#### Course Title: Bio-statistics and Experimental Design

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| **University** | **Benha** |
| **Faculty** | **Faculty of Agriculture** |
| **COURSE SPECIFICATIONS:** | |
| Program of which the course is given | Biotechnology & Food safety programs. |
| Major or Minor element of program | Major element |
| Departments offering the program | Food safety & Biotechnology |
| Department offering the course | Agronomy |
| Academic year (level) | Third year |
| Date of specification approval | 8\_ 11\_ 2015 |

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| **A- BASIC INFORMATION** | |
| Title | Agronomy (Fundamentals) |
| Code | AG 0104 |
| Credit Hours | 3 hours |
| Lecture | 2 Hours / week |
| Practical | 2 Hours / week |
| Total: | Hours |

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| **B- PROFESSIONAL INFORMATION** |
| 1. OVERALL AIMS OF COURSE |
| * The aim of the course is to know the designing and execution of experiments dealing with agricultural aspects. Statistical analysis of data from the experiments to draw scientific valid and dependable conclusions. Statistical analyses relating data obtained from inventories and surveys to reach needed relationships between and among different variables of concern. |

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| 2. INTENDED LEARNING OUTCOMES OF COURSE (ILOs) |
| **A. Knowledge and Understanding:** |
| ***By the end of the course, students should:***   * Define measures of tendency and diversity. * Mention the principles rules of experimental designs * Recognize different tests of significant. |

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| B. Intellectual Skills: |
| ***Successful completion of this course will allow students to:***   * Analyze data from different experiments. * Choose the best experimental design. * Determine the relationships between different variables. |
| C. Professional and Practical Skills: |
| * Use appropriate experimental design in the area of specialization. * Collect data from different experimental designs. * Prepare appropriate samples required for statistical analysis. |
| D. General and Transferable Skills: |
| * Work in team. * Use computer skills in a proper manner. |

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| 3. CONTENTS | | | |
| **Topic** | **No. of hours** | **Lectures** | **Practical** |
| 1. Use and different pathways of statistics` use in scientific studies. | 2 | 1 | 1 |
| 1. Basic rules of experimental designs. | 4 | 2 | 2 |
| 1. Simple and factorial experiments. Analysis of variance. | 8 | 4 | 4 |
| 1. Tests of significant differences between treatments. | 6 | 3 | 3 |
| 1. Correlation and regression analysis. | 4 | 2 | 2 |
| 1. Test of homogeneity and Combined analysis | 4 | 2 | 2 |
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| Total | 28 | 14 | 14 |

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| 4. TEACHING AND LEARNING METHODS |
| 1. Lectures. 2. Lab 3. Assignments. 4. Reports. |

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| 5. STUDENT ASSESSMENT METHODS |
| ***Students will be evaluated by attendance, fulfillment and effort in exercises and presentations, and examination grades:***   1. Laboratory work: to assess the ability of students to understand and perform small laboratory experiments. 2. Oral exam to assess understanding and intellectual skills. 3. Practical exam to assess practical skills. 4. Final exam to assess knowledge and intellectual skills. |

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| 6. ASSESSMENT SCHEDULE | | |
| No | AssessmentAssessment | **Week** |
| 1 | Periodical exam |  |
| 2 | Practical exam |  |
| 3 | Oral exam |  |
| 4 | Final exam |  |

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| 7. WEIGHING OF ASSESSMENT | | |
| No | AssessmentAssessment | **%** |
| 1 | Periodical exam | 15% |
| 2 | Practical exam | 15% |
| 3 | Oral exam | 10 % |
| 4 | Final exam | 60 % |
| TOTAL | | 100 % |

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| 8. LIST OF REFERENCES |
| 1. **El-Akhdar, A. 2013**. Statistical procedures for agricultural research. Academia Publishers, UK. 2. **Gomez, K.A. and Gomez, A.A. 1984.** Statistical procedures for agricultural research, 2nd Ed. John Wiley & Sons, NY, USA.   <http://books.google.de/books?id=r6k4yiahcnQC&dq=Statistical+procedures+for+agricultural+research&hl=en&sa=X&ei=eDz3Up_uNo2HswbrkYCADg&ved=0CC4Q6AEwAA>   1. **Snedecor, G.W. and Cochran, W.G. 1989.** Statistical methods, 8th Ed. Iowa State, Univ. Press Ames Iowa, USA.   <http://books.google.de/books?id=f8EOBjMJMZcC&dq=statistical+methods&hl=en&sa=X&ei=jTz3UuJzitSzBqyTgDA&ved=0CC4Q6AEwAA> |

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| 9. FACILITIES REQUIRED FOR TEACHING AND LEARNING |
| 1. Teaching aids/materials: e.g. boards – overhead projector – data-show projector – stationary.. etc. 2. Teaching room/hall. 3. Computers. |

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| **Course Coordinators:** | **Dr. Ahmed A. El Hosary** |
| **Date: 8/ 11/ 2015** | |