KNOWLEDGE UNIVERSITY

Ministry of Higher Education and
Scientific Research
Kurdistan Region – Iraq

# A COURSE MODULE DESCRIPTOR FORM

(Course Book)

| Module Information | | | |
|---|---|---|---|
| **Course Module Title** | Food Microbiology | | |
| **ناوي كۆرس مۆديول** | میکرۆبایۆلۆجی خۆراک | | |
| **عنوان الوحدة** | **علم الاحياء الدقيقة الغذائي** | | |
| **Course Module Type** | Compulsory | **Module Code** | MM402 |
| **ECTS Credits** | 5 | **Module Level** | 2 |
| **Semester of Delivery** | 4 | **Dept. Code** | MMD |
| **College (Code)** | College of Science MMD | | |
| **Module Website (CMW)** | https://knu.edu.iq/sms/getAClass.php?stg=2&depCode=DPMM&courseCode=MM402&lecModId=1103 | | |
| **Module Leader (ML)** | M.S.c Shilan Farhad Mamand | | |
| **e-mail** | Shilan.mamand@knu.edu.iq | | |
| **ML Acad. Title** | Assistant Lecturer | **ML Qualification** | M.S.c |
| **ML ORCID** | https://orcid.org/0000-0002-0270-4402 | | |
| **ML Google Scholar Acc.** | https://scholar.google.com/citations?user=gET5wlcAAAAJ&hl=en | | |

| | | | |
|---|---|---|---|
| **Course Module Tutor** | Assistant Lec. Shilan F. Mamand | | |
| **Module Tutor email** | Shilan.mamand@knu.edu.iq | | |
| **Date Approved** | DD/MM/YYYY | **Version Number** | 1.0 |

| **Relation with Other Modules** | |
|---|---|
| **Pre-requisites** | |
| **Module Aims, Learning Outcomes and Indicative Contents** | |
| **Module Introductory Description** | The course will cover important aspects of microbial physiology, with respect to food borne pathogens and important considerations for food production and the detection and control of microbial hazards. Particular attention will be given to both food borne illnesses that (i) require microbial multiplication in foods and (ii) do not require multiplication in foods and to the epidemiology of food related outbreaks. Modern assays for detecting the microbial content of foods will be discussed, including molecular methods and differentiation techniques (which are used to monitor both microbial hazards and functional cultures, such as starter cultures and probiotics). |
| **Module Aims** | The course aims to provide basic information on the nature of food borne illnesses and their significance in the food industry, with specific interest in microbial hazards, microbial detection assays, food microbiology and health. |
| **Module Learning Outcomes** | On successful completion of this module, students should be able to explain:<br>1. the nature of important micro-organisms of food borne illnesses<br>2. methods to control microbial hazards in foods |

| | |
|---|---|
| | 3. epidemiology of food borne outbreaks and how to identify their probable source<br>4. methods for detection and identification of food micro-organisms |
| **Learning and Teaching Strategies** | |
| **Strategies** | Students will attend lectures and laboratory practical on food microbiology (with particular emphasis on microbial hazards), write scientific reports of their laboratory experimental work and participate in group tutorials related to Case studies - culminating in presenting flow diagrams and Group presentations of said Case studies. Finally, a revision test will be given at the end of the course. |

| **Module Delivery** | |
|---|---|
| **Structured workload (h/w)** | |
| **Unstructured workload (h/w)** | |
| **Total workload (h/w)** | |

**Module Assessment**

| | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|
| **Quizzes** | 1 or 2 | 6% (6) | 5 or 5, 10 | |
| **Assignments** | 2 | 6% (6) | At the start | |
| **Projects / Lab.** | 1 | 12% (12) / 18% (18) | Continuous | |
| **Midterm Exam** | 2 hr | 36% (36) / 30% (30) | 8 | |
| **Final Exam** | 3 hr | 40% (40) | 16 | All |
| **Total** | | 100% (100 Marks) | | |

| **Learning and Teaching Resources** | | |
|---|---|---|
| | **Text** | **Available in the Library?** |

| | | |
|---|---|---|
| **Required Texts** | 1- Ray, Bibek Fundamental food microbiology / Bibek Ray. --3rd ed. p. cm. Includes bibliographical references and index. ISBN 0-8493-1610-3 1. Food--Microbiology. I. Title<br>2- Food Microbiology Laboratory for the Food Science Student by Cangliang Shen • Yifan Zhang | Yes |
| **Recommended Texts** | Microorganisms in food 7 Microbiological Testing in Food Safety Management (Second Edition) | No |
| **Websites** | | |

| **Delivery Plan (Syllabus)** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Introduction to food microbiology and food safety |
| **Week 2** | Intrinsic and Extrinsic factors affecting microbial growth and survival in food |
| **Week 3** | Principles of food preservation and significance |
| **Week 4** | Preservation of food by chemical methods |
| **Week 5** | Spoilage of canned food |
| **Week 6** | Microbiology of milk and milk products |
| **Week 7** | Newer methods for controlling spoilage of food |
| **Week 8** | Food borne outbreaks- Bacterial agents for foodborne illnesses |
| **Week 9** | Principles of hygiene and sanitation in food service establishment. |
| **Week 10** | Principles and guidelines for conducting microbiological risk of food |
| **Week 11** | Fermented meat |
| **Week 12** | Fermented fish products |

| | |
|---|---|
| **Week 13** | Yeast-lactic fermentation in food |
| **Week 14** | Modified environment for storage of food |
| **Week 15** | Bio preservation of food |
| **Week 16** | **Final Exam** |

| **Course Keywords** |
|---|
| food microbiology, food safety, preservation, fermentation in food |

## APPENDIX: (Help and Information)

| **KNOWLEDGE UNIVERSITY** | | | | |
|---|---|---|---|---|
| **GRADING SCHEME** | | | | |
| **Group** | **ECTS Grade** | **% of Students/Marks** | **Definition** | **GPA** |
| **Success Group (50 - 100)** | **A** - Excellent | Best 10% | Outstanding Performance | **5** |
| | **B** - Very Good | Next 25% | Above average with some errors | **4** |
| | **C** - Good | Next 30% | Sound work with notable errors | **3** |
| | **D** - Satisfactory | Next 25% | Fair but with major shortcomings | **2** |
| | **E** - Sufficient | Next 10% | Work meets minimum criteria | **1** |
| **Fail Group (0 – 49)** | **FX** – Fail | (45-49) | More work required but credit awarded | |
| | **F** – Fail | (0-44) | Considerable amount of work required | |
| | | | | |
| Note: | | | | |

**Useful Resource:**

**Designing Learning, From module outline to effective teaching**