Minutes

of the Special meeting of the Board of Studies of the Department of Botany held on
Wednesday, 29th May, 2019 at 11:30 a.m. in the Conference Hall of the department. The
following were present:

1. Prof. Firoz Mohammad
2. Prof. Ghazala Parveen
3. Prof. Mansoor A. Siddiqui
4. Prof. Abrar A. Khan
5. Prof. Hisamuddin
6. Prof. Tabrez Ahmad Khan
7. Prof. M. Masroor A. Khan
8. Prof. Samiullah Khan
9. Prof. Zaki A. Siddiqui
10. Prof. Shamsul Hayat
11. Prof. Moinuddin
12. Prof. Fareed Ahmad Khan
13. Prof. Razia K. Zaidi
14. Prof. (Mrs.) Sheila Shahab
15. Prof. Altaf Ahmad
16. Dr. Kiran Lata Chauhan
17. Dr. Athar A. Khan
18. Dr. Qazi Fariduddin
19. Dr. Anwar Shahzad
20. Dr. Shahla Faizan
21. Dr. Fauzia Naushin
22. Dr. Asim Masood
23. Dr. Tariq Aftab
24. Dr. MU. Naeem
25. Dr. Rose Rizvi
26. Dr. Saad Bin Javed
27. Dr. Faheem Ahmad
28. Dr. Naseem Ahmad
29. Dr. Shahina Parveen
30. Dr. Iram Siddique
31. Dr. Amir Raina
32. Prof. Nafees Ahmad Khan (In the Chair)
The following items were considered and approved:

Item No. 1

The Board considered and approved the Appointment of Research Advisory Committee for Students recommended for admission to Ph.D. 2018-2019. (Annexure I)

Item No. 2

The Board considered and approved the Revision of syllabus (Paper-II) for the Ph.D. Admission Test. (Annexure II)

Item No. 3

The Board considered and approved the Teaching Allocation for Under-graduate, Post-graduate and Ph.D. Course Work for the session 2019-2020. (Annexure III)

Copy to:
1. All members of Board of Studies.
2. Dean, Faculty of Life Sciences.
3. Deputy Registrar (Councils).
## ALIGARH MUSLIM UNIVERSITY ALIGARH

### DEPARTMENT OF BOTANY

RAC of Ph.D. students admitted to Ph.D. programme in Botany

**SESSION 2018-2019**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name of the Candidate</th>
<th>Area of Specialization</th>
<th>Research Supervisor</th>
<th>BOS nominated Subject Expert</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Amir Khan</td>
<td>Plant Pathology</td>
<td>Prof. Abrar A. Khan</td>
<td>Prof. Mansoor A. Siddiqui</td>
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<td>2.</td>
<td>Arshad Khan</td>
<td>Plant Pathology</td>
<td>Prof. Mansoor A. Siddiqui</td>
<td>Prof. Tabrez A. Khan</td>
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<td>3.</td>
<td>Saba Fatima</td>
<td>Plant Pathology</td>
<td>Prof. Mansoor A. Siddiqui</td>
<td>Prof. Zaki A. Siddiqui</td>
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<td>4.</td>
<td>Geeta</td>
<td>Plant Pathology</td>
<td>Dr. Rose Rizvi</td>
<td>Dr. Faheem Ahmad</td>
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<td>5.</td>
<td>Mir Akhtar Hussain</td>
<td>Plant Pathology</td>
<td>Prof. Ghazala Parveen</td>
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<td>6.</td>
<td>Mohd Ikram</td>
<td>Plant Pathology</td>
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<td>7.</td>
<td>Nidhi Sharma</td>
<td>Cytogenetics &amp; Plant Breeding</td>
<td>Dr. Sana Choudhary</td>
<td>Prof. Samiullah Khan</td>
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<td>8.</td>
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<td>Sabaha Tahseen</td>
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<td>12.</td>
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<td>13.</td>
<td>Alisha Hussain</td>
<td>Environmental Botany</td>
<td>Dr. Shahla Faizan</td>
<td>Prof. Abra A. Khan</td>
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<td>14.</td>
<td>Uzma Parveen</td>
<td>Environmental Botany</td>
<td>Prof. M. B. Siddiqui</td>
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<td>Adil Ameen Bhat</td>
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<td>Moh Sajid Ansari</td>
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<td>17.</td>
<td>Umme Kulsoom</td>
<td>Environmental Botany</td>
<td>Dr. Fauzia Naushin</td>
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<td>Yamshi Arif</td>
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<td>Prof. M. Masroor A. Khan</td>
<td>Prof. Moinuddin</td>
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<td>Harsha Gautam</td>
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The Chairperson of the department shall be member of RAC for each student.
SYLLABUS FOR ADMISSION TEST TO Ph.D. PROGRAMME

PAPER II (BOTANY)

1. There shall be 20 Multiple Choice Questions (MCQs) of 1 mark each

2. 08 Descriptive Type Questions of 04 marks each in the area of specialization out of which a candidate will be required to answer 05 questions. A candidate has to choose any one area of specialization offered by the Department of Botany.

Syllabus – General Botany (Multiple Choice Questions) M.M. 20

Classification, general characteristics and plant diseases caused by viruses, phytoplasma, bacteria, fungi and nematodes.

Plant water relations and mineral nutrition; Nomenclature, classification and properties of enzymes; Photosynthesis; Respiration; Nitrogen and lipid metabolisms; Plant growth regulators; Photoperiodism; Vernalization; Phytochromes; Cryptochromes and phototropins. G-proteins

Hydrosphere, lithosphere, biosphere and atmosphere (troposphere, stratosphere, mesosphere, ionosphere and exosphere); Ozone hole, CFC cycle, green house gases, global warming; Air, water, soil and noise pollution, and their control.

Climate, soil and vegetation patterns of the world; energy dynamics (trophic organization, energy flow pathways, ecological deficiencies); Distribution and global patterns of terrestrial biodiversity hot spots, inventory, IUCN categories of threat.

Structure of plant cell and its organelles; Cell cycle and its control mechanism. Vegetative and sexual reproduction in plants; development of male and female gametophytes; Organization and type of embryo sacs; Mechanisms and vectors of pollination; Embryogeny in dicotyledons and monocotyledons; Apomixis. Gene mapping – restriction mapping, mapping with molecular markers, linkage maps; Classification, replication and transfer of plasmids; IS elements, Ac-Ds elements, Spm and dSpm elements; Spontaneous and induced mutations.

Plant tissue culture; Somaclonal variations; MS, plant tissue culture media; Cloning vectors; Genomic and cDNA libraries. Molecular markers and crop improvement, Genetic engineering of plants, Genetic manipulation and its application.

Distribution, diagnostic characteristics, vegetative structure, classification, reproduction, life cycles and economic importance of Algae, Bryophytes, Pteridophytes and Gymnosperms. History, basis, outlines, and relative merits and demerits of system of plant classification, ICBN, Malvaceae, Brassicaceae, Solanaceae, Ranunculaceae and Poaceae. Origin, evolution, botany, cultivation and uses of (i) Cereal crops (ii) Fibre crops (iii) Vegetable oil crops and (iv) Medicinal and aromatic plants; Diagnostic features and uses of timber and fire woods; Root crops. pulse crops.
Plant Pathology

- General account of nematodes, fungi, bacteria, phytoplasma, viruses and viroids.
- Roles of enzymes, growth regulators and toxins in pathogenesis. Effect of infection on physiology of plants (photosynthesis, translocation, respiration, membrane permeability, transcription and translation).
- Disease resistance mechanism in plants, preformed substances and structures, induced structures and biochemical defense.
- Fungal plant diseases: Causal organism, symptoms and management of stem gall of coriander, powdery mildew of cucurbits, apple scab, ergot of rye, loose smut of wheat, brown rust of wheat and its recurrence in India, red-rot of sugarcane and Tikka disease of groundnut.
- Bacterial blight of rice, potato scab, Citrus-canker, tundu disease of wheat, Brinjal mosaic, potato leaf roll, cauliflower mosaic, potato spindle tuber viroid, diseases caused by *Rotylenchulus* on pulses, *Meloidogyne* on vegetables and *Globodera* on potato.
- Broad principles of plant disease management: Disease forecasting, Integrated pest management (IPM), Regulatory and physical measures of disease management, Management of diseases by cultural practices, cropping sequences, organic amendments.
- Bio-control of fungal and nematode diseases. Chemical measures of diseases management, fungicides and nematicides.

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Advanced Plant Physiology

- **Mineral nutrients**: Evolution and scope of plant nutrition; classification of mineral nutrients according to biochemical functions, deficiencies and plant disorders, essential elements (P, K, Cu and Mo) and their roles and an idea of mineral metabolism (P and K).

- **Ion uptake by individual cells and roots**: Short distance transport; pathways of solutes from external solution into root cells, composition of biological membranes; solute transport across membranes and factors affecting ion uptake.

- **Signal transduction**: Overview, receptors and G-proteins; phospholipid signalling; role of cyclic nucleotides; calcium-calmodulin cascade; diversity in protein kinases and phosphatases; and sucrose sensing mechanism.

- **Growth regulators**: Biosynthesis and physiological roles of salicylic acid, polyamines and jasmonates; role of plant growth regulators in water balance, photosynthetic partitioning and potato tuberization; and use of natural and synthetic growth regulators in fruit set, chemical ripening, malting and latex flow.

- **Secondary metabolites**: Introduction, occurrence, biosynthesis and significance of alkaloids (Amino acid and purine derivatives), phenols (simple phenols, phenol carboxylic acid, phenyl propanes, flavon derivatives), terpenoids (Hemi terpenes, sesqui terpenes) and cutin, suberin and waxes.

- **Regulatory metabolism of photosynthesis and respiration**: Structure of photosynthesis antennae pigments, its role in light harvesting and protection against active oxygen species, regulation of Rubisco, chloroplast dimorphism and variation in C₄ photosynthesis pathway, regulation of glycolysis and pentose phosphate pathway, Citric acid cycle in biosynthesis of carbohydrates.


- **Stress physiology**: Introduction, water stress and related issues, chilling injury, high temperature, salt and heavy metal stress, heat shock proteins, effect of UV radiation on plants, basic concept of biotic (insects and pathogens) stress, systemic acquired resistance (SAR) in response to pathogens.

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Environmental Botany

- **Air Pollution**: Source and effects of primary air pollutants: Sulphur dioxide (SO$_2$), Nitrogen oxides (NO$_x$, NO) and Fluorides. Sources, formation and effects of secondary air pollutants: Acid rain, Ozone (O$_3$) and Peroxyacetylenitrile (PAN).


- **Water Pollution**: Sources of water pollution, Mercury pollution, Lead pollution, fluoride pollution, Ganga Action Plan, Water standard and water quality management in India. Role of waste water in agriculture, eutrophication, oil slick and biomagnification.

- **Forest and Forest Management**: Present status of forest wealth of the world, ecological significance of forest. Deforestation, major causes of deforestation, consequences of deforestation. Forest management and conservation. Present Programmes for the development of forestry and wildlife.

- **Particulate Matters**: Sources and effect of particulate matters (flyash, brick kilm dust and cement dust). Suspended particulate matters (SPM).

- **Stress and Plant Life**: Dynamic concept of stress, Mechanism of tissue temperature tolerance (mechanisms that regulate enzyme and membrane functions). Salt stress: effects of high salt concentration on plants. Regulation of salt content (salt elimination, salt exclusion and salt succulence).

- **Pollution and Animate pathogens**: Concept of pathogen and disease in plants, biotic and abiotic pathogens, biotic and abiotic diseases and their symptoms in plants. Concept and different types of interactions (synergistic, antagonistic, additive and neutral), impact of pollutants on phylloplane, rhizoplane and rhizosphere microbes.

- **Allelopathy / Weed Science**: Historical back ground of allelopathy, weed characteristics adaptive strategies and role in agroecosystems, weed control techniques, potential of allelopathy for weed management (aquatic, terrestrial and parasitic). Allelochemicals – significance uses, understanding the mechanism of crop/weed interference in agroecosystem.

- **Pollution control**: Mechanical devices to control gaseous and particulate matters with reference to bag filters, carbon absorber electrostatic precipitators, cyclone collectors and spray collectors. Legislative measures and international agencies, environmental impact assessment (EIA) Phytoremediation.
Cytogenetics and Plant Breeding


- **Polyploidy**: Autopolyploids, origin and production of autopolyploids, induced autopolyploids, effects of chromosome doubling, uses of induced polyploids, allopolyploids, synthesized allopolyploids, evolution of major crop plants, segmental allopolyploids.

- **Structural changes in chromosomes**: Deficiencies; duplications, translocations; cytology of translocation heterozygote, balanced lethals and gametic complexes, inversions and its types, cytology of inversions, genetic consequences of inversion, DNA damage and repair.

- **Molecular cytogenetics**: Nuclear DNA contents, C-value paradox, cot curve and its significance. Restriction mapping: concept and techniques, multigene families and their evolution, physical mapping of genes on chromosomes.

- **Analysis of variance**: Simple measures of variability—range, mean, standard deviation, standard error and coefficient of variation (CV). Analysis and components of variance, phenotypic coefficient of variance (CVp), genotypic coefficient of variance (CVg) heritability ($h^2$) and genetic advance (GA), correlation coefficient (r) analysis, t-test.

- **Gene structure and Expression**: Genetic fine structure, Cis-trans test, fine structure analysis of eukaryotes, introns and their significance, regulation of gene expression in prokaryotes and eukaryotes.

- **Karyotype**: Evolution, molecular basis of chromosome pairing, molecular organization of centromere and telomere; ribosomal RNA (rRNA) genes, banding pattern.

- **Mechanism of sex determination**: Chromosomal basis of sex determination, balance concept in *Drosophila*, quantitative balance theory, single genic mechanism, environment and hormonal control of sex, sex determination in plants. Sex reversal.

- **Sex linked traits**: Sex linkage in *Drosophila*, Sex linked lethals in *Drosophila*, Sex linkage in human being, colour blindness, haemophilia, sex linkage in poultry. Sex Influenced traits in sheep and human beings. Sex-limited traits in poultry, man and cattle, multiple alleles.

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Plant Biotechnology

- **Plant Biotechnology in India and its scope:** Plant Tissue Culture: Concept of cell differentiation and totipotency, Pathways for *in vitro* culture of reproductive organs, androgenic haploids- anther and microspore culture, gynogenic haploids, chromosome elimination technique for haploid production, significance and use of haploid in crop improvement.

- **Preserving plant diversity through cryopreservation and germplasm storage:** Increasing genetic diversity through somaclonal variation, factors influencing SCV, isolation and molecular basis of SCV, achievements, advantage and limitations. Slow growth and excised root culture methods of germplasm preservation and cryopreservation.

- **Plant growth regulators and adjuvants:** Role in *in vitro* morphogenesis, of - auxin, gibberellins, ethylene, abscisic acid, salicylic acid, ethylene, abscisic acid, jasminic acid, brassinosteroids, asparagin, glutamine, CCM, malic acid, yeast extract, casein hydrolysat.

- **In vitro mutagenesis:** Site directed mutagenesis (unidirectional deletion, gap sealing mutagenesis, linker scanning mutagenesis). Advantages of site directed mutagenesis. Oligonucleotide directed mutagenesis (Chemical mutagenesis, PCR mediated *in vitro* mutagenesis). Insertional mutagenesis, transposon mediated insertion mutagenesis, T-DNA mediated insertion mutagenesis.

- **Molecular markers and crop improvement:** Morphological, biochemical and molecular markers, non-PCR based marker (RFLP, Procedure, construction of RFLP and uses), PCR based markers (RAPD, DAF, AP-PCR, AFLP, SSR), molecular maps, structural and functional genomics in relation to crop improvement, DNA fingerprinting, marker assisted selection.

- **Genetic Engineering of Plants:** Objectives, strategies and approaches; transformation methods: *Agrobacterium* mediated, biolistic approach, microinjection, electroporation and liposome mediated, selection of transforments and their molecular characterization.

- **Application:** Production of herbicide resistant plants; engineering Plants for abiotic stress, senescence- tolerance and male sterility, environmental, social and legal implications. Production of genetically modified (GM) plants.

- **Biotechnology of Medicinal and Aromatic Plants:** Importance of medicinal plants as a source of secondary metabolites, biopesticides and growth regulators etc. Maximization of secondary metabolites production by adding elicitors, through biotransformation and genetic transformation using hairy root cultures (*Agrobacterium rhizogenes*); development of high producing clone; industrial production of shikonin prospects for discovering new and bioreactive compounds from plants.

- **Genetic Manipulation and Its Application:** Recombinant DNA technology, basics involved in r-DNA technology, application of restriction endonucleases, DNA ligases and other enzymes used in cloning, principles and process of polymerase chain reaction, transgenic biology, biopiracy and Intellectual property rights.

ALLOCATION OF TEACHING WORK
FOR THE SESSION 2019-2020
B.Sc. (Hons) I Semester

Course – 1: BTB-151 (Cell Biology and Basic Biochemistry)
Section – I: BTB, BCB, ZYB (Mains)
1. Dr. Tariq Aftab
2. Dr. Mu Naeem
3. Dr. Saad Bin Javed
Section – II: CHB (Mains)
1. Dr. Naseem Ahmad
2. Dr. Shahina Parveen

Course – 2: BTB-1P1 (Lab. - I)
Section – I: BTB, BCB, ZYB (One register)
Section – II: CHB (One register)

B.Sc. (Hons.) II Semester

Course – 3: BTB-251 (Diversity and Classification of Plant Kingdom)
Section – I: BTB, BCB, ZYB (Mains)
Algae - Dr. Rose Rizvi
Fungi - Prof. Zaki A. Siddiqui
Bryophytes - Dr. Mu. Naeem
Pteridophytes - Dr. Anwar Shahzad
Gymnosperms - Dr. Anwar Shahzad
Angiosperms - Dr. Athar A. Khan

Section- II : CHB (Mains)
Algae - Dr. Tariq Aftab
Fungi & Bryophytes - Dr. Faheem Ahmad
Pteridophytes - Dr. Tariq Aftab
Gymnosperms - Dr. Iram Siddique
Angiosperms - Dr. Athar A. Khan

Course – 4: BTB-2P1 (Lab. - II)
Section – I: BTB, BCB, ZYB (One register)
Section – II: CHB (One register)
B.Sc. (Hons) III Semester

Course – 5: BTB-351 (Plant Physiology and Ecology)
Section – I:  
1. Prof. Firoz Mohammad
2. Dr. Qazi Fariduddin
3. Dr. Faheem Ahmad

Section – II:  
1. Prof. M. Masroor A. Khan
2. Dr. Tariq Aftab
3. Dr. Mu Naeem

Course – 6: BTB-3P1 (Lab. - III, Plant Physiology and Ecology)

Course – 7: BTB-352 (Methods of Environmental Analysis) Skill Enhancement Elective 1
1. Dr. Rose Rizvi
2. Dr. Faheem Ahmad

Course – 8: BTB-353 (Techniques in Plant Breeding) Skill Enhancement Elective 2
1. Dr. Mu. Naeem
2. Dr. Naseem Ahmad

B.Sc. (Hons) IV Semester

Course - 9: BTB-451 (Development of Plants and their Utilization)
Section – I: BTB, BCB, ZYB (Mains)
1. Prof. Fareed A. Khan
2. Dr. Shahina Parveen
3. Dr. Iram Siddique

Section – II: CHB (Mains)
1. Prof. Fareed A. Khan
2. Dr. Asim Masood
3. Dr. Iram Siddique

Course – 10: BTB-4P1 (Lab. - IV, Development of Plants and their Utilization)
Section – I: BTB, BCB, ZYB  (One register)
Section – II: CHB  (One register)
Department of Botany
Special Meeting of B.O.S
Held on 29.05.2019

Course – 11: BTB-452 (Experiments in Cytology and Genetics) Skill Enhancement Elective 1
1. Dr. Asim Masood
2. Dr. Sana Choudhary

Course – 12: BTB-453 (Study of Plant Diseases and their Management) Skill Enhancement Elective 2
1. Prof. Hisamuddin
2. Prof. Tabrez A. Khan
3. Dr. Faheem Ahmad

Course – 13: BTB-491 (Basic Concepts in Botany) Open Elective
1. Dr. Asim Masood
2. Dr. Mu Naeem
3. Dr. Naseem Ahmad

B.Sc. (Hons.) V Semester

Course – 14: BTB-551 (Biology of Cryptogams)
1. Prof. Mansoor A. Siddiqui
2. Dr. Mu Naeem
3. Dr. Rose Rizvi
4. Dr. Naseem Ahmad
5. Dr. Iram Siddique

Course – 15: BTB-552 (Systematics of Angiosperms and Environmental Botany)
1. Prof. M. B. Siddiqui
2. Dr. Athar A. Khan
3. Dr. Shahla Faizan

Course – 16: BTB-5P1 (Lab. - V, Biology of Cryptogams) - One register
Course – 17: BTB-5P2 (Lab. - VI, Systematics of Angiosperms and Environmental Botany) - One register
Course – 18: BTB-5S1 (Seminar Presentation - BTB- 551 & BTB- 552)
(The concerned teachers) - One register
ELECTIVE DISCIPLINE CENTRIC

Course – 19: BTB-553 (Microbiology and Plant Pathology)
   1. Prof. Tabreiz A. Khan
   2. Prof. Zaki A. Siddiqui
   3. Dr. Rose Rizvi

Course – 20: BTB-554 (Fundamentals of Normal and Anomalous Plant Anatomy)
   1. Prof. Fareed A. Khan
   2. Dr. Athar A. Khan
   3. Dr. Faheem Ahmad

Course – 21: BTB-555 (Techniques in Tissue Culture)
   1. Dr. Sana Choudhary
   2. Dr. Saad Bin Javed
   3. Dr. Shahina Parveen

B.Sc. (Hons.) VI Semester

Course – 22: BTB-651 (Genetics and Plant Breeding)
   1. Prof. Altaf Ahmad
   2. Dr. Asim Masood
   3. Dr. Naseem Ahmad

Course – 23: BTB-652 (Biochemistry, Molecular Biology and Biotechnology)
   1. Prof. Nafees A. Khan
   2. Prof. Shamsul Hayat
   3. Prof. Altaf Ahmad
   4. Dr. Qazi Fariduddin

Course – 24: BTB-6P1 (Lab. - VII, Genetics and Plant Breeding) - One register

Course – 25: BTB-6P2 (Lab. - VIII, Biochemistry, Molecular Biology and Biotechnology) - One register

Course – 26: BTB-6S1 (Oral Presentation - BTB- 651 & BTB-652) - One register
   (The concerned teachers)
ELECTIVE DISCIPLINE CENTRIC

Course – 27: BTB-653 (Biology of Seed Plants)
1. Dr. Tariq Aftab
2. Dr. Faheem Ahmad
3. Dr. Shahina Parveen
4. Dr. Iram Siddique

Course – 28: BTB-654 (Introduction to Mycology)
1. Prof. Hisamuddin
2. Prof. Tabrez A. Khan
3. Dr. Faheem Ahmad
4. Dr. Naseem Ahmad
5. Dr. Iram Siddique

Course – 29: BTB-655 (Introduction to Environment)
1. Prof. Fareed A. Khan
2. Dr. Athar A. Khan
3. Dr. Naseem Ahmad

Chairperson
Department Of Botany
AMU, Aligarh
M. Sc. I Semester

Course – 1: BTM-1001 - Diversity of Microbes (Viruses, Bacteria, Fungi, Nematodes)
1. Prof. Hisamuddin
2. Prof. Tabrez A. Khan
3. Dr. Faheem Ahmad

Course – 2: BTM-1002 (Plant Pathology)
1. Prof. Abrar A. Khan
2. Prof. Hisamuddin
3. Prof. Tabrez A. Khan
4. Dr. Rose Rizvi

Course – 3: BTM-1003 (Algae and Bryophytes)
1. Prof. Mansoor A. Siddiqui
2. Prof. M. Masroor A. Khan
3. Dr. Mu. Naeem

Course – 4: BTM-1004 (Pteridophytes and Gymnosperms)
1. Dr. Asim Masood
2. Dr. Naseem Ahmad
3. Dr. Iram Siddique

Course – 5: BTM-1005 (Taxonomy of Angiosperms)
1. Prof. M. B. Siddiqui
2. Dr. Athar A. Khan

Course – 6: BTM-1071 - Lab – I: (Course BTM-1001 & BTM-1002) - One register

Course – 7: BTM-1072 - Lab – II: (Course BTM-1003 & BTM-1004) - One register

Course – 8: BTM-1073 - Lab – III: (Course BTM-1005) - One register
M.Sc. II Semester

Course – 9: BTM-2001 (Plant Resource Utilization and Conservation)
1. Dr. Rose Rizvi
2. Dr. Shahina Parveen

Course – 10: BTM-2002 (Reproduction in Flowering Plant)
1. Prof. Samiullah Khan
2. Dr. Sana Choudhary
3. Dr. Naseem Ahmad

Course – 11: BTM-2003 (Plant Development)
1. Prof. Fareed A. Khan
2. Dr. Tariq Aftab
3. Dr. Mu Naeem

Course – 12: BTM-2004 (Cell and Molecular Biology)
1. Prof. Altaf Ahmad
2. Dr. Anwar Shahzad
3. Dr. Rose Rizvi
4. Dr. Saad Bin Javed

Course – 13: BTM-2005 (Plant Physiology & Metabolism)
1. Prof. Firoz Mohammad
2. Prof. Nafees A. Khan
3. Prof. M. Masroor A. Khan
4. Prof. Shamsul Hayat

Course – 14: BTM-2071 · Lab – IV: (Course BTM-2001, BTM-2002 & BTM-2004) - One register

Course – 15: BTM-2072 · Lab – V: (Course BTM-2003 & BTM-2005) - One register

Course – 16: BTM-2073 · Seminar (Ability Enhancement Discipline Centric)
(The concerned teachers)
M.Sc. III Semester

Course – 17: BTM-3001 (Genetics and Cytogenetics)
1. Prof. Samiullah Khan
2. Dr. Anwar Shahzad
3. Dr. Sana Choudhary

Course – 18: BTM-3002 (Plant Biotechnology)
1. Prof. Altaf Ahmad
2. Dr. Anwar Shahzad
3. Dr. Saad Bin Javed

Course – 19: BTM-3003 (Environmental Sciences)
1. Prof. Abrar A. Khan
2. Dr. Shahla Faizan

Course – 20: BTM-3004 (Ecology)
1. Prof. Fareed A. Khan
2. Dr. Athar A. Khan
3. Dr. Qazi Fariduddin
4. Dr. Faheem Ahmad

Course – 21: BTM-3005 - General Botany (CBC)
1. Prof. Zaki A. Siddiqui
2. Dr. Qazi Fariduddin
3. Dr. Shahla Faizan
4. Dr. Faheem Ahmad

Course – 22: BTM-3071 (Lab – VI: Course BTM-3001 & BTM-3002) - One register

Course – 23: BTM-3072 (Lab – VII: Course BTM-3003 & BTM-3004) - One register

Course – 24: BTM-3073 - Seminar (Ability Enhancement Discipline Centric)
(The concerned teachers) - One register

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M.Sc. IV Semester

Course – 25: BTM-4001 (Communication Skill / Viva-voce)
(Teachers involved in respective specializations)

Course – 26: BTM-4080 (Field Work)
(Teachers involved in respective specializations)

Elective Papers I & II (Specialization)
Course – 27 & 28: BTM-4011 & BTM-4012 (Plant Pathology)
1. Prof. Mansoor A. Siddiqui
2. Prof. Abrar A. Khan
3. Prof. Hisamuddin
4. Prof. Tabreiz A. Khan
5. Prof. Zaki A. Siddiqui
6. Dr. Rose Rizvi
7. Dr. Faheem Ahmad

Course – 27 & 28: BTM-4021 & BTM-4022 (Advanced Plant Physiology)
1. Prof. Firoz Mohammad
2. Prof. Nafees A. Khan
3. Prof. M. Masroor A. Khan
4. Prof. Shamsul Hayat
5. Dr. Qazi Fariduddin
6. Dr. Asim Masood

Course – 27 & 28: BTM-4031 & BTM-4032 (Environmental Botany)
1. Prof. M.B. Siddiqui
2. Prof. Abrar A. Khan
3. Dr. Shahla Faizan

Course – 27 & 28: BTM-4041 & BTM-4042 (Plant Biotechnology)
1. Prof. Samiullah Khan
2. Prof. Altaf Ahmad
3. Dr. Anwar Shahzad
4. Dr. Saad Bin Javed

Course – 27 & 28: BTM-4051 & BTM-4052 (Cytogenetics and Plant Breeding)
1. Prof. Samiullah Khan
2. Dr. Sana Choudhary
3. Dr. Shahina Parveen
4. Dr. Iram Siddique

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Special Meeting of B.O.S
Held on 29.05.2019
Department of Botany
Special Meeting of B.O.S
Held on 29.05.2019

Course –29: BTM-4071 (Lab - VIII: Plant Pathology, Course - BTM-4011 & BTM-4012) - I & II (One register)

Course –29: BTM-4072 (Lab - VIII: Advanced Plant Physiology, Course - BTM-4021 & BTM-4022) - I & II (One register)

Course –29: BTM-4073 (Lab - VIII: Environmental Botany, Course - BTM-4031 & BTM-4032) - I & II (One register)

Course –29: BTM-4074 (Lab - VIII: Plant Biotechnology, Course - BTM-4041 & BTM-4042) - I & II (One register)

Course –29: BTM-4075 (Lab - VIII: Cytogenetics and Plant Breeding, Course- BTM-4051 & BTM-4052) - I & II (One register)

(Teachers involved in respective specializations)

Course –30: BTM-40D1 (Project Work: Plant Pathology, Course - BTM-4011 & BTM-4012) - I & II (One register)

Course –30: BTM-40D2 (Project Work: Advanced Plant Physiology, Course - BTM-4021 & BTM-4022) - I & II (One register)

Course –30: BTM-40D3 (Project Work: Environmental Botany, Course - BTM-4031 & BTM-4032) - I & II (One register)

Course –30: BTM-40D4 (Project Work: Plant Biotechnology, Course - BTM-4041 & BTM-4042) - I & II (One register)

Course –30: BTM-40D5 (Project Work: Cytogenetics and Plant Breeding, Course- BTM-4051 & BTM-4052) - I & II (One register)

(Teachers involved in respective specializations)

Course –31: BTM-40S1 (Seminar: Plant Pathology, Course - BTM-4011 & BTM-4012) - I & II (One register)

Course –31: BTM-40S2 (Seminar: Advanced Plant Physiology, Course - BTM-4021 & BTM-4022) - I & II (One register)

Course –31: BTM-40S3 (Seminar: Environmental Botany, Course - BTM-4031 & BTM-4032) - I & II (One register)

Course –31: BTM-40S4 (Seminar: Plant Biotechnology, Course - BTM-4041 & BTM-4042) - I & II (One register)

Course –31: BTM-40S5 (Seminar: Cytogenetics and Plant Breeding, Course- BTM-4051 & BTM-4052) - I & II (One register)

(Teachers involved in respective specializations)

Note: The CBCS open elective course will be run when a minimum 05 and maximum 30 students are enrolled.

Ph.D. Course Work (2019-2020)

The following faculty members are allocated the Ph.D. Course Work

1. Prof. M. Masroor A. Khan
2. Prof. Fareed A. Khan
3. Prof. Altaf Ahmad
4. Dr. Athar A. Khan
5. Dr. Qazi Fariduddin
6. Dr. Anwar Shahzad
7. Dr. Faheem Ahmad
8. Dr. Naseem Ahmad
9. Dr. Shahina Parveen
Schedule of teaching of Botany Section, Women's College for the session 2019-2020
(Under-graduate)

B.Sc. (Hons.) I Semester

Course – 1: BTB.151 (Cell Biology and Basic Biochemistry)
1. Prof. Moinuddin
2. Prof. Sheila Shahab
3. Dr. Kiran Lata Chauhan
4. Dr. Fauzia Naushin
5. Dr. Amir Raina

B.Sc. (Hons.) II Semester

Course – 3: BTB-251 (Diversity and Classification of Plant Kingdom)
1. Prof. Moinuddin
2. Dr. Kiran Lata Chauhan
3. Dr. Fauzia Naushin
4. Dr. Amir Raina

B.Sc. (Hons.) III Semester

Course – 5: BTB-351 (Plant Physiology and Ecology)
1. Prof. Ghazala Parveen
2. Prof. Moinuddin
3. Dr. Kiran Lata Chauhan
4. Dr. Amir Raina

Course – 7: BTB-352 (Methods of Environmental Analysis) Skill Enhancement Elective 1
1. Prof. Moinuddin
2. Dr. Kiran Lata Chauhan
3. Dr. Amir Raina

Course – 8: BTB-353 (Techniques in Plant Breeding) Skill Enhancement Elective 2
1. Prof. Ghazala Parveen
2. Prof. Moinuddin
3. Dr. Fauzia Naushin

B.Sc. (Hons.) IV Semester

Course - 9: BTB-451 (Development of Plants and their Utilization)
1. Prof. Razia K. Zaidi
2. Prof. Sheila Shahab
3. Dr. Fauzia Naushin
Course – 11: BTB-452 (Experiments in Cytology and Genetics) Skill Enhancement Elective 1
1. Prof. Sheila Shahab
2. Dr. Kiran Lata Chauhan
3. Dr. Fauzia Naushin
4. Dr. Amir Raina

Course – 12: BTB-453 (Study of Plant Diseases and their Management) Skill Enhancement Elective 2
1. Prof. Ghazala Parveen
2. Prof. Razia K. Zaidi
3. Prof. Sheila Shahab

Course – 13: BTB-491 (Basic Concepts in Botany) Open Elective
1. Prof. Razia K. Zaidi
2. Prof. Sheila Shahab
3. Dr. Kiran Lata Chauhan
4. Dr. Amir Raina

B.Sc. (Hons.) V Semester

Course – 14: BTB-551 (Biology of Cryptogams)
1. Prof. Ghazala Parveen
2. Prof. Sheila Shahab
3. Dr. Kiran Lata Chauhan
4. Dr. Fauzia Naushin

Course – 15: BTB-552 (Systematics of Angiosperms and Environmental Botany)
1. Prof. Ghazala Parveen
2. Prof. Moinuddin
3. Dr. Kiran Lata Chauhan
4. Dr. Amir Raina
ELECTIVE DISCIPLINE CENTRIC

Course – 19: BTB-553 (Microbiology and Plant Pathology)
1. Prof. Ghazala Parveen
2. Prof. Razia K. Zaidi
3. Dr. Fauzia Naushin

Course – 20: BTB-554 (Fundamentals of Normal and Anomalous Plant Anatomy)
1. Prof. Moinuddin
2. Prof. Razia K. Zaidi
3. Prof. Sheila Shahab

Course – 21: BTB-555 (Techniques in Tissue Culture)
1. Prof. Ghazala Parveen
2. Prof. Sheila Shahab
3. Dr. Kiran Lata Chauhan
4. Dr. Fauzia Naushin

B.Sc. (Hons.) VI Semester

Course – 22: BTB-651 (Genetics and Plant Breeding)
1. Prof. Ghazala Parveen
2. Prof. Moinuddin
3. Dr. Kiran Lata Chauhan
4. Dr. Fauzia Naushin
5. Dr. Amir Raina

Course – 23: BTB-652 (Biochemistry, Molecular Biology and Biotechnology)
1. Prof. Ghazala Parveen
2. Prof. Moinuddin
3. Dr. Kiran Lata Chauhan
4. Dr. Amir Raina

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ELECTIVE DISCIPLINE CENTRIC

Course – 27: BTB-653 (Biology of Seed Plants)
1. Prof. Razia K. Zaidi
2. Prof. Sheila Shahab
3. Dr. Fauzia Naushin

Course – 28: BTB-654 (Introduction to Mycology)
1. Prof. Ghazala Parveen
2. Prof. Razia K. Zaidi
3. Prof. Sheila Shahab
4. Dr. Fauzia Naushin

Course – 29: BTB-655 (Introduction to Environment)
1. Prof. Ghazala Parveen
2. Prof. Moinuddin
3. Dr. Fauzia Naushin
4. Dr. Amir Raina

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