

# Southwest University

## Graduate Course Syllabus

### Course Unit: School of Food Science

Course No.	1108320011		Course		Progress of Food Microbiology						
Course category (√)	Compulsory courses ( √ ) Elective courses ( )	Credit hour	3	Total class hours	60	Lecture hours	33	Discussion Hours	12	Experiment hours	15
Lecturer	Du Xiaobing	Job title Degree	Associate Professor On-the-job Ph.D		Specialties			Food microbes			
Range of application by majors: the master's degree graduate students and someone who has the same degree of master's degree in food school.											
Prerequisites: Food Microbiology or General Microbiology, Biochemistry.											
Teaching objectives and requirements: The students should understand the development status and trends of food microbial through the theory teaching, discussion and experiment. Students are required to understand the microbial metabolic and metabolic regulation, and master the basic methods of microbial breeding, and grasp the beneficial micro-organisms’ specific application forms and harmful microbial characteristics and routine detection methods in the food industry, and learn and master the separation and purification , identification and detection technology of microbial strains.											
Teaching methods and test methods (it should be conducive to cultivate graduates’ innovative thinking and innovation ability): Teaching methods: teaching in classroom, discussion combined with the experiment. Examination: A special review report combined with a theoretical exam.											

### Course content and course hours allocation

I. The theoretical part:

The first part: the microbiology and food microbiology's development status (3 hours)

1. microbiology and food microbiology's development history 1 hours
2. the latest classification of microbiology 2 hours

The second part: microbial metabolism and metabolic regulation (9 hours)

1. primary metabolism 4 hours
2. secondary metabolic 2 hours
3. metabolic regulation 3 hours

The third part: Microbiological Breeding (8 hours)

1. natural selection 2 hours
2. mutation breeding 4 hours
3. genetic material reorganization breeding 2 hour

The fourth part: the application of micro-organisms in the food industry (8 hours)

1. microbial ecological preparations 2 hours
2. serological response and its application in food testing 4 hours
3. the application of micro-organisms in the food factory waste disposal 2 hours
4. other aspects of the application 1 hours

The fifth part: Microbiology Practical Technology (8 hours)

1. food-related beneficial microorganisms 1 hours
2. food-related harmful microorganisms and their detection 5 hours
3. microbial experiments and methods of operation 2 hours

II. Discussion part:

Microbiology Development New Theory and Application Technology 12 Hours

III. the experimental part: (15 hours)

1. the total number of bacteria in food microbiological indicators and the determination of coliform bacteria value 5 hours
2. the microbial strains separated and purified from the sample 5 hours
3. the initial identification experiment of microbial strains (the biological, chemical, physical experiments and characteristic dyeing experiments) 5 hours

(Please add more pages if this page is insufficient)

**The Catalog for main reference book (periodicals):**

S.N.	Author	Books and Periodicals' name	Press
1	Liu Zhiheng	Modern Microbiology	Science Press
2	Zhang Wenzhi Shen Meisheng	Practical Food Microbiology	China Light Industry Press

3	Li Jilun	Microbial physiology	Beijing Agricultural University Press
4	Su Shiyan	Food microbiological examination manual	China Light Industry Press
5	Cao Yousheng Liu Zhongmin	Modern Industrial Microbiology	Hunan Science and Technology Press

Review Comments of School (Institute, Center):

Signature (Date)

Review Comments of Student Committee:

Signature (Date)

Review Comments of Graduate School

Signature (Date)