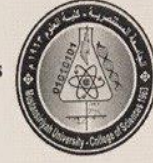




Ministry of Higher Education and Scientific Research
Mustansiriya University/College of Science/Dept. of Atmospheric Sciences
(الخطة الدراسية للمساق)
Course Plan



Course No.: 508640405

Course Name: Cloud and Precipitation Physics Laboratory

Time Division: Monday 2 Hours

Course Website:

Semester & Year: , 2022 /2023

Course Description

(5 credit hours)

The courses provide an introduction to Cloud Physics and its applications. Also provides Cloud Physics equations. Major course topics include Basic Cloud Physics (e.g., Thermodynamics Properties of Air (1) and Thermodynamics Properties of Air (2), How to calculate Formation of Cloud Droplets (Homogeneous and Heterogeneous Nucleation), Calculation Properties of Clouds. general Droplet Growth by Diffusion equations. Major course topics include Basic Droplet Growth by Diffusion (e.g., Growth by Collision-Coalescence and Growth of Ice Crystals and Growth by Aggregation, how to calculate the Droplet Growth by Diffusion, and Calculation of Growth by Collision-Coalescence, Growth of Ice Crystals.

Course Intended Outcomes:

At the end of the course, students are expected to learn: the causes and nature of Thermodynamics Properties of Air. This course aims to know the states of Properties of Clouds. Also, the purpose of science is the study of Formation of Cloud Droplets and forecasting Clouds Properties, the Calculation of Growth by Collision-Coalescence. This course aims to know the Growth Rate in Terms of Radius. Also, the purpose of Diffusional Growth of Ice Crystals and forecasting Growth by Accretion.

Course Outline:

Cloud Physics I Outline:		Precipitation Physics II Outline:	
Week	Description depends on the Timing table	Week	Description depends on the Timing table
1	Lab 1: Thermodynamics Properties of Air (1).	1	Lab 1: Growth by Collision-Coalescence II (Droplet Altitudes and Trajectories).
2	Lab 2: Thermodynamics Properties of Air (2).	2	Lab 2: Growth of Ice Crystals I (Diffusional Growth of Ice Crystals).
3	lab3: Properties of Clouds .	3	Lab 3: Growth of Ice Crystals II (Growth by Aggregation).
4	Lab 4: Formation of Cloud Droplets (Homogeneous and Heterogeneous Nucleation).	4	Lab 4: Growth of Ice Crystals III (Growth by Accretion).
5	Exam I	5	Exam I
6	Lab 5: Formation of Cloud Droplets (Kohler Theory).	6	Lab 5: Rain Size Distribution
7	Lab 6: Droplet Growth by Diffusion I.	7	Lab 6: Snow-flake size distribution
8	Lab 7: Droplet Growth by Diffusion II.	8	Lab 7: Weather Radar
9	Lab 8: Growth by Collision-Coalescence I (Growth Rate in Terms of Radius).	9	Lab 8: Z-R Relationships
10	Exam II	10	Exam II

Textbooks:

- 1- A summary of the experiments of the Cloud Physics laboratory, prepared by some assistant lecture

References:

1. A Short Course in Cloud Physics, 3rd ed., R. R. Rogers and M. K. Yau, Pergamon Press, 1989.
2. Cloud physics.

Marking:

First Semester				Final Exam	Second Semester				Final Exam
1st exam	2nd exam	Reports	Activity		1st exam	2nd exam	Reports	Activity	
3	3	4	2	20	3	3	4	2	20

Assignments and/or Projects:

Assignment/Project	Description	Due Date	Marking
A report	The students do the report of the previous laboratory	The next laboratory	10

Instructor information:

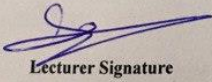
Section: Lecture Lab: Cloud Office No.: 9
Physics Lab (lab No. 4)

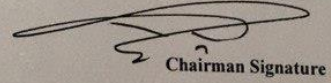
Instructor's Name: Lect. Shiema Aoda Hashim E-Mail: shiemaal.ghir@uomustansiriyah.edu.iq

Office Hours: 8:30-12:30 day : Monday

NOTES:

- Office Hours: Other office hours are available by appointment.
- The content of this syllabus not be changed during the current semester.


Lecturer Signature


Chairman Signature

أ.م.د. أسراء قحطان عبد الكريم
رئيس قسم علوم الجو