

Course Syllabus

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| 1 | Course title | Food Hygiene |
| 2 | Course number | 0603453 |
| 3 | Credit hours (theory, practical) | 3 |
| | Contact hours (theory, practical) | 3 |
| 4 | Prerequisites/corequisites | |
| 5 | Program title | Food Science and Technology |
| 6 | Program code | 042 |
| 7 | Awarding institution | The University of Jordan |
| 8 | School | Agriculture |
| 9 | Department | Nutrition and Food Technology |
| 10 | Level of course | 4 |
| 11 | Year of study and semester (s) | Fall/Second semester |
| 12 | Final Qualification | BSc |
| 13 | Other department (s) involved in teaching the course | None |
| 14 | Language of Instruction | English |
| 15 | Date of production/revision | 9/12/2019 |

16. Course Coordinator: Prof. Mohammed Ismael Saleh

Office numbers, office hours, phone numbers, and email addresses should be listed.

| Office hours | | | | | | |
|--------------|---------------|-------------|--------------|-------------|----------|--|
| Day/Time | Sunday | Monday | Tuesday | Wednesday | Thursday | |
| Day | | | | | | |
| Time | 10:00 – 12:00 | 11:00-12:30 | 9:00 – 12:00 | 11:00-12:30 | | |

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

| Office hours | | | | | | |
|--------------|---------------|-------------|--------------|-------------|----------|--|
| Day/Time | Sunday | Monday | Tuesday | Wednesday | Thursday | |
| Day | | | | | | |
| Time | 10:00 – 12:00 | 11:00-12:30 | 9:00 – 12:00 | 11:00-12:30 | | |

18. Course Description:

Introduction to the concept of food hygiene and its importance. Epidemiology of foodborne illnesses. Hazards associated with foods. Hygiene requirements in food production and harvesting areas and in food establishments, with emphasis on design and construction and hygienic food handling, processing and storage and prevention of cross contamination. Personal hygiene and health requirements, cleaning and disinfection and pest control. Application of hazard analysis and critical control point (HACCP) system in food establishments and principles of risk assessment are explained

19. Course aims and outcomes:

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| <p>A- Aims:</p> <ol style="list-style-type: none"> 1. Develop and understanding of the hygiene, epidemiology of food borne illnesses and learn how to investigate food borne outbreaks. 2. Develop a detailed understanding of risks associated with chemical and physical hazards associated with food. 3. Understand the concept of hazard analysis and critical control point (HACCP) system and be able to implement the system at food establishments. | |
| <p>B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to</p> <p>A. Knowledge and Understanding: Student is expected to</p> <p>A1- Understand the concept of food hygiene as described by the Codex Alimentarius Commission of the UN.</p> <p>A2- Understand the epidemiology of food borne illnesses and learn how to investigate food borne outbreaks.</p> <p>A3- Understand the concept of hazard analysis and critical control point (HACCP) system and be able to implement the system at food establishments.</p> <p>A4- Understand the concept of risk analysis.</p> <p>B. Intellectual Analytical and Cognitive Skills: Student is expected to</p> <p>B1- Develop a detailed application of the Codex Alimentarius Commission hygiene requirements at stages of food chain and be able to implement them.</p> <p>B2- Able to recognize factors contributing to food borne illnesses and methods of control</p> <p>C. Subject- Specific Skills: Students is expected to</p> <p>C1- Apply and analyze methods of basic hygiene practices and convey information to health workers.</p> <p>C2- Develop a detailed understanding of bacterial, fungal parasitic and viral food borne illnesses, as well as risks associated with chemical and physical hazards associated with food.</p> <p>C3- Critically evaluate current food borne disease problems, along with current food safety control strategies.</p> <p>D. Transferable Key Skills: Students is expected to</p> <p>D1- Gain basic hygienic information to convey to food employee as well as health workers</p> <p>D2- Apply hygienic requirements in a food organization</p> | |

20. Topic Outline and Schedule:

| No. of lecture (s) /Week | Subject | Sources | ILOs |
|--------------------------|--|--|------------|
| 3 (wk 1) | Definition of food <ul style="list-style-type: none"> • Codex Alimentarius Commission • World Trade Organization • Food hygiene, safety and suitability | Marwah (1999) Chapter 1, 2 | A-1 |
| 9 (wk 2 -4) | Food safety and food borne illnesses <ul style="list-style-type: none"> • Impact of food hygiene • Food borne illnesses, hazards, risks and control | Adams and Motarjemi, (1999) Chapter 1, 2 and 3, Marwah (1999) | A-2 |

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| | <p>a) Reservoirs and vehicles of food borne illnesses</p> <ul style="list-style-type: none"> • Human and animals • Cross contamination • Environmental contamination <p>b) Epidemiology of food borne illnesses</p> <ul style="list-style-type: none"> • Epidemics and outbreaks • Investigation of food borne outbreaks • Epidemic curve • Status of food hygiene in Jordan | Chapter 2, | |
| 9 (wk 5-7) | <p>Microbial and parasitic food borne illnesses</p> <ul style="list-style-type: none"> • Bacterial food borne infections • Microbial food borne intoxications • Emerging food borne pathogens • Zoonotic food borne pathogens • Control measures • Factors contributing to food borne illnesses • Food borne protozoa, cestodes, nematodes • Viral food borne illnesses | <p>Adams and Motarjemi, (1999) Chapter 1 and 2</p> <p>Cliver (1990)</p> <p>Doyle (1989)</p> | C-2, C-3, B-2 |
| 9 (wk 8 -10) | <p>Chemical and physical hazards in foods</p> <ul style="list-style-type: none"> • Industrial and environmental contaminants • Contaminants produced during processing • Improperly used agrochemicals Improperly used additives Hygiene requirements in food production/ processing areas • Codex Alimentarius Standards: Principles of Food Hygiene • Jordanian Standard: Principles of Food Hygiene • FDA's: Current Good Manufacturing Practice | Adams and Motarjemi, (1999) Chapter 2 and 3 | A-4, B-1, C-2 |
| 6 (wk 11) | <p>Food hygiene at the primary production/harvesting areas</p> <ul style="list-style-type: none"> • Environmental hygiene • Hygiene production of foods sources • Handling, storage and transport • Cleaning, maintenance and personal hygiene at primary production | Marwah (1999) Chapter 4, 5 and 6 | A-3, B-1, C-1, D-1, D-2 |
| 6 (wk 12-13) | <p>Hygiene in food establishments</p> <ul style="list-style-type: none"> • Design and facilities • Hygiene requirements • Personal hygiene and health | Adams and Motarjemi, (1999) Chapter 6 | C-1. C-2, B-1 |

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| | <ul style="list-style-type: none"> requirements • Hygiene processing requirements • Cleaning and disinfection and waste management • Traceability and recall • Pest control | | |
| 3 (wk 14) | <p>Hazard analysis critical control point (HACCP) system</p> <ul style="list-style-type: none"> • Traditional methods to ensure food safety • Limitations of traditional systems • Principles of HACCP system • Steps of HACCP system application | <p>Adams and Motarjemi, (1999) Chapter 5 and 7</p> <p>Marwah (1999) Chapter 9</p> <p>Mortimore and Wallace (1998)</p> | A-3, D-2 |
| 3 (wk 15) | <p>Risk analysis of food borne illnesses</p> <ul style="list-style-type: none"> • Risk assessment • Risk management • Risk communication | Marwah (1999) Chapter 10 | A-4, D-1 |
| 3 (wk 16) | <p>Legislation and education in food hygiene</p> <ul style="list-style-type: none"> • Codex Alimentarius Commission • Jordanian Standards • Status of food hygiene in Jordan | ICMSF- International Commission on Microbiological Specification for Foods (1996). | A-1, A-3, A-4, B-1, C-1, D-1, D-2 |

21. Teaching Methods and Assignments:

The course will be structured in lectures and discussions. The course comprises overviews, from general understanding to expert knowledge on key topics, and learning based on lectures as well as independent learning. A presentation project is also included in the evaluation process.

22. Evaluation Methods and Course Requirements:

Class work will be presented and presentations of selected food hygiene topics are required. Exams, assignments and presentation evaluation will be graded for evaluation. Exams will be administered after completion of the course technical units; these unit exams will comprise both essay and problem-oriented questions. The final exam is comprehensive.

23. Course Policies:

Students and instructors each have an important role in maintaining a classroom environment optimal for learning, and are expected to treat each other with respect during class, using thoughtful dialogue, and keeping disruptive behaviours to a minimum. Class discussions are interactive and diverse opinions will be shared; please be thoughtful in sharing your perspectives and responses with one another. Other behaviours that can be disruptive are chatting and whispering during class, the use of electronic equipment, preparing to leave before class is over, and consistently arriving late to class. Please keep these disruptions to a minimum. Inappropriate behavior in the classroom may result in a request to leave the class and/or subject to penalty.

24. Required equipment: (Facilities, Tools, Labs, Training....)

Classroom facilities

25. References:

Main Reference/s:
 Adams, M., and Motarjemi, Y. 1999. Basic Food Safety for Health Workers
 Marwah, Kavita (1999). Food Hygiene. Gene-Tech Books, New Delhi-110 002
 Forsythe, S.J. and P. R. Hayes. 1998. Food Hygiene, Microbiology and HACCP. Aspen Publishers, Inc, Gaitheburg

References:
 Anonymous (1995). A supervisor’s Handbook of Food Hygiene and Safety. The Royal Institute of Public Health and Hygiene. London.
 Cliver, D. O., ed. (1990) Foodborne Disease. Academic Press Inc. San Diego.
 Doyle, M. P., ed. (1989) Foodborne Bacterial Pathogens. Marcel Dekker, Inc. New York.
 Gould, W. A. (1994) CGMP’s / Food Plant Sanitation. CTI Publications. INC., Baltimore.
 Harrigan, W. F. and R. W. A. Park (1991) Making Safe Food: A management guide for microbiological quality. Academic Press, London.
 ICMSF-International Commission on Microbiological Specification for Foods (1996).
 Microorganisms in Foods 5: Characteristics of Microbial Pathogens is the only book to examine the characteristics of foodborne pathogens in relation to HACCP. 1996. London: Blackie Academic & Professional. ISBN: 041247350X. Available from Kluwer Publishers.
 ICMSF-International Commission on Microbiological Specification for Foods (1988). Microorganisms in Foods: Book 4. Application of hazard analysis critical control point (HACCP) system to ensure microbiological safety and quality.
 Leith, P. (1991) Food Safety: Your Questions Answered. 1st. Ed. Food Safety Advisory Centre.
 Mortimore,S. and Wallace, C. (1998) HACCP. A Practical Approach. Chapman & Hall. London.
 Troller, J. A. (1983) Sanitation in Food Processing Academic Press, New York.

26. Additional information:

Name of Course Coordinator: **Prof. Mohammed Ismael Saleh** Signature: ----- Date: -----

Head of curriculum committee/Department: ----- Signature: -----

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

Head of curriculum committee/Faculty: ----- Signature: -----

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