



**Ministry of Higher Education and Scientific Research**

 **Mustansiriyah University /College of Science**

**Department of Mathematical**

**(الخطة الدراسية للمساق)**

 **Course Plan**

**Course No.:** **54452123**  **Time Division:** **4hr Theoretical**

**Course Name: Linear Algebra (1) Semester & Year: First, 2022 / 2023**

**Course Website:** <https://uomustansiriyah.edu.iq/e-learn/profile.php?id=675>

**Course Description:**

The main subjects of this course are Fields, Vector Spaces, Subspaces, Linear Transformation and Matrices.

**Course Intended Outcomes:**

By the end of the course a student should understand the subjects of Fields, Vector Spaces, Subspaces, Linear Transformation and Matrices.

**Course Outline:**

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| --- | --- |
| **Week** | **Description depends on the Timing table (Theoretical & Practical)** |
| **1** | Vector spaces and subspaces |
| **2** | Vector in the plane and vector space |
| **3** | Subspaces  |
| **4** | Algebra of subspaces (plus quiz 1) |
| **5** | Linear independence  |
| **6** | Linear combination of vector and linear span of a set |
| **7** | Linear dependence and linear independence |
| **8** | Some theorems on linear dependence and linear independence |
| **9** | Basis and dimension (plus test 1)  |
| **10** | The rank of a matrix and applications |
| **11** | Orthonormal bases in $R^{n}$ (plus quiz 2) |
| **12** | Linear transformations and matrices  |
| **13** | Definitions and examples (plus quiz 3) |
| **14** | The kernel and range of a linear transformation |
| **15** |  The matrix of a linear transformation (plus test 2) |

**Textbooks:**

**[1]: Introductory Linear Algebra with Applications, by Bernard Kolman.**

**[2]: Elementary Linear Algebra, by Howard Anton.**

**[3]: Linear Algebra, by Fraleigh.**

**[4]: Theory and Problems of Linear Algebra, by Seymour Lipschutz.**

**[5]: 3000 Solved Problems in Linear Algebra, by Seymour Lipschutz.**

**[6]: Introduction to Linear Algebra, by Franz Hohn.**

**Marking:**

|  |  |
| --- | --- |
| **First Semester** | **Final Exam** |
| **1st exam** | **2nd exam** | **Practical** | **Activity** |  |
| **10%** | **10%** | **5%** | **5%** | **70%** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Assignment/ Project** | **Description** | **Due Date** | **Marking** |
| **Quiz** | **test** | **1/12/2022** | **3%** |
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**Instructor(s) information [معلومات الأستاذ]**

**Section: (Mathematics) ; Lecture Room:[ 204 , 402 ] , ; Office No.: ( 9 )**

 **Instructor's Name:** **Professor Dr. Najm Abdulzahra Makhrib**

 **E-Mail**:**dr.najm****@uom****ustansiriyah.edu.iq**

**Office Hours : Wednesday :[ 11:50 –1:30]**

 **Thursday:[ 10:10 –11:50]**

**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**