

Guidelines for the admission in M.Sc. Biotechnology Course

Centre for Biotechnology

University of Allahabad

Session 2020-2021

Please visit [http:// www.aupravesh2020.com](http://www.aupravesh2020.com) or click on link **Admission-2020** of www.allduniv.ac.in for ONLINE Application and more details

IMPORTANT NOTES

1. The applicant must take due care while filling up Online Application Form. The information provided by the applicant in his/her form shall not be changed or altered in any case and the University will not entertain any such request under any circumstances. The University shall not be liable for any mistake made by the applicant.
2. In case, the number of registered candidates at any of the examination centres is less than 100 (One Hundred), all such registered candidates will be allotted to the nearest examination centre.
3. There is no provision of revaluation/scrutiny of answer sheets.
4. In case of any discrepancy in the Hindi version, the English version of the brochure will be treated as final.
5. Only such RTI applications shall be entertained which are received within 60 days from the declaration of final result.
6. Each candidate is required to mention his/her Sub-Category alongwith his/her Overall Category i.e. UR, SC, ST OBC and EWS.
7. To give benefit to applicant who has appeared in/passed the final year of the graduation course required for eligibility in academic session 2019-2020, the applicant who has passed the final year of the graduation course required for eligibility will attract deduction of 5% for every session gap. The maximum deduction will not be more than 15% in any case.
8. Every candidate will have to declare about any disciplinary action/police action against him.
9. The Registration Fees: Unreserved, EWS and OBC Category is Rs.1600/- and SC/ST/PH is Rs. 800/.
10. Every candidate can view his/her Answer Sheet within one month of declaration of Results by paying a token amount of Rs. 100/- at Pravesh Bhawan.

Total Number of seats in M. Sc. (Biotechnology): 16 (Sixteen)

Eligibility: Graduation with 50% marks with one or two of the following subjects: Biology/Biotechnology/Biochemistry/Neurobiology/Zoology/Botany. In addition veterinary Science, MBBS and BTech (Biotechnology) and BE (Biotechnology) graduates shall also be eligible.

Age and Reservation: As per the University of Allahabad PGAT courses and Government of India norms

Fees to be paid at the time of Admission:

- Rs. 3810/- (including refundable caution fee of Rs. 2000/-)- Admission and first year Examination fees.
- Rs. 30,000/- Semester Fee (for 1st Semester)
- Hostel expenses extra if get admitted in hostel

INFORMATION AND INSTRUCTIONS RELATING TO THE ADMISSION TEST

Admit Card: Admit Cards for all the valid applications received by the university will be processed and enabled on the website www.aupravesh2020.com. The Candidates can download their admit card from the website after entering their Application ID and date of birth. Candidates must correctly enter their date of birth in the Online Application Form. All Admit Cards will be uploaded for all the valid applications one week before actual commencement of the Test.

IMPORTANT: No Admit Card will be sent by post or distributed from the counters. The Admit Cards downloaded from the website www.aupravesh2020.com are valid and does not require any attestation.

Note: The information provided and the data supplied by the applicant through Registration Application/Form shall be preserved in the University for a period of only six months from the date of the declaration of the result of Entrance/Admission Test. The records will be disposed off after the said period and no enquiry shall be entertained in this regard by the University after the expiry of the said period. The University shall use this data for various purposes; hence, in no case shall any change be allowed at a later stage. Therefore, all the information must be furnished correctly, completely and clearly by the applicant himself/herself as per the instructions given in the brochure/website www.aupravesh2020.com. The Evaluated OMR Answer Sheets/Answer Booklets will be preserved only for a period of six months after the declaration of results of Entrance/Admission Test. The records will be disposed off after the said period and no enquiry shall be entertained in this regard by the University after the expiry of the said period.

ONLINE APPLICATIONS: Candidates can submit online form for the PGAT-2020 test at the website www.aupravesh2020.com. The website provides all the information required for online form submission.

Online Prospectus: The prospectus for M. Sc. (Biotechnology) can be downloaded from the website www.aupravesh2020.com and the admission seeking candidates can visit the website and download it. Candidates are advised to read the prospectus carefully before applying.

Process of filling up the Online Registration Form: Candidates willing to submit the online form are first required to open the website www.aupravesh2020.com and submit their online form, by entering all columns correctly.

PROCEDURE FOR ONLINE SUBMISSION OF APPLICATION FORM FOR ADMISSION TEST

Candidates can submit online form for the Admission Test-2017 at the concerned link of the website www.aupravesh2020.com or Admission-2020 link www.allduniv.ac.in. The website has all the information required for online form submission. Online Prospectus: The prospectus for all courses of Admission Test-2020 is available on the concerned link of the www.aupravesh2020.com or Admission-2020 link www.allduniv.ac.in and the admission aspirants can visit the website and download it. Aspirants are advised to read the prospectus carefully before applying.

Requirement for Online Form Submission:

All aspirants filling the online form are advised to read the instructions to fill up the online form, which has all the pre-requisite and the guidelines in this regard. Admission aspirants are required to have following in advance while submitting Application Form :

- (i) A scanned copy of their coloured photograph (3.5 x 4.5 cm) and their signature. These scanned copies of coloured photo (3.5 x 4.5 cm) in JPEG (*.JPG) Format and Signature in JPEG (*.JPG) Format are required to be uploaded during the online form submission. The file size of photograph and signature in any case shall not exceed 80 KB for each file separately.
- (ii) **Aadhar Number**, in case the candidate is having.

Note:

- **For admission, the candidates should report to the respective Department, as per their admission schedule.**

For convenience of applicants applying online, a Help Desk, offering following phone number and email ID, has been setup by University of Allahabad:

Tolled Number: 9453819385, 9455874516

Helpdesk email ID: helpdesk.aupraves2020@gmail.com

SYLLABUS FOR THE ENTRANCE TEST

Biomolecules-structure and functions; Biological membranes, structure, action potential and transport processes; Enzymes- classification, kinetics and mechanism of action; Basic concepts and designs of metabolism (carbohydrates, lipids, amino acids and nucleic acids) photosynthesis, respiration and electron transport chain; Bioenergetics.

Viruses- structure and classification; Microbial classification and diversity (bacterial, algal and fungal); Methods in microbiology; Microbial growth and nutrition; Aerobic and anaerobic respiration; Nitrogen fixation; Microbial diseases and host-pathogen interaction.

Prokaryotic and eukaryotic cell structure; Cell cycle and cell growth control; Cell-Cell communication, Cell signaling and signal transduction.

Molecular structure of genes and chromosomes; Mutations and mutagenesis; Nucleic acid replication, transcription, translation and their regulatory mechanisms in prokaryotes and eukaryotes; Mendelian inheritance; Gene interaction; Complementation; Linkage, recombination and chromosome mapping; Extra chromosomal inheritance; Microbial genetics (plasmids, transformation, transduction, conjugation); Horizontal gene transfer and Transposable elements; RNA interference; DNA damage and repair; Chromosomal variation; Molecular basis of genetic diseases.

Principles of microscopy-light, electron, fluorescent and confocal; Centrifugation- high speed and ultra; Principles of spectroscopy-UV, visible, CD, IR, FTIR, Raman, MS,NMR; Principles of chromatography- ion exchange, gel filtration, hydrophobic interaction, affinity, GC,HPLC, FPLC; Electrophoresis; Microarray.

History of Immunology; Innate, humoral and cell mediated immunity; Antigen; Antibody structure and function; Molecular basis of antibody diversity; Synthesis of antibody and secretion; Antigen-antibody reaction; Complement; Primary and secondary lymphoid organ; B and T cells and macrophages; Major histocompatibility complex (MHC); Antigen processing and presentation; Polyclonal and monoclonal antibody; Regulation of immune response; Immune tolerance; Hypersensitivity; Autoimmunity; Graft versus host reaction.

Major bioinformatics resources and search tools; Sequence and structure databases; Sequence analysis (biomolecular sequence file formats, scoring matrices, sequence alignment,

phylogeny); Data mining and analytical tools for genomic and proteomic studies; Molecular dynamics and simulations (basic concepts including force fields, protein-protein, protein-nucleic acid, protein-ligand interaction)

Restriction and modification enzymes; Vectors; plasmid, bacteriophage and other viral vectors, cosmids, Ti plasmid, yeast artificial chromosome; mammalian and plant expression vectors; cDNA and genomic DNA library; Gene isolation, cloning and expression ; Transposons and gene targeting; DNA labeling; DNA sequencing; Polymerase chain reactions; DNA fingerprinting; Southern and northern blotting; In-situ hybridization; RAPD, RFLP; Site-directed mutagenesis; Gene transfer technologies; Gene therapy.

Totipotency; Regeneration of plants; Plant growth regulators and elicitors; Tissue culture and Cell suspension culture system: methodology, kinetics of growth and, nutrient optimization; Production of secondary metabolites by plant suspension cultures; Hairy root culture; transgenic plants; Plant products of industrial importance.

Animal cell culture; media composition and growth conditions; Animal cell and tissue preservation; Anchorage and non-anchorage dependent cell culture; Kinetics of cell growth; Micro & macro-carrier culture; Hybridoma technology; Stem cell technology; Animal cloning; Transgenic animals.

Chemical engineering principles applied to biological system, Principle of reactor design, ideal and non-ideal multiphase bioreactors, mass and heat transfer; Rheology of fermentation fluids, Aeration and agitation; Media formulation and optimization; Kinetics of microbial growth, substrate utilization and product formation; Sterilization of air and media; Batch, fed-batch and continuous processes; Various types of microbial and enzyme reactors; Instrumentation control and optimization; Unit operations in solid-liquid separation and liquid-liquid extraction; Process scale-up, economics and feasibility analysis.

Engineering principle of bioprocessing - Upstream production and downstream; Bioprocess design and development from lab to industrial scale; Microbial, animal and plant cell culture platforms; Production of biomass and primary/secondary metabolites; Biofuels, Bioplastics, industrial enzymes, antibiotics; Large scale production and purification of recombinant proteins; Industrial application of chromatographic and membrane based bio-separation methods; Immobilization of biocatalysts (enzymes and cells) for bioconversion processes; Bioremediation-Aerobic and anaerobic processes for stabilization of solid / liquid wastes.

Tissue culture and its application, Micropropagation. Meristem culture and production of virus-free plants. Anther and microspore culture. Embryo and ovary culture. Protoplast isolation. Protoplast fusion-somatic hybrids, cybrids. Somaclones. Synthetic seeds. In vitro germplasm conservation. Cryopreservation. Organelle DNA, Satellite-and repetitive DNAs. DNA repair. Regulation of gene expression. Recombinant DNA technology-cloning vectors, restriction enzymes, gene cloning. Methods of gene transfer in plants. Achievements and recent developments of genetic engineering in agriculture. Development of transgenics for biotic & abiotic stress tolerance, bioethics, terminator technology, nanotechnology, DNA fingerprinting, gene silencing.

Also some questions of the level of 10+2 in the subjects: Physics, Chemistry, Mathematics and Biology.