

**Combined Entrance Examination
conducted by
Jawaharlal Nehru University
for admission to
M.Sc.(Agri.) Biotechnology & M.V.Sc.
Programmes of Study**

www.jnu.ac.in

PROSPECTUS

**ACADEMIC SESSION
2011-12**

Check List

Before submitting/posting the completed application form please check/note that:-

- ☞ **PLEASE REFOLD THE APPLICATION FORM ONLY WHERE IT WAS ORIGINALLY FOLDED. DO NOT STAPLE, PIN OR STITCH ANY DOCUMENTS WITH THE APPLICATION FORM. SEND THE BANK DRAFT IN THE ENVELOPE PROVIDED. KEEP THEM LOOSE ALONG WITH THE APPLICATION FORM INSIDE THE ENVELOPE.**
- ☞ **Please fill the form in your own handwriting.**
- ☞ You have noted down your Application Form Number for future correspondence or retained a photocopy of the filled in Application Form;
- ☞ Your Application Form is complete in all respects;
- ☞ You have pasted recent (not more than two months old) passport size photograph in the Application Form.
- ☞ **You have passed the qualifying examination in 2009 or thereafter or you are appearing in 2011. In other words, those who have passed the qualifying examination PRIOR to 2009 are NOT eligible to apply;**
- ☞ **You fulfil the eligibility requirements as prescribed in the Prospectus. You should, appear in the entrance examination only if you fulfil the eligibility requirements for M.Sc. (Agri) Biotechnology/M.V.Sc. Programme. Despite this caution, in case you do not meet the minimum eligibility criteria and still appear in the entrance examination, you will do so at your own risk and cost, and if at any stage, it is found that you do not fulfil the minimum eligibility requirements, the admission, if granted to you, shall be cancelled ipso facto.**
- ☞ **Examination Fee:** you have enclosed a Demand Draft drawn after 7th February, 2011 and valid for six months in favour of “JAWAHARLAL NEHRU UNIVERSITY” payable at **New Delhi** for the amount indicated below towards the entrance examination fee.

**General Category Candidates
including OBC Candidates**

Rs. 600/-

**SC/ST/PH Category Candidates
(PH includes OH, VH and HH)**

Rs. 300/-

Foreign Nationals

US\$ 25.00 or Rs.1250/-

- ☞ Application Forms can be submitted by Registered Post to Section Officer (Admissions), Room No.28, Administrative Block, Jawaharlal Nehru University, New Delhi - 110067 or dropped in the Box in the Administrative Block of the University. The application forms must reach the JNU on or before March 21, 2011. JNU will not accept responsibility for any postal delay or irregularity or loss in postal transit.

PLEASE DO NOT SEND YOUR APPLICATION FORM THROUGH PRIVATE COURIER SERVICES

CONTENTS

| Sr. No. | Section | Page |
|---------|--|------|
| I | GENERAL – PARTICIPATING UNIVERSITIES | 01 |
| II | ELIGIBILITY FOR ADMISSION | 08 |
| III | RESERVATION/CONCESSION | 09 |
| IV | SYLLABUS | 09 |
| V | GUIDELINES FOR ENTRANCE EXAMINATION | 11 |
| VI | PREVIOUS YEARS' QUESTION PAPERS | 11 |
| VII | SELECTION PROCEDURE | 11 |
| VIII | ADMIT CARD FOR ENTRANCE EXAMINATION | 12 |
| IX | TIME-TABLE FOR ENTRANCE EXAMINATION | 13 |
| X | HOSTEL FACILITIES | 13 |
| XI | CERTIFICATES AND OTHER DOCUMENTS REQUIRED AT THE TIME OF ADMISSION | 13 |
| XII | INSTRUCTIONS FOR COMPLETING THE APPLICATION FORM | 14 |
| - | CENTRES OF ENTRANCE EXAMINATION | 15 |
| - | EXAMINATION FEE | 15 |

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| I. GENERAL |
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Biotechnology is a multi-disciplinary area in the educational scene and programmes have been developed to meet the growing demand for trained manpower for any meaningful Biotechnology activity. The Government of India has allotted high priority to development in the area of Biotechnology and its exploitation in agriculture and other related disciplines.

Jawaharlal Nehru University will hold Combined Entrance Examination for admission to:-

[i] M.Sc. (Agri.) Biotechnology Programme being offered at the following participating Universities:

1. Ch. Sarwan Kumar H.P.Krishi Vishwavidyalaya, Palampur;
2. G.B. Pant University of Agriculture and Technology, Pant Nagar;
3. Indira Gandhi Agricultural University, Raipur;
4. Kerala Agricultural University, Thrissur;
5. Marathwada Agricultural University, Parbhani (Maharashtra);
6. Orissa University of Agriculture & Technology, Bhubaneswar;
7. Tamil Nadu Agricultural University, Coimbatore;
8. University of Agricultural Sciences, G.K.V.K., Bangalore, Karantaka; and
9. University of Agricultural Sciences, Dharwad.
10. Rajendra Agricultural University, Bihar

[ii] M.V.Sc. Programme is being offered at

1. Chaudhary Charan Singh Haryana Agricultural University, Hisar;
2. G.B. Pant University of Agriculture & Technology, Pantnagar;
3. Madhya Pradesh Pashu Chikitsa Vigyan Vishwavidyalaya, Jabalpur,
4. Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana.
5. Nagpur Veterinary College, MAFSU, Nagpur
6. Assam Agricultural University, Guwahati

The Examination will be held on May 20, 2011, at Centres all over the country (detail of Centres is shown under Section-XII of the Prospectus).

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| 1. CHAUDHARY CHARAN SINGH HARYANA AGRICULTURAL UNIVERSITY, HISAR (8 seats) * |
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Chaudhary Charan Singh Haryana Agricultural University, Hisar offers programme in Animal Biotechnology and successful candidates are awarded M.V.Sc. degree in Animal Biotechnology. Candidates admitted to the programme are eligible for award of studentship at the prescribed rate of Rs. 5000/- per month under the Department of Biotechnology Human Resource Development Project.

The courses are innovative and cover basic, fundamental and specialized areas related to Animal Biotechnology. Submission of thesis based on research projects carried out by the students is mandatory part of the degree programme.

The thrust areas for teaching are: Fundamentals of Cell and Molecular Biology, Animal Cell Culture; Principles and Applications, Molecular Diagnostics, Animal Genomics, Reproductive Biotechnology, Techniques in Molecular Biology and Genetic Engineering, Basic & Applied Biotechnology, Applied Molecular Biology, Vaccine Biotechnology, Immunology Applied to Biotechnology, Introduction to Bioinformatics, Biodiversity, Biosafety & Bioethics, Molecular Forensics, Industrial Biotechnology, Probiotics & Feed Biotechnology, Animal Biotechnology.

The major research areas on which the admitted students would be given research projects are: animal genomics, DNA based diagnostics, recombinant DNA technology, gene expression, molecular characterization and phylogenetic analysis of animal pathogens, immunological causes of infertility in farm animals, embryo manipulation, sexing and transfer, etc. Department of Animal Biotechnology is equipped with modern equipments including automatic DNA sequencer and realtime PCR, etc.

Fees to be paid at time of Admission: Rs.16000/- (approx.)

Contact Address: Dr. M.L. Sangwan,
Coordinator
Department of Animal Biotechnology,
College of Veterinary Sciences,
Ch. Charan Singh Haryana Agricultural University,
Hissar - 125004
Phone No. : 01662-289132
Fax No. : 01662-284340, 234613, 284312
E-mail : manoharsangwan@gmail.com
mlsangwan@hau.ernet.in

2. CH. SARWAN KUMAR H.P. KRISHI VISHWAVIDYALAYA, PALAMPUR (05 seats) *

Ch. Sarwan Kumar H.P. Krishi Vishwavidyalaya, Palampur offers programme in Biotechnology leading to award of M.Sc. Agricultural Biotechnology degree. This programme is in collaboration with the Institute of Himalayan Bioresource Technology (CSIR), Palampur. Under this programme, the students admitted are imparted intensive training in the basic principles and applied aspects, both in theory and practicals, of Plant Biotechnology. All the students are paid scholarship @ Rs.1800/- per month.

The thrust areas of thesis research include, DNA fingerprinting; gene tagging, gene pyramiding and markers-assisted selection; transgenics; biotic and abiotic stress-induced gene expression and cloning; metabolomics and proteomics; and *in vitro* techniques in crop improvement.

Fees to be paid at time of Admission: Rs.12,000/- Approx.

Contact Address: Dr. S R Thakur,
Head
Department of Agricultural Biotechnology,
CSK Himachal Pradesh Krishi Vishwavidyalaya,
Palampur - 176062 (HP)
Phone No. : 01894-230314
Fax No. : 01894-230511, 230406
E-mail : srthakur@hillagric.ernet.in
achbb@hillagric.ernet.in

**3. G.B. PANT UNIVERSITY OF AGRICULTURE & TECHNOLOGY, PANTNAGAR
(15 seats for M.Sc. (Agri) and 05 seats for M.V.Sc) ***

Biotechnology Programme at G.B. Pant University offers both M.Sc. (Agri.) and M.V.Sc. courses in Molecular Biology and Biotechnology. Students from B.Sc. in ZBC/PCM and B.Sc. (Biotechnology) are also eligible. However, they have to study some remedial courses of 24 credit hours in relevant fields of agriculture and the degree awarded will be M.Sc. (Agri.). Molecular Biology and Biotechnology and for them course duration will be of three years with the same DBT norms of fellowship. Candidates admitted to the Programme are awarded scholarship of Rs. 1,800/- and Rs. 5,000/- per month for M.Sc. (Agri.) and M.V.Sc. respectively. The major thrust areas of research at this centre include Recombinant DNA Technology, Tissue culture, Signal transduction in relation to host-parasite interactions, Abiotic and Biotic stress management, Transgenic development for nutritive value addition and disease resistance, Molecular cytogenetics, Nutraceuticals, Nutrigenomics, Proteomics, Bioprospection and Metabolomics, Edible and Recombinant vaccine production, Immunodiagnosics for plant and animal disease surveillance and Embryo Transfer Technology.

Fees to be paid at time of Admission: Rs.20498/- (approx.)

Contact Address: Dr. Anil Kumar,
Professor & Head,
Department of Molecular Biology & Genetic Engineering,
College of Basic Sciences & Humanities,
G B Pant University of Agriculture & Technology,
Pantnagar -263145 (U S Nagar)
Uttarakhand
Phone No. : 05944-233898
Fax No. : 05944-233473
E-mail : ak_gupta2k@rediffmail.com

4. INDIRA GANDHI KRISHI VISHWAVIDYALAYA, RAIPUR (10 seats) *

Indira Gandhi Krishi Vishwavidyalaya, Raipur, offers post-graduate programme in Biotechnology and successful candidates are eligible for the award of M.Sc. in Plant Molecular Biology & Biotechnology.

Major thrust areas of teaching and research are Molecular Biology, Molecular Cell Biology, Tissue Culture, Recombinant DNA Technology, Molecular Breeding, Genomics & Proteomics, Biosafety, IPR & Bioethics, Immunology & Molecular Diagnostics, Nano-Biotechnology, Biochemistry, Bio-informatics, Microbiology, Biotechnology for Biotic & Abiotic Stress Tolerance. The courses are innovative and cover basic, fundamental and specialized topics. Submission of thesis dissertation based on research projects carried out by students is part of the degree programme. The students are eligible for award of studentship of Rs.1800/- per month given by DBT.

Fees to be paid at time of Admission: Rs.7500/- (Approx)

Contact Address: Dr. D K Sharma,
 Professor & Head,
 Department of Biotechnology,
 Indira Gandhi Krishi Vishwavidyalaya,
 Raipur -492006
 Chhattisgarh
 Phone No. : 0771-2442069
 Fax No. : 0771-2442131
 E-mail : dkagriscientist@yahoo.co.in

5. MADHYA PRADESH PASHU CHIKITSA VIGYAN VISHWAVIDYALAYA, JABALPUR (10 seats) *

Animal Biotechnology Centre, Madhya Pradesh Pashu Chikitsa Vigyan Vishwavidyalaya, Jabalpur offers 2 years Post Graduate degree programme in Animal Biotechnology and candidates are awarded M.V.Sc. & A.H. degree in Animal Biotechnology. The candidates having B.V.Sc. & A.H. degree are eligible for admission. The selected candidates are awarded fellowship of Rs. 5000/- per month under Department of Biotechnology, Human Resource Development Project.

Out of the total duration of 2 year, (4 semesters), the students are exposed to course work of 35 credits during first three semesters. The last 1 semester is exclusively devoted for thesis based on research projects as per the mandate of the Animal Biotechnology Centre.

For the degree programme, ICAR course curriculum is followed exclusively. Under the course work, the students are exposed to core courses like fundamental of cell and molecular biology, animal cell culture, animal genomics, reproductive biotechnology, molecular diagnosis and various techniques in genetic engineering. Along with core courses, the student has clear supportive, and non credit but essential courses also, besides minor subjects.

The Animal Biotechnology Centre has three laboratories namely, Embryo Biotechnology Lab, Molecular Biology Lab and Molecular Diagnostics & Therapeutic Lab. Accordingly the students are assigned research problem for thesis work on cell line production and characterization, in vitro fertilization, parthenogenesis, PCR based embryo sexing, micromanipulation for somatic cell nuclear transfer, cryopreservation and conservation of germ plasm and cell lines, genetic characterization of livestock using molecular markers, RNAi approach for gene silencing, epigenetics studies, DNA based diagnosing, Recombinant DNA technology and gene expression, characterization & cloning of pathogens etc.

Fees to be paid at time of Admission: Tution fee : Rs.18500/- (approx.)

Contact Address: Prof. B. C. Sarkhel,
 Director
 Animal Biotechnology Centre,
 J N K V V Campus, Adhartal,
 Madhya Pradesh Pashu Chikitsa Vigyan Vishwavidyalaya,
 Jabalpur - 482004 (M.P.)
 Phone No. : 0761-2681089
 Fax No. : 0761-2681089, 2620783
 E-mail : sarkhelbc@yahoo.co.in
bikashsarkhel@yahoo.com

6. KERALA AGRICULTURAL UNIVERSITY, THRISSUR (10 seats) *

Candidates having B.Sc. (Agriculture) Degree and qualifying the Entrance Examination are eligible for admission. Students admitted to the programme are eligible for the award of M.Sc. degree in Agricultural Biotechnology on successful completion of the course.

The M.Sc. Agricultural Biotechnology is a Four Semester programme supported by the DBT and offered by the Centre for Plant Biotechnology & Molecular Biology, College of Horticulture located in the main campus of Kerala Agricultural University, Vellanikkara, Thrissur. The evaluation is done in 10-point credit system. The courses are designed in Major (Biotechnology) and Minor (Horticulture, Biochemistry, Microbiology, Entomology and Research Methodology) fields of study. The students will have to register for various courses to satisfy 35 credit hours. Twenty credit hours are meant for thesis research and the students should submit a thesis based on their research project, in partial fulfillment of the M.Sc. programme. Students seminar is also an integral part of the curriculum. The students are paid a scholarship of Rs. 1800/- per month.

The syllabus covers core courses and optional courses in Plant Biotechnology and Molecular Biology. The courses include techniques in Molecular Biology, Plant Tissue Culture and Genetic Engineering, Molecular Diagnostics, Industrial Biotechnology, Gene isolation and characterization, Bioinformatics etc. Minor courses include Plant Physiology, Plant Biochemistry, Microbiology, Plant Breeding and Genetics Horticulture etc. The areas of thesis research include DNA finger printing, Marker assisted selection, Gene cloning and characterization, Enzyme kinetics, in vitro pollination and fertilization,

differential Gene expression, Real time PCR assays etc. The centre is well equipped with all facilities for advanced teaching and thesis research. The facilities include Genetic Transformation lab with Biolistic gene gun; Molecular Biology lab with Real Time and Gradient PCR machines; Genome lab with Phosphorimager, sequencing and electrophoresis units; Gel documentation system, Bioinformatics centre etc.

The centre has active interaction for both teaching and research with a number of national institutions and faculty members are actively working on Biotechnology related projects funded by DBT, DST, ICAR, Ministry of Science etc. More details can be had from the site- www.kau.edu, www.kauhort.in/cpbmb.htm

Fees to be paid at time of Admission: Approx Rs.8000/-

Contact Address: Dr.(Mrs.) P A Nazeem,
Professor & Head
Centre for Plant Biotechnology and Molecular Biology,
College of Horticulture,
IT-BT Complex,
Kerala Agricultural University,
Vellanikkara, Thrissur – 680656
Kerala
Phone No. : 0487-2370822 Ext.575
Fax No. : 0487-2371994
E-mail : nazeem35@hotmail.com
panazeem@gmail.com
cpbmb@kau.in

**7. COLLEGE OF AGRICULTURAL BIOTECHNOLOGY
MARATHWADA AGRICULTURAL UNIVERSITY, LATUR (MAHARASHTRA) (10 seats) ***

The students will be awarded the M.Sc.(Agri.)Biotechnology degree on successful completion of the course.

The students are taught basic principles and applied aspects of biotechnology in plant system. The syllabus covers basic courses in Principles of Biotechnology, Fundamentals of Molecular Biology, Molecular Cell Biology, Biostatistics and Computers, Microbial Biotechnology, Plant Tissue Culture & Genetic Transformation, Techniques in Molecular Biology I, Genomics and Proteomics, Biosafety, IPR and Bioethics, Immunology and Molecular Diagnostics, Dynamic Web Design, Introduction to Bioinformatics, Molecular Breeding, Master's Seminar, Master's Research.

Fees to be paid at time of Admission: Rs.10156/- (approx.)

Contact Address: Dr. H B Patil,
Coordinator
College of Agricultural Biotechnology,
Marathwada Agricultural University,
Latur - 413512 (Maharashtra)
Phone No. : 02382-251366, 212166
Fax No. : 02382-251366
E-mail : coablatur@rediffmail.com
hbpatil2003@yahoo.co.in

8. ORISSA UNIVERSITY OF AGRICULTURE & TECHNOLOGY, BHUBANESWAR (10 seats) *

Orissa University of Agriculture and Technology, Bhubaneswar is the 2nd oldest Agricultural University of India. The University offers 2 year Post Graduate programme in Agriculture Biotechnology and successful candidates are awarded M.Sc. (Agril.) Biotechnology degree.

During the 2 years programme the students are exposed to both basic and applied aspects of biotechnology and are taught the multidisciplinary areas of Agricultural and allied field of Biotechnology. The syllabus covers core courses in principles of Biotechnology, Fundamentals of Molecular Biology, Molecular Cell Biology, Techniques in Molecular Biology, Plant Tissue Culture and Genetic Transformation, Biostatistics and Computers. The optional courses like principles of Genetics, Enzyme Technology, Genomics and Proteomics, Gene Regulation, Microbiology, Immunology and Molecular Diagnostics, Nano Biotechnology, Microbial and Industrial Biotechnology, Molecular Breeding, Environmental Biotechnology, Biosafety, IPR and Bioethics, Bioinformatics are provided. Minor Courses in the syllabus are Plant Physiology, Plant Biochemistry, Cell Biology and Cytology and Genetics, Plant Breeding and Animal Biotechnology. Submission of thesis based on research findings of the student is essential for the degree programme. The areas of thesis research include DNA fingerprinting, Gene cloning, DNA library, Molecular cytogenetics, Marker-assisted selection, Transgenics, Gene-cloning and expression, Enzyme technology, Molecular Physiology, Phytochemistry and In vitro techniques in crop improvement. Besides, the students have an opportunity to undertake training in National / International Institutes and reputed Biotechnology industries

inside the country. Students from other Institutes/Universities are doing their project work for short periods (1-6 months) as well as Ph.D. studies in related fields.

Candidate admitted to the programme are eligible to get studentship of Rs. 1,800/- per month.

Fees to be paid at time of Admission: Rs.16,000/- (Approx)

Contact Address: Prof. Gyana Ranjan Rout,
Professor & Head,
Department of Agricultural Biotechnology,
College of Agriculture,
Orissa University of Agricultural and Technology(OUAT)
Siripur, Bhubaneswar – 751003, Orissa
Phone No. : 0674-2397755
Fax No. : 0674-2397755
E-mail : grrout@rediffmail.com
headabt_bbsr@rediffmail.com

9. TAMIL NADU AGRICULTURAL UNIVERSITY, COIMBATORE (15 seats)*

Students are awarded M.Sc (Agri.) Biotechnology degree on successful completion of the course. The students are introduced to basic principles and applied aspects of biotechnology in plant systems. They are given intensive training in the multidisciplinary areas of plant biotechnology which covers recent advances in various fields of cell biology, molecular biology, genomics, proteomics, and genetic engineering. The minor courses like plant biochemistry, plant physiology and bioinformatics are added to the major courses in the programme. Supporting courses like statistical methods, Design of experiments and computer applications were also provided to the students to get needed knowledge in related fields. Submission of dissertation based on research carried out by the student is also a part of the degree programme.

All the students are eligible to get studentship of Rs.1800/- per month.

Fees to be paid at time of Admission: Tution fee : Rs.15300/- (approx.) and Hostel fee Rs.6450/- (approx.)

Contact Address: Dr. R Samiyappan,
Director
Centre for Plant Molecular Biology,
Tamil Nadu Agricultural University,
Coimbatore - 641003
Tamil Nadu
Phone No. : 0422-6611262
Fax No. : 0422-6611462
E-mail : directorcpmb@tnau.ac.in
rsamiyappan@hotmail.com

10. UNIVERSITY OF AGRICULTURAL SCIENCES, G.K.V.K., BANGALORE, KARNATAKA (10 Seats)*

The students will be awarded M.Sc. (Agri.) Plant Biotechnology degree. The Department of Plant Biotechnology, University of Agricultural Sciences, Bangalore is one of the best Department in the University with modern equipments like, Gene Sequencer, HPLC, Fermentors and all types of molecular biology equipments. University of Agricultural Sciences, Bangalore is winner of the Sardar Patel Best Agricultural University award in the year 2002, initiated several research programmes in Agri. Biotech. Bangalore being a hub of IT-BT, the University has established collaborations with the Biotechnology Industries and Institutes. The staff of the Biotechnology Department is working in the areas of Gene isolation, Transgenics, Biopharming, Molecular Breeding, Microbial Biotechnology and Bioinformatics. The University is successful in attracting competitive grants for time bound projects from central and state governments.

All the students are eligible to get studentship of Rs.1800/- per month

Fees to be paid at time of Admission: Rs.21000/- (approx.) including Hostel deposit

Contact Address: Dr. P H Ramanjini Gowda,
Professor & Head
Department of Plant Biotechnology,
University of Agricultural Sciences,
Gandhi Krishi Vignana Kendra,
Bengaluru – 560065
Phone No. : 080-23330153
Fax No. : 080-23330277
E-mail : ramanjini@yahoo.com

11. UNIVERSITY OF AGRICULTURAL SCIENCES, DHARWAD (10 seats) *

University of Agricultural Sciences, Dharwad offers M.Sc. (Agri.) in Molecular Biology and Biotechnology. The Department of Biotechnology, which is a part of the Institute of Agri-Biotechnology (IABT), has state-of-the-art equipment and facilities for research. Research at IABT focuses primarily on agricultural biotechnology especially on cloning agriculturally important genes from plants and microbial sources, molecular mapping, plant transformation and validation of genes for biotic and abiotic stresses, gene silencing, QTL detection and transfer, and metagenomics etc. The students need to do a thesis research project as part of the master's programme.

Fees to be Paid at time of Admission: Rs.9910/- (approx.) for General Category Rs.3880/- (approx.) for SC/ST category and Rs.8110/- (approx.) for other categories.

Contact Address: Dr. P.U. Krishnaraj
Professor and Head
Department of Biotechnology
University of Agricultural Sciences,
Krishinagar, Dharwad - 580005
Phone No. : 0836-2747627, 2744922
Fax No. : 0836-2747627
E-mail : krishnarajpu@gmail.com

12. RAJENDRA AGRICULTURAL UNIVERSITY, BIHAR (10 SEATS) *

Rajendra Agricultural University, Bihar, Pusa (Samastipur) offers M.Sc. Degree Programme in Agriculture Biotechnology.

This is a four semester programme supported by the DBT and offered by Faculty of Basic Sciences & Humanities, Rajendra Agricultural University, Bihar, Pusa. The evaluation is done in 10 point credit system. The students will have to offer 36 credit hours courses in Major subject Biotechnology and supporting courses in Biochemistry, Microbiology, Plant Physiology, Bioinformatics etc. and 35 credit hours for research work.

The major thrust areas in teaching and research are Tissue Culture / Cell Biology and Molecular Biology / Genetic Engineering / Molecular Biology of Biotic and A-biotic stress / Plant rhizobium interaction / Protoplast fusion / Plant transgenic etc.

Submission of thesis dissertation based on research programme carried out by students is part of the degree programme.

Infrastructural facilities for various Laboratories like Tissue Culture / Molecular Biology / Bio-imaging / Cell Biology / Microbiology / Bioinformatics / Genetic Transformation / Biochemistry / Computer Laboratory / Recombinant DNA Laboratory etc are available.

Fees to be Paid at time of Admission: Rs.8376/- (approx.) for General Category, Rs.6575/- (approx.) for SC/ST Category

Contact Address: Prof. V K Shahi,
Dean
Faculty of Basic Science and Humanities,
Rajendera Agricultural University,
Pusa, Samastipur
Bihar - 848125
Phone No. : 06274-240272
Fax No. : 06274-240272,240255,240266
E-mail : deanfbshpusa@yahoo.co.in
vkshahi2004@yahoo.co.in

13. GURU ANGAD DEV VETERINARY AND ANIMAL SCIENCES UNIVERSITY, LUDHIANA (06 SEATS) *

The School of Animal Biotechnology of Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (Punjab), under the aegis of "Post-Graduate Institute of Veterinary Education and Research" offers M.V.Sc/M.Sc (Animal Biotechnology) and Ph.D. (Animal Biotechnology). Students with B.V.Sc. & A.H. are eligible for M.V.Sc and those with B.Sc. (Medical/ Biotechnology/Biochemistry/Microbiology/Molecular Genetics) for M.Sc. Students with non-veterinary background have to take some deficiency courses.

Course work covers basic, fundamental and specialized areas of Animal Biotechnology and main thrust areas of the department include expression profiling of genes related to disease tolerance, production and reproduction; molecular characterization of genetic diversity in farm animals; Genomics and transcriptomics vis-à-vis marker assisted selection in livestock species, Development of cost effective, rapid, highly sensitive and specific field diagnostic kits, potent vaccines against economically important animal diseases.

Department has highly qualified faculty, state of the art research laboratories (Animal Genomics, Tissue culture, hybridoma, in-situ hybridization, molecular diagnostics and vaccinology) equipped with latest instruments (Real Time PCR) and extra mural funding in the form of Projects from Department of Biotechnology and other institutions for conducting teaching, research and training in various areas of Biotechnology.

Candidates admitted to the programme are eligible for award of scholarship of Rs. 1800/- and Rs. 5000/- per month for M.Sc. and M.V.Sc., respectively under the Human Resource Development Project of the DBT, Govt. of India.

Fees to be Paid at time of Admission: Non-Boarder Rs.30405/Boarder Rs.34855/- (approximately)

Contact Address: Dr. G S. Brah,
Director
School of Animal Biotechnology,,
Guru Angad Dev Veterinary and Animal Sciences University,
Ludhiana-141004, Punjab
Phone No. : 0161-2414023
Fax No. : 0161-2400822
E-mail : gsbrah@yahoo.co.in; gsbrah@gadvasu.in

14. NAGPUR VETERINARY COLLEGE, MAFSU, NAGPUR (10 SEATS) *

Maharashtra Animal & Fishery Sciences University (MAFSU), Nagpur offers programme in Animal Biotechnology and successful candidates are awarded M.V.Sc. degree in Animal Biotechnology. Candidates admitted to the programme are eligible for award of fellowship at the prescribed rate of Rs. 5000/- per month under the Department of Biotechnology Human Resource Development Project.

Thrust area for teaching are cellular and molecular biology, animal genomics, assisted reproductive biotechnology, molecular diagnostics, vaccine biotechnology, animal cell biotechnology and bioinformatics. Additionally students will undergo summer training with R&D organization.

Major areas for thesis research include Molecular characterization of pathogens, Nucleic acid based and immuno-diagnostics, recombinant DNA technology, Assisted reproductive biotechnology and stem cell.

Department is well equipped and has many modern equipments including Real time PCR and good facility for bioinformatics. For more detail visit website www.mafsu.in

Fees to be Paid at time of Admission: Rs. 10500/- (General category); Rs. 3000/- (Reservation category SC/ST/OBC only). Hostel fees: Rs. 3600/- for All students.

Contact Address: Dr. D. R. Kalorey
Prof. & Course Coordinator (HRD)
Department of Microbiology & Animal
Biotechnology T & RC.
Nagpur Veterinary College,
MAFSU, Nagpur
Phone No. : 0712-2510087
Fax No. : 0712-2510883
E-mail : dewanandkalorey@rediffmail.com

15. ASSAM AGRICULTURAL UNIVERSITY, GUWAHATI (5 SEATS) *

The DBT-supported M.V.Sc. programme in Animal Biotechnology was started from the year 2010 with an annual intake capacity of 10 students, out of which 5 seats are reserved for domiciles of North Eastern Region and those who studied at least for 3 years post HSLC in any of the northeastern states.

Besides imparting teaching, the college carries out field oriented researches in all disciplines of animal husbandry and veterinary, and also provides extension services to the farmers with the aim of technology transfer. A number of research projects funded by agencies like ICAR, NAIP, DBT, DST, World Bank, DRDO etc. are currently being implemented in different departments of the college.

i. The college has a well-equipped library, which provides textbooks, journals and other periodicals to the students.

- ii. Regular students are required to stay in the hostels unless otherwise permitted by the concerned authority. At present, there are altogether 7 boys' and 3 girls' hostels in the college. The hostels are equipped with basic amenities and a student may require approximately Rs. 800.00 per month to meet the expenses on food in addition to the hostel rent etc.
- iii. The college also provides ample opportunities to the students to cultivate their talents in different fields of extra-curricular activities including sports. It also provides facilities for horse riding.
- iv. The college has a well-equipped Health Centre with adequate staff for providing 24-hour health care services to the students and other campus inmates.
- v. There is a separate Directorate of Students' Welfare to look after the students' welfare and amenities.
- vi. The college has its own Local Area Network with 24-hour 2 Mbps (1:1) Internet connectivity.

Fees to be Paid at time of Admission: Dayscholar -Rs.25,200.00
Hosteller - Rs.25,450.00 (excluding Mess dues)

Contact Address: Dr. Probodh Borah
Coordinator, PG Programme in Animal
Biotechnology and Professor,
Department of Microbiology
College of Veterinary Science
Assam Agricultural University,
Khanapara, Guwahati - 781022
Phone No. : 0361-2334990
Fax No. : 0361-2337700,2361175
E-mail : cvsguwahati.btisnet@nic.in
borahp@rediffmail.com

* Number of seats is subject to revision by the participating Universities.

II. ELIGIBILITY FOR ADMISSION

Bachelor's degree under 10+2+3/4/5 pattern of education with at least 55% marks or its equivalent grade point average from any recognized university in the concerned subjects shown hereunder against each university:

1. **FOR CHAUDHARY CHARAN SINGH HARYANA AGRICULTURAL UNIVERSITY, HISAR:** Veterinary Sciences and Animal Husbandry (B.V.Sc & A.H.) recognized by Veterinary Council of India.
2. **FOR CH. SARWAN KUMAR H.P. KRISHI VISHWAVIDYALAYA, PALAMPUR:** Agriculture, Horticulture or Forestry.
3. **FOR G.B. PANT UNIVERSITY OF AGRICULTURE & TECHNOLOGY, PANT NAGAR:** Agriculture, Veterinary Sciences, Horticulture or Forestry. Students from Bachelor of Science (B.Sc. in ZBC/PCM and B.Sc.(Biotechnology)) are also eligible.
4. **FOR INDIRA GANDHI KRISHI VISHWAVIDYALAYA, RAIPUR:** Agriculture, Biotechnology (Agriculture), Horticulture or Forestry.
5. **FOR MADHYA PRADESH PASHU CHIKITSA VIGYAN VISHWAVIDYALAYA, JABALPUR:** Veterinary Science and Animal Husbandry (B.V.Sc. & A.H.) recognized by Veterinary Council of India.
6. **FOR KERALA AGRICULTURAL UNIVERSITY, THRISSUR:** Agriculture, Horticulture, or Forestry.
7. **FOR MARATHWADA AGRICULTURAL UNIVERSITY, PARBHANI (MAHARASHTRA):** Agriculture, Horticulture or Forestry.
8. **FOR ORISSA UNIVERSITY OF AGRICULTURE & TECHNOLOGY, BHUBANESWAR:** Agriculture, Horticulture, or Forestry.
9. **FOR TAMIL NADU AGRICULTURAL UNIVERSITY, COIMBATORE:** Agriculture, Horticulture, Forestry or B. Tech (Biotech), B. Tech (Horticulture).
10. **FOR UNIVERSITY OF AGRICULTURAL SCIENCES, G.K.V.K., BANGALORE:** Agriculture, Horticulture, Forestry or Sericulture.
11. **FOR UNIVERSITY OF AGRICULTURAL SCIENCES, DHARWAD:** Agriculture, Horticulture, Forestry, B.Sc. (Agril. Biotechnology)/B.Tech. (Biotechnology)/B.Sc. (Ag. Biotechn.)/B.Sc. (Agri) in Biotechnology from recognized Agricultural/Horticultural/Forestry Universities.
12. **FOR RAJENDRA AGRICULTURAL UNIVERSITY, BIHAR, PUSA (SAMASTIPUR):** Biotechnology/Agricultural Horticulture. Candidates with Bachelor Degree in Biology (3 Years duration) will have to spend 3 years in M.Sc. programme.

13. **FOR GURU ANGAD DEV VETERINARY AND ANIMAL SCIENCES UNIVERSITY, LUDHIANA:** B.V.Sc & A.H./B.V.Sc. or B.Sc. (Biotechnology/ Agricultural Biotechnology/ Medical) or B.Sc. (Hons.) Biotechnology/Biochemistry/Microbiology/Molecular Genetics or equivalent degree with minimum OCPA of 6.00 (out of 10.00) or at least 60% marks in aggregate. Candidates admitted to Master's programme in Animal Biotechnology with basic qualifications other than B.V.Sc. & A.H. degree shall get M.Sc. degree in Animal Biotechnology.
14. **FOR NAGPUR VETERINARY COLLEGE, MAFSU, NAGPUR :** Veterinary Science and Animal Husbandry (B.V.Sc. & A.H.) recognized by veterinary Council of india.
15. **FOR ASSAM AGRICULTURAL UNIVERSITY, GUWAHATI :** For admission into the M.V.Sc. programme in Animal Biotechnology, a candidate has to pass B.V.Sc. & A.H. from a recognized university securing a minimum OGPA of 7.00 in 10.00 scale or equivalent. In case of SC/ST candidates, the minimum requirement of OGPA is relaxable to 6.50 in 10.00 scale.

Only those candidates who have passed the qualifying examination in 2009 or thereafter including those who are appearing in 2011 are eligible to apply. In other words, those who have passed the qualifying examination PRIOR to 2009 are not eligible to apply for taking admission.

IMP. NOTES: Before submitting/posting the completed application form, please ensure that you fulfil the eligibility requirements as prescribed by various Universities. Also please note that permission to appear in the entrance examination is subject to your fulfilling the minimum eligibility requirements prescribed for admission to the concerned programme. You may, therefore, appear in the entrance examination only if you fulfil the eligibility requirements for the programme for which you are seeking admission. Despite this caution, in case you do not meet the minimum eligibility criteria and still appear in the entrance examination, you will do so at your own risk and cost, and if at any stage, it is found that you do not fulfil the minimum eligibility requirements, the admission, if granted to you, shall be cancelled ipso facto.

III. RESERVATION/CONCESSION

- a) **Reservation:** 15%, 7½% and 3% of seats shall be reserved for Scheduled Caste (SC), Scheduled Tribe (ST) and Physically Challenged (Handicapped) (PH) candidates (with not less than 40% disability) respectively. All the SC/ST and PH candidates who have passed the qualifying examination are eligible to apply irrespective of their percentage of marks in the qualifying examination. **Only those SC/ST/PH candidates who have passed the qualifying examinations in 2009 or thereafter including those who are appearing in 2011, are eligible to apply. In other words, those who have passed the qualifying examination PRIOR to 2009 are NOT eligible to apply. OBC reservation, wherever applicable, will be implemented as per the policy of each participating University.**
- b) **Concession for Kashmiri Migrants:** 10% marks will be added to the overall marks scored by a Kashmiri migrant candidate in the Entrance Examination. After adding 10% marks, in case he/she is covered in the cut-off point in the merit list, he/she will be offered admission strictly in accordance with his/her inter-se merit alongwith other candidates subject to his/her meeting the minimum prescribed eligibility requirements and also subject to his/her producing valid registration documents issued by the notified authorities certifying the candidate's Kashmiri Migrant status.

IV. SYLLABUS

1. Agricultural Biochemistry - Isomerism, hydrogen bond and hydrophobic interaction in biomolecules; chemistry of biomolecules-carbohydrates, amino acids, proteins, lipids and nucleic. Metabolism of carbohydrates, fatty acids and protein. Genetic code, replication, transcription and translation. Enzymes and their kinetics, factors affecting enzyme activity. Competitive- and non-competitive inhibitions. Coenzymes and cofactors. Plant pigments.
2. Animal Husbandry and Veterinary Science- Importance of livestock in agriculture; relationship between plant and animal husbandry; mixed farming; animal breeding; breeds of indigenous and exotic cattle, buffaloes, goats, sheep, pigs and poultries and their potential for milk, egg, meat and wool production; classification of feed and fodder; major contagious diseases affecting cattle and drought animals, poultries and pigs; reproduction biology of cattle; artificial insemination, fertility and sterility; principles of immunization and vaccination; description, symptoms, diagnosis and treatment of major contagious diseases; drugs used for killing, tranquillizing and doping farm and wild animals; study of milk composition; physical properties and food value of milk; quality control of milk, tests and legal standards; dairy equipments and their cleaning; organization of dairy, milk processing and distribution; microorganism found in dairy and milk products; pregnancy and distochea.
3. Cell Biology - Modern tools and techniques in the study of cytology; prokaryotic and eukaryotic cells-structural and ultrastructural details; functions of organelles including membrane; cell cycle, mitosis and meiosis; numerical structural variation in chromosomes and their significance.

4. Protection - Diseases of field, vegetable, orchard and plantation crops of India and their control; causes and classification of plant diseases; principles of plant disease control biological control of diseases; Seed health testing, Integrated pest management-concepts and components; host plant resistance-biological control of insect pests; genetic manipulation of insects for their control; pesticides, their formulation, classification and safe use; behavioural methods; use of computer modeling in pest and disease out break; use of semiochemicals in IPM; insect growth regulators; biotechnological approaches in IPM; IPM in major crops, Principles of nematode management-integrated nematode management in major crops-silkworm types; mulberry silkworm, culturing methods; pests and diseases of mulberry and mulberry silkworm and their management.
5. Cropping Systems and Crop Management - Impact of the high yielding and short duration varieties on shifts in cropping patterns; concepts of multiple cropping, relay cropping and inter-cropping and their importance in relation to food production crop production practices for important cereals, pulses, oilseeds, fibre, sugar and cash crops; crop weed, their characteristics, cultural biological and chemical weed control; remote sensing and agriculture.
6. Ecology and Environment - Ecology and its relevance to man; natural resources their management and conservation- Climatic elements as factors of crop growth- impact of changing environment on cropping pattern- change in environment due to agriculture-environmental pollution and associated hazards to crops, animals and humans-liquid and solid waste disposal- Pollution prevention and remediation.
7. Principles of Food Science and Processing - Food production and consumption trends in India; food Science objective food composition; nutritive value of foods; importance and scope of food processing; Indian scenario; Effect of processing on different food groups; Food spoilage; Principles and methods of preservation; Quality Standards, Ventra Centicals.
8. Genetics and Plant Breeding -Earlier concepts of heredity; Mendel's work and laws of heredity; Chromosomal theory of inheritance; Gene interactions; Multiple alleles; Multiple factor hypothesis; Linkage and crossing over; Linkage analysis; Construction of genetic map; Sex determination; Sex linked; sex influenced and sex limited traits; Spontaneous and induced mutations; Centre of origin; Domestication of crop plants; Conservations and utilization of genetic resources; Reproductive and pollination mechanisms in plants; Methods and principles in plant breeding; Methods of breeding self-pollinated crops; Methods of breeding cross- pollinated crops; Methods of breeding asexually propagated crops; self incompatibility and male sterility in crop breeding; mutation breeding in crop improvement; Ploidy breeding in crop improvement; Innovative breeding methods in crop improvement.
9. Horticulture and Forestry - Climatic requirements and cultivation of major fruits, flowers and vegetable crops spice in plantation crops, the package of practices and the scientific basis for the same; handling and marketing of fruit and vegetables; preservation of fruits and vegetables; fruit and vegetable in human nutrition; landscaping and floriculture; ornamental plants and design and lay out of lawns and gardens; tissue culture and micropropagation of important fruit, vegetable and ornamental plants including major spices and plantation crops, important features, scope and propagation of various types of forestry plantations, such as, extension/social forestry, agroforestry and the management of natural forests.
10. Agricultural Microbiology - Spontaneous generation theory-Grem theory-Discovery of antibiotics-Types of Microscopes-Principles and equipment of different kinds of sterilisation-staining Techniques-Nutritional types of bacteria-Growth curve-Factors influencing bacterial growth-Fermentation: Principle and Application-Classification of Bacteria-Gene transfer methods in microorganisms Antigen and antibody reaction. Contributions of Beijerinck and Winogradsky-Role of microbes in carbon and nitrogen cycles-Influence of Rhizosphere on soil microorganism-Variou types of nitrogen fixing microorganism-Production of bacterial biofertilizers: Rhizobium, Azospirillum, Phosphobacteria etc.- Fungal biofertilizers; Ecto- and Endomychorizae- Azolla and BGA- Method of application for different biofertilizers.
11. Plant Physiology - Plant physiology and its significance in agriculture; physical properties and chemical constitution of protoplasm; plant cell water relation - imbibition, surface tension, diffusion, osmosis; absorption and translocation of water and nutrients; transpiration, guttation, mineral deficiencies and their symptoms;physiological disorders, correction hydroponics, foliar nutritions aerobic and anaerobic respiration; Photo respiration Factors affecting respiration and Photo- respiration. Photosynthesis- modern concept and the factors affecting photosynthesis, nitrogen fixation growth development and differentiation; growth hormones, growth retardants, growth inhibitors and their use in agriculture; tropism in plants photoperiodism and vernalization; seed dormancy and germination; fruit ripening process and its control.
12. Seed Technology - Seed technology and its importance; production processing and testing of seeds of crop plants; seed storage, seed certification; role of NSC in production; New seed policy and seed control order, Terminator Technology.
13. Soil Science and Agricultural Chemistry - Soil as a medium of plant growth and its composition; mineral and organic constituents of soil and their role in crop production; chemical physical and microbiological properties of soil; essential plant nutrients, their functions occurrence and recycling; micro-secondary and micro nutrient sources and their management; integrated nutrient management, soil water relationship, principles of soil fertility and its evaluation for judicious use of fertilizers; organic manure and biofertilizers; soil conservation planning on water shed basis; erosion

and run -off management in hilly, foot hills and valley lands; processes and factors affecting soil erosion; dryland agriculture and its problems; rainfed agriculture.

14. Biostatistics - Compilation, classification, tabulation and diagrammatic representation of data; measures of central tendency, correlation and regression involving two variables; concept of random sampling; tests of significance testing of hypothesis; statistical tests two kinds of error; chi-square test; principles of sampling; sampling and sampling errors; analysis of variance transformations to stabilize variance; principles of experimental design, randomized block design; latin square design; factorial experiments; missing plot techniques. Introduction to computer-Electronic data processing, operating system-common software available-Internet applications-Databases and bioinformatics.
15. Agricultural Biotechnology - Concepts and scope of biotechnology. 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 transgenies for biotic & abiotic stress tolerance, Ribozyme Technology microarray, bioethics, terminator technology, nanotechnology, DNA finger printing, gene silencing.

V. GUIDELINES FOR ENTRANCE EXAMINATION

The question paper for entrance examination will be of three hours duration and will consist of two parts, PART-A and PART - B.

Part - A: will have multiple choice type questions at the level of 10+2 in the subjects: **Physics, Chemistry, Mathematics and Biology. The Candidates will be required to attempt 60 questions** Total marks for Part A will be (60 questions x 1 mark each) of 60 marks. There will be negative marking and for each wrong answer, ½ (half) mark will be deducted.

PART- B will also have multiple choice questions from the syllabus detailed above in Section IV of this Brochure. There will be 100 questions out of which the candidates will have to attempt 60 questions. Each correct answer will have a weightage of 3 marks. There will be negative marking and for each wrong answer one mark will be deducted.

VI. PREVIOUS YEARS' QUESTION PAPERS

For the reference of intending candidates, a set of question papers pertaining to the last five years has been prepared. In order to meet the processing and printing charges, the cost of one set of five years question paper has been fixed as under:

- | | | |
|-----|-----------------|------------|
| (1) | At Cash Counter | : Rs. 80/- |
| (2) | By Post | : Rs.180/- |

Those who wish to obtain this set of five years question papers by post may write to the Section Officer (Admissions), Jawaharlal Nehru University, New Delhi-110067 alongwith a Bank Draft for Rs.180/- drawn in favour of "**JAWAHARLAL NEHRU UNIVERSITY**", payable at New Delhi and a self-addressed unstamped envelope of not less than 30x25 cm., mentioning clearly: "**Request for M.Sc.(Agri.)/M.V.Sc. Biotechnology Previous Years Question Papers**" before 11th April 2011. However the last date for issue of sets of question papers at Cash Counter will be 29th April 2011. The previous years' question papers will be sent by ordinary post. Please note that even though questions will be of multiple choice, the pattern may change from year to year.

VII . SELECTION PROCEDURE

Candidates are advised to exercise in the Application Form options for the participating Universities in order of their preference for joining the participating Universities for admission to the M.Sc.(Agri)/M.V.Sc.Biotechnology programme. The selection will depend strictly on the inter-se merit of the candidate in the Entrance Examination vis-à-vis preferences for joining the Universities indicated by the candidate. **In case a candidate has not indicated his/her choice for joining a particular University, his/her name will not be considered for that University.**

The Selection procedure will be as follows:

- 1) After the merit list is drawn more than double the number of candidates than the total intake only will be informed of their merit rank in the entrance examination. The candidates will also be informed about the total number of seats in each participating University. The candidates will be asked to exercise their final options for joining the Universities in the proforma (which will be sent by JNU). The candidates will be asked to send to JNU a Bank

Draft of Rs.5,000/- (Rs.2,500/- in the case of SC, ST, PH candidates) as **initial security deposit** giving their willingness to be considered for admission to the participating Universities in accordance with their options for joining the universities vis-à-vis their inter-se merit in the Entrance Examination. **ALL CANDIDATES ARE ADVISED TO CHECK THE RESULT ON THE WEB SITE OF THE UNIVERSITY (www.jnu.ac.in) IN THE FIRST/SECOND WEEK OF JUNE.**

- 2) The candidates who do not exercise their options for joining any of the participating universities will not be considered for admission to that university/universities.
- 3) After allotment of seats, the JNU will send intimation to the candidates about their allotment of the university and also to the concerned participating university to which the candidate has been selected. Please note that once allotment of University is made on the basis of inter se merit vis-à-vis options, other options of the universities given by the candidate shall stand frozen. **CANDIDATES ARE ADVISED TO CHECK THE ALLOTMENT OF UNIVERSITY ON THE WEB SITE OF THE UNIVERSITY (www.jnu.ac.in) IN THE FIRST/SECOND WEEK OF JULY.**
- 4) The participating university will then inform the candidate about the complete admission procedure and schedule of their university as well as the amount of fee etc. to be deposited by the candidate. The initial security deposit already sent by the candidate through demand draft to JNU will be sent to concerned University for refund to the students after first semester.
- 5) In case the candidate is offered admission in accordance with his/her options for joining the universities vis-à-vis his/her inter-se merit, but subsequently in case he/she either does not join the concerned university or withdraws during first semester then in that event, the initial security deposit of Rs. 5,000/- or Rs.2,500/- in case of SC,ST, PH categories, as the case may be, will stand forfeited.
- 6) The initial security deposit of Rs.5,000/-, (Rs.2,500/- in the case of SC/ST, PH category candidates) will be refunded in full to those of the candidates who are not offered admission to any of the participating university.
- 7) **Candidates may note that request for transfer from one university to another will not be entertained under any circumstances. Therefore, candidates are advised not to make any request in this regard.**
- 8) Only those candidates who will be asked to exercise their option will be informed by post/telegram and the list of these candidates will also be available on JNU website (www.jnu.ac.in). However, the candidates are advised to find out through their own sources whether their names appear in the list and thereby make arrangement for sending their option together with initial security deposit by the stipulated date. **The University will not be responsible for any delay/lapse on the part of postal/telegraph Department.**
- 9) **PLEASE NOTE THAT ONLY ONE MERIT LIST WILL BE RELEASED AND THERE WILL BE NO SECOND LIST UNDER ANY CIRCUMSTANCES**

VIII. ADMIT CARD FOR ENTRANCE EXAMINATION

Admit Cards will be issued by the University only to those candidates who have submitted the Application Form complete in all respects on or before the last date for submission of Application Form i.e. 21st March 2011. The University will not be responsible for any postal delay or irregularity or loss in postal transit resulting in non-receipt of either the filled in Application Form by the University or the Admit Card by the candidates. The candidates may download their Admit Card from the University's website: www.jnu.ac.in after 10th May 2011 and take the Admit Card to the Examination Centre with a copy of latest passport size photograph.

Before taking the entrance examination please ensure that you fulfil the eligibility requirements as prescribed by the University. Also please note that permission to appear in the entrance examination is subject to your fulfilling the minimum eligibility requirements prescribed for admission as notified in the prospectus. You may, therefore, appear in the entrance examination only if you fulfil the eligibility requirements as prescribed by each University for M.Sc. (Agri.) or M.V. Sc. Biotechnology Programme under Section-II of this prospectus. Despite this caution, in case you do not meet the minimum eligibility criteria and appear in the entrance examination, you will do so at your own risk and cost, and if at any stage, it is found that you do not fulfil the minimum eligibility requirements, the admission, if granted to you, shall be cancelled ipso facto.

XII. INSTRUCTIONS FOR COMPLETING THE APPLICATION FORM

Notes:

- a) Please read the Important Notes/Check List given in the inside front cover of the brochure before and after filling-up the Application Form.
 - b) Please fill the form in your own handwriting.
 - c) Please note down your Application Form Number for future correspondence or retain a photocopy of the filled in Application Form.
 - d) The Application Form is to be filled in by the candidate **IN BLACK INK ONLY** giving complete information using capital letters as far as possible. Please read carefully the instructions given hereunder before filling up the form. Refer to the sample of a filled-in Application Form given in the prospectus. Note especially the right method to darken the bubbles as shown in the Sample Application Form.
 - e) First, write in black ink (using capital letters) the required information in the boxes (wherever provided). Then darken the appropriate bubble corresponding to the letter/numeral underneath each box. What you write in these boxes is only for your guidance and verification that you are darkening the bubble corresponding to the correct letter/numeral.
 - f) If you wish to change a marking, completely cover the darkened bubble with white fluid, and then darken the appropriate bubble.
 - g) Please note that your name, your parent's/guardian's name, and your date of birth should exactly be the same as given in your 10th class or first Board/Pre-University examination certificate. Any deviation, whenever discovered, may lead to cancellation of your candidature.
1. **Name of the Candidate:** Write your name in capital letters as given in your 10th class certificate or your first Board/Pre-University Examination. Write a only one letter in each box. Leave one, **and only one**, blank box between consecutive words of your name. Darken the appropriate bubble underneath each letter of the name. If your name has several initials, leave one bubble blank after each of them.
 2. **Date of Birth :** Darken the bubbles to indicate date of birth exactly same as given in your High School or your first Board Examination in terms of day, month and year. Use numeral 01 to 31 for date, use numerals 01 to 12 for month and use last two digits for the year of birth.
 3. **Gender:** Darken the appropriate bubble.
 4. **Nationality:** Darken the appropriate bubble. In case you are a Foreign National, please indicate the country to which you belong in the space provided.
 5. **Category:** Darken the bubble corresponding to your category/categories as given below. **Your request for change of category subsequent to your submission of Application Form will not be accepted.**

| Category | Code |
|---|-------|
| General | G E N |
| Scheduled Caste | S C |
| Scheduled Tribe | S T |
| Other Backward Class (Only Non Creamy Layer) | O B C |
 6. **PH Category:** In case you are a candidate with a minimum of 40% disability, darken the bubble corresponding to your Physical Handicapped category as given below. Otherwise leave it blank.

| | | |
|----------------------------|---|----|
| Hearing Handicapped | : | HH |
| Orthopadeicaly Handicapped | : | OH |
| Visually Handicapped | : | VH |
 7. In case you are Kashmiri Migrant, darken the bubble, otherwise leave it blank.
 8. **State of Domicile:** Mention the code of the state to which you belong (refer to the codes given below). Darken the bubble corresponding to the appropriate numeral in each column.:

| State/Union Territory | Code | State/Union Territory | Code |
|-----------------------|------|-----------------------|------|
| Andaman & Nicobar | 0 1 | Chattisgarh | 0 7 |
| Assam | 0 2 | Delhi | 0 8 |
| Andhra Pradesh | 0 3 | Daman & Diu | 0 9 |
| Arunachal Pradesh | 0 4 | Goa | 1 0 |
| Bihar | 0 5 | Gujarat | 1 1 |
| Chandigrah | 0 6 | Haryana | 1 2 |

for the candidates belonging to SC/ST and Physically Challenged (Handicapped) categories. The entrance examination fee for Foreign Nationals is US\$ 25.00 or Rs.1250/-.

You are required to enclose Crossed Bank Draft (**valid for six months**) for the prescribed examination fee. The bank draft should be drawn in favour of **JAWAHARLAL NEHRU UNIVERSITY** payable at **NEW DELHI**.

You must write your application form no., name, programme and examination centre opted for on the left hand corner on the reverse of the Bank Draft.

PLEASE NOTE THAT, IF YOUR APPLICATION IS REJECTED FOR ANY REASON, WHATSOEVER OR YOU ARE NOT ABLE TO TAKE THE ENTRANCE EXAMINATION, THE ENTRANCE EXAMINATION FEE PAID BY YOU SHALL NOT BE REFUNDED.

(If the bank draft (valid for six months) towards entrance examination fee is not submitted with the application form, your application will be summarily rejected without any intimation to you).

14. **Father's Name** : Write your father's name in BLOCK LETTERS exactly as in your 10th class or equivalent Certificate. Write only one letter in each box.
15. **Please note that Column No. 15. (i.e your name and mailing address) will be scanned and therefore it should be written very clearly IN BLACK INK ONLY. If you make any mistake, you should cover the whole box with exact size white paper slip and write your name and address on that. Your address must not overflow this box.**
16. **Photograph** : Please write your name and application form number on the backside of a recent good quality colour photograph (taken not earlier than two months) and paste (do not staple) in the box provided. The photograph should be taken preferably with dark coloured clothes in a white background. The approximate size of the photograph should be 3.5 cm. x 4.5 cm. **Do not sign on the photograph and do not get it attested.**
17. **Signature**: Put your usual signature in black ink within the box provided. Your signature must not overflow or touch the border of the box provided. Your signature establishes your identity. Hence, do not merely write your name in capital letters. This may lead to rejection of your application.
18. **Choice of University in order of Preference**: Candidates are advised to write the numerical code of the Universities they would like to join (in order of their preference), after carefully going through the eligibility conditions as laid down by each participating University and shown in Section II of this prospectus.

A maximum of ten choices are to be indicated for M.Sc. (Agri) Biotechnology as M.Sc. (Agri.) Biotechnology programme is being offered by only ten Universities and maximum of six choices are to be indicated for M.V.Sc. programme as M.V.Sc. programme is being offered by only six Universities

You should use the following numeral Codes as given below. Darken the bubble corresponding to the appropriate numeral as per your preference in each column:

| Name of the University | Numerical Code |
|--|----------------|
| [i] M.Sc. (Agri.) Biotechnology | |
| 1. Ch. Sarwan Kumar H.P.Krishi Vishwavidyalaya, Palampur | 51 |
| 2. G.B. Pant University of Agriculture and Technology, Pant Nagar | 52 |
| 3. Indira Gandhi Agricultural University, Raipur | 53 |
| 4. Kerala Agricultural University, Thrissur | 54 |
| 5. Marathwada Agricultural University, Parbhani (Maharashtra) | 55 |
| 6. Orissa University of Agriculture & Technology, Bhubaneswar | 56 |
| 7. Tamil Nadu Agricultural University, Coimbatore | 57 |
| 8. University of Agricultural Sciences, G.K.V.K., Bangalore | 58 |
| 9. University of Agricultural Sciences, Dharwad | 59 |
| 10. Rajendra Agricultural University, Bihar | 60 |
| [ii] M.V.Sc. (Veterinary) | |
| 1. Chaudhary Charan Singh Haryana Agricultural University, Hisar | 71 |
| 2. G.B. Pant University of Agriculture & Technology, Pantnagar | 72 |
| 3. Madhya Pradesh Pashu Chikitsa Vigyan Vishwavidyalaya, Jabalpur | 73 |
| 4. Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana. | 74 |
| 5. Nagpur Veterinalry College, MAFSU, Nagpur | 75 |
| 6. Assam Agricultural University, Guwahati | 76 |

Note:

- (i) Candidates are advised to go through the eligibility conditions as these differ from University to University. In case a candidate has opted for a subject/course but subsequently it is found that he/she does not fulfil the eligibility conditions for that subject/course, his/her admission, if granted, will stand automatically cancelled.
- (ii) In case a candidate has not indicated his/her choice/preference for joining a particular university in the application form, his/her name will not be considered for that University. **Candidates may also note that request for change of choice/preference and/or transfer from one university to another will not be entertained under any circumstances. Therefore, candidates are advised not to make any request in this respect.**

19. **Academic Record:** While filling up the information relating to the Academic Record, you should strike off the examinations which are not relevant and should indicate the name of the relevant examination i. e. High School, Higher Secondary, Senior School Certificate (10+2), Intermediate or equivalent, B.Sc. (Agricultural/Horticulture/Forestry) B.Sc. (Hons.), B.Sc., B.Tech., etc. as the case may be. If you are appearing for final year examination you should fill in all the columns except percentage of marks column wherein you should write "APPEARING". **Please do not forget to write subjects studied in qualifying examination in the column provided for verification of your eligibility.**

In case the University/Institution from where you have passed the examination follows letter grading system/CGPA, you are required to indicate the equivalent percentage in the space provided in the application form for the purpose of determining the eligibility.

If you are presently a student of any University, please write the name of that University also indicate the year in which you will pass out the final year examination from this University.

- **Declaration:** The candidate must sign the declaration at the end of the application form.
- **Telephone/Fax No./Email etc:** The candidate is also advised to give his/her telephone/mobile number; Fax/Email, if any, in the appropriate columns at the end of application form.
- **Acknowledgment Card :** One printed Acknowledgment Card is enclosed with the Application Form. You are required to fill all the columns provided in the Acknowledgement Card. You are also required to write your complete postal address on the space provided in the Card. and affix a postage stamp of Rs.6/- & submit it with the application form. For all further correspondence, you should invariably indicate your Application Form No. and address for communication to the Section Officer (Admissions), Room No. 28, Administrative Block, Jawaharlal Nehru University, New Delhi-110067.
- **Insert the following documents in the 10" X 7" size envelope supplied with the Application Form and post it or drop in the Box in the Administrative Block of the University.**
 1. Bank Draft (Put the Bank Draft in the 9" X 4" size envelope supplied with the Application Form).
 2. Application Form (Refold the application form where it is originally folded).
 3. Acknowledgment Card duly filled in and affixed with postage stamp of Rs.6/-.

Application Forms can be submitted by Registered Post to Section Officer (Admissions), Room No.28, Administrative Block, Jawaharlal Nehru University, New Delhi - 110067 or dropped in the Box in the Administrative Block of the University. The application forms must reach the JNU on or before March 21, 2011. JNU will not accept responsibility for any postal delay or irregularity or loss in postal transit.

PLEASE DO NOT SEND YOUR APPLICATION FORM THROUGH PRIVATE COURIER SERVICES.

Important Notes:

- **If any information furnished by the candidate in the application form is found to be false, his/her admission, if granted on the basis of such information will be cancelled, ipso facto.**
- **Incomplete application forms will be summarily rejected without any reference to the candidates. The candidates are, therefore, advised to carefully complete all the relevant columns of the application form.**
- **Application Forms received after the closing date shall not be entertained. However, where marginal delay in submission of completed form occurs due to pressing reasons, or for circumstances beyond the candidate's control, such of the application forms shall be considered on the merit of each individual case with justification given by the candidate alongwith the form in support of his/her claim for its late submission.**
- **University shall not accept responsibility for any postal delay or non delivery of filled in application forms to the University or non receipt of admit card by the candidate.**
- **Any dispute with regard to any matter relating to admission shall be subject to the jurisdiction of Delhi Courts only.**

18. Choice of University in order of Preference :

| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|---|---|---|---|---|---|
| Univ. Code 1 60 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 2 52 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 3 55 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 4 57 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 5 56 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 6 54 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 7 51 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 8 58 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 9 59 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 10 53 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 11 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 12 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 13 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 14 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 15 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ |
| Univ. Code 16 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 17 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 18 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 19 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 20 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 21 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 22 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 23 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 24 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 25 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 26 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 27 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 28 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 29 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ | Univ. Code 30 ① ① ② ② ③ ③ ④ ④ ⑤ ⑤ ⑥ ⑥ ⑦ ⑦ ⑧ ⑧ ⑨ ⑨ ⑩ ⑩ |

19. Academic Record : Take into account marks in those subjects which are counted for awarding class/division.

| Examination Passed | Year of Passing and Division | % of Marks CGPA or Grade | Name of School/College/Institution and District in which situated | Name of Board/University | Subject/Papers Offered |
|--|--|------------------------------------|---|---|---|
| * High School/Matriculation/ 10th Class | 2003 | 55% | VRSB Inter College | UP BOARD | Hindi, English, Maths, Science, Agri |
| * Senior School Certificate (10+2) Intermediate or equivalent | 2005 | 69% | - do - | - do - | Agri Stream |
| * B.Sc.(Hons.) / B.Sc. / B.Sc. (Agri.) / B.Tech. / B.E. / B.Vsc. / M.B.B.S. or B.D.S. / Any other Graduate Degree..... | 1st Year 2007 2nd Year 2008 3rd Year 2009 4th Year 2010 5th Year | 60% 62% 61% 59% 60.50% | A.S.College - do - - do - - do - - do - | C.C.S.U, Meerut - do - - do - - do - - do - | Agri Stream - do - - do - - do - - do - |
| * Master Degree | 1st Year 2nd Year 3rd Year Aggregate of all years | | | | |
| Any other examination Please Specify | | | | | |

* Strike off the Name of Examination which is not applicable.

Are you a student of any University at present. If yes, give details :

- do -

(Name of the University & Course of Study)

DECLARATION BY THE APPLICANT : I declare that the information furnished by me in the Application Form is true in all respects and in case any entry or information is found to be false, this shall entail automatic cancellation of my admission besides rendering me liable to such action as the University may deem proper. I hereby undertake that I have carefully gone through the eligibility conditions prescribed in the Prospectus for the programme I am applying for and shall appear in the entrance examination after satisfying myself that I do fulfil the same. If at any stage it is found that I do not fulfil the minimum prescribed eligibility criteria, my admission, if granted, shall stand cancelled and I shall have no right to admission whatsoever.

Han. Ram

Signature of the Applicant

Date 23/02/11

Telephone No. with STD Code

Fax No.

Place

Mobile No. 09927750060 E-mail