**The University of Jordan**

**Faculty: Faculty of Agriculture Department: Nutrition and Food Technology**

**Program: Graduate/ PhD level Academic Year/ Semester 1st semester 2018/2019**

**Advanced Biotechnology in Foods and Nutrition (0633933)**

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| --- | --- | --- | --- | --- | --- |
| **Credit hours** | 3 (three lectures) | **Level** | Grade course | **Pre-requisite** | Food Packaging (633342) |
| **Coordinator/ Lecturer** | Prof. Ghadeer F. Mehyar | **Office number** | 157 Agriculture Bld | **Office phone** | 22421 |
| **Course website** |  | **E-mail** | g.mehyar@ju.edu.jo | **Lecture room** | 181 Agricultural BLD. |

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| **Office hours thorough the week** |
| **Day/Time** | **Sunday** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** |
| **Time** | **14:00-15:30** |  | **14:00-15:30** |  |  |

**Course Description**

The course describes advanced concepts in gene structuring and development from animal, plants or microorganisms. Related principles such as developments in scale up, upstream and downstream concepts for optimization of the recovery will also be discussed. Students will practice overview related research papers and their presentations.

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| **Evaluation** | **Percentage** | **Date** |
| **Midterm exam**  | 30 | 21/10/2018 |
| **Summary papers presentation** | 25 | 18/11-/12/18/ 2018 |
| **Discipline in class** | 5 | ---- |
| **Final Exam** | 40 | 22-31/12 2018 |
| **Gross total** | 100 |  |

\*\* When absence of lectures exceeded 15% the student will be prohibited from doing the final exam\*\*

**Intended Learning Outcomes (ILOs):**

Successful completion of the course should lead to the following outcomes:

**A. Knowledge and Understanding:** Student is expected to

A1- Determine the meaning of biotechnology in Foods and Nutrition.

A2- Correlate biotechnology with food safety and shelf-life.

A3- Understand mechanisms of food spoilage/ pathogenicity mechanisms that can be controlled by biotechnology.

A4- Underst and different types and sources of biotechnology.

A5- Be introduced to concept of reduction the use of biotechnology and environmental concerns.

**B. Intellectual Analytical and Cognitive Skills:** Student is expected to

B1- Differentiate between different types of biotechnology.

B2- Learn analysis the importance of each biotechnology type to specific food.

B3- How to deal with biotechnology.

**C. Subject-Specific Skills:** Student is expected to

C1- Learn how to design new biotechnology concepts.

C2- Determine effect of biotechnonlogical means on food storage/processing conditions.

**D. Transferable Key Skills:** Students is expected to

D1- Skills to identify different types of biotechnology and their potential effect on foods.

D2- Skills to control occurrence of spoilage toxicity in foods and how to deal with that by using different biotechnology.

**ILOs: Learning and Evaluation Methods**

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| --- | --- | --- |
| **ILO/s** | **Learning Methods** | **Evaluation Methods** |
| A. Knowledge and Understanding (A1-A5) | Lectures, Discussions and Preparation of term papers | Exam, Presentations and Quizzes |
| B. Intellectual Analytical and Cognitive Skills(B1-B3) | Lectures, Discussions and Preparation of term papers | Exam, Presentations and Quizzes |
| C. Subject-Specific Skills(C1-C2) | Lectures, Discussions and demonstrative experiments | Exam, Presentations and Quizzes |
| D. Transferable Key Skills(D1-D2) | Lectures, Discussions and demonstrative experiments | Exam, Presentations and Quizzes |

**Course Contents**

|  |  |  |  |
| --- | --- | --- | --- |
| **Content** | **Reference** | **Number of lectures/week** | **ILO/s** |
|  |  |  | A-1, A-2, A-4B-1D-1 to D-2 |
|  |  |  | A-2, A-3, B-1, B-2, C-1, D-1, D-2 |
|  |  |  | A-2, A-3, B-1, B-2, C-1, D-1, D-2 |
|  |  |  | A-2, A-5, B-3, C-1, C-2, D-1 |
|  |  |  | A-2, A-3, B-2, C-1, C-2, D-2 |

**Learning Methodology**

1. Lecture and discussion.

# 2. Term papers;

1. Quizzes and exams
2. Demonstrative experiments

**Projects and Assignments**

Each student should submit two papers in the field of food packaging

# 1. Review paper, literature review.

2. Summary of 1 papers.

**Evaluation**

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| --- | --- | --- |
| **Evaluation** | **Point %** | **Date** |
| First Exam | 20 | 17/10/2018 |
| Term paper (10 points for the report and 5 for presentation) | 15 | Throughout the term |
| Free paper presentation | 5 | Throughout the term |
| Second Exam | 20 | 28/11/2018 |
| The final exam | 40 | 22-31/12/2018 |

**Main Reference/s:**

**References:**