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**Department of …Soil &Water**

**College of …Agriculture Engineering Science**

**University of …Salahaddin**

**Subject: … Agrometeorology**

**Course Book – (*2nd* Year)**

**Lecturer's name PhD. Ismaeel Tahir Ahmed**

**Academic Year: 2022/2023**

**Course Book**

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| **1. Course name** | Autumn  |
| **2. Lecturer in charge** | Dr. Ismaeel Tahir Ahmed |
| **3. Department/ College** | Soil & Water / Agriculture |
| **4. Contact** | e-mail : Ismaeel.ahmed @ su.edu.krdTel: ( 07504760935 ) |
| **5. Time (in hours) per week**  | Theory: 2 Practical: 6  |
| **6. Office hours** | Availability of the lecturer to the student during the week |
| **7. Course code** |  |
| **8. Teacher's academic** **profile**  | 1990 - BSc – Mosul Univ. Agriculture College –Soil Science Dept.2005- MSc – Salahaddin Univ. Agriculture College – Soil and Water Dept.2012- PhD. – Salahaddin Univ. Science College -Biology  Dept.  |
| **9. Keywords** |  |
| **10. Course overview:** * Collecting the information about of all the environmental changes were happened in the world in (15) lectures were declared in the syllabus.
* At the definition of Environmental sciences with all sides have the relations with the contain or essentials contents of the environment (Weather and Climate).
* Studying all the affects surrounding the environment and the cycle of most of the metals and nutrients and the level of environmental safety.
* The relationships between ecology with other different sciences.
* Giving information's about succession, habitat, community and all its steps.
* How the station working, Equipments, instruments, tools -----.
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| **11. Course objective:**Collecting the suitable information for all environmental categories (Air, Water and Soil) Protecting the green and safety environment and all the elements which have the relation with our environment and its specially cycle of them with its effects on the human life good or bad effect. |
| **12. Student's obligation**1- The student must be already in the lecture.2- The student must success in the average of the two examination were must be done.3- Prepare the report and presentation about one of the titles were taken the lectures  or syllabus. 4- Quizes must be done weekly**.** |
| **13. Forms of teaching**1- Data show and power point.2- White board.3- Papers (Which collected some headline ) |
| **14. Assessment scheme**final grade will be derived as follows: * **Quizzes and homework's**: About 10 quizzes will be given throughout the semester. They will be given at the beginning of the class period and last 10 minutes.3-5% of your grade.
* **Exams**: There will be two closed book exams given throughout the semester. Each test will be scheduled for 90 minutes.20 % of grade.
* **Final Exam:** The Final Exam is Comprehensive in all course outlines.

Mean of two examinations (Theoretical Part) - 15% Practical part - 35% = 50% Final examination: Theory = 60% |
| **15. Student learning outcome:**1-Taking knowledge about the main characteristics of the environment.2-The impotency of environment.3-Personal ability and its responsibility against the environment.4-All processes were happened of the station meteorology like rainfall quantity and the  period of sunshine and evaporation rate ------.5-The end must the student feel what's the duty of one of them, like each academic person and take the information of development countries. |
| **16. Course Reading List and References‌:**▪ **Key references:**1. Ahren, C. Donald. (2002). Essentials of meteorology. Oxford University Press. New york.USA.
2. Odum, E.P. (1971). Fundamentals of Ecology. 3rdEd. W.B. Saunders Company, London. 547pp.
3. Ricklefs, R.E. and Miller, G.L. (2000). Ecology. 4th. Ed. W.H. Freeman and Company. USA.
4. Sharma, P.D. (2009). Ecology and environment. Pastogi Publications. India.

**▪ Useful references**:1. Gordon, D. and Kevin, M. (2007). Ecosystems. 2nd. Ed.
2. McLean. (2009).Theoretical Ecology- Principle and Applications. Oxford Univ. press. New York
3. Pugnaire, Francisco and Fernando Valladares ( 2007). Functional plant ecology. CRC press. USA.

▪ **Magazines and review (internet):** The core materials of the course consist of the above book, articles from media and internet, and lecture’s notes, make sure you read all the materials and prepare well before going for the examinations. Students are encouraged to search for any other materials that may help improve their English language ability in reading, writing, listening and speaking plant communities' texts. |
| **17. The Topics:** | **Lecturer's name** |
| 1. **What is Agro – meteorology, what is the primary aim and the importance of** Agrometeorology and differences between meteorology and agrometeorology.
2. Ecology (definition, Historical Review, Importance, Subdivisions, & relation with other sciences)
3. Ecosystem (Structure, Types, Energy flow, & Productivity)
4. Species interactions, Communities and interactions
5. Ecological succession (Primary & secondary succession )
6. Meteorology (Weather, Climate, Environment, type of Spheres)
7. (Radiation & Heat) (Sun radiation- Absorption, Reflection, Scattering)
8. Heat – Temperature, Maximum Minimum temp.)
9. (Water Cycle & Humidity) (Fog, clouds &Precipitation)
10. (Winds, Air Pressure & Evaporation)
11. (Aridity & Drought)
12. ( Air Masses & Fronts) (Climatic Regions & Weather Stations)
13. Relation between vegetative cover & Climate.
14. Pollution & Waste management ,
15. 16 Topics on Ecological awareness in Kurdistan.
 | Dr. Ismaeel Tahir AhmedWeekly :- (2)hrs  |
| **18. Practical Topics (If there is any)** |  |
| **19. Examinations: *Example of Semester Examination:-*****Q1:- Write short account of basic concept of Ecology.****Q2:- Write short notes on: A- Biosphere B- Ecosystem C- Communities****Q3:- What is the food chain? Give comparative account of grazing and detritus food** **chains.****Q4:- Filling the blanks or making these sentences below ( True or False) .**1. ***Ernest Haeckel*** in (1869) defined ecology as *(****the scientific study of the interactions between organisms and their environment****).*
2. ***Ecology*** is derived from the Greek ***oikos*** ‘home’, and ***logia***
3. Ecology is ***the scientific study of the distribution and abundance of life and the interactions between organisms and their natural environment.)***
4. ***Humboldt*** is often considered a ***father of ecology***.
5. One of Humboldt's famous works was "***Idea for a Plant Geography***"
6. ***Eugen*** [***Warming***](http://en.wikipedia.org/wiki/Eugenius_Warming) gave the first university course in ***ecological plant geography***.
7. [***Human ecology***](http://en.wikipedia.org/wiki/Human_ecology) began in the year [***1920***.](http://en.wikipedia.org/wiki/1920s)
8. ***Ecology*** is usually considered a branch of ***biology***.
9. The term ***ecosystem*** was first proposed by the ***British*** ecologist ***A.G. Tansley***.
10. ***Energy transformations*** and ***biogeochemical cycling*** are the main processes that comprise the field of ***ecosystem ecology***.

***Q5:- Answer the following question briefly?***1. 1- Write the most important aspect of Ecology? R/
2. The number of entities and processes in the system under study.
3. Ecology can also be sub-divided according to the species of interest into fields?
4. The primary technique used for investigation is often used to subdivide the discipline into groups such as
5. Make a table to explain some of Biotic and Abiotic components in ecosystem?
6. Give an example of Lentic and Lotic ecosystems?
7. Explain the functions of Ecosystems?
8. What's Ecosystems function? Then explain it with figures?

**20. Extra notes:****21. peer review:** |