**The University of Jordan Department: Plant Protection**

**Faculty: Agriculture 2015/2016, Second semester.**

**0606945 Selective Subjects in Plant Protection**

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| --- | --- | --- | --- | --- |
| **Credit hours** | **3**  | **Level** | **Ph.D Graduate** | **Pre-requisite: No** |
| **Coordinator/ Lecturer** | **Prof. Dr.AhmadMohamad Almomany** | **Office****number** | **258** | **Office phone** | **22513** |
| **Course website** | **Until now not available** | **E-mail** | **momanyah@ju.edu.jo** | **Place** | **Seminar room** |

|  |
| --- |
| **Office hours** |
| **Day/Time** | **Sunday** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** |
|  | 10-14 | 10-12 | 10-12 | 10-12 | 11-12 |

**Course Description**

This course deals with the study of wild basidiomycetous and ascomycetous mushrooms growing in forest, garden and field lands. Also students will be exposed to methods of mushroom cultivation and symbiotic fungi.

**Learning Objectives**

The main objectives of the course are:

1-Understanding the components of Phylum Basidiomycota

2-Understand the importance of Phylum Ascomycota

3-Understand the different taxonomical methods of wild edible and poisonous mushrooms.

4-Understand the art of commercial mushroom cultivation

**Intended Learning Outcomes (ILOs):**

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

**Intended Learning Outcomes:**

At the end of the course the students will be able to:

1-Realise the different components of Kingdom fungi.

2- Know the different types of edible and poisonous mushrooms

3-Know the advanced topics related to classification of wild mushrooms.

4- Know the importance of mushroom cultivation and recycling of agricultural wastes.

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

A1- Be familiar with the differentiation between edible and poisonous mushrooms.

A2-Be familiar of mushroom importance.

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

B1- Know the physiological interaction between some mushrooms and diseased plants.

B2- Know the Control measures of mushroom diseases.

**C. Subject-Specific Skills:**

1-At the end of the course, the students are expected to gain skills about mushroom identification, nutritional value and fungal identification.

2-Undestand the concept of mushroom collection.

3-How to apply chemicals and to preserve mushroom samples.

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

D1- To be able to start differentiation between edible and non-edible mushrooms.

D2- Start a mushroom farm.

**ILOs: Learning and Evaluation Methods**

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| --- | --- | --- |
| **ILO/s** | **Learning Methods** | **Evaluation Methods** |
|  | **Lectures, field trips and Discussions** | **Exam and lab reports** |

**Class Attendance & Participation**: Participation is a vital part of both the course experience and the course grade. Students will be expected to arrive at each class on time and prepared to fully participate in the lecture, lab, or other class activities

|  |  |  |  |
| --- | --- | --- | --- |
| **Content** | **Reference** | **Week** | **ILO/s** |
| **Introduction,****Advantages and disadvantages of fungi.** | **1** | **1** | **Lectures** |
| Review of fungal classification. | **1+2** | **2** | **Lectures** |
| **Class Basidiomycota and wild mushrooms in this class. Lamellate and tabulate fungi** | **1+2+3** | **3, 4****& 5** | **Lectures, lab & Field trip** |
| **Class Ascomycota and mushrooms in this class** | **1+2+3** | **6, 7 and 8** | **Lectures, lab & Field trip** |
| Mushroom cultivation | 9 | 9 & 10 | Lab & Field trip |
| • Mycorrhizae• Epiphytes &Endophytes• Biotrophs, hemibiotrophs, and necrotrophs | 5 | 11+12 | Lectures |
| The poisoning syndromes and the poisonous fungi | 4 | 13 | Lectures |
| Control of mushroom diseases | 7+9 | 14 | Lectures |
| Selected articles related to mushroom industry and medicinal mushrooms | 6+7+8 | 15 | Lectures |
| Final exam |  | 16 | Assigned from registration department |

**Teaching Methods:**

1- Lectures. 2 –Field trips. 3. Assignments (presentation)

**Projects and Assignments**

Lab work and sample collections. Seminars by individual students to encourage developing skills of self-expression. Teaching tools: Data show, field trips and case study.

**Evaluation**

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| --- | --- | --- |
| **Evaluation** | **Point %** | **Date** |
| First exam  | **20** | **5/4/2016** |
| Second exam  | **20** | **Assigned later** |
| Sample collections and Reports 20% | **20** |  |
| **Final Exam** | **40** | **As it is Scheduled by Registration Department** |

**Main Reference/s:**

1. Webster, J. (2007) Introduction to Fungi. 3nd Edition, Cambridge University Press, Cambridge, 875 pages.
2. Alexopolus, C., Mims,C.W. and Blackwell , M. (1995). Introductory Mycology.4th Edition, John Wiley & Sons, 868 pages.
3. Ainsworth, 2008. Dictionary of Fungi. CABI. London
4. Bresinsky, A. and Besl, H. (1990). A Color Atlas of Poisonous Fungi, A Handbook for Pharmacists, Doctors and Biologists. Translated from the German Edition of Giftpilze:. Ein Handbuch fuer Apothecker, Aertzte und Biologen. Wolfe Publishing Ltd., London. 295 pages.
5. Varma, Ajit. (1998). Mycorrhiza manual. Springer Ltd., Germany, 542 pages.
6. Al-Momany, A. and Gucel, S. (2009). Mushrooms of North Cyprus. Vol. 1, Near East University. Nicosia.
7. Buczacki, S. (2012). Fungi Guide, the Most Complete Field Guide to the Mushrooms and Toadstools of Britain and Ireland. Harper Collins Publishers, Ltd., London.
8. Phillips, R. (2006). Mushrooms: A Comprehensive Guide with over 1250 Deducted Photographs of Mushrooms and Other Fungi, Macmillan Publishers, Limited, London.
9. Stamets, Paul and J.S. Chilton. (1983). The Mushroom Cultivator. A Practical Guide to Growing Mushrooms at Home. AGARIIKON PRESS OLYMPIA, WASHINGTON. 415 pages.

**Grading system**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **From (%)** | **To (%)** | **Scale** | **Mark** | **Result** |
| 0 | 44 | 0 | H | Fail |
| 45 | 47 | 0.75 | D- | Fail |
| 48 | 54 | 1 | D | Accepted |
| 55 | 60 | 1.5 | D+ | Accepted |
| 61 | 63 | 1.75 | C- | Good |
| 64 | 66 | 2 | C | Good |
| 67 | 72 | 2.5 | C+ | Good |
| 73 | 75 | 2.75 | B- | Very Good |
| 76 | 78 | 3 | B | Very Good |
| 79 | 84 | 3.5 | B+ | Very Good |
| 85 | 87 | 3.75 | A¯ | Excellent |
| 88 | 100 | 4 | A | Excellent |