

Cumulative minimum credits (Required for the award of Certificates/ Diploma/Degree)			Subject I: Zoology		Choose Anyone	Subject II: Botany/ Chemistry		Subject III		Vocational		Co-curricular		Audit Course*		Research Project**		Total credit (Year)
			Major			Major		Minor Elective		Minor		Minor		Compulsory		Major		
			4/5/6 Credits			4/5/6 Credits		4/5/6 Credits		3 Credits		2		Non-credits		4 Credits		
			Own Faculty			Own Faculty (Choose Anyone)		Any Faculty		Vocational/ Skill Development Course		Co-curricular (Qualifying)		Audit Course (Qualifying)		Inter/Intra Faculty related to main subject		
Certificate in Science (Zoology & Botany OR Zoology & Chemistry) 40	Y	Sem.		I	BOTANY	B040101T/BS166 Microbiology & Plant Pathology (T4) B040102P/BS167 Techniques in Microbiology & Plant Pathology (P2)			• I110101V/BS144 Biomolecules and Nutrition OR • B040103V/BS168 Biofertilizer technology OR • B000101V/CH137 Plastic Waste Management OR • MOOCs/SWAYAM etc. (T+P=3)	Z010101T/BE105 Food, Nutrition and Hygiene (T-2)	A050101T/HM101 Rashtra Gaurav		40					
	CHEMISTRY	B020101T/CH151: Fundamentals of Chemistry-I (T4) B020102P/CH134: Quantitative Analysis (P2)																
		BOTANY			B040201T/BS177 Archegoniates & Plant Architecture (T-4) B040202P/BS178 Land Plants Architecture (P-2)		ES115/BM186 Fundamentals of Environmental Science OR A040209T/LN109 Basics of Communication (4+2=6)	B050203V/BS179 Apiculture OR • B000201V/CH144 Laboratory Safety & Sample Handling OR • MOOCs/SWAYAM etc. (T+P=3)	Z020201T/NS110 First Aid and Health (T-2)	B100208T/BS116 Artificial Intelligence in Biological Sciences								
	CHEMISTRY				B020201T/CH139: Bioorganic and Materials Chemistry (T4) B020202P/CH141: Biochemical Analysis (P2)													
Diploma in Science (Zoology & Botany OR Zoology & Chemistry) 40+40=80		2	III	IV	BOTANY	B040301T/BS266 Flowering Plants Identification & Aesthetic Characteristics (T4) B040302P/BS267 Plant Identification technology (P2)			• B100303V/BS247 Molecular Diagnostics OR • B000301V/CH237 Food Testing and Quality Control OR • MOOCs/SWAYAM etc. (T+P=3)	Regional Languages*** (T2)		40						
	CHEMISTRY					B020301T/CH232: Chemical Dynamics & Coordination Chemistry(T4) B020302P/CH234: Physical Analysis (P2)												
					BOTANY	B040401T/BS275 Economic Botany, Ethnomedicine & Phytochemistry (T4) B040402P/BS276 Commercial Botany & Phytochemical Analysis (P2)		A040405T/LN234 Effective Professional Communication Skills OR Entrepreneurship Development OR Numerical analysis & testing of hypothesis (4+2=6)	Z040401T/PH201 Physical Education and Yoga (T-2)	B040403R/BS278 Industrial visit & survey report/internship OR B020405R/CH259 Chemistry Summer Internship (R-3)								
	CHEMISTR					B020401T/CH239: Quantum Mechanics and Analytical Techniques (T4) B020402P/CH241: Instrumental Analysis (P2)												
3-Year, UG Degree in Zoology & Botany OR Zoology & Chemistry																		

3-Year B.Sc. in Zoology & Botany OR Zoology & Chemistry 80+50=130 (120)	3	V	B050501T/BS367 Diversity of Non-Chordates, Parasitology and Economic Zoology (T-4) B050502T/BS368 Diversity of Chordates and Comparative Anatomy (T-4) B050503P/BS369 Lab on Virtual Dissection, Anatomy, Economic Zoology and Parasitology (P2)	BOTANY	B040501T/BS360 Plant Physiology, Metabolism & Biochemistry (T-4) B040502T/BS380 Molecular Biology & Bioinformatics (T-4) B040503P/BS381 Experiments in physiology, Biochemistry & molecular Biology (P-2)					40	
				CHEMISTRY	B020501T/CH337: Organic Synthesis-A (T4) B020502T/CH338: Rearrangements and Chemistry of Group Elements (T4) B190503P/CH339: Qualitative Analysis (P2)						
		VI	B050601T/BS377 Evolutionary and Developmental Biology (T4) B050602T/BS378 Ecology, Ethology, Environmental Science and Wildlife (T4) B050603P/BS509 Lab on Environmental Science, Behavioral Ecology, Developmental Biology, Wildlife, Ethology (P-2)	BOTANY	B040601T/BS370 Cytogenetics, Plant Breeding & Nanotechnology (T4) B040602T/BS382 Ecology & Environment (T4) B040603P/BS383 Cytogenetics, Conservation & Environment management (P-2)						
				CHEMISTRY	B020601T/CH353: Organic Synthesis-B (T4) B020602T/CH354: Chemical Energetics and Radiochemistry (T4) B020603P/CH355: Analytical Methods (P2)						
4-Year UG Degree with Hons in Zoology (<75% Marks)											
4-Year B.Sc. in Zoology with Hons 130+40=170 (160)	4	VII	ZOOLOGY B050701T/BS461 Non-Chordata: General Account (T-4) B050702T/BS462 Biostatistics and Bioinformatics (T-4) B050703T/BS463 Comparative Animal Science (T-4) B050704T/BS464 Metabolism: Concept and Regulation (T-4) B050705P/BS465 Zoology Lab I (P-4)	OR	4					40	
		VIII	B050801T/BS481 Chordata: General Account (T-4) B050802T/BS482 Immunology (T-4) B050803T/BS483 Animal Behavior and Chronobiology (T-4) B050804T/BS484 Developmental Biology (T-4) B050806P/BS486 Zoology Lab II (P-4)								
4-Year UG Degree with Hons & Research in Zoology (≥75% Marks)											
4-Year B.Sc. in Zoology with Hons & Research 130+40=170 (160)	4	VII	B050701T/BS461 Non-Chordata: General Account (T-4) B050702T/BS462 Biostatistics and Bioinformatics (T-4) B050704T/BS464 Metabolism: Concept and Regulation (T-4) B050705P/BS465 Zoology Lab I (P-4)						B050706R/BS466 Zoology Research project I (R-4)	40	
		VIII	B050801T/BS481 Chordata: General Account (T-4) B050805T/BS485 Animal Behaviour, Immunology and Chronobiology (T-4) B050804T/BS484 Developmental Biology (T-4) B050806P/BS486 Zoology Lab II (P-4)						B050807R/BS487 Zoology Research project II (R-4)		

One Year PG Degree in Zoology								
M.Sc. in Zoology 170+40=210 (200)	5	IX	B050901T/ BS561 General Parasitology, Protozoa and other Parasites (T-4) B050902T/ BS562 Principles of Endocrinology (T4) B050903T/ BS563 Insect Ecology, Morphology and Physiology (T-4) B050905P/ BS565 Advance Zoology Lab-I (P4)				B050905R/BS567 Zoology Research project III (R-4)	40
		X	B051001T/BS581 Molecular Biology (T-4) B051002T/BS582 Environmental Pollution and Toxicology (T-4) B051003T/BS583 Applied Entomology and Pest Management (EI T-4) OR B051007T/BS587 Insect in Human Life (EI T-4) B051005P/BS585 Advance Zoology Lab II (P4)				B051006R/BS586 Zoology Research project IV (R-4)	

- ✓ T-4 = Theory with 4 credits; P-2 = Practical with 2 credits; R = Research Project with 4 credits; Q: Qualifying; NC = Non-Credit; MOOCs = Massive Online Open Courses
- ✓ Co-curricular courses offered by UP higher education.
- ✓ Vocational courses offered by respective Department/University
- ✓ \*Audit Courses: The respective Department/University offers Rashtra Gaurav and X+AI (Advanced Application of Artificial Intelligence in Chemical Sciences) as compulsory **Non-Credit** courses. All students will have to pass these courses for obtaining a Certificate, Diploma, Undergraduate Degree, or Undergraduate Honors Degree with Research only once.
- ✓ 01, 02, and 03 combinations are elective papers, out of which students must choose any one with a minimum of ten students' strengths.
- ✓ For entry into the 4-Year UG Degree with Hons and Research program, students must secure  $\geq 75\%$  marks in the 3-Year UG Degree program.
- ✓ Students with a 3-Year Single Subject with Hons UG Degree below 75% marks in the 3-Year UG Degree program go for a two-year PG program.
- ✓ \*\*Research Project/Dissertation/Internship/Field or Survey Work etc.
- ✓ \*\*\*Regional Language is a co-curricular course offered by the respective Department or University in the third semester, such as Hindi, Urdu, Awadhi, Sanskrit, etc.

Cumulative minimum credits (Required for the award of Certificates/ Diploma/Degree)			Subject I: Botany		Choose Anyone	Subject II: Zoology/Chemistry		Subject III		Vocational		Co-curricular		Audit Course*		Research Project**		Total credit (Year)
			Major			Major		Minor Elective		Minor		Minor		Compulsory		Major		
			4/5/6 Credits			4/5/6 Credits		4/5/6 Credits		3 Credits		2		Non-credits		4 Credits		
			Own Faculty			Own Faculty (Choose Anyone)		Any Faculty		Vocational/ Skill Development Course		Co-curricular (Qualifying)		Audit Course (Qualifying)		Inter/Intra Faculty related to main subject		
Certificate in Science (Botany & Zoology OR Botany & Chemistry 40	Y	Sem.	I	B040101T/BS166 Microbiology & Plant Pathology (T4) B040102P/BS167 Techniques in Microbiology & Plant Pathology (P2)	ZOOLOGY	B050101T/BS164 Cytology, genetics & infectious diseases (T4) B050102P/BS165 Cell Biology & Cytogenetics lab (P2)			• I110101V/BS144 Biomolecules and Nutrition OR • B040103V/BS168 Biofertilizer technology OR • B000101V/CH137 Plastic Waste Management OR • MOOCs/SWAYAM etc. (T+P=3)	Z010101T/BE105 Food, Nutrition and Hygiene (T-2)	A050101T/HM101 Rashtra Gaurav	40						
					CHEMISTRY	B020101T/CH151: Fundamentals of Chemistry-I (T4) B020102P/CH134: Quantitative Analysis (P2)												
	II	B040201T/BS177 Archegoniates & Plant Architecture (T-4) B040202P/BS178 Land Plants Architecture (P-2)		ZOOLOGY	B050201T/BS175 Biochemistry & Physiology (T4) B050202P/BS176 Physiological, Biochemical & Haematology Lab (P2)		• ES115/BM186 Fundamentals of Environmental Science OR A040209T/LN109 Basics of Communication (4+2=6)						• B050203V/BS179 Apiculture OR • B000201V/CH144 Laboratory Safety & Sample Handling OR • MOOCs/SWAYAM etc. (T+P=3)	Z020201T/NS110 First Aid and Health (T-2)	B100208T/BS116 Artificial Intelligence in Biological Sciences			
				CHEMISTRY	B020201T/CH139: Bioorganic and Materials Chemistry (T4) B020202P/CH141: Biochemical Analysis (P2)													
	Diploma in Science (Botany & Zoology OR Botany & Chemistry) 40+40=80	2		III	B040301T/BS266 Flowering Plants Identification & Aesthetic Characteristics (T4) B040302P/BS267 Plant Identification technology (P2)	ZOOLOGY	B050301T/BS264 Molecular Biology, Bioinstrumentation & Biotechniques (T4) B050302P/BS265 Bioinstrumentation & Molecular Biology Lab (P2)			• B100303V/BS247 Molecular Diagnostics OR • B000301V/CH237 Food Testing and Quality Control OR • MOOCs/SWAYAM etc. (T+P=3)	Reginal Languages*** (T2)			40				
						CHEMISTRY	B020301T/CH232: Chemical Dynamics & Coordination Chemistry(T4) B020302P/CH234: Physical Analysis (P2)											
IV		B040401T/BS275 Economic Botany, Ethnomedicine & Phytochemistry (T4) B040402P/BS276 Commercial Botany & Phytochemical Analysis (P2)	ZOOLOGY	B050401T/BS273 Gene Technology, Immunology and Computational Biology (T4) B050402P/BS274 Genetic Engineering and Counselling Lab (P2)		• A040405T/LN234 Effective Professional Communication Skills OR • Entrepreneurship Development OR • Numerical analysis & testing of hypothesis (4+2=6)		Z040401T/PH201 Physical Education and Yoga (T-2)	B040403R/BS278 Industrial visit & survey report/internship OR B020405R/CH259 Chemistry Summer Internship (R-3)									
			CHEMISTRY	B020401T/CH239: Quantum Mechanics and Analytical Techniques (T4) B020402P/CH241: Instrumental Analysis (P2)														
3-Year, UG Degree in Botany & Zoology OR Botany & Chemistry																		

3-Year B.Sc. in Botany & Zoology OR Botany & Chemistry 80+50=130 (120)	3	V	<b>B040501T/BS360</b> Plant Physiology, Metabolism & Biochemistry (T-4) <b>B040502T/BS380</b> Molecular Biology & Bioinformatics (T-4) <b>B040503P/BS381</b> Experiments in physiology, Biochemistry & molecular Biology (P-2)	<b>ZOOLOGY</b> <b>B050501T/BS367</b> Diversity of Non-Chordates, Parasitology and Economic Zoology (T-4) <b>B050502T/BS368</b> Diversity of Chordates and Comparative Anatomy (T-4) <b>B050503P/BS369</b> Lab on Virtual Dissection, Anatomy, Economic Zoology and Parasitology (P2)						40	
			<b>CHEMISTRY</b> <b>B020501T/CH337:</b> Organic Synthesis-A (T4) <b>B020502T/CH338:</b> Rearrangements and Chemistry of Group Elements (T4) <b>B190503P/CH339:</b> Qualitative Analysis (P2)								
		VI	<b>B040601T/BS370</b> Cytogenetics, Plant Breeding & Nanotechnology (T4) <b>B040602T/BS382</b> Ecology & Environment (T4) <b>B040603P/BS383</b> Cytogenetics, Conservation & Environment management (P-2)	<b>ZOOLOGY</b> <b>B050601T/BS377</b> Evolutionary and Developmental Biology (T4) <b>B050602T/BS378</b> Ecology, Ethology, Environmental Science and Wildlife (T4) <b>B050603P/BS509</b> Lab on Environmental Science, Behavioral Ecology, Developmental Biology, Wildlife, Ethology (P-2)	<b>CHEMISTRY</b> <b>B020601T/CH353:</b> Organic Synthesis-B (T4) <b>B020602T/CH354:</b> Chemical Energetics and Radiochemistry (T4) <b>B020603P/CH355:</b> Analytical Methods (P2)						
4-Year UG Degree with Honours in Botany (<75% Marks)											
4-Year B.Sc. in Botany with Honours 130+40=170 (160)	4	VII	<b>BOTANY</b> <b>B040701T/BS471</b> Plant Virology and Bacteriology (T4) <b>B040702T/BS472</b> Phycology and Bryology (T4) <b>B040703T/BS473</b> Mycology and Plant Pathology (T4) <b>B040704T/BS474</b> Pteridophytes, Gymnosperms and Palaeobotany (T4) <b>B040706P/BS476</b> Botany Lab-I (P4)							40	
		VII I	<b>B040801T/BS491</b> Advance Plant Systematics (T4) <b>B040802T/BS492</b> Plant Anatomy & Reproduction (T4) <b>B040803T/BS493</b> Environment, Ecology and Plant Soil Relationship (T4) <b>B040804T/BS494</b> IPR & Biosafety (T4) <b>B040805P/BS495</b> Botany Lab-II(P4)								
4-Year UG Degree with Honours & Research in Botany (≥75% Marks)											
4-Year B.Sc. in Botany with Hon. & Research 130+40=170 (160)	4	VII	<b>B040705T/BS475</b> Plant Virology, Bacteriology and Pathology (T4) <b>B040702T/BS472</b> Phycology and Bryology (T4) <b>B040704T/BS474</b> Pteridophytes, Gymnosperms and Palaeobotany (T4) <b>B040706P/BS476</b> Botany Lab-I (P4)						<b>B040707R/ BS477</b> Botany Research Project-I (R-4)	40	
		VIII	<b>B040801T/BS491</b> Advance Plant Systematics (T4) <b>B040802T/ BS492</b> Plant Anatomy & Reproduction (T4) <b>B040803T/BS493</b> Environment, Ecology and Plant Soil Relationship (T4) <b>B040805P/BS495</b> Botany Lab-II (P4)						<b>B040806R/ BS496</b> Botany Research Project-II (R-4)		

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M.Sc. in Botany  170+40=210 (200)	5	IX	B040901T/BS571 Plant Biochemistry and Physiology (T4)						B040906R/BS576 Botany Research Project-III (R-4)	40
			B040902T/BS572 Plant Biotechnology (T4)							
		B040903T/BS573 Cytogenetics and molecular biology (T4)								
		B040905P/ BS575 Advance Botany Lab-I (P4)								
		X	B041001T/BS591 Agricultural Ecology (EI T4)						B041008R/ BS598 Botany Research Project-IV (R-4)	
	OR		B041002T/ BS592 Ecotoxicology and Environmental health (EI T4)							
			B040904T/BS574 Plant Resource Utilization and Conservation (T4)							
			B041006T/ BS596 Contemporary concepts and methods in Cell Biology (T4)							
			B041007P/BS597 Advance Botany Lab II (P4)							

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