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**Department of Field Crop and Medicinal Plants**

**College of Agricultural Engineering Sciences Salahaddin University- Erbil**

**Subject: Agricultural Meteorology**

**Course Book (Theoretical + Practical)**

**Second Year Students**

**Lecturer's name**

**Dr. Aryan Suad Ahmad Dizayee**

**BSc. Plant Production 2008**

**Msc. Medicinal and Aromatic Plants 2013**

**PhD. Crop Ecology 2020**

**Academic Year: 2022-2023**

**Course Book**

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| **1. Course name** | **Agricultural meteorology** | |
| **2. Lecturer in charge** | **Dr. Aryan Suad Ahmad Dizayee** | |
| **3. Department/ College** | **Field Crop/ Agricultural Engineering Sciences** | |
| **4. Contact** | **e-mail: aryan.ahmed@su.edu.krd**  **Tel: (optional): 0750 4958591** | |
| **5. Time (in hours) per week** | **Theory: 2**  **Practical: 3** | |
| **6. Office hours** | **8** | |
| **7. Course code** |  | |
| **8. Teacher's academic profile** | * Date of Birth: 11 June 1987 * Place of Birth: Erbil * Nationality: Iraq * Marital status: Single * Sex: Female   **Education:**   * **B.Sc:** Plant Production/ / College of Agricultural Engineering Sciences (2007-2008)/ University of Salahaddin/ Kurdistan Region/ Iraq. * **M.Sc:** Field Crops/ Medicinal & Aromatic plant/ College of Agricultural Engineering Sciences (2013)/University of Salahaddin/ Kurdistan Region/ Iraq. * **PhD:** Crop Ecology/ College of Agricultural Engineering Sciences (2020)/University of Salahaddin/ Kurdistan Region/ Iraq.   **Work History:**   1. College of Agriculture, Field Crops department/ University of Salahaddin /Iraq   June 2020 until date (Lecturer)  As an assistant lecturer, I have teaching:   1. I was assisting assistant lecturer in teaching Tobacco production for Third year student, from 2013-2014. 2. I was assisting assistant lecturer in teaching Tobacco technology for Fourth year student, from 2014-2015.   **3.** I was assisting assistant lecture in teaching Medicinal & Aromatic plant for Fourth year student, from 2014-2015, 2015-2016, 2016-2017, 2017-2018.  **4.** I was assisting lecturer in teaching Agro-ecology and Agro-meteorology for Second year student, from 2018-2019 and 2019-2020. | |
| **9. Keywords** | Agro-meteorology, Climatology, Atmosphere, Weather and Climate, Solar radiation, Temperature, Light, Energy flow, Climate zone. | |
| **10. Course overview:**   * Agricultural meteorology or agro-meteorology addresses topics that often require an understanding of biological, physical and social sciences. * It studies processes that occur from the soil depths where the deepest plant roots grow to the atmospheric levels where seeds, spores, pollen and insects may be found. * Agricultural meteorologist interact with scientists from many disciplines. | | |
| **11. Course objective:**  The main long-term objectives are:  (i) To promote economically viable and high quality production so that it can be sustainable and environment-friendly by strengthening Members' indigenous capabilities to provide relevant meteorological services to agricultural and other related sectors;  (ii) To foster a better understanding by farmers and other end-users in the agricultural, forestry and related sectors of the value and use of meteorological (including climatological) information in planning and operational activities.   * The purpose of the Agricultural Meteorology Programme (AGMP) is to support food and agricultural production and activities. * The Programme assists Members in provision of meteorological and related services to the agricultural community to help develop sustainable and economically viable agricultural systems, improve production and quality, reduce losses and risks, decrease costs, increase efficiency in the use of water, labour and energy, conserve natural resources and decrease pollution by agricultural chemicals or other agents that contribute to the degradation of the environment. * Although sometimes combined, climate information is used mainly for planning purposes, while recent weather data and weather forecasts are used mostly in current agricultural operations. | | |
| **12. Student's obligation**   * To understand roles of agro-meteorology in agriculture and its relation to other areas ofagriculture to acquaint with recent developments in agro-meteorology with historicaldevelopment of climate change. * Agro-meteorology or Agricultural meteorology studies meteorological and hydrologicalfactors in relation to agriculture. * Agro-meteorology studies the behavior of the weather elements that have direct relevanceto agriculture and their effect on crop production. * Weather and climate are the factors determining the success or failure of agriculture. * To develop weather based agro advisories to sustain crop production utilizing various. | | |
| **13. Forms of teaching**  **Teaching Methods**  1. Lecture  2. Self‐study  **Teaching Media**  1. PowerPoint presentations  2. Texts and teaching materials | | |
| **14. Assessment scheme**  Each student will be asked on collecting literature and write a scientific report (term paper). We will start most class periods with a short quiz. The quizzes could cover any information presented before that date, but will usually cover information presented in the most recent lectures. The quizzes will be given during the first 5 to 7 minutes of the class period. Exams will consist of a variety of questions, including definition, multiple choices, true/false, matching, diagram and reasons for, occasionally short answer.  **Note:** Number of exams and lectures for each exam did not specify. | | |
| **15. Student learning outcome:**   |  | | --- | | **On the completion of the course, students will be able to:**  **1•** To Introduce agrometeorology (definitions, aims, scope and importance)  **2•** To Understand roles of agrometeorology in agriculture and its relation to other areas of agriculture.  **3•** To acquaint with recent developments in agrometeorology with historical developments.  **4•** Studies the characteristics, behaviour or phenomenon of the atmosphere.  **5•** Studies the changes of individual weather elements. (such as temperature). | | | |
| **16. Course Reading List and References‌:**  **1.** Fundamentals of Agrometeorology  Mahi, G.S. and Kingra, P.K. 2015 Publisher: Kalyani Publishers, New Delhi.  **2.** Agrometeorology  Reddy, S. R. and Reddy, D.S. 2014 Publisher: Kalyani Publishers New Delhi.  **3.** Comprehensive Agrometeorology  Mahi, G.S. and Kingra, P.K.  **4.** Introduction to Agriculture and Agrometeorology  Reddy, S. R. 2014 Publisher: Kalyani Publishers New Delhi.   |  | | --- | | **5.** Agricultural Meteorology” by Rao and Prasada.  **6.** Textbook of Agricultural Meteorology” by M C Varshneya.  **7.** Agricultural Meteorology, the Effect of Weather on Crops” by J W B 1863 Smith. | | | |
| **17. The Topics:** | | **Lecturer's name** |
| The purpose of the Agricultural Meteorology Programme (AGMP) is to support food and agricultural production and activities. The Programme assists Members in provision of meteorological and related services to the agricultural community to help develop sustainable and economically viable agricultural systems, improve production and quality, reduce losses and risks, decrease costs, increase efficiency in the use of water, labour and energy, conserve natural resources and decrease pollution by agricultural chemicals or other agents that contribute to the degradation of the environment. Although sometimes combined, climate information is used mainly for planning purposes, while recent weather data and weather forecasts are used mostly in current agricultural operations.  **1st week: Ecology and climate**  **2nd week: Wind, Air pressure**  **3rd week: Evaporation**  **4th week: Weather**  **First exam**  **5th** **Elements**  **6th Elements of climate**  **7th Stevenson box**  **8th Temperature**  **9th Precipitation**  **10th Humidity, sunshine, cloud cover.**  **Second exam** | | م. لانا ظافر محمد  ex: (3 hrs)  16/2/2023  23/2/2023  1/3/2023  8/3/2023  5/4/2023  12/4/2023  19/4/2023  26/4/2023  3/5/2023  10/5/2023  17/5/2023 |
| **18. Theoretical Topics (If there is any)** | | **Lecturer's name**  **Dr. Aryan S. A. Dizayee**  ex: (2 hrs) |
| **1st week:** Introduction to Agricultural Meteorology  **2nd week:** Stratification and Composition of Atmosphere  **3rd week:** Weather and Climate  **4th week:** Classification of Climate  **First Exam**  **5th week:** Solar Radiation and Light  **6th week:** Heat Budget  **7thweek:** Effect of light on plant can be studied under four headings  **8thweek:** Orientation of leaves  **9thweek:** Air temperature and its Importance  **10thweek:** Low Air Temperature and Plant Injury  **Second Exam** | | 18/2/2023    25/2/2023    3/3/2023    7/4/2023    14/4/ 2023    21/4/2023    28/4/2023    5/5/2023    12/5/2023    19/5/2023 |
| **19. Examinations:**  ***1. Compositional:*** In this type of exam the questions usually starts with Explain how, What are the reasons for…?, Why…?, How….?    **1.Write the definition only (4) of the following terms or statements:**  ***2.Enumerate the following:***  ***a*** ***3. What is the difference between*** | | |
| **20. Extra notes:**  Some of the lectures will be presented in PowerPoint lecture will be provided in class. Some | | |
| **21. Peer reviewپێداچوونه‌وه‌ی 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.‌‌ | | |