

JAYPEE UNIVERSITY ANOOPSHAHAR

Faculty of Sciences



Course Structure

B.Sc. (Life Sciences)

As per NEP 2020

Based on document on “Curriculum and credit framework for undergraduate programs” released by University Grants Commission on December 7, 2022.

Four Year Undergraduate Programme (FYUP) course structure of UGC aligned with Uttar Pradesh NEP 2020 UG course structure 2023

Academic Batch: 2025-2028/29

JAYPEE UNIVERSITY ANOOP SHAHR

3 Year: B.Sc in Life Sciences with Minor in Zoology/Chemistry/Botany

4 Year: B.Sc in Honors/Honors with Research in Zoology/Chemistry/Botany

Semester I											
S. No.	Subject Code	Course Name	L	T	P	Total Hrs	Credits	UGC/NEP Category	Univ. Category	UP Govt. Category	Course offered by Dept.
1	25H11ZO111	Cytology and Genetics	3	0	0	3	3	Major	Core	Major	Department of Life Sciences
2	25H17ZO171	Cytology and Genetics Lab	0	0	2	2	1	Major	Core	Major	
3	25B11BO111	Microbiology and Plant Pathology	3	0	0	3	3	Major	Core	Major	
4	25B17BO171	Microbiology and Plant Pathology Lab	0	0	2	2	1	Major	Core	Major	
5	25H11CH111	Fundamentals of Chemistry	3	0	0	3	3	Major	Core	Major	Department of Chemistry
6	25H17CH171	Quantitative Analysis	0	0	2	2	1	Major	Core	Major	
7	25H11SS114	Constitution and Development	3	1	0	4	4	VAC	Core	Co-Curricular course	Department of Social Sciences
		Total	12	1	6	19	16				

VAC: Value Added Course

Semester II											
S. No.	Subject Code	Course Name	L	T	P	Total Hrs	Credits	UGC/NEP Category	Univ. Category	UP Govt. Category	Course offered by Dept.
1	25H11ZO211	Biochemistry and Metabolism	3	0	0	3	3	Major	Core	Major	Department of Life Sciences
2	25H17ZO271	Biochemistry and Metabolism Lab	0	0	2	2	1	Major	Core	Major	
3	25B11BO211	Archegoniates	3	0	0	3	3	Major	Core	Major	
4	25B17BO271	Archegoniates Lab	0	0	2	2	1	Major	Core	Major	
5	25H11CH211	Bioorganic and Medicinal Chemistry	3	0	0	3	3	Major	Core	Major	Department of Chemistry
6	25H11LS211	Environmental Sciences	3	0	0	3	3	VAC	Core	Co-Curricular course	Department of Life Sciences
7	25H11SS214	Indian Knowledge System	3	0	0	3	3	MDC	Core	MDC	Department of Arts
8	25H11HS216	Professional Communication	3	1	0	4	4	AEC	Core	AEC	Department of Arts
9	25H11CA111	Computer Fundamentals and Programming	2	0	0	2	2	SEC	Core	Vocational Course	Department of Computer Application
10	25H17CA171	Computer Fundamentals Lab	0	0	2	2	1	SEC	Core	Vocational Course	
Total			20	1	6	27	24				

SEC: Skill Enhancement Course, VAC: Value Added Course, AEC: Ability Enhancement Course; MDC: Multi-Disciplinary Course.

As per Uttar Pradesh NEP 2020 UG-PG Course structure 2023, co-curricular course grades will be included in the calculation of a student's CGPA.

Students on exit shall be awarded 'Undergraduate Certificate in Life Sciences' after securing the requisite 40 credits in Semesters I and II (Along with Summer Internship of 4 Credits)

Semester III											
S. No.	Subject Code	Course Name	L	T	P	Total Hrs	Credits	Univ. Category	UGC/NEP Category	UP Govt. Category	Course offered by Dept.
1	25H11ZO311	Molecular Biology	3	0	0	3	3	Core	Major	Major	Department of Life Sciences
2	25H17ZO371	Molecular Biology Lab	0	0	2	2	1	Core	Major	Major	
3	25B11BO311	Plant Anatomy and Reproductive Biology	3	0	0	3	3	Core	Major	Major	
4	25B17BO371	Plant Anatomy and Reproductive Biology Lab	0	0	2	2	1	Core	Major	Major	
5	25H11CH311	Chemical Dynamics & Coordination Chemistry	3	0	0	3	3	Core	Major	Major	Department of Chemistry
6	25H17CH371	Biophysical Analysis	0	0	4	4	2	Core	Major	Major	
7	25H11MA312	Fundamental of Statistics	3	0	0	3	3	Core	MDC	MDC	Department of Mathematics
8	25H11MT416	Digital Marketing	3	0	0	3	3	Core	SEC	Vocational Course	Department of Management
9	25H11MT417	Skills for Employability	3	1	0	4	4	Core	AEC	AEC	
		Total	18	1	8	27	23				

SEC: Skill Enhancement Course, AEC: Ability Enhancement Course, MDC: Multi-Disciplinary Course

Semester IV											
S. No.	Subject Code	Course Name	L	T	P	Total Hrs.	Credits	Univ. Category	UGC/NEP Category	UP Govt. Category	Course offered by Dept.
1	25H11ZO411	Gene Technology	3	0	0	3	3	Core	Major	Major	Department of Life Sciences
2	25H17ZO471	Genetic Engineering Lab	0	0	2	2	1	Core	Major	Major	
3	25B11BO411	Plant Taxonomy	3	0	0	3	3	Core	Major	Major	
4	25B17BO471	Plant Taxonomy Lab	0	0	2	2	1	Core	Major	Major	
5	25H11CH411	Quantum Chemistry and Basic Instrumentation	3	0	0	3	3	Core	Major	Major	Department of Chemistry
6	25H17CH471	Instrumental Analysis	0	0	2	2	1	Core	Major	Major	
7	25H11CO311	Finance for Everyone	3	0	0	3	3	Core	SEC	SEC	Department of Commerce
8	25H11MT312	Intellectual Property Rights	3	0	0	3	3	Core	MDC	MDC	Department of Management
9*	25H11ZO412	Bioinstrumentation & Biotechniques	4	0	0	4	4	Elective	Minor	Minor	Department of Life Sciences
	25B11BO412	Genetics									Department of Chemistry
	25H11CH412	Organic Chemistry-A									
		Total	19	0	6	25	22				

SEC: Skill Enhancement Course, MDC: Multi-Disciplinary Course.

(*) Students are required to select one minor from the following options: Zoology, Botany, or Chemistry.

Students on exit shall be awarded ‘Undergraduate Diploma in Life Sciences’ after securing the requisite 85 credits on completion semester IV (Along with Summer Internship of 4 Credits)

Semester V											
S. No.	Subject Code	Course Name	L	T	P	Total Hrs	Credits	Univ. Category	UGC/NEP Category	UP Govt. Category	Course offered by Dept.
1	25H11ZO511	Human Anatomy and Physiology	3	0	0	3	3	Core	Major	Major	Department of Life Sciences
2	25H17ZO571	Human Anatomy and Physiology Lab	0	0	2	2	1	Core	Major	Major	
3	25B11BO511	Plant Physiology and Metabolism	3	0	0	3	3	Core	Major	Major	
4	25B17BO571	Plant Physiology Lab	0	0	2	2	1	Core	Major	Major	
5	25H11CH511	Chemical Energetics and Radiochemistry	3	0	0	3	3	Core	Major	Major	Department of Chemistry
6	25H17CH571	Qualitative Analysis	0	0	2	2	1	Core	Major	Major	
7	25H19LS591	Summer Internship	0	0	6	6	3	Core	Summer Internship	Summer Internship	
8*	25H11ZO512	Diversity of Non-chordates	4	0	0	4	4	Elective	Minor	Minor	Department of Life Sciences
9*	25H11ZO513	Diversity of Chordates	4	0	0	4	4	Elective	Minor	Minor	
OR											
8	25B11BO512	Molecular Biology	4	0	0	4	4	Elective	Minor	Minor	
9	25B11BO513	Economic Botany	3	0	0	3	3	Elective	Minor	Minor	
10	25B17BO572	Molecular Biology and Economic Botany Lab	0	0	2	2	1	Elective	Minor	Minor	
OR											
8	25H11CH512	Rearrangements and Chemistry of Group Elements	4	0	0	4	4	Elective	Minor	Minor	Department of Chemistry
9	25H11CH513	Organic Chemistry-B	4	0	0	4	4	Elective	Minor	Minor	
Total			17/ 16	0	12/ 14	29/30	23				

(*) Students are required to select two minor from the following options: Zoology, Botany, or Chemistry.

Semester VI

S. No	Subject Code	Course Name	L	T	P	Total	Credits	Univ. Category	UGC/NEP Category	UP Govt. Category	Course offered by Dept.
1	25H11ZO611	Evolutionary and Developmental Biology	4	0	0	4	4	Elective	Minor	Minor	Department of Life Sciences
2	25H11ZO612	Fundamentals of Ecology	4	0	0	4	4	Elective	Minor	Minor	
3	25H11ZO613	Applied and Economic Zoology	3	0	0	3	3	Elective	Minor	Minor	
4	25H17ZO671	Ecology and Evolutionary Developmental Biology Lab	0	0	2	2	1	Elective	Minor	Minor	
OR											
1	25H11BO611	Ecology	3	0	0	3	3	Elective	Minor	Minor	Department of Life Sciences
2	25H11BO612	Plant Biotechnology	4	0	0	4	4	Elective	Minor	Minor	
3	25H11BO613	Biomolecules and Cell Biology	4	0	0	4	4	Elective	Minor	Minor	
4	25B17BO671	Ecology, Biotechnology, and Cell Biology Lab	0	0	2	2	1	Elective	Minor	Minor	
OR											
1	25H11CH611	Organic Chemistry-C	3	0	0	3	3	Elective	Minor	Minor	Department of Chemistry
2	25H17CH671	Quantitative Analysis	0	0	2	2	1	Elective	Minor	Minor	
3	25H11CH612	Equilibrium and States of Matter	4	0	0	4	4	Elective	Minor	Minor	
4	25H11CH613	Polymer, Surface and Bioinorganic Chemistry	4	0	0	4	4	Elective	Minor	Minor	
Total			11	0	2	13	12				

Students are required to select three minor from the following options: Zoology, Botany, or Chemistry.

Students have to earn a total of 120 credits for award of B.Sc. Degree in Life Sciences with a Minor in Zoology/Botany/Chemistry

HOD	Faculty In-charge	Dean (Academics)	Vice-Chancellor

Semester VII											
S. No.	Subject Code	Course Name	L	T	P	Tot al	Cred its	Univ. Category	UGC/NEP Category	UP Govt. Category	Course offered by Dept.
1	25H11ZO711	Biology for Microbes	3	0	0	3	3	Core	Major	Major	Department of Life Sciences
2	25H17ZO771	Zoology Lab -I	0	0	4	4	2	Core	Major	Major	
3	25H11ZO712	Biosystematics and Taxonomy	3	0	0	3	3	Core	Major	Major	
4	25H11ZO713	Principles of Immunology	4	0	0	4	4	Core	Major	Major	
5	25H11ZO714	Parasite Biology	4	0	0	4	4	Core	Major	Major	
6	25H11ZO715	Animal Behaviour	4	0	0	4	4	Core	Major	Major	
7	25H19ZO791	Research Project I	0	0	8	8	4	Core	Research Project	Research Project	
OR											
1	25H11BO711	Physiology and Biochemistry	3	0	0	3	3	Core	Major	Major	Department of Life Sciences
2	25H17BO771	Advanced Botany Lab 1	0	0	4	4	2	Core	Major	Major	
3	25H11BO712	Cell and Molecular Biology	4	0	0	4	4	Core	Major	Major	
4	25H11BO713	Pathogens and Pests of Crop Plants	4	0	0	4	4	Core	Major	Major	
5	25H11BO714	Genetics and Cytogenetics	4	0	0	4	4	Core	Major	Major	
6	25H11BO715	Algae, Environment and Human Welfare	3	0	0	3	3	Core	Major	Major	
7	25H19BO791	Research Project I	0	0	8	8	4	Core	Research Project	Research Project	
OR											
1	25H11CH711	Molecular Symmetry and Molecular Vibrations	3	0	0	3	3	Core	Major	Major	Department of Chemistry
2	25H17CH771	Chemistry Lab A	0	0	4	4	2	Core	Major	Major	
3	25H11CH712	Analytical Chemistry	4	0	0	4	4	Core	Major	Major	
4	25H11CH713	Main Group Elements	4	0	0	4	4	Core	Major	Major	
5	25H11CH714	Organic Reaction Mechanism	4	0	0	4	4	Core	Major	Major	
6	25H11CH715	Chemical Techniques	3	0	0	3	3	Core	Major	Major	
7	25H19CH791	Research Project I	0	0	8	8	4	Core	Research Project	Research Project	
Total			18	0	12	30	24				

Total credits assigned to semester VII are 24.

Semester VIII											
S. No.	Subject Code	Course Name	L	T	P	Total	Cre dits	Univ. Category	UGC/NE P Category	UP Govt. Category	Course offered by Dept.
1	25H11ZO811	Biostatistics and Research Methodology	3	0	0	3	3	Core	Major	Major	Department of Life Sciences
2	25H17ZO871	Zoology Lab -II	0	0	4	4	2	Core	Major	Major	
3	25H11ZO812	Bioinformatics	3	0	0	3	3	Core	Major	Major	
4	25H11ZO813	Environmental Biotechnology	4	0	0	4	4	Core	Major	Major	
5	25H11ZO814	Animal Biotechnology	4	0	0	4	4	Core	Major	Major	
6	25H19ZO891	Research Project II	0	0	16	16	8	Core	Research Project	Research Project	
OR											
1	25H11BO811	Plant Biotechnology and Resource Utilization	3	0	0	3	3	Core	Major	Major	Department of Life Sciences
2	25H17BO871	Advanced Botany Lab 2	0	0	4	4	2	Core	Major	Major	
3	25H11BO812	Recombinant DNA Technology and Proteomics	4	0	0	4	4	Core	Major	Major	
4	25H11BO813	Plant Developmental Biology	4	0	0	4	4	Core	Major	Major	
5	25H11BO814	Systematics, Evolution and Environmental Science	3	0	0	3	3	Core	Major	Major	
6	25H19BO891	Research Project II	0	0	16	16	8	Core	Research Project	Research Project	
OR											
1	25H11CH811	Thermodynamics and Electrochemistry	3	0	0	3	3	Core	Major	Major	Department of Chemistry
2	25H17CH871	Chemistry Lab B	0	0	4	4	2	Core	Major	Major	
3	25H11CH812	Natural Products	4	0	0	4	4	Core	Major	Major	
4	25H11CH813	Transition Elements	4	0	0	4	4	Core	Major	Major	
5	25H11CH814	Chemistry of Analgesics and Antipyretics	3	0	0	3	3	Core	Major	Major	
6	25H19CH891	Research Project II	0	0	16	16	8	Core	Research Project	Research Project	
Total			14	0	20	34	24				

Total credits assigned to semester VIII are 24

As per Uttar Pradesh NEP 2020 UG-PG Course structure 2023, research project course grades will be included in the calculation of a student's CGPA.

Students have to earn a total of 168 credits on for award of “B.Sc. (Honours/Honours with Research) in Zoology/Botany/Chemistry”

Semester VII											
S. No.	Subject Code	Course Name	L	T	P	Tot al	Cred its	Univ. Category	UGC/NEP Category	UP Govt. Category	Course offered by Dept.
1	25H11ZO711	Biology for Microbes	3	0	0	3	3	Core	Major	Major	Department of Life Sciences
2	25H17ZO771	Zoology Lab -I	0	0	4	4	2	Core	Major	Major	
3	25H11ZO712	Biosystematics and Taxonomy	3	0	0	3	3	Core	Major	Major	
4	25H11ZO713	Principles of Immunology	4	0	0	4	4	Core	Major	Major	
5	25H11ZO714	Parasite Biology	4	0	0	4	4	Core	Major	Major	
6	25H11ZO715	Animal Behaviour	4	0	0	4	4	Core	Major	Major	
OR											
1	25H11BO711	Physiology and Biochemistry	3	0	0	3	3	Core	Major	Major	Department of Life Sciences
2	25H17BO771	Advanced Botany Lab 1	0	0	4	4	2	Core	Major	Major	
3	25H11BO712	Cell and Molecular Biology	4	0	0	4	4	Core	Major	Major	
4	25H11BO713	Pathogens and Pests of Crop Plants	4	0	0	4	4	Core	Major	Major	
5	25H11BO714	Genetics and Cytogenetics	4	0	0	4	4	Core	Major	Major	
6	25H11BO715	Algae, Environment and Human Welfare	3	0	0	3	3	Core	Major	Major	
OR											
1	25H11CH711	Molecular Symmetry and Molecular Vibrations	3	0	0	3	3	Core	Major	Major	Department of Chemistry
2	25H17CH771	Chemistry Lab A	0	0	4	4	2	Core	Major	Major	
3	25H11CH712	Analytical Chemistry	4	0	0	4	4	Core	Major	Major	
4	25H11CH713	Main Group Elements	4	0	0	4	4	Core	Major	Major	
5	25H11CH714	Organic Reaction Mechanism	4	0	0	4	4	Core	Major	Major	
6	25H11CH715	Chemical Techniques	3	0	0	3	3	Core	Major	Major	
Total			18	0	4	22	20				

Total credits assigned to semester VII are 20

Semester VIII											
S. No.	Subject Code	Course Name	L	T	P	Total	Cre dits	Univ. Category	UGC/NE P Category	UP Govt. Category	Course offered by Dept.
1	25H11ZO811	Biostatistics and Research Methodology	3	0	0	3	3	Core	Major	Major	Department of Life Sciences
2	25H17ZO871	Zoology Lab -II	0	0	4	4	2	Core	Major	Major	
3	25H11ZO812	Bioinformatics	3	0	0	3	3	Core	Major	Major	
4	25H11ZO813	Environmental Biotechnology	4	0	0	4	4	Core	Major	Major	
5	25H11ZO814	Animal Biotechnology	4	0	0	4	4	Core	Major	Major	
6	25H11ZO815	Molecular Endocrinology	4	0	0	4	4	Core	Major	Major	
OR											
1	25H11BO811	Plant Biotechnology and Resource Utilization	3	0	0	3	3	Core	Major	Major	Department of Life Sciences
2	25H17BO871	Advanced Botany Lab 2	0	0	4	4	2	Core	Major	Major	
3	25H11BO812	Recombinant DNA Technology and Proteomics	4	0	0	4	4	Core	Major	Major	
4	25H11BO813	Plant Developmental Biology	4	0	0	4	4	Core	Major	Major	
5	25H11BO814	Systematics, Evolution and Environmental Science	3	0	0	3	3	Core	Major	Major	
6	25H11BO815	Advances in Archegoniates	4	0	0	4	4	Core	Major	Major	
OR											
1	25H11CH811	Thermodynamics and Electrochemistry	3	0	0	3	3	Core	Major	Major	Department of Chemistry
2	25H17CH871	Chemistry Lab B	0	0	4	4	2	Core	Major	Major	
3	25H11CH812	Natural Products	4	0	0	4	4	Core	Major	Major	
4	25H11CH813	Transition Elements	4	0	0	4	4	Core	Major	Major	
6	25H11CH814	Chemistry of Analgesics and Antipyretics	3	0	0	3	3	Elective	Minor	Minor	
7	25H11CH815	Quantum Chemistry	4	0	0	4	4	Core	Major	Major	
Total			18	0	4	22	20				

Total credits assigned to semester VIII are 20

Students have to earn a total of 160 credits on for award of “*B.Sc. (Honours) in Zoology/Botany/Chemistry*”

HOD	Faculty In-charge	Dean (Academics)	Vice-Chancellor

