



Tentative Course Plan
DEPARTMENT OF _BOTANY_

Class:	Semester-	Session:
Instructor	Dr. Nargis Naz	Email: nargis.naz@iub.edu.pk
Course Title	Plant Breeding and genetics	Program BS
Course Number	BOTA-01805	Credit Hours 3(2+1)
Lectureday: period (00:00a.m to 00: 00a.m), Room# 00	

Course Objective:

Genetic manipulation in plants has underpinned improvements in productivity and has enhanced sustainability of farming systems worldwide. As well, plant genetic diversity is fundamental to understand adaptation in natural systems. This course introduces the fundamental concepts of plant breeding and plant adaptation that are applicable to agricultural and natural systems. Extensive industry engagement is also undertaken as part of the course curriculum where students connect with industry leaders in the plant breeding discipline, whether in broad-acre cropping (e.g. wheat, barley, canola, faba bean breeding) or horticulture (e.g. almond breeding). The topics covered include: genetic diversity in relation to adaptation, productivity, pest and disease resistance and end-use quality; strategies for setting breeding objectives and maximising selection and improvement of key traits; breeding methodologies for self or cross pollinated plants.

- Methods of Teaching**
- Assigned readings
 - Group activities & Discussion
 - Audiovisual aids lectures
 - Web-assisted instruction
 - Student-Directed Teaching

Resource Material	1.Books Prescribed: Khan, M. A. and M. Ahmad. 2008. Plant breeding. Daya publishing house, New Delhi, India		
	2. Acquaah, G. 2007. Principles of plant Genetics and breeding. Blackwill Publishing Ltd, UK.		
	3. Acquaah, G. 2012. Principles of plant Genetics and breeding. 2 nd Edition. Blackwill Publishing Ltd, UK.		
	3. Sleper, D. A. and J. M. Poehlman. 2006. Breeding field crops. 5 th edition, Iowa state university press, USA.		
	4. Singh, B. D. 2004. Genetics. Kalyani Publishers, New Delhi, India.		
	2.Reference Book		3.Research Papers
	i		i
	ii		ii
	4.Hot Research Papers		5.Web Resources
	i		i
	ii		ii

Office Help Hours	Monday, _ Friday: 00:00am
Grading	Exam (Date to be announced) Mid- Exam (30%) Final Exam (50%) Problem Session/Assignments (20%)
Problem Sessionday: 00 and 00 periods (0:00-00:00am), Room# 00

SEQUENCE OF TOPICS TO BE COVERED

Session #	Topics (outline of main topics and sub topics)	Chapter #	Tutorial /Laboratory
1	Introduction to plant breeding,		Scientific names, chromosome number and economic importance of cash crops of Pakistan
2 & 3	Historical perspectives and importance of plant breeding,		Classical and Advanced techniques used in Plant

			breeding
4 & 5	Plant cellular organization and genetic structure: an overview		-
5 & 6	Plant genetic resources for plant breeding,		-
7 & 8	Genetic analysis in plant breeding,		-
9 & 10	Tools in plant breeding, Classic methods of plant breeding,		-
11 & 12	Breeding for physiological and morphological traits, Breeding for resistance to diseases and insect pests,		
13 & 14	Breeding for resistance to abiotic stresses, Breeding compositional traits and added value,		
15	Mid Term Exam	Course/Discussion from session 1 to 14	
16 & 17	Concept of heredity and variation,		Calculation of monohybrid and dihybrid ratios, Numerical problem relating to gene interactions
18 & 19	Chromosomal theory of heredity,		-
20 & 21	Mendilian genetics, Monohybrid and Dihybrid cross,		-
22 & 23	Phenotypic and genotypic ratios,		-
24 & 25	Epistasis, pleiotropy,		-
26 & 27	Linkage and crossing over, chromosomal aberrations,		-
28 & 29	Applications of biotechnology in plant breeding and genetics.		-
30	Final Term Exam	Course/Discussion from session 1- 29	

Student Evaluation criteria:

Attendance	5%
Workshop / Assignments/Case study	5%
Surprise Test/Sudden Test , Quizzes	5%
Class Participation	5%
Mid Term Paper	30%
Final Term paper	50%
Total	100%

Student Responsibilities:

Students must attend class. Failure to attend class may result in failure in the course. Students must also arrive on time and remain in class for the entire period. Cellular Phones and Beeper must be Turned off (Proper classroom decorum [behavior] adopts, Course outlines and calendars explain requirements and assignments, students are responsible for knowing what they say. Students are also responsible for doing all assigned work on time. Excessive absences (more than 03) will result in “F Grade”. Students may prepare Sketchbook for taking notes and for references.

Instructor/Tutor

Approved by:

Dean/ Chairman/ HOD/ Subject Specialist/ Program Coordinator