



The Islamia University of Bahawalpur

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DEPARTMENT OF BOTANY Tentative Course Plan

Class:

Semester-

Session:

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| Instructor | Iqra Khadim | | Email: ikhadim179@gmail.com | |
| Course Title | Plant physiology-I | | Program | BS (6 TH Semester) |
| Course Number | BOTA-01604 | | Credit Hours | 3(2+1) |
| Lecture |day: period (00:00a.m to 00: 00a.m), Room# 00 | | | |
| Course Objective: | | | | |
| Methods of Teaching <ul style="list-style-type: none">Assigned readingsGroup activities & DiscussionAudiovisual aids lecturesWeb-assisted instructionStudent-Directed Teaching | | | | |
| Resource Material | 1. Text Books i. “Plant Physiology: The Structure of Plants Explained (Study mates in Focus)” by Dr Graham Lawler and Edwin Oxlade | | | |
| | 2.Reference Books | | 3.Research Papers | |
| | i | Plant Science: Biology Advanced Studies” by Dennis Hill-Cottingham and Pat Hill-Cottingham | i | |
| | li | | ii | |
| | 4.Hot Research Papers | | 5.Web Resources | |
| | i | | i | |
| | li | | ii | |
| Office Help Hours | | | | |
| Grading | Exam (Date to be announced) Mid- Exam (30%) Final Exam (50%) Problem Session/Assignments (20%) | | | |
| Problem Session |day: 00 and 00 periods (0:00-00:00am), Room# 00 | | | |
| SEQUENCE OF TOPICS TO BE COVERED | | | | |
| Lecturer # | Topics (outline of main topics and sub topics) | | Chapter # | Tutorial /Laboratory |
| 1 | Introductory Lecture to the Subject | | | |
| 2 | . Photosynthesis, History of photosynthesis | | . Photosynthesis | Preparation of standard solution |
| 3 | Nature and unit of light, Determination of oxygenic and an oxygenic photosynthesis | | | |
| 4 | Ultrastructure of thylakoid vesicle, various pigments and photosynthetic activity | | | |
| 5 | Ultrastructure and composition of composition of photosynthesis I-II | | | Determination of the volume of CO2 evolved during respiration by plant material |
| 6 | Absorption and action spectra of different pigments, Mechanism of photosynthesis- light | | | |

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| | absorption charge separation | | |
| 7 | Electron and proton transport through thylakoid protein, pigment complexes | | |
| 8 | Photophosphorylation and its mechanism, CO ₂ reduction | | Determination of the amount of O ₂ used by respiring water by Wrinkle method |
| 9 | C3 pathway and photorespiration | | |
| 10 | Regulation of C3 and C4 pathway and its different forms | | |
| 11 | C3-C4 intermediates, CAM pathway | | |
| 12 | Methods of measurement of photosynthesis | | Separation of chloroplast pigments on column chromatogram and their quantification by spectrophotometer |
| 13 | Respiration, synthesis of hexose sugar from reserve carbohydrates | Respiration | |
| 14 | Mechanism of respiration-Glycolysis | | |
| 15 | Difference between cytosolic and chloroplast glycolysis | | |
| 16 | Oxidative decarboxylation, Krebs cycle | | |
| | Mid Term Exam | Course/Discussion from session 1 to 16 | |
| 17 | Regulation of glycolysis and Krebs cycle | | Extraction and separation of anthocyanin and other phenolic pigments from plant material |
| 18 | Electron transport and oxidative phosphorylation | | |
| 19 | Aerobic and anaerobic respiration, energetics of respiration | | |
| 20 | Pentose phosphate pathway Glyoxlate cycle | | Categorization of C3 and C4 plants through their anatomical and physiological character |
| 21 | Cyanide resistant respiration | | |
| 22 | Translocation of food | Translocation of food | |
| 23 | Pathway of translocation, source and sink interaction | | |
| 24 | Materials translocated | | |
| 25 | Mechanism of phloem transport, loading and unloading | | |
| 26 | Leaves and atmosphere | Leaves and atmosphere | |
| 27 | Gaseous exchange | | - |
| 28 | Mechanism of stomatal regulation | | - |

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| 29 | Assimilation of nitrogen, Sulphur and phosphorus | Assimilation of nitrogen, Sulphur and phosphorus | Regulation of stomatal opening by light of different colors and PtL |
| 30 | Nitrogen cycle, Nitrogen fixation | | |
| 31 | Pathway of assimilation of nitrate and ammonium ions | | |
| 32 | Assimilation of Sulphur and Phosphorus | | |
| | Final Term Exam | Course/Discussion from session 1- 32 | |

Student Evaluation criteria:

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| 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”.

Instructor / Tutor

Approved by:

Chairman