

Course Syllabus

1	Course title	Meat Science and Technology
2	Course number	633443
3	Credit hours (theory, practical)	3
	Contact hours (theory, practical)	3
4	Prerequisites/corequisites	603343
5	Program title	Food science and technology
6	Program code	042
7	Awarding institution	University of Jordan
8	School	Agriculture
9	Department	Nutrition and Food Technology
10	Level of course	3 rd & 4 th year
11	Year of study and semester (s)	2nd semester 2019/2020
12	Final Qualification	B.Sc.
13	Other department (s) involved in teaching the course	–
14	Language of Instruction	English
15	Date of production/revision	2019

16. Course Coordinator:

DR Basem Al-Sawalha

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

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17. Other instructors:

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

18. Course Description:

As stated in the approved study plan.

Structure and composition of different types of meats and methods of slaughtering and carcass preparation.

Post- mortem changes in meats and factors affecting them.

Spoilage of meats and methods of prevention. Processing methods of different meat products and machinery and equipment.

19. Course aims and outcomes:

A- Aims:
 After studying this course, the student will be able to:

- List the animals and birds exploited in meat production.
- Know the composition and structure of meat.
- Describe pre-slaughter handling of animals and birds.
- Point out the slaughterhouse techniques.
- Describe the carcass classification.
- Distinguish meat quality and its controlling parameters.
- Determine and describe the basic meat products manufacturing technology.
- Define and evaluate the nature of cured meats and function of curing agents and other ingredients.
- Know and describe the smoking of meat.
- To compare and differentiate the types of sausages.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to:
 Successful completion of the course should lead to the following outcomes:

A. Knowledge and Understanding: Student is expected to

- A1- List the animals and birds exploited in meat production
- A2- Know the composition and structure of meat
- A3-. Distinguish meat quality and its controlling parameters
- A4-. Define and evaluate the nature of cured meats and function of curing agents and other ingredients.

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

- B1- Describe pre-slaughter handling of animals and birds
- B2- Point out the slaughterhouse techniques
- B3- Describe the carcass classification

C. Subject- Specific Skills: Students is expected to

- C1-. Determine and describe the basic meat products manufacturing technology
- C2- Know and describe the smoking of meat.

D. Transferable Key Skills: Students is expected to

- D1- Gain basic hygienic information to convey to food employee as well as health workers
- D2- Apply hygienic requirements in a food organization

Topic	No. of lecture (s) /Week	Sources	ILOs
<ul style="list-style-type: none"> ● Animals and birds used as meat sources. ● Importance of meat as food. 	(wk 1)	Chapter 1 (Church& Wood)	A-1
<ul style="list-style-type: none"> ● Muscle structure and composition ● Animal production and pre-slaughter handling. Breed, age, sex, diet, environmental conditions, injury, stress susceptibility, transportation. 	(wk 2-4)	Chapter 1 (Varnam & Sutherland)	A-2

<ul style="list-style-type: none"> • Conversion of the animal into meat Lairage, stunning, bleeding, slaughter operations, chilling conditions, post- mortem changes, conditioning, ageing, tenderization. • Carcass classification, boning and cutting • Meat preservation and storage at low temperature: chilling, freezing. • Meat packaging (normal, modified atmosphere, vacuum). • Meat storage and transportation <ul style="list-style-type: none"> • Chill • Frozen • Taints 	<p>(wk 5-7)</p>	<p>Chapter 2,8,7 (Varnam & Sutherland) Chapter 2 (Church& Wood)</p>	<p>C-2, C-3, B-2</p>
<ul style="list-style-type: none"> • Common quality problems and control in manufacturing meats <ul style="list-style-type: none"> • Non-compliance with raw materials description. • Natural contaminants and foreign bodies. • Microbiological problems. • Chemical problems. • Poor packaging standards. • Poor chilling conditions. • Poor freezing conditions. • Poor storage conditions. • Poor transportation conditions. 	<p>(wk 8-10)</p>	<p>Chapter 1 (Church& Wood)</p>	<p>A-4, B-1, C-2</p>
<ul style="list-style-type: none"> • Meat products and their processing <ul style="list-style-type: none"> • Raw meats suitable for preparing processed meats. • Curing and cured meats. <ul style="list-style-type: none"> - Considerations in curing meat products. - Ingredients utilized in meat curing - Safety aspects of nitrite. - Cured meat color. - Curing methods. 	<p>(wk 11-12)</p>	<p>Chapter 3,4 (Varnam & Sutherland) Chapter 3 (Pearson & Tauber)</p>	<p>A-3, B-1, C-1, D-1, D-2</p>
<ul style="list-style-type: none"> • Smoking and smoked meats. <ul style="list-style-type: none"> - Purposes of smoking - Composition and production of smoke - Deposition of smoke. - Safety concerns of smoke. - Methods of smoking 	<p>(wk 13)</p>	<p>Chapter 4 (Pearson & Tauber)</p>	<p>C-1. C-2, B-1</p>

<ul style="list-style-type: none"> Sausages <ul style="list-style-type: none"> Sausage classification Ingredients used in sausage making Processes of sausage making 	(wk 14)	Chapter 7 (Varnam & Sutherland) Chapter 7 (Pearson & Tauber)	A-3, D-2
<ul style="list-style-type: none"> Poultry processing and products Types of poultry Processing fresh poultry Poultry meat manufacturing and equipments 	(wk 15)	Chapter 14 (Pearson & Tauber)	A-3, D-2, C-2
<ul style="list-style-type: none"> Review & Exams 	(wk 16)	Understanding Food Science and Technology. Murano (2003)	A-1, A-3, A-4, B-1, C-1

20. Topic Outline and Schedule

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.

Development of ILOs is promoted through the following teaching and learning methods:

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:

ILO/s	Learning Methods	Evaluation Methods
A- Knowledge and Understanding (A1-A4)	Lectures and Discussions	Exams & Quizzes
B- Intellectual Analytical and Cognitive Skills (B1-B2)	Lectures and Discussions	Exams
C. Subject Specific Skills (C1-C3)	Lectures and Discussions	Exams
D-Transferable Key Skills (D1-D2)	Project & presentation	Projects presentation and homework assignments.

23. Course Policies:

A- Attendance policies:
B- Absences from exams and handing in assignments on time:
C- Health and safety procedures:
D- Honesty policy regarding cheating, plagiarism, misbehavior:
E- Grading policy:
F- Available university services that support achievement in the course:

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

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25. References:

Required book (s), assigned reading and audio-visuals: <ol style="list-style-type: none">1. Lawrie, R.A (1991). Meat Science. Pergamon Press, Oxford.2. Pearson, A. M., and Tauber, F. W. (1984). Processed Meats. AVI, Westport. Recommended books, materials, and media: <ol style="list-style-type: none">1. Church, P. N., and Wood, J. M. (1992). The Manual of Manufacturing Quality Meat. Elsevier, London.2. Varnam, A.H., and Sutherland, J.P.(1995). Meat and Meat products Mosby, London.

26. Additional information:

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Name of Course Coordinator: **Prof.Dr.Basem Al-Sawalha** Signature: ----- Date: -----

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

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

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

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