**Course Syllabus**

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| **1** | **Course title** | Agricultural Econometrics | |
| **2** | **Course number** | 605450 | |
| **3** | **Credit hours** | 3 |  |
| **Contact hours (theory, practical)** | (3,0) | |
| **4** | **Prerequisites/corequisites** | Agricultural statistics | |
| **5** | **Program title** | **Bachelor in Agricultural Economics & Agribusiness** | |
| **6** | **Program code** |  | |
| **7** | **Awarding institution** | The University of Jordan | |
| **8** | **School** | **Agriculture** | |
| **9** | **Department** | **Agricultural Economics & Agribusiness** | |
| **10** | **Course level** | **fourth year** | |
| **11** | **Year of study and semester (s)** | **First semester 2021/2022** | |
| **12** | **Other department (s) involved in teaching the course** | **None** | |
| **13** | **Main teaching language** | English | |
| **14** | **Delivery method** | ✓Face to face learning ☐Blended ☐Fully online | |
| **15** | **Online platforms(s)** | ✓Moodle ✓Microsoft Teams ☐Skype ☐Zoom  ☐Others………… | |
| **16** | **Issuing/Revision Date** | 7-10-2021 | |

**17 Course Coordinator:**

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| Name: Dr. Mohammad Majdalawi  Contact hours: 11:00-12:00 everyday  Office number: 105 Phone number:  Email: m.majdalawi@ju.edu.jo |

**18 Other instructors:**

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| Name:  Office number:  Phone number:  Email:  Contact hours:  Name:  Office number:  Phone number:  Email:  Contact hours: |

**19 Course Description:**

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| This course will provide an introduction to modern methods of analyzing data used in economics, business and many other social sciences. The course focuses attention on the concepts of determining the relation between different variables in the economics by building mathematical models. Nevertheless this course will explain the forecasting methodology depending on the economic, statistic and mathematic concepts. This course will cover some fundamentals of models and data, simple and multiple regression analysis, the properties of ordinary least squares analysis, problems in regression analysis and selecting the best regression equation. |

**20 Course aims and outcomes:**

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| A- Aims:  This course aims at:   1. The course aims at explaining the different methods of data analysis by using statistical and economical concept. 2. This course aims at providing the modern methods of analyzing data used in economics, business and many other social sciences. 3. To develop a knowledge and understanding of analyzing the data and choosing and testing mathematical model to explain the relationships between different variables.   B- Students Learning Outcomes (SLOs):  Upon successful completion of this course, students will be able to:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | SLOs  SLOs of the course | SLO (1) | SLO (2) | SLO (3) | SLO (4) | | Apply economic principles and research methods in solving economic problems and to agricultural production management. | Be able to discuss/ explain the importance of a wide range of models and quantitative tools | Be able to use econometric, statistical, and economic models as a basis for estimating key economic parameters, testing economic hypotheses, and predicting economic outcomes | Demonstrate basic knowledge on data analysis and choosing the suitable model. |  | | 2Analyze extension programs to deliver relevant information to farmers and employ the economic and business principles in making decisions. | using the built models in forecasting for the future | Display personal responsibility to the course requirements |  |  | | Collaborate effectively with scientists and educators in other disciplines to incorporate economic analysis into multi-disciplinary programs. | Use appropriate econometric support tools | Create self-reliance and team work when necessary. | using the computer in his analysis |  | | Discuss issues related to the agricultural sector, natural resource policies, and rural community development. | Demonstrate basic knowledge on data analysis and choosing the suitable model. |  |  |  | | Work effectively in promoting the teamwork environment for pursuing professional goals. | Create self-reliance and team work when necessary. | Display personal responsibility to the course requirements |  |  | | Apply principles of scientific skills and argumentation and ethics of scientific discussion research skills in both oral and written forms. | Display personal responsibility to the course requirements | Use the econometric scientific literature effectively |  |  | | Apply critical thinking and problem solving skills, and pursue continuous education in aspects of agricultural economics and agribusiness management. | Employ analytical skills to be used for data analysis | test the significance of the parameters in the built models | Apply and analyze different methods of building models | Gain basic concepts and knowledge in data analysis and building and testing the models | |

**21. Topic Outline and Schedule:**

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| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Week | Lecture | Topic | Intended Learning Outcome | Learning Methods (Face to Face/Blended/ Fully Online) | Platform | Synchronous / Asynchronous Lecturing | Evaluation Methods | Resources | | 1 | 1.1 | Introduction of the course and discussions- the learning outcomes |  | Face to Face |  | Synchronous Lecturing | Assignments and Exams |  | | 1.2 | Introduction to econometrics, the nature of statistics,  The methodology of econometrics. | Demonstrate basic knowledge on data analysis and choosing the suitable model. | Online | Microsoft Teams | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1992 | | 1.3 | Assignments and Exercises |  | Online | Microsoft Teams | Asynchronous Lecturing | Assignments and Exams |  | | 2 | 2.1 | Measures of Central Tendency | Demonstrate basic knowledge on data analysis and choosing the suitable model. | Face to Face |  | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1992 | | 2.2 | Measures of Dispersion | Demonstrate basic knowledge on data analysis and choosing the suitable model. | Online | Microsoft Teams | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1992 | | 2.3 | Assignments and Exercises | Be able to use econometric, statistical, and economic models as a basis for estimating key economic parameters, testing economic hypotheses, and predicting economic outcomes | Online | Microsoft Teams | Asynchronous Lecturing |  |  | | 3 | 3.1 | Shape of Frequency Distribution | Be able to use econometric, statistical, and economic models as a basis for estimating key economic parameters, testing economic hypotheses, and predicting economic outcomes | Face to Face |  | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 3.2 | Test of hypothesis - Parametric tests ( Z- & t- tests), | Be able to use econometric, statistical, and economic models as a basis for estimating key economic parameters, testing economic hypotheses, and predicting economic outcomes | Online | Microsoft Teams | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 3.3 | Assignments and Exercises | Be able to discuss/ explain the importance of a wide range of models and quantitative tools | Online | Microsoft Teams | Asynchronous Lecturing |  |  | | 4 | 4.1 | Test of hypothesis - Parametric tests ( Z- & t- tests), | test the significance of the parameters in the built models | Face to Face |  | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N. | | 4.2 | Test of hypothesis - Non-parametric tests: χ 2 test. | test the significance of the parameters in the built models | Online | Microsoft Teams | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 4.3 | Assignments and Exercises | test the significance of the parameters in the built models | Online | Microsoft Teams | Asynchronous Lecturing |  |  | | 5 | 5.1 | Test of hypothesis - Non-parametric tests: χ 2 test. | test the significance of the parameters in the built models | Face to Face |  | Synchronous Lecturing | Assignments and Exams | Maddala, G. S., 2001 | | 5.2 | The two variable linear model | test the significance of the parameters in the built models | Online | Microsoft Teams | Synchronous Lecturing | Assignments and Exams | Maddala, G. S., 2001 | | 5.3 | Assignments and Exercises | Use the econometric scientific literature effectively | Online | Microsoft Teams | Asynchronous Lecturing |  |  | | 6 | 6.1 | The two variable linear model | Be able to discuss/ explain the importance of a wide range of models and quantitative tools | Face to Face |  | Synchronous Lecturing | Assignments and Exams | Maddala, G. S., 2001 | | 6.2 | The ordinary least - square method | Be able to discuss/ explain the importance of a wide range of models and quantitative tools | Online | Microsoft Teams | Synchronous Lecturing | Assignments and Exams | Maddala, G. S., 2001 | | 6.3 | Activities | Employ analytical skills to be used for data analysis | Online | Microsoft Teams | Asynchronous Lecturing |  |  | | 7 | 7.1 | Test of significance of parameter estimates | test the significance of the parameters in the built models | Face to Face |  | Synchronous Lecturing | Assignments and Exams | Maddala, G. S., 2001 | | 7.2 | Test of goodness of fit and correlation | test the significance of the parameters in the built models | Online | Microsoft Teams | Synchronous Lecturing | Assignments and Exams | Maddala, G. S., 2001 | | 7.3 | Activities | Employ analytical skills to be used for data analysis | Online | Microsoft Teams | Asynchronous Lecturing |  |  | | 8 | 8.1 | Properties of least - squares estimators | Be able to discuss/ explain the importance of a wide range of models and quantitative tools | Face to Face |  | Synchronous Lecturing | Assignments and Exams | Maddala, G. S., 2001 | | 8.2 | Using the software for analyzing the data- application by using computer. | using the computer in his analysis | Online | Microsoft Teams | Synchronous Lecturing | Exam, Quizzes and Exercises by using computer |  | | 8.3 | Assignments and Exercises | Apply and analyze different methods of building models | Online | Microsoft Teams | Asynchronous Lecturing |  |  | | 9 | 9.1 | The three - variable model | Be able to discuss/ explain the importance of a wide range of models and quantitative tools | Face to Face |  | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 9.2 | Tests of significance of parameter estimates | test the significance of the parameters in the built models | Online | Microsoft Teams | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 9.3 | Assignments and Exercises |  | Online | Microsoft Teams | Asynchronous Lecturing |  |  | | 10 | 10.1 | The coefficient of multiple determination | Use appropriate econometric support tools | Face to Face |  | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 10.2 | Test of overall significance of regression | Be able to discuss/ explain the importance of a wide range of models and quantitative tools | Online | Microsoft Teams | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 10.3 | Application by using computer | using the computer in his analysis | Online | Microsoft Teams | Asynchronous Lecturing | Exam, Quizzes and Exercises by using computer |  | | 11 | 11.1 | Using the software for analyzing the data- application by using computer | Use appropriate econometric support tools | Face to Face |  | Synchronous Lecturing | Exam, Quizzes and Exercises by using computer |  | | 11.2 | Application by using computer | Use appropriate econometric support tools | Online | Microsoft Teams | Synchronous Lecturing | Exam, Quizzes and Exercises by using computer |  | | 11.3 | Application by using computer | Use appropriate econometric support tools | Online | Microsoft Teams | Asynchronous Lecturing |  |  | | 12 | 12.1 | Partial – correlation coefficients | Use appropriate econometric support tools | Face to Face |  | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 12.2 | Predictions | using the built models in forecasting for the future | Online | Microsoft Teams | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 12.3 | Activities | Display personal responsibility to the course requirements | Online | Microsoft Teams | Asynchronous Lecturing |  |  | | 13 | 13.1 | Functional form | using the built models in forecasting for the future | Face to Face |  | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 13.2 | Dummy Variables | Gain basic concepts and knowledge in data analysis and building and testing the models | Online | Microsoft Teams | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 13.3 | Activities | Create self-reliance and team work when necessary | Online | Microsoft Teams | Asynchronous Lecturing |  |  | | 14 | 14.1 | Dummy Variables | Gain basic concepts and knowledge in data analysis and building and testing the models | Face to Face |  | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 14.2 | Application by using computer | Gain basic concepts and knowledge in data analysis and building and testing the models economy and E-marketing | Online | Microsoft Teams | Synchronous Lecturing | Exam, Quizzes and Exercises by using computer | Gujarati, D. N., 1995 | | 14.3 | Application by using computer | Gain basic concepts and knowledge in data analysis and building and testing the models | Online | Microsoft Teams | Asynchronous Lecturing | Exam, Quizzes and Exercises by using computer |  | | 15 | 15.1 | Multicollinearity | Gain basic concepts and knowledge in data analysis and building and testing the models | Face to Face |  | Synchronous Lecturing Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 15.2 | Autocorrelation | Gain basic concepts and knowledge in data analysis and building and testing the models | Online | Microsoft Teams | Synchronous Lecturing | Assignments and Exams | Gujarati, D. N., 1995 | | 15.3 | Activities | Display personal responsibility to the course requirements | Online | Microsoft Teams | Asynchronous Lecturing |  |  | |

**22 Evaluation Methods:**

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| Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Evaluation Activity** | **Mark** | **Topic(s)** | **SLOs** | **Period (Week)** | **Platform** | | Exercises | 20% |  | Be able to discuss/ explain the importance of a wide range of models and quantitative tools | Week 10 and week 11 |  | | Midterm Exam | 30% |  | test the significance of the parameters in the built models | 5\12\2021 |  | | Final Exam | 50% |  | Apply and analyze different methods of building models | As the schedule from the registration |  | |

**23 Course Requirements**

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| **(e.g: students should have a computer, internet connection, webcam, account on a specific software/platform…etc):**  Students should have a computer, and internet connection. Students should activate their JU accounts on the Microsoft team |

**24 Course Policies:**

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| 1. Attendance policies:   Each student is expected to take their own notes (part from the exam) and to attend online class. Absence from lectures shall not exceed 15%. Students are expected to attend all lectures but if a student is absent from class, it is their responsibility to get the material that was missed. You must get any handouts or notes from your classmates.   1. Absences from exams and submitting assignments on time:   Exams will consist of **multiple choice, true/false, matching, and/or fill-in-the-blank questions**. Exams will cover all material presented for each section. Make-up exams will only be provided for students with an excused absence AND supporting documentation. The questions and/or format of any make-up exam may differ from that of the original exam. Scheduling of a make-up exam will vary depending upon available dates/times but **MUST** occur before the next-scheduled exam date.   1. Health and safety procedures:   Students should follow the Jordanian government guide.   1. Honesty policy regarding cheating, plagiarism, misbehavior:   Academic dishonesty will NOT be tolerated. This includes cheating, fabrication or falsification, plagiarism, abuse of academic materials, complicity in academic dishonesty, falsifying grade reports, and misrepresentation to avoid academic work. For this course, evidence of any form of academic dishonesty will result in all involved students receiving zero points for any associated exam, or assignment   1. Grading policy:   The results of the exams and the assignments and exercises will be given to the students, maximum one week after the exam and the right answers will be discussed with the students.  F- Available university services that support achievement in the course:  Students account on E-learning, Microsoft teams, computer room and library and study room. |

**25 References:**

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| Required book (s), assigned reading and audio-visuals:   * Maddala, G. S.: Introduction to Econometrics, John Wiley & Sons, 3d ed., New York, 2001 * Gujarati, D. N., “ Basic Econometrics “, 3rd ed., McGraw-Hill Company Inc., New York, 1995. * Gujarati, D. N., “ Essentials of Econometrics “, McGraw-Hill Company Inc., New York, 1992. * Series in Economics, McGraw-Hill Book Company, New York, 1982.   Recommended books, materials, and media:   * Wooldridge , J.M. “Introductory Econometrics : A Modern approach” , 4th edition, 2009 * Salem, M. A., “ Introduction to Agricultural Econometrics “, University of Jordan/ Faculty of agriculture, Amman, 1997 ( in Arabic ). * Salvatore, D. “Theory and Problems of Statistics and Econometrics” , Schaum’s Outline. Series in Economics, McGraw-Hill Book Company, New York, 1982. |

**26 Additional information:**

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| * Concerns or complaints should be expressed in the first instance to the module lecturer; if no resolution is forthcoming, then the issue should be brought to the attention of the module coordinator (for multiple sections) who will take the concerns to the module representative meeting. Thereafter, problems are dealt with by the Department Chair and if still unresolved the Dean and then ultimately the Vice President. For final complaints, there will be a committee to review grading the final exam.   For more details on University regulations please visit: <http://www.ju.edu.jo/rules/index.htm> |

Name of Course Coordinator: -Dr. Mohammad Majdalawi----------------Signature: ------------------

Date: 7\10\2021

Head of Curriculum Committee/Department: ---------------------------- Signature: ------------------------------------

Head of Department: ------------------------------------------------------------ Signature: ------------------------------

Head of Curriculum Committee/Faculty: ---------------------------------------- Signature: ---------------------------

Dean: ---------------------------------------------------------- Signature: -------------------------------------------