

**University of Jordan**  
**Jordan University Business School (JUBS)**

**Course Syllabus**

|  |   |   |                        |                        |                        |  |
|--|---|---|------------------------|------------------------|------------------------|--|
| <b>1. Department Name:</b>   | <b>Business Economics</b>                       |   |                        |                        |                        |  |
| <b>2. Program Name:</b>  | Bachelor Degree                                 |   |                        |                        |                        |  |
| <b>3. Program Code</b>   | 07  |   |                        |                        |                        |  |
| <b>4. Course Code and Title:</b>   | 1607341   |   | Mathematical Economics |                        |                        |  |
| <b>5. Course credits:</b>  | 3 hours   |   |                        |                        |                        |  |
| <b>6. Pre-requisites:</b>  | 1607115   |   |                        |                        |                        |  |
| <b>7. Course Instructor/ Coordinator Name and Email</b>  | Alaaeddin Al-Tarawneh<br>a.altarawneh@ju.edu.jo |   |                        |                        |                        |  |
| <b>8. Course web-page:</b>   |   |   |                        |                        |                        |  |
| <b>9. Academic year:</b>   |   |   |                        |                        |                        |  |
| <b>10. Semester:</b>   | First   | X | Second                 | 1 <sup>st</sup> Summer | 2 <sup>nd</sup> Summer |  |
| <b>11. Textbook(s)</b> (Make sure you have one textbook – resource materials online)<br><b>Chiang &amp; Wainwright, Fundamental Methods of Mathematical Economics, 4<sup>th</sup> edition</b>  |   |   |                        |                        |                        |  |
| <b>12. References:</b> (Make sure that the references are available in the Library and online)   |   |   |                        |                        |                        |  |
| <b>13. Other resources used</b> (e.g. periodicals, software, eLearning, site visits, etc.):  |   |   |                        |                        |                        |  |
| <b>14. Course description</b> (from the catalog)<br>This course concerns with studying mathematical tools and techniques that is necessary to analyze economic models. The course deals mainly with how to determine the optimal points (maximum and minimum). |   |   |                        |                        |                        |  |

|   |                         |   |   |   |   |   |   |   |   |   |   |
|---|-------------------------|---|---|---|---|---|---|---|---|---|---|
| <b>15. Course Intended Learning Outcomes:</b> (All CILOs must start with an action verb, please use ANNEX I for getting a better understanding of the Action Verbs and Blooms Taxonomy. The mapping of the CILOs with relevance to the PILOs of the program.) |                         |   |   |   |   |   |   |   |   |   |   |
|   | <i>Mapping to PILOs</i> |   |   |   |   |   |   |   |   |   |   |
| <b>CILOs</b><br>(Preferred not to exceed 12 CILOs)  | a                       | b | c | d | e | f | g | h | i | J | k |
| <b>1. Understanding mathematical analysis tools</b>   | X                       |   |   |   |   |   |   |   |   |   |   |
| <b>2. Learning how to express economic relations by mathematics</b>   | X                       |   |   |   |   |   |   |   |   |   |   |
| <b>3. Understanding and analyzing equations with many variables</b>   | X                       |   |   |   |   |   |   |   |   |   |   |
| <b>4. be able to use mathematical tools to express economic</b>   |                         | X |   |   |   |   |   |   |   |   |   |

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|---|--|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <i>theory in mathematical form</i>                          |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5. <i>be able to study economic problems by mathematics</i> |  | X |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6.  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7.  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8.  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9.  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10.   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11.   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12.   |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**16. Course evaluation:** (Formative and summative assessment methods are expected)

| <b>Assessment Type</b>       | <i>Details/ Explanation of Assessment in relation to CILOs</i> | <i>Number</i> | <i>Weight</i> | <i>Date(s)</i> |
|------------------------------|--|---------------|---------------|----------------|
| <b>Quizzes</b>               |  |               | 20 %          |                |
| <b>Midterms</b>              |  |               | 30 %          |                |
| <b>Assignments</b>           |  |               | %             |                |
| <b>Projects/Case Studies</b> |  |               | %             |                |
| <b>Final</b>                 |  |               | 50 %          |                |
| <b>Total</b>                 |  |               | 100%          |                |

**17. Description of Topics Covered** (The description should be from the textbook used)

| <b>Topic Title (e.g. chapter title)</b> | <i>Description</i>                                    |
|---|---|
| <b>Introduction</b>                     | <b>Concepts of Mathematical economics</b>             |
| <b>Linear equations</b>                 | <b>Solving Linear equations</b>                       |
|   | <b>Matrix</b>   |
|   | <b>Derivative</b>                                     |
| <b>Optimization 1</b>                   | <b>Max and min points ( one variable)</b>             |
|   | <b>Exponential and logarithmic functions</b>          |
|   | <b>Implicit and total derivative</b>                  |
|   | <b>Partial derivative</b>                             |
| <b>Optimization 2</b>                   | <b>Max and min points for multivariable functions</b> |
|   | <b>Integration</b>                                    |
|   | <b>Linear programming</b>                             |

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| <b>18. Course Weekly Breakdown:</b> |             |                       |              |                        |                   |
|-------------------------------------|-------------|-----------------------|--------------|------------------------|-------------------|
| <b>Week</b>                         | <b>Date</b> | <b>Topics covered</b> | <b>CILOs</b> | <b>Teaching Method</b> | <b>Assessment</b> |
| 1                                   |             |                       |              |                        |                   |
| 2                                   |             |                       |              |                        |                   |
| 3                                   |             |                       |              |                        |                   |
| 4                                   |             |                       |              |                        |                   |
| 5                                   |             |                       |              |                        |                   |
| 6                                   |             |                       |              |                        |                   |
| 7                                   |             |                       |              |                        |                   |
| 8                                   |             |                       |              |                        |                   |
| 9                                   |             |                       |              |                        |                   |
| 10                                  |             |                       |              |                        |                   |
| 11                                  |             |                       |              |                        |                   |
| 12                                  |             |                       |              |                        |                   |

| <b>19. Others:</b>   |  |
|--|--|
|  | <b>Description</b>   |
| <b>Attendance policies:</b>  | Students are not allowed to miss more than 15% of the classes during the semester. Failing to meet this requirement will be dealt with according to the university disciplinary rules. |
| <b>Absences from exams and handing in assignments on time:</b>     |  |
| <b>Health and safety procedures:</b>                               |  |
| <b>Honesty policy regarding cheating, plagiarism, misbehavior:</b> |  |

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|  |                               |                    |
|--|-------------------------------|--------------------|
| <b>Course Coordinator:</b>   | Type the Name                 | Add your Signature |
| <b>Head of Department:</b>   | Type the Name                 | Add your Signature |
| <b>Head of curriculum committee/ School Level:</b>                         | Type the Name                 | Add your Signature |
| <b>Dean:</b>   | Type the Name                 | Add your Signature |
| <b>Approved by the Program Coordinator/<br/>Head of the Department on:</b> | Type the date: DAY/MONTH/YEAR |                    |

|  |
|--|
| <b><u>Copy to:</u></b>   |
| <input type="checkbox"/> <b>Head of Department</b>                                   |
| <input type="checkbox"/> <b>Assistant dean for Development and Quality Assurance</b> |
| <input type="checkbox"/> <b>Course Portfolio</b>                                     |