Ministry Of Higher Education and Scientific Research

Mustansiriyah University/College of Science/Dept. of Atmospheric Sciences

(الخطة الدراسية للمساق)

Course Plan

Course No.: 1 st.

Course Name: Laboratory Weather Instruments and Observation

Time Division:

Course Website: https://uomustansiriyah.edu.iq/e-learn/profile.php?id=136

Semester & Year: 1 , 2022-2023

Course Description

1 credit hours, Prerequisite [1]

The course provides an introduction to the World Weather Watch Program and its cores, observations types, weather instruments that used in observing some atmospheric parameters such as temperature, pressure, wind etc. Also it provides the types of errors in the observations and how to process data, and finally the Weather Maps and how to represent Weather Phenomena on surface and upper air maps .

Intended Outcomes:

At the end of the course, students are expected to learn: the fundamentals of Global Observing System This course aims to build a scientific base of physical principles of how the instruments work and how observations be made and what are the concept of the expected errors associated with the observations and which instruments are more suitable and what their advantages and disadvantages, in addition to analyze the weather codes and plot the observation on weather maps.

Course Outline:

Week	Topes Covered		
1	Explanation of various aerobic devices	6 hours	
2	Visit the ground station and identify the existing devices and how to work and the way of taking measurements from different devices in practice	6 hours	
3	Explanation of the surface station codes ,General formula of surface code	6 hours	
4	Drawing and analysis of surface observation codes and instruments used for measurement	6 hours	
5	Explanation of the wind &The Temperature_codes in detail ,Wind & temperature measured Instruments	6 hours	
6	Apply real cods on the surface map	6 hours	
7	Explanation of the atmospheric pressure &The pressure slope group codes in detail	6 hours	
8	First exam	6 hours	
9	Explain the codes of the upper atmosphere layers	6 hours	
10	Explanation of the level code the surface	6 hours	
11	Explanation of the level code 850 mb	6 hours	
12	Explanation of the level code 700 mb	6 hours	

13	Explanation of the level code 500 mb	6 hours	
14	Explanation of the level code 300 mb	6 hours	
15	Second exam	٦ hours	

Textbooks:

R. G. Harrison, 2015: Meteorological Measurements and Instrumentation, Wiley Blackwell, 278 p.

Suggested references:

1. S. Burt, 2012: The Weather Observer's Handbook. Cambridge University Press, 458 p.
2. F. V. Brock and S. J. Richardson, 2001: Meteorological Measurement Systems. Oxford University Press, 305p.

Marking:

Course					Final Exam	Final Mark
1st exam	2nd exam	Practical	Activity	Total		
10	10	10	2	12	20	32

Assignments and/ or Projects:

Assignment/ Project	Description	Due Date	Marking
Areport	The student is required to submit a report every week on the lecture that was explained	weakiy	10

Instructor(s) information[معلومات الأستاذ]

Section: Atmospheric Sciences building Lecture Room: [Laboratory of Analytical] Office No.: 1

Instructor's Name: L. Ruaa Mazin Ibrhaim ruaamazin.atmsc@uomustansiriyah.edu.iq

Office Hours: 2 day. : (08:30-12:30)

NOTES:

-Office Hour: 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 الج...

Ministry Of Higher Education and Scientific Research

Mustansiriyah University/College of Science/Dept. of Atmospheric Sciences

(الخطة الدراسية للمساق)

Course Plan

Course No.: 2nd

Course Name: Laboratory of Analytical

Course Website: https://uomustansiriyah.edu.iq/e-learn/profile.php?id=136

Time Division:

Semester & Year: 2 , 2022-2023

Course Description

1 credit hours, Prerequisite [1]

The course provides an introduction to weather maps, their types and how to represents weather phenomena on maps by plotting contour lines on surface and upper weather maps, analyzing the weather maps and determine the weather systems, studying the air masses, fronts, jet stream.

Course Intended Outcomes:

At the end of the course, students are expected to learn: Synoptic Analysis of weather maps. This course aims to build a scientific base of physical principles of how the weather systems forms and how they develop such as low and high pressure systems, fronts and to determine them on weather maps to be able to give a complete view about the weather by analyzing the weather charts.

Course Outline:

Week	Topes Covered		
1	Introduction of atmospheric Observation	6 hours	
2	Visit the ground station and identify the devices used to measure the elements of the weather	6 hours	
3	Introduction to the concept of atmospheric analysis of standard levels and pressure systems	6 hours	
4	Explain the steps of analysis of surface maps and identification of the systems of pressures and the scientific benefit of their analysis	6 hours	
5	Synoptic analysis of a surface map	6 hours	
6	Explanation of maps of the upper layers of the atmosphere and how to draw lines of Geopotential height and lines equal to the temperature (isotherm)	6 hours	
7	Drawing of contours(lines equal to Geopotential height) for the pressure level (850 mb)	6 hours	
8	Draw lines equal to Temperature for the pressure level (850 mb)	6 hours	
9	Drawing of contours and equal temperatures for the pressure level (700 mb)	6 hours	
. 10	First Exam	6 hours	
11	Drawing of contours and equal temperatures for the pressure level (500 mb)	6 hours	
12	Drawing of contours(lines equal to Geopotential height) for the pressure level (300 mb)	6 hours	
13	Drawing of isotach (lines equal to the speed of the wind) and determine Jet stream to the level of pressure (300 mb)	6 hours	
14	Second exam	6 hours	

Textbooks:

1. T. Vasquez, 2011: Weather Analysis and Forecasting Handbook.

Suggested references:

1. C.D., Ahrens, 2008: Essentials of Meteorology. Thomson Brooks/Cole, 504 p.
2. G., Lackmann,2011: Midlatitude Synoptic Meteorology Dynamics, Analysis & Forecasting, American Meteorological Society, 348 p.
3. A., Lehkonen, 2013: Synoptic Meteorology, Eumetrain, 190 p.

Marking:

Course					Final Exam	Final Mark
1st exam	2nd exam	Practical	Activity	Total		
10	10	10	2	12	20	32

Assignments and/ or Projects:

Assignment/ Project	Description	Due Date	Marking
Areport	The student is required to submit a report every week on the lecture that was explained	weakiy	10

Instructor(s) information[معلومات الأستاذ]

Section: Atmospheric Sciences building Lecture Room: [Laboratory of Analytical] Office No.: 1

Instructor's Name: L. Ruaa Mazin Ibrhaim E-Mail:ruaamazin.atmsc@uomustansiriyah.edu.iq

Office Hours: ٢ day. : (08:30-2:30)

NOTES:

-Office Hour: 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