

# Southwest University

## Graduate Course Syllabus

### Course Unit: School of Food Science

Course No.	1108320054		Course Name		Animal Products Processing Technology						
Course category (√)	Compulsory courses ( ) Elective courses (√)	Credit hour	2	Total class hour	40	Lectures hours	0	Discussion hours	0	Experiment hours	0
Lecturer	Hongjun Li	Job title degree	Professor Doctor degree		Specialties		Animal Products Processing Technology ; Functional food				
Range of application by majors: secondary major belongs to primary discipline in food science and engineering											
Prerequisite courses: Organic chemistry; basic biochemistry; food chemistry; food microbiology ;food technology and so on											

### Teaching objectives:

Animal Products Processing Technology, as the compulsory courses of food science and engineering, is the applied science related to biochemistry, microbiology, food chemistry, food engineering principle and other subjects, mainly for the study of the principle and technology of livestock products processing.

The purpose of this course is to enable students to master the basic principles and key technologies of meat, eggs and dairy products, as well as the basic properties and functions of the required auxiliary materials. It is helpful to scientifically determine the relationship between the processing characteristics of raw materials and the quality of the products. It is beneficial to determine the Processing conditions and processing methods scientifically as well as train students' professional ability of livestock product processing scientific research and product development and other related professional competence.

### Teaching requirements:

**Basic theory and basic knowledge:** Students are required to understand the basic structure, composition and properties as well as master the basic theory and processing method of storage and processing. Meanwhile, students are also required to master the process and key technology of meat , egg and milk products processing expertly.

**Ability and Professional Knowledge:** Through teaching and discussion, students' ability of thinking and solving problems can be cultivated, and the processing skills and basic operation methods of products should be familiar with and master the professional ability of developing new products.

Teaching and testing methods (it's need to be conducive to cultivating the innovative thinking and ability of graduate students)

Teaching methods: course teaching and class discussion

**Testing methods:** Course report or course paper. Through guiding students look up the data, the students will know the latest research progress and key technologies of the animal products processing field as well as master the research and development interests in the future.

Grade assessment: ordinary performance accounted for 10%, final examination results accounted for 90%

### Course contents and course hours allocation

## **Chapter I Introduction (2 class hours)**

Teaching objectives: Let students understand the development history and status of livestock products processing, development status and trends, and understand the development of animal products processing science and technology

Teaching key points and difficulties: Development trend of animal products processing, scientific research of animal products processing

**Teaching methods and means:** Classroom instruction, multimedia teaching

Key points: The importance of developing animal products processing, current situation and development trend of animal products processing industry in the world and China, and the frontal scientific research on animal products processing

## **Chapter II Meat science and technology (4 class hours)**

Teaching objectives: Let the students understand the morphological structure and composition of meat and the basic processing characteristics of meat

Teaching key points and difficulties: Macro structure and microstructure of muscle, chemical composition and quality characteristics of meat.

**Teaching methods and means:** Classroom instruction, multimedia teaching

Key points: The concept of meat, the macro structure and microstructure of meat, and the functional characteristics of muscle

## **Chapter III Animal slaughtering, processing and sanitary inspection (2 class hours)**

Teaching objectives: Let students understand the slaughtering process and sanitary inspection methods.

Teaching key points and difficulties: Slaughtering process and inspection method

**Teaching methods and means:** Classroom instruction, multimedia teaching, video of modern slaughtering production line

Key points: Slaughter processing technology, postmortem inspection and scientific treatment of meat

## **Chapter IV Biochemical changes in meat (2 class hours)**

Teaching objectives: Let students master the biochemical changes of meat after slaughter and the cause of meat deterioration

Teaching key points and difficulties: The causes of muscle rigidity, rigor and putrefaction

**Teaching methods and means:** Classroom instruction, multimedia teaching

Key points: The mechanism of muscle rigidity, rigor and the characteristics of putrid meat

#### **Chapter V Cooling and preservation of meat (2 class hours)**

Teaching objectives: Let students master the basic concept of chilled meat, understand the principles and methods of modern storage technology

Teaching key points and difficulties: Meat cooling and preservation technology.

**Teaching methods and means:** Classroom instruction, multimedia teaching

Key points: Meat cooling and preservation methods

#### **Chapter VI Processing principle and technology of Chinese meat products (4 class hours)**

Teaching objectives: Let students master the principles and key technologies of Chinese traditional meat products processing

Teaching key points and difficulties: Pickling technology, smoking technology and dry processing technology

**Teaching methods and means:** Classroom instruction, multimedia teaching

Key points: The technological process and technological parameters of traditional Chinese meat products

#### **Chapter VII Processing principle and technology of western meat products (4 class hours)**

Teaching objectives: Let students master the processing principle and key technology of western-style meat products

Teaching key points and difficulties: Tender technology, pickling technology, frying technology and cooking processing technology

**Teaching methods and means:** Classroom instruction, multimedia teaching

Key points: technology and equipment matching of western-style meat products

#### **Chapter VIII Dairy Science and Technology (4 class hours)**

Teaching objectives: Let students understand the chemical composition and

properties of milk, understand the importance of raw milk for dairy processing, master the composition and processing characteristics of milk

Teaching key points and difficulties: Causes of abnormal milk composition and physiological abnormalities

**Teaching methods and means:** Classroom instruction, multimedia teaching

Key points: Composition and characteristics of milk and causes of abnormal milk

#### **Chapter IX Acceptance and pretreatment of raw milk (2 class hours)**

Teaching objectives: Let the students master the Prophase common procedure of dairy processing

Teaching key points and difficulties: Standardization of raw milk

**Teaching methods and means:** Classroom instruction, multimedia teaching

Key points: Quality standard and scientific treatment of raw milk

#### **Chapter X Dairy processing technology (2 class hours)**

Teaching objectives: Let students master the main principle and technology of disinfection milk processing

Teaching key points and difficulties: Sterilization process of sterilized milk

**Teaching methods and means:** Classroom instruction, multimedia teaching

Key points: Processing methods of sterilized milk and aseptic packaging technology of dairy products

#### **Chapter XI Processing of fermented milk and functional milk beverage (2 class hours)**

Teaching objectives: Let students master the main processing principles and methods of fermented dairy products

Teaching key points and difficulties: Preparation of starter and processing technology of yoghurt

**Teaching methods and means:** Classroom instruction, multimedia teaching

Key points: Key technology for preparation of starter and processing of functional milk beverage

## **Chapter XII Dairy cold food processing technology (2 class hours)**

Teaching objectives: Let students master the main dairy cold food processing principles and methods

Teaching key points and difficulties: Processing technology of ice cream

**Teaching methods and means: Classroom instruction, multimedia teaching**

Key points: Processing characteristics and technology of dairy cold products

## **Chapter XIII egg products science and technology (4 class hours)**

Teaching objectives: To enable students to understand the chemical composition and properties of the egg, and master the processing characteristics of eggs

Teaching key points and difficulties: Composition and processing characteristics of egg

**Teaching methods and means: Classroom instruction, multimedia teaching**

Key points: The composition and characteristics of eggs

## **Chapter XIV Acceptance and pretreatment of eggs (2 class hours)**

Teaching objectives: Let the students master the characteristics of egg processing

Teaching key points and difficulties: egg products standardization

**Teaching methods and means: Classroom instruction, multimedia teaching**

Key points: quality and scientific processing of egg products

## **Chapter XV Egg processing technology (2 class hours)**

Teaching objectives: Let students master the processing principle and technology of traditional egg products and modern egg products

Teaching key points and difficulties: preserved eggs, spiced corned eggs and yolk powder processing technology.

**Teaching methods and means: Classroom instruction, multimedia teaching**

Key points: The development of new egg products and preservation technology.

Necessary illustrations: the students who request to attend the course should complete the basic courses of food science and engineering and those of related majors.

<b>The Catalog for main reference book (periodicals):</b>			
S.N.	Author	Books and Periodicals' name	Press
1	Joseph Kerry, John Kerry and David Ledward	Meat Processing Improving Quality	Woodhead Publishing Ltd.2002
2	Gerit Smit	Diary Processing Improving Quality	Woodhead Publishing Ltd.2003
3	Qingxian Nan etc.	Handbook of meat industry	Beijing: China Light Industry Press, 2004
4	Guanghong Zhou	Animal processing technology	Beijing: Agricultural Press, 2003
5	Fazheng Ren etc. translate	Modern dairy processing and quality control	Beijing: China Light Industry Press, 2006
6	Fujian Jin etc.	Handbook of meat processing	Beijing: China Light Industry Press, 1992
7	Shilin Jin etc	Dairy processing handbook	Beijing: China Light Industry Press,1992
8	Meihu Ma	Modern animal products processing	Changsha: Hunan Science and Technology Press, 2000
9	Fazheng Ren	Modern meat processing and quality control	Beijing: China Light Industry Press, 2006
10	Jianxian Zheng	Functional food	China Light Industry Press, 1999
11	Linfang Wang	Protein and nucleic acid	Beijing Medical University Press, 1999
12	Zhang Wang	Food science	China Light Industry Press, 2001
13	Xueping Xu	Encyclopedia of food engineering	China Light Industry Press, 2005
14	Qinsheng Yuan	Modern enzymology	East China University of

			Science and Technology press, 2001
15	Xiwen Chen	Study on food safety strategy in China	Chemical Industry Press, 2004
16	Yongning Wu	Modern food safety science	Chemical Industry Press, 2003
Review Comments of School (Institute, Center):          <div style="text-align: right;">Signature                      (Date)</div>			
Review Comments of Student Committee:          <div style="text-align: right;">Signature                      (Date)</div>			
Review Comments of Graduate School          <div style="text-align: right;">Signature                      (Date)</div>			