

DEPARTMENT OF BIOCHEMISTRY
J.C. BOSE INSTITUTE OF LIFE-SCIENCES
BUNDELKHAND UNIVERSITY, JHANSI (U.P.)

Ordinance for Graduate Course (B.Sc. Hons.) in Biochemistry

1 A. Eligibility for B.Sc (Hons.) Biochemistry

Intermediate/ 10 + 2 with 50% marks having Chemistry.

Note-5% marks relaxation for SC/ST candidate.

B. Intake

60 seats for B.Sc. (Hons.) Biochemistry.

Note: Reservations: As per rules of the State Government.

2. Duration:

3 years (Annual System)

3. Criteria for Admission:

Admission to the course will be on the basis of entrance test conducted by University.

4. Medium of Instruction and examination: English

5. Fees:

1) Tuition and other fees

As prescribed by the University from time to time.

2) Refund of fees.

a. Request for refund of fee should be made to the Vice-Chancellor, Bundelkhand University within three weeks of date of deposition of the Admission fees. On approval such candidate shall be entitled for refund of 50% of the Admission fee.

b. Request for refund of fee shall not be considered under any circumstances, if made after three weeks from the date of deposition of Admission fee by the candidates.

6. Examination:

The 03-year course is based on annual system in B.Sc. (Hons.) Biochemistry.

I Attendance

Students should require a minimum attendance of 75% in each theory paper and practical in an academic session. In case a student is short of attendance due to illness, participation in sports, extra curricular activities etc following rule shall apply.

A shortage of up to 25% can be considered by the Vice-Chancellor on the specific recommendations of the HOD.

Those who fail to put up the minimum attendance as said above will not be permitted for the year end examination. However, under extraordinary circumstances (with due evidence) the Vice Chancellor may use his decretory power.

II. Process of Evaluation:

a. (1) Theory Papers:

1.1 Annual examination:

Annual Examination shall be conducted by the University as mentioned in the academic calendar. The question papers will be set by examiners appointed by the Vice-Chancellor based on the recommendation of the Course Committee/Board of Studies of the Department of Biochemistry. The pattern of the question paper will be decided by the University.

The weightage of each theory paper will be 70% in B.Sc. (Hons.) Biochemistry.

1.2 Sessional Examination:

The subject teacher shall conduct sessional examination to each theory paper. The questions may be objective/short answer/essay type. The weightage of this examination will be 30%. Sessional examinations will be conducted by the subject teachers round the session before the commencement of annual examination.

If a student is unable to pass a sessional examination the subject teacher may reasses the student in the form of a reexamination, viva, assignment, seminar or a review article.

b. Practical Examinations:

Practical examination will be conducted by the examiners appointed by the V.C. on the recommendation of the course committee/Board of studies.

Each student has to maintain a practical record during the course of the practicals and has to produce it at the time of practical examination.

In case a student fails to appear in a practical examination due to any reason including illness he/she shall be allowed to appear in the examination on the payment of penalty fees as per University norms with the permission of the V.C. Such examinations will be conducted with the regular examinations of the next session.

In case of a IIIrd year student, who fails to appear in a practical examinations he/she may be allowed to appear in a practical examination with the permission of V.C. and after payment of penalty fees as per University rules. The examination will be conducted only after the declaration of IIIrd year results as in the case of a special back examination.

Mode of practical examinations

The examiners may ask the students to conduct experiments in their presence and evaluate or conduct a viva-voce based on practical experiments prescribed/ theory in the syllabus.

7. Qualifying marks:

The minimum passing marks will be 40% in the aggregate. The minimum pass marks, 40% have to be obtained in theory, sessional and practical separately. On the basis of percentage of total marks secured in the aggregate of all years by a student, he/she will be awarded divisions, as detailed given below.

- a) Third division: 40% or more but less than 50%.
- b) Second division: 50% or more but less than 60%.
- c) First division: 60 or more

8. Declaration of results and award of degree:

After completion of the evaluation process result will be declared by the University. Candidate declared successful might get the provisional degree certificate after the declaration of the result. Original degree certificate may be conferred at the time of convocation or as decided by the V.C.

9. Improvement examination: A candidate may be allowed 01 chance to improve his/her division maximum up to 02 papers in next subsequent examinations of that course.

The improvement of division will be allowed for first, second and third year theory papers. If a student wishes to improve any of his/her first, second or third year theory paper, the student has to appear with his/her regular examination of the next session. The fee for the improvement shall be same as that of the back paper.

Note: a) If a candidate has availed the chance of appearing in the back paper, he/she will not be allowed to appear in an improvement examination in that year.

b) For improvement of division in a yearly examination, a candidate will be allowed to take only one theory paper in a year.

c) The improvement exam for a theory paper shall be allowed only within one academic year after the third year examination.

d) Improvement will not be allowed for a practical examination.

e) Improvement shall not be allowed with a special back examination.

10. Promotion of a student to the next year. A student shall be promoted to the next year only if he/she passes in 50% of the total theory papers in a year.

11. Back paper examination: In case a candidate is able to clear at least 50% theory papers in an annual examination, he/she will be promoted to next year on the condition that he/she have to clear the remaining 50% or less theory papers as back paper which shall be conducted with the scheduled regular examination of next session. The fees for the back papers will be as per University norms.

In case a student gets a year back (unable to clear 50% of theory papers), either in first, second or third year, he/she will have to clear all theory papers, including those

which the student has already passed, with regular examination of next session. The marks of the sessionals obtained will be carried over as such. The fee for the year back examination will be as per university norms. If a student fails again in a year back examination in any year (i.e. that of first, second or third year), after giving the first year back examination, he/she will have to appear in another year back examination together with the next session.

- Note:**
- a) If the total no of theory papers in a year is in odd numbers the student will have to pass a simple majority (for example if there is 5 theory papers in a year, the student will have to pass at least three of the theory papers)
 - b) The students who have got year back will not be allowed to attend classes or perform practical in the same year.
 - c) The fees for the next year will be allowed to be deposited only after promotion to the next year.

12. Special back examination: The University may also hold a special back paper examination after the declaration of third year results and only for those students who have cleared at least 50% of the theory papers of third year. Special back paper may be allowed only after the third year results are declared and for those students who have back papers in third, second or first year.

If a student fails to clear a special back paper, he/she may be given another chance only with the regular exam of next session where the student has to appear in an ordinary back paper examination. The permission for the special back paper may be given by the V.C. on the recommendation of the HOD.

The fees of the above examination shall be decided as per the University norms.

Note: The special back paper examination will be conducted only for final year (IIIrd Year) students after the declaration of the results and only once in a year.

13. Discontinuation: Discontinuation may be permitted only on medical grounds. Discontinuation may be permitted in first, second and third year. Discontinuation may be permitted for a maximum duration of one year only. If a student discontinues in any year without appearing in an annual examination, the rules of year back shall follow.

14. Grace marks: If a student is short of 05 marks for passing a theory paper, the student can be passed by giving a grace mark of 05 marks by the HOD. The grace marks may be given for all theory papers in a year.

15. Scrutiny: Scrutiny will be allowed to the student in two papers on payment of prescribed fees as decided by the university with the permission of V.C. provided the students applies for the same within one month of declaration of results of a particular year.

16. Re evaluation: Revaluation of answer copies will not be allowed in any case.

17. Board of Studies: The members of the BOS will be appointed by the V.C. on the recommendation of the HOD for a period of three years. BOS will consist of HOD, two faculty members of the Department nominated by HOD and two external experts of the subjects proposed by HOD.

- Note:** 1. BOS shall be same for the B.Sc. and M.Sc.-Biochemistry courses run by the department.
2. Presence of more than 50% of members (applicable to external members as well) of BOS shall constitute the quorum.

BUNDELKHAND UNIVERSITY, JHANSI-284 128**COURSE CURRICULUM****B.Sc. (H) BIOCHEMISTRY**

	PAPER CODE	TITLE OF THE PAPER	Theor y	Sessio nal	TOTAL
1st Yr	BCH-101	English Language	50	--	50
	BCH-102	Basic Physics	50	--	50
	BCH-103	Physical Chemistry	50	--	50
	BCH-104	Introductory Biology	50	--	50
	BCH-105	Biomolecules	70	30	100
	BCH-106	Biochemical Techniques	70	30	100
	BCH-107	Practical I (BCH 103 & BCH 104)	100		100
	BCH-108	Practical II (BCH 105 & BCH 106)	100		100
		TOTAL			600
2nd Yr	BCH-201	Fundamental of Mathematics	50	--	50
	BCH-202	Computer Science	50	--	50
	BCH-203	Inorganic & Organic Chemistry	50	--	50
	BCH-204	Genetics & Evolution	50	--	50
	BCH-205	Enzymology	70	30	100
	BCH-206	Intermediary Metabolism	70	30	100
	BCH-207	Practical III (BCH 203 & BCH 204)	100		100
	BCH-208	Practical IV (BCH 205 & BCH 206)	100		100
		TOTAL			600
3rd Yr	BCH-301	Cell Biology and Membrane Biochemistry	70	30	100
	BCH-302	Molecular Biology	70	30	100
	BCH-303	Nutritional & Environmental Biochemistry	70	30	100
	BCH-304	Immunology & Clinical Biochemistry	70	30	100
	BCH-305	Microbiology & Virology	70	30	100
	BCH-306	Human Physiology	70	30	100
	BCH-307	Practical V (BCH 301, BCH 302 & BCH 303)	100		100
	BCH-308	Practical VI (BCH 304, BCH 305 & BCH 306)	100		100
		TOTAL			800
		GRAND TOTAL			2000

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Ordinance for Post-Graduate Course in Biochemistry

1 A. Eligibility

B.Sc. with chemistry as one subject/ B.Sc. (Hons.) Biotechnology, Biochemistry, Microbiology, B. Sc. Ag or B. V. Sc. with minimum 50% marks in aggregate.
Note-5% marks relaxation for SC/ST candidates.

B. Intake

40 seats for M.Sc. Biochemistry.

Note: Reservations; as per rules of the State Government.

2. Duration:

2 years (4 semesters)

3. Criteria for Admission:

Admission to the courses will be strictly on the basis of entrance test conducted by University.

Note:(a) 15% of the marks obtained in entrance test will be awarded as additional marks to all candidates who pass the qualifying examination from any institution/college affiliated to Bundelkhand University.

4. Medium of Instruction and examination: English

5. Fee:

3) Tuition and other fees

As prescribed by the University from time to time.

4) Refund of fees.

- a. Request for refund of fee should be made to the Vice-Chancellor, Bundelkhand University within three weeks of date of deposition of the Admission fees. On approval such candidate shall be entitled for refund of 50% of the Admission fee.
- b. Request for refund of fee shall not be considered under any circumstances, if made after three weeks from the date of deposition of Admission fee by the candidates.

6. Examination:

The Two-year course is divided into 04 semesters.

(I) Attendance:

Students should require a minimum attendance of 75% in each theory paper and practical in a semester.

In case a student is short of attendance due to illness, participation in sports, extra curricular activities etc the following rules shall apply.

- (a) A shortage of up to 25% can be considered by the Vice-Chancellor on the specific recommendations of the HOD.

Those who fail to put up the minimum attendance as said above will not be permitted for the year end examination. However, under extraordinary circumstances (with due evidence) the Vice Chancellor may use his decretory power.

(II) Process of Evaluation:

a. (1) Theory Papers:

1.1 Semester Examination

Semester Examination shall be conducted by the University as mentioned in the academic calendar. The question papers will be set by examiners appointed by the Vice-Chancellor based on the recommendation of the Course Committee/ Board of Studies of the Department of Biochemistry. The pattern of the question paper will be decided by the University.

The weightage of semester examination will be of 70% for each paper in M.Sc. Biochemistry.

1.2 Sessional Examination:

The subject teacher shall conduct sessional examination to each theory paper. The questions will be objectives/short answer/essay type. The weightage of this examination will be 30%. Sessional examinations will be conducted by the subject teachers round the session before the commencement of semester examination.

If a student is unable to pass a sessional examination, the subject teacher may reassess the student in the form of a reexamination, viva, assignment, seminar or a review article.

b. Practical Examinations:

Practical examination will be conducted by the examiners appointed by the V.C. on the recommendation of the course committee/Board of studies.

Each student has to maintain a practical record during the course of the practicals and has to produce it at the time of practical examination.

In case a student fails to appear in a practical examination of any semester (Ist, IInd) due to any ground including illness, he/she shall be allowed to appear in the practical examination only after the payment of fees as per University norms with the permission of the V.C. Such examinations will be conducted only with the regular practical examinations of next session.

In case of a IIIrd semester student who fails to appear in a practical examination he/she may be allowed to appear in the practical examination with the permission of V.C. and after payment of fees as per University norms with the regular examination only.

Mode of practical examinations

The examiners may ask the students to conduct experiments in their presence and evaluate, and/or conduct a viva-voce based on practical experiments prescribed/ theory in the syllabus.

c. Project work/Dissertation:

Each M.Sc.-student of IVth semester will have to undertake a project work, which shall be of 300 marks under the guidance of his/her supervisor for a period of 4-6

months. The supervisors will be allotted to students by the HOD. The supervisors will be the faculty members of the Department of Biochemistry.

The student will have the option of undertaking the project work in the department laboratory itself or in other institute based on the permission. If a student undertakes the project in an outside institution the HOD/Director of the concerned institute will be allotting one of its faculty members/scientist as the supervisor of the student.

1) Submission of Dissertation/Thesis:

Each student will be allowed to submit his/her thesis once the supervisor is satisfied with the progress and completion of the research work. The thesis should be written in the standard format prescribed by the department. The project work should be an original research work. The student will have to submit three hard bound copies of his/her dissertation for evaluation.

The thesis should include a certificate of original work carried out by the student duly signed by the candidate and supervisor. The thesis should also carry a certificate by the Head of the Department of Biochemistry of this University.

2) Evaluation of the Dissertation/Thesis:

The student will have to defend his/her research work in front of an audience and one or two external examiners appointed by the V.C. on recommendation of the course committee/BOS. The examiners should study the scientific utility and quality of the research work undertaken by the student. There will be 100 marks for thesis and 200 marks for oral presentation, out of the total 300 marks.

In case a student fails to submit his/her dissertation and give the presentation on the scheduled date on any ground including illness, he/she shall be allowed to submit the dissertation and give the oral presentation on another date only after the deposition of penalty fee as per University norms and as permitted by the V.C.

7. Qualifying marks:

The minimum passing marks will be 40% in the aggregate. The minimum pass marks, 40% have to be obtained in theory, sessional, practical and dissertation individually. On the basis of percentage of total marks secured in the aggregate of all semesters by a student, he/she will be awarded divisions, as details given below.

- d) Third division: 40% or more but less than 50%.
- e) Second division: 50% or more but less than 60%.
- f) First division: Above 60 %

8. Declaration of results and award of degree:

After completion of the evaluation process, result will be declared by the University. Candidate declared successful may get the provisional degree certificate. Degree will be conferred at the time of convocation or as decided by the V.C.

9. Improvement examination: A candidate may be allowed 01 chance to improve his/her division maximum up to 02 papers in next subsequent examinations of that theory paper.

The improvement of division will be allowed for first, second and third semester theory papers. If a student want to improve any of his/her first, second or third semester theory papers, the students has to appear with his/her next session of regular examination conducted by the department. The fee for the improvement shall be same that of the back paper.

Note: a) If a candidate has availed the chance of appearing in the back paper, he/she will not be allowed to appear in an improvement examination in that semester.

b) For improvement of divisions in a semester examination a candidate can take only one theory paper in any semester.

c) Improvement will not be allowed for practical examination.

d) Improvement examination in a theory paper of any semester shall be allowed only within one academic year after appearing in the fourth semester examination

e) Improvement will not be allowed a special back examination.

10. Promotion to the next year: A student shall be promoted to the next year only if he/she passes 50% of the total number of theory papers in the year.

11. Back paper examination: In case a candidate is able to clear at least 50% theory papers at the end of second semester examination, he/she will be promoted to next semester (third) on the condition that he/she have to clear remaining 50% or less theory papers as back paper which shall be conducted with the scheduled examination of regular back paper.

In case a student gets a year back (unable to clear 50% of theory papers at the end of second semester), he/she will have to clear all theory papers, including those which the student has already passed with next session of regular examination. The marks of the sessional obtained will be carried over as such. If a student again gets a year back, after giving the first year back examination, he/she will be dropped from the course.

If a students fails to clear at least 50% of the theory papers including dissertation at the end of fourth semester (Third+Fourth) he/she will also be given as year back. In this case the student will have to re- appear and clear all the theory papers of the third semester. The entire fourth semester will be considered as a single entity. If the student has obtained minimum passing marks in the fourth semester (that is dissertation), he/she will not have to re undertake the project work of fourth semester in the case of year back including third & fourth semester. The year back examination after the fourth semester will be conducted with the regular batch only and after the due permission of V.C. with payment of fees as per the university norms.

If a student gets a year back again after giving the first year back examination after fourth semester, he/she will have to reappear in another year back examination.

Note: a) If the total number of theory papers in a year (two semesters) is in odd numbers the student will have to pass a simple majority (for example if there are 9 theory papers in a year, the student will have to pass at least 5 of them) of theory papers to be promoted to the next year and to avoid year back.

b) The student who have got year back will not be allowed to attend classes or perform practicals in any semester.

c) The fees for the next year will be allowed to deposit only after promotion to the next year.

12. Special back examination: The University may also hold a special back paper examination after the declaration of fourth semester results and only for those students who will clear at least 50% of the theory papers of second year (Third + Fourth semester). Special back paper may be allowed only after the fourth semester results and for those students who have back papers in third, second or in first semester.

If a student fails to clear a special back paper he/she may be given another chance only with the next session of regular examination, where the student has to appear in an ordinary back paper examination.

The permission for the special back paper may be given by the V.C. on the recommendation of the HOD.

The fees of the above examination shall be decided as per the university norms.

13. Discontinuation: Discontinuation may be permitted on medical grounds. Discontinuation may permit in the first and second year and only for a maximum period of one year. If a student discontinues in any semester without appearing in the semester examination, the rules of year back shall follow.

14. Grace marks: If a student is short of 05 marks for passing a theory paper, the student can be passed by giving a grace mark of 05 marks by the HOD. The grace marks will be given on all theory papers.

15. Scrutiny: Scrutiny will be allowed to the student in two papers on payment of prescribed fees as decided by the university with the permission of V.C. provided the student applies for the same within one month of declaration of results of a particular semester.

16. Re evaluation: Revaluation of answer copies will not be allowed in any case.

17. Board of Studies: The members of the BOS will be appointed by the V.C. on the recommendation of the HOD for a period of three years. BOS will consist of HOD, two faculty members of the Department nominated by HOD and two external experts of the subjects proposed by HOD.

Note: 1. BOS shall be same for the B.Sc. and M.Sc.-Biochemistry courses run by the department.

2. Presence of more than 50% of members (applicable to external members as well) of BOS shall constitute the quorum.

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COURSE CURRICULUM

MASTER OF SCIENCE (BIOCHEMISTRY)

Seme- Ster	Paper Code	Title of the Paper	Theory	Ses sio nal	Total
I	BCH -501	Biomolecules and Biostatistics	70	30	100
	BCH -502	<i>Biophysical Chemistry & Computer Science</i>	70	30	100
	BCH -503	Animal Physiology & Molecular Endocrinology	70	30	100
	BCH -504	Molecular Cell Biology	70	30	100
	BCH -505	Practical-I	100		100
		TOTAL			500
II	BCH -506	Microbiology & Nutritional Biochemistry	70	30	100
	BCH -507	Plant Biochemistry	70	30	100
	BCH -508	Enzymology	70	30	100
	BCH -509	Bioenergetics & Intermediary Metabolism	70	30	100
	BCH -510	Practical-II	100		100
		TOTAL			500
III	BCH -511	Immunology	70	30	100
	BCH -512	Molecular Biology & Bioinformatics	70	30	100
	BCH -513	Biotechnology	70	30	100
	BCH -514	Medical Biochemistry	70	30	100
	BCH -515	Practical-III	100		100
		TOTAL			500
IV	BCH -516	<i>Project / Dissertation</i>	300		300
		GRAND TOTAL			1800