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**Department of Horticulture**

**College of Agricultural Engineering Science**

**University of Salahadin**

**Subject: Horticulture Plant Ecology**

**Course Book – Year 2**

**Lecturer's name :Dr. Vian Dler Ali**

**Academic Year: 2022-2023**

**Course Book**

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| 1. Course name | **Horticulture Plant Ecology**  **/Autumn semester** |
| 1. Lecturer in charge | **Vian Dler Ali** |
| 1. Department/Faculty | **Horticulture/Agricultural Engineering Science** |
| 1. Contact | **e-mail:** [**vian.ali1@su.edu.krd**](mailto:vian.ali1@su.edu.krd) |
| 1. Time per week | **Practical:2 hours** |
| 1. Office hours |  |
| 1. Course code |  |
| 1. Teacher academic profile | **Vian Dler Ali:** I have got my B.Sc. at salahaddin University – Agricultural engineering science college – plant production Department in 2006; I have got M.Sc. at Salahaddin University – Agricultural engineering science college – Forestry and Horticulture department in 2010. I have got Ph.D. in Ecological Physiology at Salahaddin University – Agricultural engineering science college – Field Crop and Medicinal department in 2023 Nowadays I am working as Lecturer in Department Horticulture- Agricultural engineering science College. |

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| **9. Keywords** |  | |
| **10. Course overview: Study of ecology of climate in Kurdistan, so that we can learn and apply it In agriculture** | | |
| **11. Course objective:**  The course will cover texts on Ecology which is of utmost importance to all species including us. We, like all other Horticulture plants that depends on this earth for everything; food, water, shelter. Everything on this earth depends on something else but ecology is so dynamic that even the smallest pertubation can upset everything. A good example is global warming. Many people think that 2 degrees over a decades is a small amount of time. Nothing in Ecology is small, the repercussions are severe. Plants need a certain temperature to thrive, warming of the earth can upset this and also upset life and mating cycles. We depend on those animals to eat and certain animals also survive on those animals. In addition, human interference with the ecology of certain places can also exacerbate the problem of natural disasters. When we log on mountainsides and hills, we destabilize soils and the topology of the landscape. Heavy rains which would originially cause some kind of erosion would force landslides that could engulf roads and cause haphazards to villages or towns and people that live in those areas. In addition, forests in kurdistan is a type of terrestrial biome. If we do not understand the fact that these trees will constantly be subjected to fires, then people will build luxurious houses in these areas (which they are already doing), and when wildfires rage through the area, they will want insurance and money to rebuild. The fact is, houses are not supposed to be built in those areas in the first place, and if they are, insurance companies should not be shelling out money to the rich and misinformed who choose to live in such a biome. So you see, Ecology is important to us financially, aesthetically, and also for our simple survival on this planet. Hence, it should be taken with utmost importance not only for us but for our next generation. | | |
| **12. Student's obligation**  In this section the lecturer shall write the role of students and their obligations throughout the academic year, for example the attendance and completion of all tests, exams, assignments, reports , essays…etc  لێره‌ مامۆستا به‌رپرسیارێتی قوتابی خوێندکار ڕوونده‌کاته‌وه‌ سه‌باره‌ت به‌ کۆرسه‌که‌ بۆ نموونه‌ ئاماده‌بوونی قوتابیان له‌ وانه‌کاندا، له‌ تاقیکردنه‌وه‌کاندا، راپۆرت و ووتار نووسین... هتد. | | |
| **13. Forms of teaching**  The course is comprised of both lecture and lab components, and students attendance is required in each. During the lectures, the concepts and supporting observations will be presented, in conjunction with assigned readings from the text. The lab component will give the student opportunity to explore concepts about ecology and meteorological science and to ask and attempt to answer some of your own questions about ecology. We will also use the lab sessions for discussion of assigned research papers in ecology. There will be three exams in this course; two during the semester, plus the final exam.  During the semester, exams will be held during the lab period.  Make up exams and labs will only be scheduled if the student has an excused absence.  Attendance in lecture and lab is required.  Different forms of teaching will conducted to gain the objectives of the course, such as:   1. Power point presentations: for the lectures and using explanation diagrams beside photos of the subjects discussed. 2. Running conservations to reach the solutions of some presented problems concerning ecological problems. 3. Field trips to the research center, gardens of grdarasha fields, and meteorological centers, discussing the importance of prevention of climatic problems. 4. Practical lectures to demonstrate and identification of different ecological and meteorological instruments or terms. 5. Watching some movies concerning the importance of healthy environment. | | |
| **14. 14. Assessment scheme**   |  |  |  | | --- | --- | --- | | **Assignment** | **Point Each** | **Total Points** | | **Homeworks & quizes** | **1** | **5** | | **Theory** |  | **15** | | **Practical** |  | **35** | | **Total** |  | **50** | | **Final( Theory:50)** |  |  |   ‌ | | |
| **15. Student learning outcome:**   1. Helping the students in acquiring the required skills. 2. Easy to do very rapid prototyping 3. Quick to learn, and good documentation | | |
| **16. Course Reading List and References‌:**   1. Rana, S.V.S. (2009). Essentials of Ecology and Environmental Science. 4th edition. PHI Learning .New Delhi. India. 2. Prasada Rao, G.S.L.H.V. (2008). Agricultural Meteorology. PHI Learning .New Delhi. India. 3. Pugnaire, Francisco. and Fernando Valladares.( 2007). Functional plant ecology. CRC press. USA. 4. Verma, P.S. and V. K. Agarwal.(2007). Environmental Biology (principles of Ecology). Chand Co. India. 5. Andrew, R. W. and Julie M Jackson. (1996). Longman press. England. | | |
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| **21. Peer review پێداچوونه‌وه‌ی هاوه‌ڵ**  This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.  *(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).*  ئه‌م کۆرسبووکه‌ ده‌بێت له‌لایه‌ن هاوه‌ڵێکی ئه‌کادیمیه‌وه‌ سه‌یر بکرێت و ناوه‌ڕۆکی بابه‌ته‌کانی کۆرسه‌که‌ په‌سه‌ند بکات و جه‌ند ووشه‌یه‌ک بنووسێت له‌سه‌ر شیاوی ناوه‌ڕۆکی کۆرسه‌که و واژووی له‌سه‌ر بکات.  هاوه‌ڵ ئه‌و که‌سه‌یه‌ که‌ زانیاری هه‌بێت له‌سه‌ر کۆرسه‌که‌ و ده‌بیت پله‌ی زانستی له‌ مامۆستا که‌متر نه‌بێت.‌‌ | | |

**Course Programme:-**

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| Week | Issue |
| 1st Week | Ecology (definition, Historical Review, Importance, Subdivisions, & relation with other sciences) |
| 2nd Week | Ecosystem (Structure, Types, Energy flow, & Productivity) |
| 3rd Week | Species interactions , Communities and interactions |
| 4th Week | Ecological succession (Primary & secondary succession ) |
| 5th Week | Exam |
| 6th Week | Meteorology (Weather, Climate, Environment, type Of Spheres) (Radiation & Heat) (Sun radiation- Absorption, Reflection, Scattering) |
| 7th Week | (Heat – Temperature, Maximum Minimum temp.) |
| 8th Week | (Water Cycle & Humidity) (Fog, clouds &Precipitation) |
| 9th Week | (Winds, Air Pressure & Evaporation) |
| 10th Week | (Aridity & Drought) |
| 11th Week | ( Air Masses & Fronts) |
| 12th Week | (Climatic Regions & Weather Stations) |
| 13th Week | Relation between vegetative cover & Climate  Pollution & Waste management |
| 14th Week | Topics on Ecological awareness in Kurdistan |

Note: this syllabus may be subjected to changes and the student will be notified well in advance.

Q1/ **Define five from the following:-**

(Ecology , Community, Population Ecology, Hetrotrophic, Pollution, Food chain)

Q2/ **Write the differences between the following:**

1. Habitat and Niche
2. Food chain and Food web
3. Air pollution and soil pollution

Q3/ Compare between primary and secondary succession?

Q4/ **Give the reasons for the following phrases:**

1- Detritus food chain unlike grazing food chain.

1. The major replenishment of oxygen is carried out by the green plant.
2. Effect of Light on the plants
3. Competition between plants

**Q5/ Enumerate only:**

1. Types of habitat.
2. Types of ecosystem
3. Effect of pollution on human
4. Types of succession
5. Ecological factors
6. Positive interactions