

<b>Programme</b>	BS Botany	<b>Course Code</b>	<b>BOT-209</b>	<b>Credit Hours</b>	2
<b>Course Title</b>	<b>Principles of Plant Ecology (Theory)</b>				
<b>Introduction</b>					
The course is organized to provide information about main concept of ecology and its major divisions. It focuses on study of different ecological factors. Macroclimatic and microclimatic factors, dynamic and complex nature of plant and environment are also discussed.					
<b>Learning Outcomes</b>					
After completing the course, the students will be able to:					
<ul style="list-style-type: none"> <li>• describe and debate various global and regional ecological concerns that affect various forms of life.</li> <li>• They will be able to determine impact of human activities on the life forms and the plant ecology.</li> <li>• The students will acquire knowledge about the hazardous effects of different ecological factors and relative measures for their control/prevention.</li> </ul>					
<b>Course Contents</b>					
<ul style="list-style-type: none"> <li>• <b>Introduction:</b> The seven major autecological factors and their detail. Adaptations in plants in response to ecological factors.</li> <li>• <b>The Soil Factor:</b> Definition and importance of soil: Concept of texture and structure; Physical and chemical properties of soil; Soil formation and parent materials; Soil porosity; Organic and inorganic components; Living inhabitants of soil.</li> <li>• <b>The Water Factor:</b> Importance of water to plants; Forms of atmospheric moisture; Forms of precipitation and their ecological effects. Soil moisture constants.</li> <li>• <b>Light and Temperature Factors:</b> Introduction; Comparison of tropical, temperate and polar regions; Temporal and spatial variations in light and temperature; Role of light and temperature in plant distribution and diversity; Responses and adaptations of plants to light and temperature; Differences in Heliophytes and Sciophytes; Ecological response of plants to warm, chilling and freezing temperatures. Hardening; Ecophysiological responses in plants: Photoperiodism; Thermoperiodism; Cardinal temperatures; Light compensation point; Dormancy; Stratification; Vernalization.</li> <li>• <b>The Wind Factor:</b> Formation of wind; Influences of wind on plants; Cushion plants; Shelterbelts.</li> <li>• <b>The Fire Factor:</b> Kinds of fire; Plant adaptations related to fire. Fire climax; Practical value of vegetation burning.</li> <li>• <b>The Biotic Factor:</b> Biotic influences; Local vegetation; Vegetation of Pakistan; Major Biomes of the world</li> </ul>					