

Programme	BS Botany	Course Code	BOT-315L	Credit Hours	1
Course Title	<b>Plant Pathology (Lab)</b>				
<b>Lab Course Contents</b>					
<ul style="list-style-type: none"> <li>• Collection, preservation and identification of infected plant specimens based on symptoms</li> <li>• Study of important taxonomic characteristics of various plant pathogens</li> <li>• Basic pathological cultural techniques for isolation and inoculation. Preparation of media and isolation of different plant pathogens</li> <li>• Macroscopic and Microscopic examination of diseased specimens of the type studied</li> <li>• Molecular techniques for identification of plant pathogens</li> <li>• Field trips for collection of different plant samples infected with fungal, viral and bacterial pathogens</li> </ul>					
<b>Textbooks and Reading Material</b>					
<ol style="list-style-type: none"> <li>1. Agrios, G. N. (2011). <i>Plant Pathology</i>, 6<sup>th</sup> edition. Academic Press, New York, USA.</li> <li>2. Ahmad, I., &amp; Bhutta, A. R. (2005). <i>Textbook of Introductory Plant Pathology</i>. National Book Foundation, Islamabad.</li> <li>3. Ahmad, S., Iqbal, S. H., &amp; Khalid, A. N. (1997). <i>Fungi of Pakistan</i>. Sultan Ahmad Mycological Society of Pakistan, Department of Botany, University of Punjab, Lahore, Pakistan.</li> <li>4. Braun, U., &amp; Cook, R. T. A. (2012). <i>Taxonomic Manual of the Erysiphales (Powdery Mildews)</i>. CBS-KNAW Fungal Biodiversity Centre, Utrecht, the Netherlands.</li> <li>5. Cummins, G.B., &amp; Hiratsuka, Y. (2003). <i>Illustrated Genera of Rust Fungi</i>. Third ed., The American Phytopathological Society. APS Press, St. Paul, MN.</li> <li>6. Hafiz, A. (1986). <i>Plant Diseases</i>. Pakistan Agricultural Research Council, Islamabad, Pakistan.</li> <li>7. Mathew, J. D. (2003). <i>Molecular Plant Pathology</i>. Bios Scientific Publishers Ltd. UK.</li> <li>8. Mehrotra, R. S., &amp; Agarwal, A. (2003). <i>Plant Pathology</i>. 2<sup>nd</sup> Edition. TATA McGraw-Hill. Pub. Company Ltd. New Delhi.</li> <li>9. Sambamurty, A. V. S. S. (2006). <i>A Text Book of Plant Pathology</i>. I.K. International Pvt. Ltd.</li> <li>10. Schumann, G. L., &amp; D'Arcy, C. J. (2010). <i>Essential Plant Pathology</i>. APS Press. 369 PP.</li> <li>11. Strange, R. N. (2003). <i>Introduction to Plant Pathology</i>. John Willey &amp; Sons, New York.</li> <li>12. Ravichandra, N. G. (2013). <i>Fundamentals of Plant Pathology</i>. Prentice Hall of India Pvt. Ltd.</li> <li>13. Prell, H. H., &amp; Day, P. (2001). <i>Plant – Fungal Pathogen Interaction – A Classical and Moleculer View</i>. Springer Verlage.</li> <li>14. Vánky, K. (2011[“2012”]). <i>Smut fungi of the World</i>. APS Press, St. Paul, Minnesota, USA.</li> <li>15. Vánky, K. (2013). <i>Illustrated Genera of Smut Fungi</i>, 3<sup>rd</sup>edn. St. Paul, MN, USA, APS Press.</li> </ol>					
<b>Teaching Learning Strategies</b>					
<ul style="list-style-type: none"> <li>• Lectures <span style="float: right;">Group Discussion</span></li> <li>• Laboratory work</li> <li>• Seminar/ Workshop</li> </ul>					
<b>Assignments: Types and Number with Calendar</b>					
<ul style="list-style-type: none"> <li>• Lecture Based Examination (Objective and Subjective)</li> <li>• Assignments <span style="float: right;">Class discussion</span></li> <li>• Quiz <span style="float: right;">Tests</span></li> </ul>					