课程教学大纲

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<tr><td colspan="6">课程基本信息（Course Information）</td></tr>
<tr><td>课程代码
（Course Code）</td><td>FS415</td><td>*学时
（Credit Hours）</td><td>32</td><td>*学分
（Credits）</td><td>2</td></tr>
<tr><td rowspan="2">*课程名称
（Course Name）</td><td colspan="5">食品保藏原理</td></tr>
<tr><td colspan="5">Principles of Food Preservation</td></tr>
<tr><td>课程性质
(Course Type)</td><td colspan="5">Major elective course</td></tr>
<tr><td>授课对象
（Target Audience）</td><td colspan="5">Senior undergraduate students</td></tr>
<tr><td>授课语言
(Language of Instruction)</td><td colspan="5">English</td></tr>
<tr><td>*开课院系
（School）</td><td colspan="5">College of Agriculture and Biology</td></tr>
<tr><td>先修课程
（Prerequisite）</td><td colspan="5">Food Chemistry, Microorganisms, Food Nutrition and hygiene, Principles of Food Engineering, Food Analysis</td></tr>
<tr><td>授课教师
（Instructor）</td><td colspan="2">Yue, Jin; Jiao, Shunshan</td><td>课程网址
(Course Webpage)</td><td colspan="2"></td></tr>
<tr><td>*课程简介
（Description）</td><td colspan="5">食品保藏技术的进步与发展是食品工业发展的重要保障。本课程讲授食品的物理、化学和生物性腐败的一般规律，以及传统的和现代的食品保藏原理。重点讲解的食品加工和保藏技术包括：冷藏、冷冻、热加工、干燥、发酵、超高压、化学保藏、辐照，包装技术，以及各种相应的技术装备。并讲解各种加工技术对食品的理化特性、微生物等的影响，从理论上剖析食品保藏的原理。通过案例分析等形式，让学生灵活掌握各种保藏原理在现代食品加工中的应用。食品保藏原理是食品化学、食品微生物、食品工程原理、食品工艺学等课程的融会贯通，通过本课程的学习，为学生今后从事食品和相关领域的研究、技术管理等工作打下基础。</td></tr>
<tr><td>*课程简介
（Description）</td><td colspan="5">The progress and development of food preservation technology is an important guarantee for the development of food industry. This course provides a basic understanding of physical, chemical and biological deterioration of food and principles of preservation using traditional and novel methods. It provides an overview of the principles of different food processing and preservation techniques, including refrigeration, freezing, heat processing, dehydration, fermentation, high pressure, chemical preservatives, irradiation, and packaging. It gives insight into how quality is changed during different processes. It helps students develop the concept of unit operations as building blocks for food process and preservation. To aquatint the students with the basic steps involved in commercially food processing.</td></tr>
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课程教学大纲（Course Syllabus）

*学习目标(Learning Outcomes)

1. To learn the basic principle and the advanced technology of food preservation of food preservation, as well as its application in food processing industry; (A3)
2. To comprehensively apply the basic knowledge of food chemistry, food microbiology, and food engineering into food preservation, and to get systematic understanding of food science and technology.
3. Through the English lecture, class discussion, oral and written report, the students will develop their ability of study in English (B6), discovery, and solve the problem,(B1，B2，B3，C2）and searching references (B9).
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*教学内容 进度安排及要求 (Class Schedule & Requirements)

教学内容	学时	教学方式	作业及要求	基本要求	考查方式
Quality deterioration of food and principles of food preservation	2	Lecture	Market survey and literature search on the advanced/novel food preservation methods developed within recent 5 years	Learn the major issues in food quality and safety	Questions and discussions in the class; final term
Refrigeration preservation	3	Lecture	Market survey and literature search on the advanced/novel food preservation methods developed within recent 5 years	Learn the principles of refrigeration storage (temperature, relative humidity, gas composition), MAP, CAS	Questions and discussions in the class; final term
Freezing preservation	3	Lecture	Market survey and literature search on the advanced/novel food preservation methods developed within recent 5 years	Principles of freezing process – water and ice, freezing points, crystal growth, recrystallization	Questions and discussions in the class; final term
Heat Processing and Preservation	3	Lecture	Market survey and literature search on the advanced/novel food preservation methods developed within recent 5 years	Principles of thermal process and preservation –cooking, blanching, pasteurization, sterilization	Questions and discussions in the class; final term
Dehydration	3	Lecture	Market survey and literature search on the advanced/novel food preservation methods developed within recent 5 years	Principles of food preservation by removing water	Questions and discussions in the class; final term
Fermentation	2	Lecture	Market survey and literature search on the advanced/novel food preservation methods developed within recent 5 years	Principles of fermentation for food preservation	Questions and discussions in the class; final term
Chemical preservatives and other functional food substances	2	Lecture	Market survey and literature search on the advanced/novel food preservation methods developed within recent 5 years	Definition and regulation of chemical food preservatives; Different types of chemical preservatives, their functions and applications	Questions and discussions in the class; final term

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<tr><td>Food irradiation</td><td>2</td><td>Lecture</td><td>Market survey and literature search on the advanced/novel food preservation methods developed within recent 5 years</td><td>Properties of ionizing radiation
Effects of irradiation on living organisms</td><td>Questions and discussions in the class; final term</td></tr>
<tr><td>High hydrostatic pressure (HHP) processing</td><td>2</td><td>Lecture</td><td>Market survey and literature search on the advanced/novel food preservation methods developed within recent 5 years</td><td>Biological, chemical and physical effects of HHP</td><td>Questions and discussions in the class; final term</td></tr>
<tr><td>Microwave, ohmic, and radio frequency (RF) heating</td><td>2</td><td>Lecture</td><td>Market survey and literature search on the advanced/novel food preservation methods developed within recent 5 years</td><td>Principles of microwave, ohmic, and RF heating;
Biological, chemical and physical effects</td><td>Questions and discussions in the class; final term</td></tr>
<tr><td>……Food packaging</td><td>2</td><td>Lecture</td><td>Market survey and literature search on the advanced/novel food preservation methods developed within recent 5 years</td><td>Function of food packaging
Packaging technologies for different food</td><td>Questions and discussions in the class; final term</td></tr>
<tr><td>Preservation of fruits and vegetables</td><td>4</td><td>Lecture</td><td>Market survey and literature search on the advanced/novel food preservation methods developed within recent 5 years</td><td>Postharvest technology to enhance food safety and extend shelf-life of fresh produce</td><td>Questions and discussions in the class; final term</td></tr>
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<tr><td>*考核方式 (Grading)</td><td>Class participation: 10%
Presentation 15%,
Report 15%
Final Exam: 60%
Total: 100 points</td></tr>
<tr><td>*教材或参考资料 (Textbooks & Other Materials)</td><td>No textbook is required, but the following ones are used as references. Students are strongly recommended to review these books.
Zeuthen, P. and Bogh-Sorensen, L. 2000. Food preservation Techniques. Woodhead Publishing Lt., Cambridge, England. Second Edition, ISBN 2042-8049
曾庆孝主编，食品加工与保藏原理，化学工业出版社，2014，第三版，ISBN 978-7-122-21892-6</td></tr>
<tr><td>其它（More）</td><td></td></tr>
<tr><td>备注（Notes）</td><td></td></tr>
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备注说明：

1．带*内容为必填项。

2．课程简介字数为 300-500 字；课程大纲以表述清楚教学安排为宜，字数不限。