrumentation	2+1	7. Bioinformatics	2+1	7. Virology	3+0
8. Cell & Molecular Biology-II	2+1	8. Industrial Biotechnology	3+0	8. Fungal Biotechnology	3+0
9. Introduction to Biotechnology	2+1	9. Research Methodology	3+0	9. Radiobiology	3+0
10. Immunology	3+0	10. Seminar-I	1+0	10. Biosensors	3+0
11. Methods in Molecular Biology	2+1	11. Seminar-II	1+0	11. Fermentation Biotechnology	2+1
12. Quality control and regulatory requirements in biotechnology	3+0	12. Research Project OR Internship OR special Paper-I (M)	3+0	12. Biofuels and Bio refineries	3+0
13. Microbial Biotechnology	2+1	13. Research Project OR Internship OR special paper-II(M)	3+0	13. Water & wastewater treatment	2+1

ASSESSMENTS METHODS

The examinations for BS Biotechnology are conducted semester wise through centralized examination department. Assessments is both theoretical and practical based on the requirements of a specific course. Internal evaluations by the respective faculty members based on pre-defined scoring criteria is also included in assessment. A student needs to pass previous semester's courses, including any pre-requisites, before moving onto the next semester. All 47 courses, including electives and credit hour-based research work, must be passed in order to claim the degree.

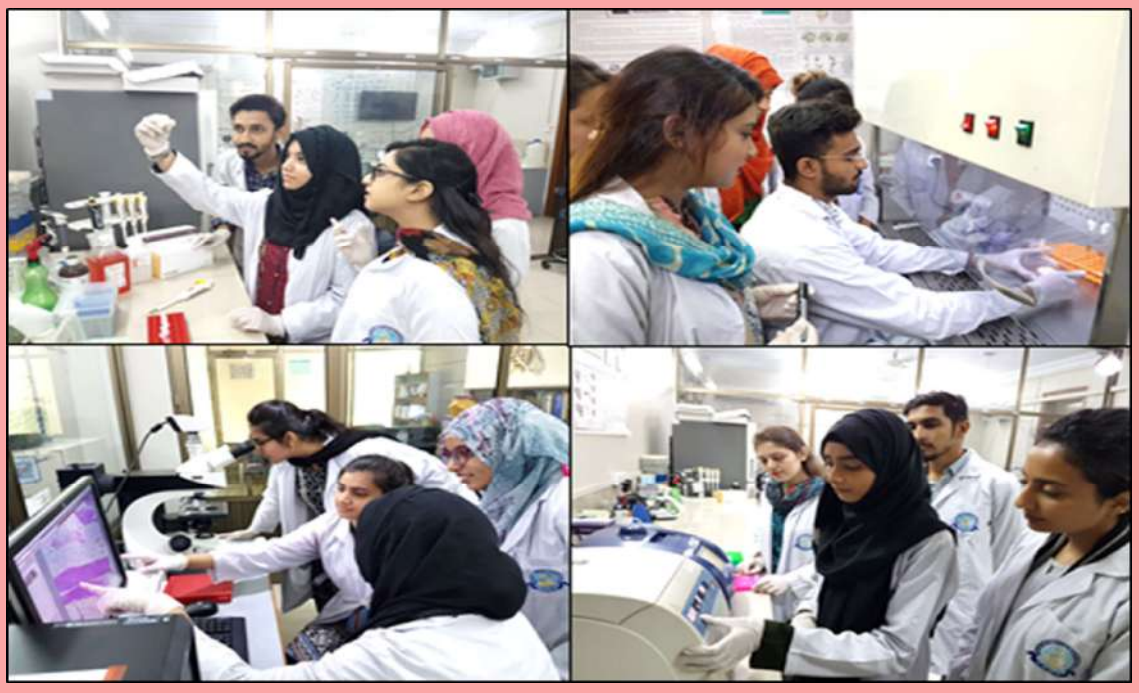
NUMBER OF STUDENTS GRADUATED AND STUDYING

Year of enrollment	No. of students enrolled
2015-2016	78
2016-2017	104
2017-2018	100
2018-2019	100
2019-2020	100

FACILITIES

Laboratories and Computing Facilities

Fully equipped laboratories for each class with a college's digital computer lab to facilitate students with their course load and to support faculty teaching needs and scholarly activities. The laboratory based practical exams and classes are scheduled throughout the semester. Laboratory classes are carried out in manageable groups to provide all students chance to get hands on laboratory experience.



Lecture/seminar Halls

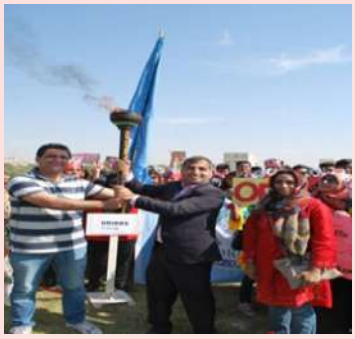
The Dow College of Biotechnology has dedicated lecture halls for each batch. Lecture halls are fully equipped with multimedia, computer and white board to facilitate students. In addition to this DCOB has its own seminar hall fully equipped with latest audio video conferencing facility.

There is one seminar hall available for arranging student seminars and research seminars for faculty. This hall is equipped with stat of the art multimedia facility.

EXTRACURRICULAR ACTIVITIES

ORIENTATION DAY OF BATCH-I

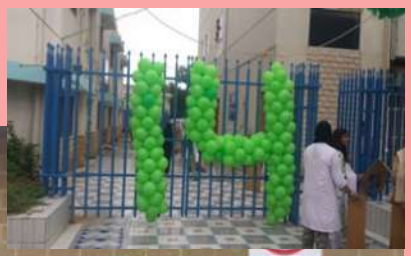
SPORTS WEEK AT DUHS



Pakistan Independence Day Celebrations, Flag Hoisting Ceremony at Dow University of Health Sciences

On the celebration of 14th August , Vice Chancellor of Dow University of Health Sciences Prof. Dr. Mohammad Saeed Qureshi said that, “Islamic Republic of Pakistan is the second estate after Medina that came into being on the basis of Islamic Ideology.” Speaking as the Chief Guest in the Flag Hoisting Ceremony at Dow University of Health Sciences Ojha Campus; the Independence Day Celebrations began with the hoisting of the National Flag at 8:00 am while the students echoed the National Anthem in the atmosphere. The ceremony was attended by Pro Vice Chancellors Dr. Mohammad Masroor, Prof. Dr. Khawar Saeed Jamali, Prof. Dr. Zarnaz Wahid, Registrar Prof. Dr. Aman Ullah, Prof. Dr. Zeba Haq, Prof. Dr. Shuja Farrukh, Prof. Dr. Shaheen Sharafat, Prof. Dr. Nisar Rao, senior faculty members along with a number of students.

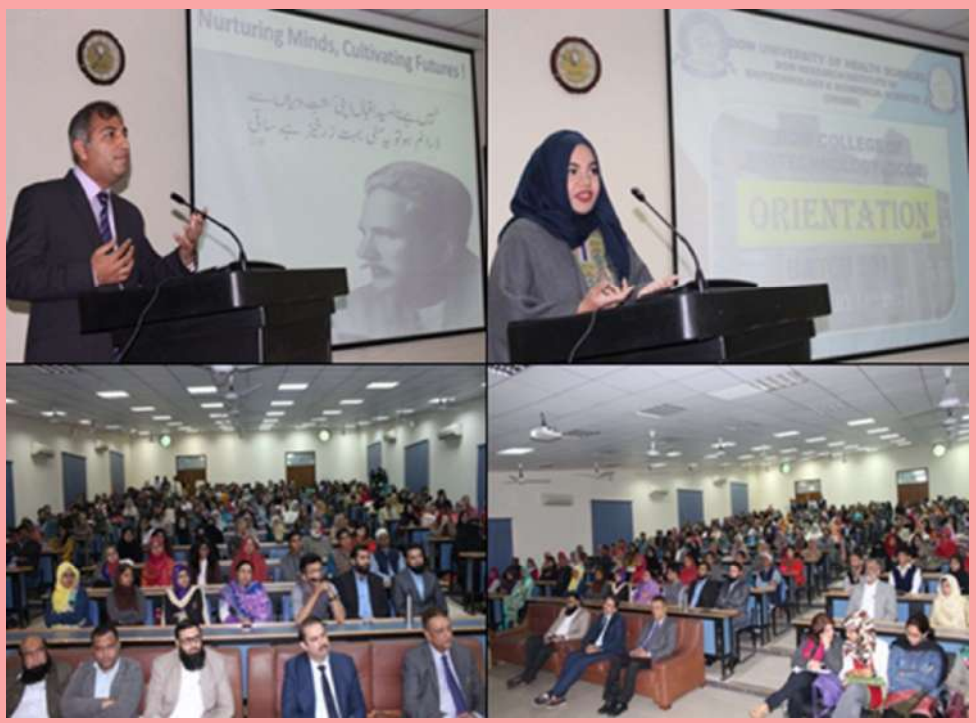
14TH AUGUST CELEBRATION



ANNUAL PICNIC AT DREAMWORLD RESORT

TALENT SHOW AT DUHS

ORIENTATION DAY OF BS BIOTECHNOLOGY

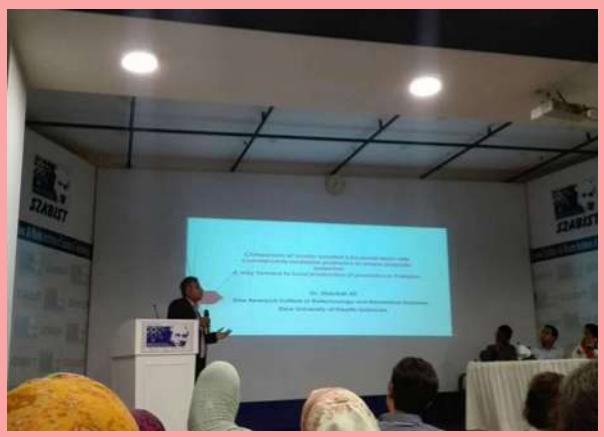


POSTER PRESENTATIONS AT FIRST INVENTION TO INNOVATION SUMMIT AT UNIVERSITY OF KARACHI






1ST BIOSCIENCES ANNUAL RESEARCH SYMPOSIUM



WELCOME PARTY OF DCOB BATCH- II

ACHIEVEMENTS

RESEARCH GRANTS

1. Demonstration and Promotion of a Series of Tuberculosis Treatment and Prevention Products.(Institute of Biophysics-Chinese Academy of Sciences (IBP-CAS)-International Cooperation Project (Grant No. 153311KYSB20170001)

2. Establishment of high cell density culture of Sacchromyces boulardii and scale up using bench scale bioreactor: Demonstration of lab scale probiotic production. (IRB and NRPU-HEC Approved Project (#5458)

3. In-vitro pharmacodynamic study of potential antimicrobial natural compounds against carbepenem resistant enterobacteriaceae from local clinical isolates. (IRB-NRPU HEC Approved Project (#5445).

4. Development of first Commercial scale citric acid production plant in Pakistan by submerged fermentation of Aspergillus niger using cane molasses as raw material; A milestone yet to be achieved. (Technology Development Fund (TDF)-HEC Approved Project. (TDF02-151)

5. Production of bio-diesel from Jatropha curcas seeds- A green alternative to petro-diesel fuel. (Social Integration Outreach Program (SIOP)-HEC Approved Project (SIOP-184-18/R&D/HEC/2015).

6. Hemicellulosic furfural production from sugarcane bagasse. (Social Integration Outreach Program (SIOP)-HEC Approved Project (SIOP-173/R&D/HEC/2015)

7. Plantation drive for Moringa olifera (Sohanghna) plant across university campus and awareness campaign regarding its nutritional and medicinal value. (Social Integration Outreach Program (SIOP)-HEC Approved Project (SIOP-157/R&D/HEC/2015)

8. Mass production of commercially important micro algae through distillery effluent and selection of specific algal strains. (Pak Ethanol (PVT) Limited Project) .

9. Development of Ant-COVID-19 Intravenous Immunoglobulin for treatment of severe and critically-ill COVID-19 patients.

Prizes in SCIENTIFIC ACHIEVEMENTS

1. Five students of BS Biotechnology program were sent for a research attachment at Sultan Zain ul Abidin University, Malaysia where they participated in International Conference" Innovation and Commercialization in Biotechnology", Where they won Silver medal (Aug-Sep 2018).

2 Third year Students from the college were awarded 5th, 6th & 7th positions in the poster competition in the Conference "Innovation and Commercialization in Biotechnology" organized by PCSIR. Around Seventy posters were presented in the conference.

3 Students from DCOB won all top 5 awards in Industrial-Academia linkage research completion held at Dow University of Health Science on 12th May, 2018.

4 Rs.1 million research grants from industry awarded for project titled "Mass production of commercially important Microalgae" to a research group at DCOB.

5 Three different research projects have been approved by Higher Education Commission Pakistan to Dow College of Biotechnology under Social Integration Outreach Program (SIOP) titled as following:

- Ø Production of Bio-diesel from Jatropha cureas seeds- A green alternative to petro-deisel fuels.
- Ø Hemicellulosic furfural production from sugarcane bagasse.
- Ø Plantation derives from Moringa olifera (Sohanghna) plant across university campus and awareness campaign regarding its nutritional and medicinal value.

6 Rs.14 million Research grant awarded by HEC Pakistan to project titled “Development of first Commercial scale citric acid production plant in Pakistan by submerged fermentation of Aspergillus niger using cane molasses as raw material; A milestone yet to be achieved”.

7. Conducted international conference in collaboration with International Center for Genetic Engineering and Biotechnology (ICGEB) and National Academy of Young Scientists (NAYS) on “Basic Biotechnology Techniques” in 2016.

8 Poster title “Carcinometer: A diagnostic tool for breast malignancy” presented by batch-I students (Marium Zaidi, Maryam Siddiqui, Mariam Rajput & Mubashir Khan) was selected among top 20 posters in Annual Research Day of Dow University of Health Sciences, February 2017.

9 Poster title “Utilization of sugar industry waste bagasse for the production of cellulase” presented by batch-I students (Anusha Amanullah & Abdul Moeed) secured 3rd position at 1st Biosciences Annual Research Symposium (BARS) held at SZABIST in 2017.

10 Research poster presentations by all BS-Biotechnology students at first Invention to innovative summit held at University of Karachi in December 2016.

11 Conducted international conference in collaboration with International Center for Genetic Engineering and Biotechnology (ICGEB) and National Academy of Young Scientists (NAYS) on “Basic Biotechnology Techniques” in 2016.

12. Students from DCOB won all top 5 awards in Industrial-Academia linkage research completion held at Dow University of Health Science on 12th May, 2018.

13 Student of DCOB Batch I, Ayesha Ashraf Baig presented her research on the Investigating Molecular Basis of Drosophila melanogaster Cyclopia Model By Reverse Genetics at 3rd National Conference in Emerging Trends in Bioinformatics and Biosciences, 2019, Department of Bioinformatics, Hazara University, Mansehra, and won first Prize.

14 Student of Batch I (Anusha Amanullah and Sharon E. D’Souza presented their research work on Effect of Bisphenol-A on the Brain Development in Drosophila melanogaster model in 5th Annual Neuroscience Conference, Aga Khan University and won first prize.

15 Students from DCOB batch-I and batch-III (Anusha Amanullah, Sharon E. D’Souza, Ayesha Ashraf Baig and Ifrah Mehmood won first prize out of over 400 research projects in DICE-

2019 on their research work on “Living Model System of Carcinogen Detection for Industries”

Extra-Curricular Achievements

- Trophy was awarded to BS-Biotechnology 1st year students for Independence Day Celebration competition, 2016 at DUHS.
- BS-Biotechnology 1st year student secured 2nd position in Boys and Girls QIRAT competition at Annual Students Sports Week, DUHS 2017.
- BS-Biotechnology 1st year student secured 3rd position in Boys and Girls URDU DEBATE competition at Annual Students Sports Week, DUHS 2017.
- BS-Biotechnology 1st year student secured 3rd position in Boys and Girls QIRAT competition at Independence Day Celebration, DUHS 2017.
- DCOB students secured 2nd position in Road to Pakistan competition on Pakistan’s 70th Independence Day Celebrations, DUHS 2017.

Selected International Scientific Publications of DCOB Faculty along with DCOB Students

- **Gul A**, **Siddiqui M**, Arain H, **Khan S**, **Khan H**, **Ishrat U**. 2021. Extraction, Partial Purification and Characterization of Bromelain from Pineapple (Ananas Comosus) Crown, Core and Peel Waste. Brazilian Archives of Biology and Technology.

- **Ali S**, Uddin SM, **Shalim E**, Sayeed MA, Anjum F, Saleem F, Muhaymin SM, **Ali A**, Ali MR, Ahmed I, **Mushtaq T**. 2021. Hyperimmune anti-COVID-19 IVIG (C-IVIG) treatment in severe and critical COVID-19 patients: A phase I/II randomized control trial. EClinicalMedicine:100926.

- **Ali S**, Uddin SM, **Ali A**, Anjum F, Ali R, **Shalim E**, Khan M, Ahmed I, M Muhaymin S, Bukhari U, Luxmi S. 2021. Production of hyperimmune anti-SARS-CoV-2 intravenous immunoglobulin from pooled COVID-19 convalescent plasma. Immunotherapy. 13(5):397-407.

- **Hussain M**, Shabbir S, **Amnaullah A**, Raza F, Imdad MJ and Zahid S. **2021**. Immunoinformtic Analysis of Structural and Epitope Variations in Spike and Orf8 Proteins of SARS-CoV-2/B.1.1.7. ***J. Med. Virol***. 93:4461-4468.

- **Hussain M**, Jabeen N, **Amanullah A**, **Baig AA**, **Aziz B**, Shabbir S, Raza F, Uddin N. 2020. Molecular docking between human TMPRSS2 and SARS-CoV-2 spike protein: conformation and intermolecular interactions. AIMS Microbiol. 6: 350-360.

- **Hussain M***, Jabeen N, Shabbir S, Nasiruddin, **Aziz B**, **Amanullah A**, Raza F and **Baig AA**. 2020. Dataset for Homologous Proteins in Drosophila melanogaster for SARS-CoV-2/Human Interactome. Data Brief. 32: 106082.

- **Hussain M***, Jabeen N, Raza F, Shabbir S, **Baig AA**, **Amanullah A** and **Aziz B**. 2020. Structural Variations in Human ACE2 may Influence its Binding with SARS-CoV-2 Spike Protein. J. Med. Virol. 92: 1580-1586.

1. RESEARCH ACTIVITIES

DUHS - DICE HEALTH INNOVATION EXHIBITION

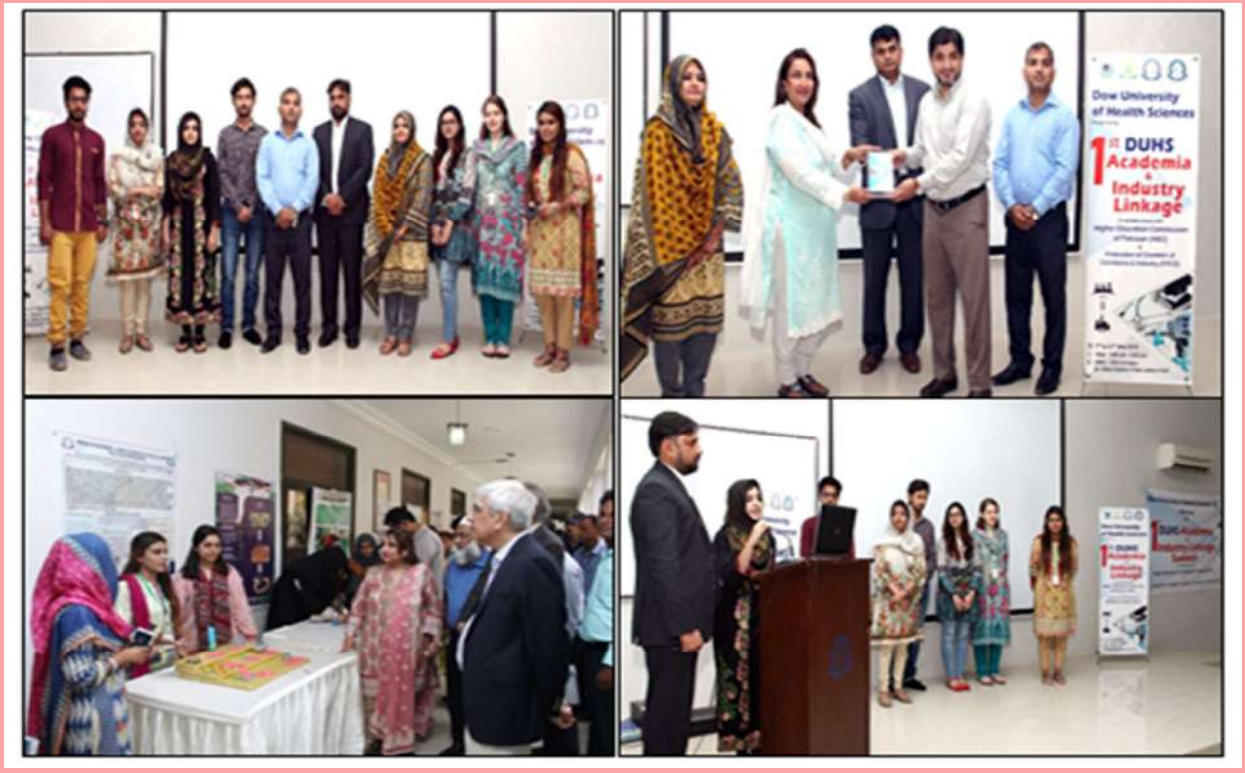
The Dow University of Health Sciences (DUHS) in collaboration with Distinguish Innovation Collaboration & Entrepreneurship (DICE) foundation (a USA based nonprofit organization) organizes DUHS-DICE Health innovation Exhibition every year to promote health innovation culture in Pakistan.

Basically, the idea behind the event is to motivate academia, industry, government, entrepreneurs and expatriates to come to a common platform to showcase health innovations and technologies, share knowledge and further collaborate with each other for the rapid development of health innovative products, necessary for the economic development of the country. Alhamdulillah we have successfully organized 3 mega events in the year 2015, 2016 & 2017 and participation was incredible across different Industries and Universities / Institutes of Pakistan. We have a dedicated Business Incubation Center for this purpose, where we promote and assist such innovations/ideas from the students of various universities (Medical, Bio-Medical, IT, Engineering & Technology etc.)

International Center for Genetic Engineering and Biotechnology (ICGEB) CONFERENCE

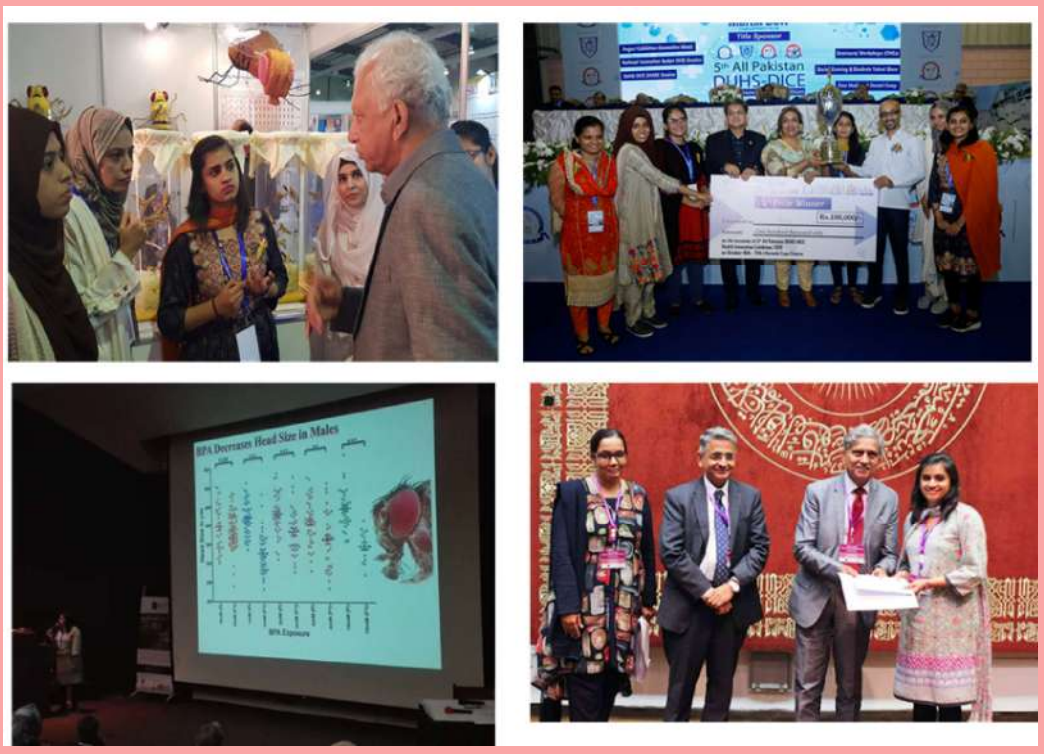
1st DUHS - Academia - Industry Linkage Week

1st DUHS - Academia - Industry Linkage Week in collaboration with the Higher Education Commission (HEC) and Federation of Pakistan Chamber of Commerce (FPCCI) Theme: "Plant Tissue Culture- Potential Game Changer in Argo-Economy of Pakistan" organized by Dow College of Biotechnology held on 9th & 10th May, 2018.



1ST Biosciences Annual Research Symposium (BARS'17) at SZABIST

DCOB Students Presenting their Research at Different Scientific Conferences



1. FUTURE PROSPECTS

BS Biotechnology opens us a wide range of career opportunities due to the multidisciplinary nature of the program. In Pakistan, Biotechnology is an emerging field of studies with an ever-increasing demand for biotechnology graduates; the complete course knowledge attained through this program would put students in a strong position in the market for careers in Genetic Engineering, Cell & Molecular Biology, Stem cell, Biochemistry, Molecular Genetics, Biotechnology, Microbiology, and Bioinformatics etc. Research and development opportunities can be availed not only in hospitals and public health laboratories but also in companies in major industries of pharmaceuticals, food and agriculture.

Students graduating from this program will be prepared for jobs that provide research and development breakthrough products and technologies to combat debilitating and rare diseases, reduce our environmental footprint, feed the hungry, use less and cleaner forms of energy, and have safer, cleaner and more efficient industrial manufacturing processes. Jobs which are directly related to the degree pertains to the research and development field including Biomedical scientist, Clinical Research Associate, Food Technologist, Microbiologist, Pharmacologist and Research Scientist etc. Whereas, the BS Biotechnology degree may also be useful for other careers including Ecologist, Forensic Scientist, Science Writer and Water Quality Scientist.

FACULTY OF DOW COLLEGE OF BIOTECHNOLOGY

Dr. Mushtaq Hussain
Principal
Ph.D. in Genetics, Genomics and Systems Medicines
University of Glasgow, UK

Dr. Rafat Amin
Assistant Professor
Ph.D. in Natural Sciences
Eberhard Karls Universitat Tuebingen Germany

Dr. Sadaf Khan
Assistant Professor
Ph.D. in Biochemistry
University of Western Australia, Australia

Dr. Tehseen Fatima
Assistant Professor
Ph.D. in Molecular Parasitology
University of Glasgow, UK

Dr. Humera Waheed
Assistant Professor
Ph.D. in Biochemistry
ICCBS, University of Karachi

Dr. Anum Gul
Assistant Professor
Ph.D. in Molecular Medicine
ICCBS, University of Karachi

Dr. Salman Ahmed
Assistant Professor
Ph.D. in Molecular Medicine
ICCBS, University of Karachi

Dr. Maheera Moin
Assistant Professor
Ph.D. in Chemistry
Sheffield Hallam University, UK

Dr. Sheeba Naz
Assistant Professor
Ph.D. in Biotechnology
ICCBS, University of Karachi

Dr. Nida Dastagir
Assistant Professor
Ph.D. in Molecular Medicine
ICCBS, University of Karachi

Ms. Aliya Shujjat
Lab Manager
BS (Biotechnology)
University of Karachi

Dr. Hina Asrar
Assistant Professor
Ph.D. in Botany
ISHU, University of Karachi

Dr. Dania Ahmed
Assistant Professor
Ph.D. in Chemistry
ICCBS, University of Karachi

Engr. Tabish Ali
Senior Lecturer
BE (Chemical Eng), ME (Environmental Eng)
NED University

Ms. Urooj Ishrat
Instructor
M.Sc. (Physiology), MPhil fellow (Biotechnology)
Dow University of Health Sciences

Mr. M. Mujtaba Khan
Instructor
MPhil fellow (Biotechnology)
Dow University of Health Sciences

Ms. Iqra Ahmed
Instructor
M.Sc. (Microbiology), MPhil fellow (Biotechnology)
Dow University of Health Sciences

Ms. Ayesha Ali
Lab Manager
M.Sc. (Microbiology)
University of Karachi

Ms. Sherish Butt
Lab Manager
M.Sc. (Genetics)
University of Karachi

Ms. Ruqiya Fatima
Lab Manager
BS (Microbiology)
University of Karachi

Ms. Hanzalah Khan
Lab Manager
M.Sc. (Microbiology)
University of Karachi

DOW UNIVERSITY
OF HEALTH SCIENCES

email: admissions@duhs.edu.pk
visit website: www.duhs.edu.pk

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