**Ministry Of Higher Education and Scientific Research**

**Mustansiriyah University/College of Science/Department of Atmospheric science**

**(الخطة الدراسية للمساق )**

***Course Plan***

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| **Course No.: 508642112** | | **Course Name: Meteorological Data Analysis** |
| **Academic Year:   2019-2020** | | **Time Division: 2hr Theoretical & 2hr Practical** |
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**Course Description :**

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| **In this course, the Students are introduced to fundamental concepts of data analysis which include Probability, Venn and tree diagrams, permutation and combination, discrete and continuous probability distribution, The Analysis of Variance Table ( ANOVA), and time series .These topics are covered broadly but in depth to introduce students to the methods atmospheric scientists use to describe and the atmospheric phenomena.****Course Intended Outcomes :** |
| At the end of the course, students are expected to learn: **develop statistical thinking in atmospheric science .****Use real and row data in meteorological statistics.****understanding and analyzing atmospheric data.** |

# Course Outline:

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| **Week** | **Description depends on the Timing table (Theoretical & Practical)** |
| **1** | Probability  Definition of Probability, Simple and compound events, Venn and tree diagramsو calculating Probability, Solved Problems.. |
| **2** | calculating Probability ,Rules of probability, Conditional probability , permutation and combination, Solved Problems.. |
| **3** | discrete probability distribution, continuous probability distribution, Binomial Distribution, Poisson Distribution, Solved Problems.. |
| **4** | Normal Distribution, Solved Problems. |
| **5** | standard normal Distribution, Solved Problems |
| **6** | Chi-Square Distributions, Return period . Solved Problems. |
| **7** | **EXAM 1** |
| 8 | Hypothesis Testing  Parametric and Nonparametric Tests, One-Sample t Test, F-Test |
| **9** | Two-Sample for Variances analysis, t-Test analysis, The Analysis of Variance Table ( ANOVA), Solved Problems. |
| **10** | Time Series  Time Series analysis, Components of time Series . |
| **11** | Trends of time Series analysis, |
| **12** | Seasonal variation of time Series analysis. |
| **13** | Application of time Series. |
| **14** | **EXAM 2** |

**Textbooks:**

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| 1. Statistical Methods in the Atmospheric Sciences, Second Edition, D.S. Wilks, Elsevier Inc., 2006. 2. Statistical Analysis in Climate Research by Hans von Storch, Francis W. Zwiers, Cambridge University Press, 2002. |

**Suggested references:**

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| 1. Introductory statistics , ninth Edition, Neil A. Weiss, 2012. 2. Elementary Statistics :A Step by Step Approach, seventh Edition, Allan G. Bluman,2007 3. Introductory statistics , seventh Edition, PREM S. MANN, John Wiley & Sons, 2010. |

**Marking:**

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| **First Semester** | **Final Exam** |
| |  |  |  |  | | --- | --- | --- | --- | | **1st exam** | **2nd exam** | **Practical** | **Activity** | | **25** | **25** | **12** | **3** | | |  | | --- | |  |   60 |

**Assignments and/or Projects:**

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| **Assignment/Project** | **Description** | **Due Date** | **Marking** |
| H.W | answering a series of questions with the end of each a week semester | During the course | 1 |
| Quizzes | Two or more quizzes | During the course | 1 |

**Instructor information:**

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| Lecture Room No.: (202) | Time: Wednesday, 8:30-10:30 | |
| Instructor's Name Dr. ALI RAHEEM TUAIMAH | |  | | |
| E-Mail: [aliraheem@uomustansiriyah.edu.iq](mailto:aliraheem@uomustansiriyah.edu.iq)    *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**