Cumulative minimum credits (Required for the award of certificates/ diploma/degree)			**Subject I**	**Subject II**	**Subject III**	**Vocational**	**Co-curricular****	**Audit Course***	**Industrial training Survey/ Research project**	**Minimum Credits** (Year)
			Major	**Major**	**Minor Elective**	**Minor**	**Minor**	Compulsory	**Major**	
			4/5/6 Credits	**4/5/6 Credits**	**4/5/6 Credits**	**3 Credits**	**2 Credits**	**Non-credits**	**4/6 Credits**	
	Y.	**Sem.**	**Own Faculty**	**Other Faculty**	**Other Faculty**	**Vocational/ Skill development course**	**Co-curricular** (Qualifying)	**Audit Course (Q & NC)**	**Inter/Intra Faculty related to main subject**	
40 Certificate in Biotechnology	**1**	**I**	Introduction to Cell Biology and Genetics **(Th-4)** Biochemistry and Metabolism **(Th-4)** Introduction to Cell Biology and Genetics Lab (**Pract-2)** Basic Biochemistry Lab (**Pract-2)**		Mathematics / Essential Professional Communication/EVS **(C-6)**	Animal and plant Biotechnology/ NPTEL/SWAYAM /MOOC **(Th-3)**	Food, Nutrition and Hygiene **(2-Credit)**	Rashtra Gaurav **(0-Credit)**	-	**40** (First Year)
		II	Human Physiology **(Th-4)** Plant anatomy and Physiology (**Th-4)** Human Physiology Lab **(Pract-2)** Plant structure and Physiology Lab **(Pract-2)**			Food Adulteration NPTEL/SWAYAM /MOOC **(3-Credit)**	First Aid and Health **(2-Credit)**	Artificial Intelligence in Biological Sciences **(0-Credit)**		
80 Diploma in Biotechnology **(40+40)**	**2**	**III**	Molecular Biology **(Th-4)** Fundamentals of Microbiology (**Th-4)** Molecular Biology Lab **(Pract-2)** Basic Microbiology Lab **(Pract-2)**		Chemistry/Descriptive Stats/ Entrepreneurship Development **(C-6)**	Molecular diagnostics/ NPTEL SWAYAM /MOOC **(3-Credit)**	Regional Language** **(2-Credit)**			**40** (Second Year)
		IV	Industrial Biotech and Bioprocess Technology **(Th-4)** Infection and Immunity **(Th-4)** Industrial Biotech Lab (**Pract-2)** Immunological Techniques Lab **(Pract-2)**				Physical Education and Yoga **(2-Credit)**		Industrial visit & survey report/ Internship **(3-Credit)**	
3-Year Single Subject with Hons UG Degree										
80 + 50 = 130) (120) 3-Year B.Sc. Biotechnology with Hons	**3**	**V**	Biostatistics and Bioinformatics **(Th-4)** Bioanalytical Tools **(Th-4)** Genetic Engineering (**Th-4)** Medical Biotechnology **(Th-4)** Bioinformatics and Biostatistics Lab **(Pract-2)** Genetic Engineering Lab **(Pract-2)**						Research Project minor & seminar **(5-Credit)**	**50** (Third Year)
		VI	Essentials of Environmental Biotechnology **(Th-4)** Bionanotechnology **(Th 4)** Food Microbiology and Biotechnology (**Th-4)** Applied Biotechnology/ Genomics, Proteomics and Metabolomics **(Elective: Th 4)** Essentials of Environmental Biotechnology **Lab (Pract-2)** Food microbiology and Biotechnology Lab **(Pract-2)**						Research Project & dissertation **(5 Credit)**	

4-Year UG Degree with Hons (<75% Marks)										
(130 + 40 = 170) (160) 4-Year B.Sc. Biotechnology with Hons	**4**	**VII**	Biomolecules: Structure and Function (Th-4) Essentials of Molecular Biology (Th-4) Biophysical & Biochemical Methods (Th-4) Bioinformatics and IPR & Biosafety (Th-4) Biochemistry/Bioinformatics Lab. (Pract 2+2)							**40** (Fourth Year)
		VIII	Gene Expression Regulation (Th-4) Microbiology (Th-4) Metabolism & Bioenergetics (Th-4) Enzymology & Enzyme Kinetics (Th-4) Microbiology / Enzymology Lab. (Pract 2+2)							
4-Year UG Degree with Hons & Research (≥75% Marks)										
(130 + 40 = 170) (160) 4-Year B.Sc. Biotechnology with Hons & Research	**4**	**VII**	Biomolecules and Basic Bioinformatics (Th-4) Essentials of Molecular Biology (Th-4) Biophysical & Biochemical Methods (El Th-4) Bioinformatics and IPR & Biosafety **(El Th-4)** Biochemistry/Bioinformatics Lab. (Pract 2+2)						Research Project/ Internship -I **(4-Credit)**	**40** (Fourth Year)
		VIII	Gene Expression Regulation (Th-4) Microbiology (El Th-4) Enzymology & Enzyme Kinetics (El Th-4) Metabolism & Bioenergetics (Th-4) Metabolism/Microbiology / Enzymology Lab. (Pract 2+2)						Research Project-II **(4 Credit)**	
(170 + 40 = 210) (200) M.Sc. Biotechnology	5	**IX**	Molecular Cell Biology and rDNA- Technology (Th-4) Bioprocess Engineering & Industrial Biotechnology (Th-4) Immunology (Th-4) rDNA Technology/Immunology Lab (Pract 2+2)						Research Project/ Internship-III **(4-Credit)**	**40** (Fifth Year)
		X	Advanced Molecular Techniques (Th-4) Free Radical Biology and Applied Biotechnology (El Th-4) Advanced Molecular Genetics (El Th-4) Food Biotechnology (Th-4) Advanced Molecular Techniques/ Food Biotechnology Lab (Pract 2+2)						Research Project-IV **(4-Credit)**	

- ✓ T-4 = Theory with 4 credits; P-2 = Practical with 2 credits; R = Research Project with 4 credits; Q: Qualifying; NC = Non-Credit.
- ✓ 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.
- ✓ **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.
- ✓ 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 ≥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.