

M.SC. in Botany

The student should study (30) credits, 24 units as course and 6 units to conduct research, prepare and submit M.Sc. thesis. The student should pass the courses with grade of "very good" minimum. Student then should perform his/her research in botany, which include the environment, plant physiology plant genetics, taxonomy, Plant anatomy.

Level (Semester) 1

Course code	Name	units
	<u>Cell Biology (Core 1).</u>	2(1+1)
521 Bot	<u>Advanced plant taxonomy.</u>	2(1+1)
541 Bot	<u>Advanced Ecology.</u>	2(1+1)
551 Bot	<u>Advanced genetics</u>	2(1+1)
	<u>Plant biochemistry and metabolism</u>	2 (2+0)

521 Bot: Advanced plant taxonomy. 2(1+1)

Use of anatomy in taxonomy – Biochemistry – plant geography – electron microscopy In plant taxonomy.

541 Bot: Advanced Ecology. 2(1+1)

Seed ecology – Dissemination – Seed stores in soil as ecology indicator – Salt indicators – Ground water indicators – Rows indicators in soil – Heavy metals toxicity.

551 Bot: Advanced genetics 2(1+1)

Chemical and genetics structure of microbial genetics element – Genes – Plasmids – Reproduction and gene expression – Transformation – Genetic engineering.

Level (Semester) 2

Course code	Name	units
514 Bot	<u>Applied plant anatomy</u>	2(1+1)
	<u>Plant diversity and molecular systematics</u>	2(1+1)
543 Bot	<u>Desertification and conservation of natural resources</u>	2(2+0)
572 Bot	<u>Mineral nutrition.</u>	3(2+1)
591 BOT	<u>Special topics</u>	1(1+0)

514 Bot Applied plant anatomy 2(1+1)

Introduction – Tissue systems – Root, stem, leaf histology – Meristems – Secondary xylem and phloem – Adapting characteristics – Fruits and flower anatomy – Economic importance of applied plant anatomy.

572 Bot Mineral nutrition. 3(2+1)

Physiological role of elements – its deficiency symptoms, mode of absorption – regulation of transportation in tissue.

591 BOT Special topics 1(1+0)

Selective topics in botany.

Level (Semester) 3

1- General Botany Path.

Course code	Name	units
553 Bot	<u>Advanced cytogenetic</u>	3(2+1)
592 Bot	<u>Seminar</u>	1(1+0)

553 Bot Advanced cytogenetic 3(2+1)

Chromosomal apparitions in economic plants (numerical and structural)
 – mode of Chromosomal apparitions – importance of Chromosomal
 apparitions – Cytological basics of links and crossing-over mechanisms
 – Chromosomal maps.

592 Bot Seminar 1(1+0)

Presentation and discussion of selected topics in botany according to the guidance of the course instructor.

2- Plant Molecular Biology and Biotechnology Path.

The student selects 4 hour courses from the elective courses

Course code	Name	units
	Elective course	2(2+0)
	Elective course	2(2+0)

Level (Semester) 4

Course code	Name	units
600 Bot	<u>Thesis</u>	6 (6 +0)

600 Bot Thesis 6(6+0)

Elective courses:

- 1- Plant surfaces. (512 Bot.) [core 4]**
- 2- Bio-construction. (571 Bot) [core 5]**
- 3- Field Taxonomy. (523 Bot) [core 7]**
- 4- Desertification and conservation of natural resources (543 Bot) [core 8].**
- 5- Seminar (592 Bot)**
- 6- Core 9**
- 7- Basic core**
- 8- Plant tissue culture.**
- 9- Structure and function of eukaryotic genome.**
- 10- Regulation of gene expression**

512 Bot: Plant surfaces. 2(1+1)

Introduction – plant surfaces studying techniques – surfaces fine structures – surfaces bio-construction – surfaces function – role in dissemination and reproduction

571 Bot: Biosynthesis 2 (2+0)

Photosynthesis – Phosphorylation – Lipids and protein synthesis – Energy estimation.

523 Bot Field Taxonomy 2(1+1)

Studying of flowering plant in Saudi Arabia – Its characteristics, classification, environment, geographic distribution – plant samples preservation (field trip for 10 days).

592 Bot Seminar 1(1+0)

Presentation and discussion of selected topics in botany according to the guidance of the course instructor.

543 Bot Desertification and conservation of natural resources 2(2+0)

Desertification as global phenomenon – Desertification in Arabic word, reasons and aspects - Modern methods to curb desertification – Natural resources and its types, and maintenance ways.