

Department of Biochemistry

University School of Sciences,

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DEPARTMENT OF BIOCHEMISTRY

The Department of Biochemistry was instituted as one of the departments of the School of Sciences in June, 1995. It was started under the co-ordinatorship of Prof. Y.K. Agarwal, former Prof. and Head of the Chemistry. The M. Sc. Syllabus formulated comprised of 3 Theory papers in M.Sc. Part -I and 3 papers in M.Sc. Part II. The department enrolls about 15 students in M.Sc. Part I. Postgraduate teaching was at that time, carried out by eminent faculties of different departments of School of Sciences and colleges.

In August 2004, the University appointed two other coordinators, Dr. R.J. Verma and Dr. H. N. Highland. In June 2005 the syllabus was revised as per UGC guidelines for Biochemistry to include 4 Theory papers at M.Sc. Part I and 4 papers at M.Sc. Part II. Practical are based on theory. An experimental research based Dissertation was made compulsory along with a viva-voce examination which was introduced in M.Sc. Part II in lieu of one practical. The dissertation is incorporated with the aim to inculcate research acumen in students. As Biochemistry is an interdisciplinary subject, the papers like Instrumentation and methodology, biostatistics, Plant Biochemistry, Microbial biochemistry etc. have been added.

In accordance with the UGC norms and the introduction of the Choice based Semester system, the syllabus was revised once again in June, 2010.

The students will thus be more capable of pursuing careers in pharmaceutical industries, chemical research laboratories, clinical research organizations, Bio-medical and Cancer Research, as well as Teaching opportunities in school, colleges and Universities.

Director : Dr. S. K. Menon

Faculty (Coordinators) : Dr. N. K. Jain

Dr. H. N. Highland



Dr. H.N. Highland
Co-ordinator of Biochemistry
(Since 2004)

The decision of the Gujarat University to establish Biochemistry as an independent M.Sc degree course in 1995 came as great advantage to under-graduate students of this University who wished to pursue higher studies in the same field. Prior to this, scores of students majoring in Biochemistry were forced to leave the city for their M.Sc. degree. The timely introduction of the subject has put the University on the Education map and today the University even provides for pursuing a Ph.D in this area.

In keeping with the Gujarat University's tradition of motivational education, the Department of Biochemistry encourages students to think and work independently and to master skills of analytical reasoning and logical thinking.

However, there still remains much to be done in order to promote this subject as a healthy opportunity for students seeking to make their careers in this field, here or abroad.

Areas of Specialization : Molecular Biology, Endocrinology, Physiology & Biotechnology

Contact No. : 26301491 (O) 26856399 (R)



Dr. Nayan K. Jain
Professor & Head, Life Science Department,
Co-ordinator, Biochemistry.
(Since 2010)

The Department of Biochemistry is one of the fast developing integrated sciences. Biochemistry is a Science today, contributing to much of the research in areas of Clinical sciences and bio-medical sciences. The intricate combination of all branches of Biological Sciences and Chemistry makes this subject unique in equipping a student for all allied areas in terms of job opportunities.

The major multinational companies are entering the Molecular era Life Sciences and Biotechnology. The research agency now supports major research programs under the interdisciplinary of Life Science. This course will helpful in motivating as well as giving training to young students for developing research potential in the subject and work as academicians at Institutes, Researchers at Institutes, Pharmaceutical & other industries or entrepreneurship for product related to Life Science.

All passed out students of **M. Sc.**, and **Ph. D.** in Life Sciences are successfully placed globally at higher positions due proper training and practical exposure in the field.

Areas of Specialization : Zoology – Molecular Cell Biology, Toxicology, Stem Cell Research Animal Behaviour, Instrumentation, Ocular Morphophysiology, Reproductive Physiology

Contact No. : 26301491 (O) 23621101 (R)



Introduction

Brief History

The Department of Biochemistry was instituted as one of the departments of the School of Sciences in June, 1995. It was started under the coordinatorship of Prof. Y.K. Agarwal, former Prof. and Head of the Chemistry. M. Sc. Syllabus prepared was having 3 papers in M.Sc. Part -I and 3 papers in M.Sc. Part II. The department enrolls about 15 students in M.Sc. Part I. Postgraduate teaching was carried out by eminent faculties of different departments of School of Sciences and colleges. In August 2004, the University appointed two other coordinators (Dr. R.J. Verma and Dr. H. N. Highland). In June 2005 the syllabus was revised as per UGC guidelines for Biochemistry. Now the syllabus contains 4 papers at M.Sc. Part I and 4 papers at M.Sc. Part II. Practicals are based on theory. Dissertation and viva-voce has been introduced in M.Sc. Part II in lieu of one practical. The dissertation is incorporated with the aim to inculcate research ability in students. As Biochemistry is an interdisciplinary subject, the papers like Instrumentation and methodology, biostatistics, Plant Biochemistry, Microbial biochemistry etc. are added. The present syllabus

will be run in collaboration with the Departments of Botany, Chemistry, Life Sciences, Microbiology, Statistics and Zoology of Gujarat University.

Present Scenario

Post Graduate students are going to be absorbed for further career in research and academics. Industry & research institute placement are positive responses of this course. Course covers applied and basic aspects of Biochemistry, Botany, Microbiology, Zoology and Molecular Biology.

Infrastructure and Facilities

Presently the department is housed in the building of the Department of Life Sciences. Separated building has been proposed for biochemistry. Infrastructure available in different Departments of School of Sciences is utilized for teaching and research work of the department. Rs. 6.00 lakh has been sanctioned in Xth Five Year plan for the purchase of the equipment which is in progress.

Highlight

Subject of biochemistry is an emerging interdisciplinary area which is useful in pharmaceutical industries and agriculture both nationally and globally. The students are provided with in-depth knowledge by the faculties who are expert in their respective subjects, which will additionally make them aware about the latest research trends on the same. The new syllabus being interdisciplinary makes the student multi-faceted which is not the traditional trend of teaching. Presently two coordinators are looking the course. One post of lecturer has been sanctioned. The recruitment is in the process.

Courses Offered

Course Name	: Master of Science (Biochemistry)
Course Type	: Grant in Aid
Intake	: 15 students
Eligibility	: T.Y. B.Sc. with Biochemistry in Second Class
Duration	: Two year full time course. Pattern –Semester I to 4.
Course Commencement	: June
Admission Process	: By Merit.
Fees	: Grant in Aid Structure
Course Offered at	: Department of Biochemistry, School of Sciences
Future Career Opportunity	: Teaching in University, College and Schools. 1) R & D and Q & C at research institute & Pharmaceutical industry. 2) Abroad opportunity. 3) Course match with CSIR-UGC-NET Life Science Syllabus.
Course Name	: Ph.D
Course Type	: Grant in Aid
Intake	: According to faculty status who are recognized Guide for Ph.D in Biochemistry.
Eligibility	: M.Sc. with 55 % in Biochemistry.
Subject Offered	: Biochemistry, Life Science.

Specialization : Special field of research guide.
Duration : Minimum 3 Years extendable into 5 Years.
Admission process : By merit according to consent of recognizing guide at department & affiliated research institute.
Fees : Grant in Aid.
Course offered at : Department of Life Science, School of Sciences
Future Career Opportunity : Research/ Scientific Officers/ Personnel at various center eligible for Post Doctoral in Sciences, Agricultural and paramedical.

Department	Semester	Course		No of Hours per week				Course credit
				Lecture	Others	Practical	Total	
BCH	1	BCH 401	Instrumentation & Techniques	3	1		4	4
		BCH 402	Molecular Cell Biology	3	1		4	4
		BCH 403	Bioenergetics and Inter-Metabolism	3	1		4	4
		BCH 404	Microbial Biochemistry	3	1		4	4
		BCH 405 PR	Practical I + Viva voce			6	6	4
		BCH 406 PR	Practical II + Viva voce			6	6	4
			TOTAL	12	4	12	28	24
BCH	2	BCH 407	Plant Biochemistry	3	1		4	4
		BCH 408	Nutritional Biochemistry	3	1		4	4
		BCH 409	Advanced Enzymology	3	1		4	4
		BCH 410	Human Physiology	3	1		4	4
		BCH 411 PR	Practical III + Viva voce			6	6	4
		BCH 412 PR	Practical IV + Viva voce			6	6	4
			TOTAL	12	4	12	28	24
BCH	3	BCH 501	Advanced Molecular Biology	3	1		4	4
		BCH 502	Biotechnology	3	1		4	4
		BCH 503	Clinical Biochemistry	3	1		4	4
		BCH 504	Immunology	3	1		4	4
		BCH 505 PR	Practical V + Viva voce			6	6	4
		BCH 506 PR	Practical VI + Viva voce			6	6	4
			TOTAL	12	4	12	28	24
BCH	4	BCH 507 P	Dissertation/Project Work				20	16
		BCH 508 S	Field/Industrial Visit/Seminar				4	4
		BCH 509 M	Group Discussion/Assignment				4	4
			TOTAL				28	24

Faculty

Name	:	Dr. Nayan K. Jain
Qualification	:	M.Sc., Ph.D.
Designation	:	Professor & Head – Life Science Department, Course Director – M.Sc.Food Science & Nutrition Co-Ordinator Biochemistry
Areas of Specialization	:	Zoology – Molecular Cell Biology, Toxicology, Stem Cell Research Animal Behaviour, Instrumentation, Ocular Morphophysiology, Reproductive Physiology
Contact No.	:	26301491 (O) 23621101 (R)
Name	:	Dr. (Mrs.) H. N. Highland
Qualification	:	M.Sc., Ph.D.
Designation	:	Associate Professor, Co-ordinator Biochemistry
Areas of Specialization	:	Molecular Biology, Endocrinology, Physiology & Biotechnology
Contact No.	:	26301491 (O) 26856399 (R)

Teaching Faculty:

University has given charge of this department to two senior faculties of Life science and Zoology. Several Invited faculties have provided their expertise and dedication to help conduct classes for the students, even at their own expense. The students are however given unlimited guidance, help and training by the appointed Co-ordinators. Consequently, the students are provided an opportunity to grow and learn independently through experimentation, trial and error. This in turn compels them to read, learn and gives them added self-confidence and capability. Guidance is provided to them at every step, but innovation and thinking has be their own.