

Department of Botany
Lesson Plan for Even Semester: Session 2023- 2024

Name: Dr.Anil Kumar

Class:B.Sc.(M)5th Sem.

Paper- Plant Physiology

16 January 2024 to 20th April 2024	
1 st January to 15 th January- Practical examination of odd semester	
Week 1 16 January - 20 January	Plant-water relations: Importance of water to plant life; physical properties of water; imbibition, diffusion and osmosis
21st January	SUNDAY
Week 2 22nd January – 27th January	absorption and transport of water; transpiration; physiology of stomata Mineral nutrition: Essential macro and micro elements and their role; mineral uptake; deficiency symptoms.
28th January	SUNDAY
Week 3 29th January - 03th February	Transport of organic substances: Mechanism of phloem transport; source-sink relationship; factors affecting translocation.
04th February	SUNDAY
Week 4 05th February 10th February	Photosynthesis : significance; historical aspects; photosynthetic pigments; action spectra and enhancement effects; concept of two photosystems;.
11th February	SUNDAY
Week 5 12th February – 17th February	. Z-scheme; photo- phosphorylation; Calvin cycle; C4 pathway; CAM plants; photorespiration
18th February	SUNDAY
Week 6 19th February – 24th February	Growth and development : Definitions; phases of growth and development; seed dormancy
25th February	SUNDAY
Week 7 26thFebruary–02nd March	plant movements; the concept of photoperiodism; physiology of flowering; florigen concept; physiology of senescence; fruit ripening;
03th March	SUNDAY
Week 8 04th March–09th March	Plant hormones- auxins, gibberellins, cytokinins history of their discovery, mechanism of action
10th March	SUNDAY
Week 9 11th March–16th March	abscissic acid and ethylene, history of their discovery, mechanism of action; photo-morphogenesis;

17 th March	SUNDAY
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Week 10 18 th March – 22 th March	Phytochromes and their discovery, physiological role.
23 March – 31 st March	Holi break
Week 13 01 st April – 06 th April	mechanism of action of Phytochromes
07 th April	SUNDAY
Week 14 8 th April – 13 th April	Revision, Assignment, Test
14 th April	SUNDAY
Week 15 15 th April – 20 th April	Revision, Assignment, Test
21 st April	SUNDAY

Department of Botany

Lesson Plan for Even Semester: Session 2023- 2024

Name: Dr.Ritu Nandal

Class:B.Sc.(M)5th Sem.

Paper- Ecology

16 January 2024 to 20th April 2024	
1 st January to 15 th January- Practical examination of odd semester	
Week 1 16 January - 20 January	Bryophyta- General characters, classification (upto classes), alternation of generations
21 st January	SUNDAY
Week 2 22 rd January – 27 th January	evolution of sporophytes and economic importance Bryophyta: Structure and reproduction (excluding development)
28 th January	SUNDAY
Week 3 29 th January - 03 th February	Marchantia (Hepaticopsida), Anthoceros (Anthocerotopsida)
04 th February	SUNDAY
Week 4 05 th February 10 th February	Funaria (Bryopsida) economic importance of bryophyta.
11 th February	SUNDAY

Week 5 12 th February – 17 th February	Pteridophyta- General characters, classification (upto classes), alternation of generations,
18th February	SUNDAY
Week 6 19 th February – 24 th February	Heterospory, apospory, apogamy and economic importance; General account of stellar evolution
25th February	SUNDAY
Week 7 26 th February–02 nd March	Pteridophyta: Structure and reproduction (excluding development) of Rhynia (Psilopsida)
03th March	SUNDAY
Week 8 04 th March–09 th March	Selaginella (Lycopsida), Equisetum (Sphenopsida) and Pteris (Pteropsida)
10th March	SUNDAY
Week 9 11 th March–16 th March	Equisetum (Sphenopsida) and Pteris (Pteropsida)
17th March	SUNDAY

Week 10 18 th March– 22 th March	Pteris (Pteropsida).
23 March – 31st March	Holi break
Week 13 01 st April – 06 th April	Stellar evolution .
07th April	SUNDAY
Week 14 8 th April – 13 th April	Revision, Assignment, Test
14th April	SUNDAY
Week 15 15 th April – 20 th April	Revision, Assignment, Test
21st April	SUNDAY

Lesson Plan for Even Semester: Session 2023- 2024

Dr Surender Singh, Department of Botany

Class: B.Sc. Chem (H) 4th Semester

Paper- Economic Botany

16 January 2024 to 20th April 2024	
1 st January to 15 th January- Practical examination of odd semester	
Week 1 16 January - 20 January	Concept of centers of origin, their importance with reference to Vavilov's work.
21st January	SUNDAY
Week 2 22 rd January – 27 th January	Examples and process of major plant introductions
28th January	SUNDAY
Week 3 29 th January - 03 th February	Crop domestication and loss of genetic diversity
04th February	SUNDAY
Week 4 05 th February 10 th February	Evolution of new crops/varieties, importance of weeds in germplasm diversity
11th February	SUNDAY
Week 5 12 th February – 17 th February	Botany, cultivation and uses of: Food crops: Wheat and Rice.
18th February	SUNDAY
Week 6 19 th February – 24 th February	Botany, cultivation and uses of: Vegetable crops: Potato, tomato and chillies
25th February	SUNDAY
Week 7 26 th February–02 nd March	Legumes: General account, importance to man and ecosystem; chief pulses grown in India.
03th March	SUNDAY
Week 8 04 th March– 09 th March	Listing of important spices, their family and part used; with special reference to blackpepper, turmeric, fennel.
10th March	SUNDAY
Week 9 11 th March– 16 th March	Listing of important spices, their family and part used; with special reference to clove, saffron; common adulterants of spices. Medicinal plants: Distribution, description and uses of Commifora, Emblica, Rauwolfia, Withania, Andrographis.
17th March	SUNDAY

Week 10 18 th March – 22 th March	Medicinal plants: Distribution, description and uses of Aloe, Azadirachta. Beverages: Tea and coffee, their processing and some common adulterants.
23 March – 31 st March	Holi break
Week 13 01 st April – 06 th April	Ethnobotany: Introduction; Role of ethnobotany in conservation of indigenous plant wealth. Role of ethnobotany in drug discovery; Traditional Knowledge and IPR issues.
07 th April	SUNDAY
Week 14 8 th April – 13 th April	Revision, Assignment, Test
14 th April	SUNDAY
Week 15 15 th April – 20 th April	Revision, Assignment, Test
21 st April	SUNDAY

Lesson Plan for Even Semester: Session 2023- 2024

Dr Surender Singh, Department of Botany

Class: B.Sc. Chemistry (H) 2nd Semester

Paper- Plant Physiology

16 January 2024 to 20th April 2024	
1 st January to 15 th January- Practical examination of odd semester	
Week 1 16 January - 20 January	Concept of osmosis, diffusion, imbibition and water potential, Soil- plant-atmosphere continuum concept, concepts of symplast and apoplast
21 st January	SUNDAY
Week 2 22 nd January – 27 th January	Ascent of sap; transpiration and antitranspirants; mechanism of opening and closing of stomata
28 th January	SUNDAY
Week 3 29 th January - 03 th February	Mineral nutrition, Translocation of photoassimilates, Photosynthetic pigments; Photosystems
04 th February	SUNDAY
Week 4 05 th February 10 th February	Cyclic and noncyclic electron transport; photophosphorylation. Carbon fixation in C3 and C4 plants, CAM plants, factors affecting photosynthesis.
11 th February	SUNDAY
Week 5 12 th February – 17 th February	Respiration: Glycolysis; the TCA cycle and its regulation; electron transport in mitochondria; oxidative phosphorylation
18 th February	SUNDAY

Week 6 19th February – 24th February	Carbohydrate Metabolism: Structure, properties and importance of mono-, di- and polysaccharides; Synthesis of sucrose, starch and cellulose. Nitrogen Metabolism : Biological nitrogen fixation and nitrogen cycle.
25th February	SUNDAY
Week 7 26th February–02nd March	Lipid Metabolism: Structure, properties, classification and functional significance of fatty acids, triglycerides and steroids.
<u>Paper I</u>	
03th March	SUNDAY
Week 8 04th March–09th March	Synthesis and breakdown, formation of glycerides; oxidation of fatty acids, beta oxidation; energy balance.
10th March	SUNDAY
Week 9 11th March–16th March	Flowering; physiological definition; role of light; photoperiodism, inductive and noninductive cycles; role of dark period.
17th March	SUNDAY
Week 10 18th March– 22th March	Role of quality and intensity of light; nature of the flowering stimulus; florigen concept, vernalization: mechanism
23 March – 31st March	Holi break
Week 13 01st April – 06th April	Structure, biosynthesis, analysis, transport, physiological effects and mechanism of action of growth regulators.
07th April	SUNDAY
Week 14 8th April – 13th April	Revision, Assignment, Test
14th April	SUNDAY
Week 15 15th April – 20th April	Revision, Assignment, Test
21st April	SUNDAY

Name of College: Pt. N.R.S. Government College, Rohtak

AcademicSession:2023-24

Semester: Even

Name of Asstt./Associate Professor: Dr. Ritu Hooda

Class: B.Sc. 2nd Semester (Medical)

Section- A & B

Name of Subject: Botany

16th January to 20th April 2024 (1 January to 15 January - Practical examination of odd semester)	
1st week (16-20 January)	General characters, classification (upto classes) DNA - the genetic material, DNA structure and replication DNAProtein interaction
21 January	SUNDAY
2nd week (22th to 27th January)	Alternation of generations Evolution of sporophytes Economic importance The Nucleosome Model, Genetic Code, Satellite and Repetitive DNA.
28 January	SUNDAY
3rd week (29th January to 03rd February)	Structure and reproduction of <i>Marchantia</i> (Hepaticopsida) Mendelism: Laws of Segregation and Independent Assortment
04th February	SUNDAY
4th week (05th to 10th February)	Structure and reproduction of <i>Anthoceros</i> (Anthocerotopsida) Linkage Analysis; Allelic and non-allelic interactions.
11th February	SUNDAY
5th week (12th to 17th February)	Structure and reproduction of <i>Funaria</i> (Bryopsida) Presence and function of Mitochondrial and Plastid DNA Plasmids.
18th February	SUNDAY
6th week (19th to 24th February)	General characters, classification (upto classes) Mutations - spontaneous and induced; transposable genetic elements;
25th February	SUNDAY
7th week (26th February to 02th March)	alternation of generations, heterospory, apospory, DNA damage and repair.
03rd March	SUNDAY
8th week (04th to 09th March)	. apogamy and economic importance; General account of stellar evolution Modern concept of gene; RNA; Ribosomes;
10th March	SUNDAY

9th week (11th to 16th March)	Structure and reproduction (excluding development) of <i>Rhynia</i> (Psilopsida), Transfer of genetic information - transcription and translation;
17th March	SUNDAY
10th week (18th to 22nd March)	<i>Selaginella</i> (Lycopsida), <i>Equisetum</i> (Sphenopsida) Structure of Proteins
24 March	SUNDAY
11th week (25th to 30 March)	<i>Pteris</i> (Pteropsida) Regulation of gene expression in prokaryotes and eukaryotes
31 March	SUNDAY
12th week (01st to 06 April)	Revision, Assignment, Test
07 April	SUNDAY
13th week (08th to 13th April)	Revision, Assignment, Test
14 April	SUNDAY
14th week (15th to 20th April)	Revision, Assignment, Test

Summary of Lesson Plan of Even Semester

Name of College: Pt. N.R.S. Government College,

Rohtak Academic Session: 2023-24 Semester: Even

Name of Asstt./Associate Professor: Dr. Ritu Hooda

Class: B.Sc. 2nd Semester (Medical)

Section- A & B

Name of Subject: Botany

16th January to 20th April 2024 (1 January to 15 January - Practical examination of odd semester)	
1st week (16-20 January)	General characters, classification (upto classes) DNA - the genetic material, DNA structure and replication DNA Protein interaction
21 January	SUNDAY
2nd week (22th to 27th January)	Alternation of generations Evolution of sporophytes Economic importance The Nucleosome Model, Genetic Code, Satellite and Repetitive DNA.
28 January	SUNDAY

3rd week (29th January to 03rd February)	Structure and reproduction of <i>Marchantia</i> (Hepaticopsida) Mendelism: Laws of Segregation and Independent Assortment
04th February	SUNDAY
4th week (05th to 10th February)	Structure and reproduction of <i>Anthoceros</i> (Anthocerotopsida) Linkage Analysis; Allelic and non-allelic interactions.
11th February	SUNDAY
5th week (12th to 17th February)	Structure and reproduction of <i>Funaria</i> (Bryopsida) Presence and function of Mitochondrial and Plastid DNA Plasmids.
18th February	SUNDAY
6th week (19th to 24th February)	General characters, classification (upto classes) Mutations - spontaneous and induced; transposable genetic elements;
25th February	SUNDAY
7th week (26th February to 02th March)	alternation of generations, heterospory, apospory, DNA damage and repair.
03rd March	SUNDAY
8th week (04th to 09th March)	. apogamy and economic importance; General account of stellar evolution Modern concept of gene; RNA; Ribosomes;
10th March	SUNDAY
9th week (11th to 16th March)	Structure and reproduction (excluding development) of <i>Rhynia</i> (Psilopsida), Transfer of genetic information - transcription and translation;
17th March	SUNDAY
10th week (18th to 22nd March)	<i>Selaginella</i> (Lycopsida), <i>Equisetum</i> (Sphenopsida) Structure of Proteins
24 March	SUNDAY
11th week (25th to 30 March)	<i>Pteris</i> (Pteropsida) Regulation of gene expression in prokaryotes and eukaryotes
31 March	SUNDAY
12th week (01st to 06 April)	Revision, Assignment, Test
07 April	SUNDAY
13th week (08th to 13th April)	Revision, Assignment, Test

14 April	SUNDAY
14th week (15th to 20th April)	Revision, Assignment, Test

Summary of Lesson Plan of College Faculty

Name of College: Pt. N.R.S. Government College, Rohtak

AcademicSession:2023-24

Semester: Even

Name of Asstt./Associate Professor: Dr.Monika

Class: B.Sc. Semester (Medical)

Section- C

Name of Subject: Botany

15 January to 20 April 2024	
15 Jan to 20 Jan	General characters, classification (upto classes) DNA - the genetic material, DNA structure and replication DNAProtein interaction
21 January	SUNDAY
22 Jan to 27 Jan	Alternation of generations Evolution of sporophytes Economic importance The Nucleosome Model, Genetic Code, Satellite and Repetitive DNA.
28 January	SUNDAY
29 Jan to 3 Jan	Structure and reproduction of <i>Marchantia</i> (Hepaticopsida) Mendelism: Laws of Segregation and Independent Assortment
4 February	SUNDAY
5 Feb to 10 Feb	Structure and reproduction of <i>Anthoceros</i> (Anthocerotopsida) Linkage Analysis; Allelic and non-allelic interactions.
11 February	SUNDAY
12 Feb to 17 Feb	Structure and reproduction of <i>Funaria</i> (Bryopsida) Presence and function of Mitochondrial and Plastid DNA Plasmids.
18 February	SUNDAY
19 Feb to 24 Feb	General characters, classification (upto classes) Mutations - spontaneous and induced; transposable genetic elements;
25 February	SUNDAY
26 Feb to 2 March	alternation of generations, heterospory, apospory, DNA damage and repair.
3 March	SUNDAY
4 March to 10 March	. apogamy and economic importance; General account of stellar evolution Modern concept of gene; RNA; Ribosomes;
11 March	SUNDAY
12 March to 16 March	Structure and reproduction (excluding development) of <i>Rhynia</i> (Psilopsida), Transfer of genetic information - transcription and translation;
17 March	SUNDAY

18 March to 22 March	<i>Selaginella</i> (Lycopsida), <i>Equisetum</i> (Sphenopsida) Structure of Proteins
23 March to 31 March	Holi Holiday
1 April to 6 April	<i>Pteris</i> (Pteropsida) Regulation of gene expression in prokaryotes and eukaryotes
7 April	SUNDAY
8 April to 13 April	Revision, Assignment, Test
14 April	SUNDAY
15 April to 20 April	Revision, Assignment, Test
21 April	SUNDAY

Summary of Lesson Plan of College Faculty

Name of College: Pt. N.R.S. Government College, Rohtak

Academic Session: 2023-24

Semester: Even

Name of Asstt./Associate Professor: Dr. Seema

Class: B.Sc. Semester (Medical)

Section- A, B

Name of Subject: Botany

15 Jan- 20 Jan 2024	
15-20 Jan	General terms of Genetics DNA - the genetic material, DNA structure and replication
21 January	SUNDAY
22-27 Jan	The Nucleosome Model, Genetic Code, Satellite and Repetitive DNA.
28 January	SUNDAY
29-3 February	Mendelism: Laws of Segregation and Independent Assortment
4 February	SUNDAY

5-10 February	Linkage Analysis; Allelic and non-allelic interactions.
11 February	SUNDAY
12-17 February	Presence and function of Mitochondrial and Plastid DNA Plasmids.
18 February	SUNDAY
19-24 February	Mutations - spontaneous and induced; transposable genetic elements;
25 February	SUNDAY
26 -2 March	DNA damage and repair.
3 March	SUNDAY
4-9 March	Modern concept of gene; RNA; Ribosomes;
10 March	SUNDAY
11 -16 March	Transfer of genetic information - transcription and translation;
17 March	SUNDAY
18-22 March	Structure of Proteins(1-D, 2-Dand 3-D structure)
24 March	SUNDAY
23--31 March	Holi Vacation
31 March	SUNDAY
1-6 April	Post translation modifications of protein synthesis
7 April	SUNDAY
8-13 April	Revision, Assignment, Test
14 April	SUNDAY
15-20 April	Revision, Assignment, Test

1st April to 15th June 2024

16 to 20 Jan	General introduction of diversity of flowering plants General introduction to floral terminology, Position of ovary, Aestivation, Palcentationetc
	SUNDAY
22 to 3 Feb	Floral diagram and floral formulaintroduction Diagnostic feature, floral diagram, floral formula of family Ranunculaceae Economic importance of family Ranunculaceae Diagnostic featurefloral diagram, floral formula of family Brassicaceae
	SUNDAY
5 to 10 Feb	Diagnostic feature floral diagram, floral formula of family Brassicaceae Economic importance of family Brassicaceae Diagnostic feature floral diagram, floral formula of family Malvaceae Economic importance of family Malvaceae
	SUNDAY
12 to 17 Feb	Diagnostic feature floral diagram, floral formula of family Euphorbiaceae Economic importance of family Euphorbiaceae Diagnostic feature of family Rutaceae Diagnostic feature of family Rutaceae
	SUNDAY
19 to 24 Feb	Diagnostic feature floral diagram, floral formula of family Fabaceae Economic importance of family Fabaceae Diagnostic feature floral diagram, floral formula of family Cucurbitaceae Economic importance of family Cucurbitaceae
	SUNDAY
26 to 9 March	Diagnostic feature floral diagram, floral formula of family Apiaceae Economic importance of family Apiaceae Diagnostic feature floral diagram, floral formula of family Asclepiadaceae Economic importance of family Asclepiadaceae
	SUNDAY
11 to 16 March	Diagnostic feature floral diagram, floral formula of family Lamiaceae Economic importance of familyLamiaceae Diagnostic feature floral diagram, floral formula of family Solanaceae Economic importance of familySolanaceae
	SUNDAY
18 to 22 March	Diagnostic feature floral diagram, floral formulaand economic importance of family Asteraceae Diagnostic feature floral diagram, floral formulaand economic importance of family Liliaceae
	Holi Break
1 to 6 April	Diagnostic feature floral diagram, floral formula of family Cucurbitaceae Economic importance of familyCucurbitaceae Diagnostic feature floral diagram, floral formula of family Poaceae Economic importance of family Poaceae

	SUNDAY
8 to 13 April	Study of floral parts by observing actual specimens of families mentioned in syllabus
	SUNDAY
15 to 20 April	Assessment
	SUNDAY
22 April to onward	Revision, Assignment, Test

Lesson Plan for Even Semester: Session 2023- 2024

Mr Surender Kumar, Subject: Botany Paper : 2nd Plant Embryology

Class: B.Sc. Medical 4th Semester (Section A 1-3 days, B 4-6 days).Paper II

16 January 2024 to 20th April 2024	
1 st January to 15 th January- Practical examination of odd semester	
Week 1 16 January - 20 January	Introduction of flower, Flower as modified shoot
21 st January	SUNDAY
Week 2 22 nd January - 27 th January	Functions of florals parts, Structure and development of anther, Wall layers
28 th January	SUNDAY
Week 3 29 th January - 03 th February	Tapetum, Dehiscence of anther, Microsporogenesis, pollen grain wall structure
04 th February	SUNDAY
Week 4 05 th February - 10 th February	Micro gametogenesis, Types of Ovule, Structure and development, Megasporogenesis, megagametogenesis, Pollen pistil interaction
11 th February	SUNDAY
Week 5 12 th February - 17 th February	Self-incompatibility, Pollination types and importance. Self-pollination, types, devices for self-pollination
18 th February	SUNDAY
Week 6 19 th February - 24 th February	Cross pollination, various agencies of cross pollination , difference between self and cross pollination
25 th February	SUNDAY
Week 7 26 th February-02 nd March	Entry of pollen tube in ovule, double fertilization, significance, biological importance
<u>Paper I</u>	
03 th March	SUNDAY
Week 8 04 th March-09 th March	Endosperm, development and types, Embryogenesis and types, polyembryony
10 th March	SUNDAY
Week 9 11 th March-16 th March	Structure of dicot and monocot seed, seed dispersal and various mechanism
17 th March	SUNDAY
Week 10 18 th March- 22 th March	Fruits, simple achenial fruits
23 March - 31 st March	Holi break
Week 13 01 st April - 06 th April	Simple capsular and schizocarpic fruits
07 th April	SUNDAY
Week 14 8 th April - 13 th April	Assignment, Test
14 th April	SUNDAY

Week 15 15th April – 20th April	Simple succulent fruits, aggregate fruits and composite fruits
21st April	SUNDAY
22.04.24 onward	Revision

Department of Botany
Lesson Plan for Even Semester: Session 2023- 2024

Name: Dr. Naveeta
Sem. 2nd

Class: B.Sc.(M)2nd

Paper- DIVERSITY OF ARCHEGONIATES

16 January 2024 to 20th April 2024	
1 st January to 15 th January- Practical examination of odd semester	
Week 1 16 January - 20 January	Bryophyta- General characters, classification (upto classes), alternation of generations
21st January	SUNDAY
Week 2 22nd January – 27th January	evolution of sporophytes and economic importance Bryophyta: Structure and reproduction (excluding development)
28th January	SUNDAY
Week 3 29th January - 03th February	Marchantia (Hepaticopsida), Anthoceros (Anthocerotopsida)
04th February	SUNDAY
Week 4 05th February 10th February	Funaria (Bryopsida) economic importance of bryophyta.
11th February	SUNDAY
Week 5 12th February – 17th February	Pteridophyta- General characters, classification (upto classes), alternation of generations,
18th February	SUNDAY
Week 6 19th February – 24th February	Heterospory, apospory, apogamy and economic importance; General account of stellar evolution
25th February	SUNDAY
Week 7 26th February–02nd March	Pteridophyta: Structure and reproduction (excluding development) of Rhynia (Psilopsida)
03th March	SUNDAY
Week 8 04th March–09th March	Selaginella (Lycopsida), Equisetum (Sphenopsida) and Pteris (Pteropsida)

10th March	SUNDAY
Week 9 11th March–16th March	Equisetum (Sphenopsida) and Pteris (Pteropsida)
17th March	SUNDAY

Week 10 18th March – 22th March	Pteris (Pteropsida).
23 March – 31st March	Holi break
Week 13 01st April – 06th April	Stellar evolution .
07th April	SUNDAY
Week 14 8th April – 13th April	Revision, Assignment, Test
14th April	SUNDAY
Week 15 15th April – 20th April	Revision, Assignment, Test
21st April	SUNDAY

