



**DEPARTMENT OF AGRONOMY**  
**Faculty of Agricultural Sciences**  
**University of the Punjab, Lahore**



**Course Outline**

<b>Programme</b>	B. Sc. (Hons.) Agriculture (Agronomy)	<b>Course Code</b>	<b>FRW-301</b>	<b>Credit Hours</b>	3 (3-0)
<b>Course Title</b>	<b>BIODIVERSITY AND CLIMATE CHANGE(Interdisciplinary)</b>				
<b>Course Introduction</b>					
<p>Biodiversity encompasses the variety of life on Earth, from plants and animals to microorganisms. It is essential for healthy ecosystems, providing resources like food, water, and air. Climate change, largely caused by human activities, poses a significant threat to biodiversity. It disrupts habitats and species interactions, leading to potential extinctions. Understanding the link between biodiversity and climate change is crucial for protecting our environment and ensuring a sustainable future.</p>					
<b>Learning Outcomes</b>					
<p>On the completion of the course, the students will:</p> <ol style="list-style-type: none"> <li>1. Interdependence of Species</li> <li>2. Energy Flow in Ecosystems</li> <li>3. Biodiversity's Role in Ecosystem Stability</li> <li>4. Human Impact on Biodiversity</li> <li>5. Ecosystem Services</li> </ol>					
<b>Course Content</b>			<b>Assignments/Readings</b>		
<b>Week 1</b>	<b>Unit-I</b> Introduction of biodiversity and food chain		Create a 3D model (diorama) of a specific ecosystem, highlighting the different species that live there and how they interact.		
	<b>Unit-II</b> Definition of biodiversity and its scope				
<b>Week 2</b>	Factors affecting biodiversity of flora and fauna		Students keep a journal during field trips or nature walks, noting different species they observe and their roles in the ecosystem.		

<b>Week 3</b>	Factors affecting biodiversity on Human Population	Climate Change Impact report
<b>Week 4</b>	Factors affecting Biodiversity on industrialization and unsustainable land uses	Students choose an endangered species and write a detailed research paper on its habitat, reasons for its endangerment, and conservation efforts.
<b>Week 5</b>	Biodiversity status of flora and fauna in various zones/regions	Debate on Climate Policies
<b>Week 6</b>	Threatened and endangered mammals, birds, and plant species in Pakistan	Create posters that illustrate the importance of biodiversity, showcasing different biomes, and the species that inhabit them.
<b>Week 7</b>	Biodiversity rich areas and hotspots	Use an online simulation tool where students can manipulate factors like temperature and precipitation to see how they affect an ecosystem.
<b>Week 8</b>	Conservation and management strategy for biodiversity in Pakistan	Analyze real-world case studies of biodiversity loss or climate change impact, discussing the causes, consequences, and potential solutions.
<b>Week 9</b>	Ecosystem based adaptation	Develop a conservation plan for a threatened species, including habitat protection, breeding programs, and public awareness campaigns.
<b>Week 10</b>	The concept of climate change and its harmful effects.	Watch a documentary on climate change or biodiversity and write a review discussing its key messages and your personal reflections.

<b>Week 11</b>	Causes of climate change	Create artwork (drawings, paintings, or sculptures) that depicts the effects of climate change on the planet or specific species.
<b>Week 12</b>	Climate change assessment and predictions	Map out the biodiversity of a local area, identifying different species of plants, animals, and insects, and discussing their interrelationships.
<b>Week 13</b>	Recommended actions to reduce global warming and climate change.	Participate in a citizen science project, such as monitoring bird populations, and report on the findings and their implications.
<b>Week 14</b>	Visit different sites to assess the status of biodiversity	Role -play different stakeholders (e.g., farmers, environmentalists, policymakers in a scenario dealing with land use and conservation decisions.
<b>Week 15</b>	Visit to biodiversity conservation projects	Develop and present a climate action plan for your school or community, outlining steps to reduce carbon footprint and enhance sustainability.
<b>Week 16</b>	Learning various methods to reduce global warming	Investigate the impact of invasive species on local ecosystems and present findings on how these species disrupt biodiversity and potential control measures
<b>Textbooks and Reading Material</b>		
<ol style="list-style-type: none"> <li>1. Textbooks. In the detail course outline, one may mention chapters of the textbook with the content topics</li> <li>2. Suggested Readings <ol style="list-style-type: none"> <li>2.1. Books</li> </ol> </li> </ol>		

## 2.2. Journal Articles/ Reports

### Note:

1. It is preferable to use latest available editions of books. Mention the publisher & year of publication.
2. The References/ bibliography may be in accordance with the typing manual of the concerned faculty/subject. Preferably follow APA 7<sup>th</sup> Edition publication manual.

### Teaching Learning Strategies

1. Project-Based Learning
2. Field Trips and Outdoor Activities
3. Use of Multimedia and Interactive Tools
4. Guest Speakers and Expert Panels

### Assignments: Types and Number with Calendar

- 1.
- 2.
- 3.
- 4.

### Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Continuous assessment includes: Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes etc.
3.	Final Assessment	40%	Written Examination at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.