

# PROGRAM GUIDELINES

KANSAS STATE UNIVERSITY

## Food Science Non-Degree Undergraduate Certificate

[global.k-state.edu/ag/food-science/certificates/undergraduate/](http://global.k-state.edu/ag/food-science/certificates/undergraduate/)

## Guidelines for Participation Non-Degree Food Science Certificate Program Kansas State University

### What are the Certificate Requirements?

A Non-Degree, Undergraduate Food Science Certificate may be awarded from Kansas State University when a student completes 20 credit hours with a “C” or better average. The program consists of a required “Core” set of courses for 10-11 credit hours, and 9-10 hours of elective courses. The required Core courses are as follows:

#### Core Courses:

FDSCI 302	Introduction to Food Science	3 credit hours
<b>OR</b>		
FDSCI 305	Fundamentals of Food Processing	
FDSCI 307	Applied Microbiology for Meat & Poultry Processors	2-3 credit hours
<b>OR</b>		
FDSCI 600	Microbiology of Food	
FDSCI 501	Food Chemistry	3 credit hours
<b>OR</b>		
FDSCI 695	Quality Assurance of Food Products	
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FDSCI 690	Principles of HACCP	2 credit hours

<b>Total Core Hours</b>	<b>10-11 credit hours</b>
<b>Electives</b>	<b>9-10 credit hours</b>

In addition to the above Core Courses, students complete 9 to 10 credit hours of approved elective courses for a total of 20 credit hours. Any course listed above that is not selected as a Core Course can also be used as an elective. A listing of approved elective courses is included in this packet.

### Are Transfer Credits from another university accepted?

Up to five hours of coursework **directly related to food science** from another university may be submitted for the certificate program. To submit these hours for consideration, please mail a copy of your transcript to:

Elissa Mullinix  
Program Coordinator  
Global Campus  
Kansas State University  
1615 Anderson Ave.  
Manhattan, KS 66502

You can also reach Elissa Mullinix by phone or e-mail at:

Phone: 785-532-2567 or 1-800-622-2578

Email: [emullinix@k-state.edu](mailto:emullinix@k-state.edu)

### **Do I have to Apply for Admission to the University?**

Although this is a non-degree program, you will need to be admitted to the university as a non-degree student. Please see **Appendix A** of this document for complete instructions on the enrollment procedures to be admitted as a non-degree student. You do need to have a high school diploma/equivalency to participate.

### **How do I Start the Program?**

You will need to apply for non-degree student status at the university, and then register for, and complete, the 20 credit hours of coursework. The certificate program is a self-monitoring program. The number of courses you elect to complete in a semester will depend upon the amount of time you will have available to commit to coursework. You set the pace for completing your program. On average, an individual working full-time will take 3-6 credit hours (1-2 courses) per semester.

As a guide to help you get started with your coursework, we have included a “Suggested Course Planner” for your planning purposes (see **Appendix B**). The university offers courses three times a year—during the Fall, Spring and Summer semesters. Individuals may begin their program at the beginning of any of these semesters. There are three course planners provided for you to select from—if you are starting in the Fall semester, we recommend that you follow the planner for students beginning in the Fall semester. And, likewise, for the other two semesters.

These Course Planners are provided to help you map out your courses and to track your progress. The planners are based on the assumption that a student will complete 6 credit hours in each semester. You may find that you can only take 3 credit hours in one semester.

### **How are Courses Delivered?**

The food science courses are delivered online. Because K-State uses computer technology to deliver courses, you will need to have an email address and internet access to participate. A proctor may be needed for some classes. Please visit the following website for additional information about proctors:  
[www.global.k-state.edu/students/services/proctor](http://www.global.k-state.edu/students/services/proctor).

If you have questions regarding the computer requirements for this program, please refer to: <http://www.global.ksu.edu/dce/distance/recommendations.html>

### **When Can I Start?**

Courses are offered on a semester basis. Fall semester begins in mid-August, spring semester begins in mid-January and summer semester begins in mid-May. For a listing of available courses during the semester, please go to: [global.k-state.edu/courses](http://global.k-state.edu/courses)

This is a course search page. To find what courses are available use the “Advanced Search” option and select the following:

Term: Semester and Year you are interested in (e.g. Fall 2014)  
College: College of Agriculture  
Department: Food Science Program

Hit the “Search” button on the page. You will receive a listing of courses available during the semester you selected. Find the course you want to enroll in and follow the online enrollment procedures. Remember that if you are a new student and taking your first course, you will need to be admitted as a non-degree student before you will be able to enroll in a course.

### **How Much will a Course Cost?**

Once you have selected the course you are interested in taking, view the course page. This page will give you information on the tuition and fees that will be assessed for the course. Fees are based on a per credit hour basis and are determined by the Kansas Board of Regents each summer for the academic year (F, S, U). As such, they are subject to change.

These fees do not include any course textbooks or other course materials that may be required.

### **How do I obtain my Certificate?**

When nearing the completion of your 20 credit hours, notify Elissa Mullinix to initiate a review of your transcripts for verification of completion of credits. Once verification is obtained, the certificate will be circulated for signatures and mailed to you.

Please contact Elissa Mullinix, Program Coordinator, for any additional questions.

### **Contact Information:**

Elissa Mullinix  
222 College Court Building  
[emullinix@k-state.edu](mailto:emullinix@k-state.edu)  
785-532-2567

## Courses Offered in the Program

### **FDSCI 302 Introduction to Food Science 3 credit hours**

This is the beginning course in food science, designed to acquaint the student with the scope of the food industry and the role of science in the preservation, processing and utilization of foods. Course requirements include four exams, a special survey and report and participation in a computer discussion group during the semester using K-State Online.

### **FDSCI 305 Fundamentals of Food Processing 3 credit hours**

This course is designed for students who are interested in understanding the basic concepts used in industrial food processing and preservation across all commodities areas. Students are encouraged to take this course before taking specialized processing courses for specific commodity areas. Prerequisite: One course in Chemistry.

### **FDSCI 307 Applied Microbiology for Meat and Poultry Processors 3 credit hours**

Introduction to basic food microbiology and food safety concepts with application and integration of principles to the meat and poultry processing industry. Importance of monitoring and control of microorganisms in products and the processing environment to ensure shelf life, quality and safety. Basic collection, preparation, and microbiological analysis techniques for products and environmental samples.

### **FDSCI 501 Food Chemistry 3 credit hours**

The basic composition, structure and properties of foods and the chemistry of changes occurring during processing, storage, and use. Course requirements include three exams. Prerequisites: General Organic Chemistry and General Biochemistry.

### **FDSCI 600 Microbiology of Food 2 credit hours**

This course deals with the identification, enumeration and characterization of bacteria, yeasts and mold associated with foods and food processing. Effects of physical and chemical agents on microorganisms will be studied. Microbiological problems in food spoilage, food preservation, food fermentation and food-borne diseases will be discussed. Prerequisite: General Microbiology.

### **FDSCI 690 Principles of HACCP 2 credit hours**

A comprehensive study of the Hazard Analysis and Critical Control Point System and its application in the food industry. Prerequisites (Recommended): General Chemistry or General Biology.

### **FDSCI 695 Quality Assurance of Food Products 3 credit hours**

A comprehensive course covering all aspects of current quality assurance practices in the food industry. Includes integration of food science knowledge on chemistry, microbiology, processing and sanitation and laws and regulations. Prerequisites: One course in Microbiology.

### **FDSCI 725 Food Analysis 3 credit hours**

This course will cover principles, methods and techniques necessary for quantitative, physical and chemical analyses of food and food products. The analysis will be related to standards and regulations for food processing. Prerequisites: Food Chemistry.

### **FDSCI 740 Research and Development of Food Products 4 credit hours**

All aspects of new food product development from concept to store shelves will be covered,

including market screening; focus groups; idea generation; prototype development; ingredient functionality and interactions; statistical designs for product development; processing; packaging; scale-up of operations; regulatory issues; labeling; physical, chemical, microbiological and sensory evaluations; quality control procedures; and HACCP plans. Prerequisites (Recommended): Food Chemistry.

**ASI 318 Fundamentals of Nutrition**  
**3 credit hours**

Elementary principles of comparative nutrition of farm animals. Discussion and description of carbohydrates, proteins, lipids, vitamins, and minerals, including their digestion, absorption, and metabolism by various livestock. Prerequisites (Recommended): General Chemistry.

**ASI 350 Principles of Meat Science**  
**3 credit hours**

An introduction to the red meat industry in which the fundamental properties of muscle structure, chemistry and physiology are related to meat quality, composition, processing (fresh and cured), nutritional value, safety and marketing. Prerequisites: A course in biology is recommended.

**ASI 640 Poultry Products Technology**  
**3 credit hours**

Emphasis is on the many technical problems that exist between production and consumption during the processing and marketing of poultry, covering all meat and egg products. Prerequisites (Recommended): Dairy and Poultry Science.

**ASI 776 Meat Industry Technology**  
**3 credit hours**

Meat composition, meat product safety and spoilage, quality assurance, meat processing techniques, sausage and formed products, color, packaging, plant planning and organization. Prerequisites: ASI 350 Meat Science.

**ASI 671 Meat Selection and Utilization**  
**2 credit hours**

Meat Selection and Utilization discusses meat cut, muscle and bone anatomy and meat structure as they relate to meat identification, quality, preparation and value. The course also covers quality evaluation, specifications, uncured and cured meat processing, preservation and meat preparation. Prerequisites: CHM 110, General Chemistry or equivalent.

**HN 132 Basic Nutrition**  
**3 credit hours**

Concepts of human nutrition applied to personal food choices and health.

**HN 400 Human Nutrition**  
**3 credit hours**

Sources and roles of nutrients and their importance to human health; the influence of age, gender, and physiological status on nutrient requirements. Prerequisites: CHM 110, General Chemistry & 111, General Chemistry Lab or 210, Chemistry 1; consent of instructor; BIOL 198, Principles of Biology.

**HN 701 Sensory Analysis**  
**3 credit hours**

Evaluation of the methods to solve typical sensory problems by using simple difference and scaling tests will be emphasized. The course provides an awareness of differences in analytical and consumer product testing for obtaining data from human subjects. Appearance, textural, and flavor characteristics of food will be assessed and data interpretation methods reviewed through the use of some mini-lab experiences. Prerequisites: STAT 325, Introduction to Statistics, or 340, Biometrics 1.

**GRSC 101 Intro. to Grain Science & Industry**  
**3 credit hours**

An introductory course to grains and their processing and utilization in food and non-food products, and career opportunities in grain and related industries.

## APPENDIX A ENROLLMENT PROCEDURES

Following are the enrollment procedures an individual must follow to become a non-degree seeking student for the Food Science certificate program and to enroll in courses.

# NON-DEGREE STUDENT ENROLLMENT PROCEDURES

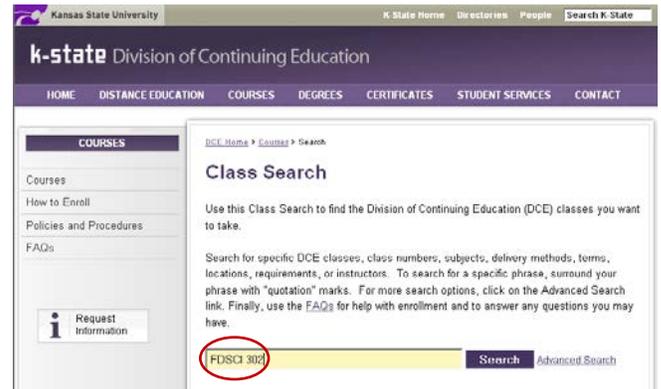
The following are the procedures non-degree seeking students should perform to obtain the Food Science Certificate.

## Step 1. Request nondegree-student status.

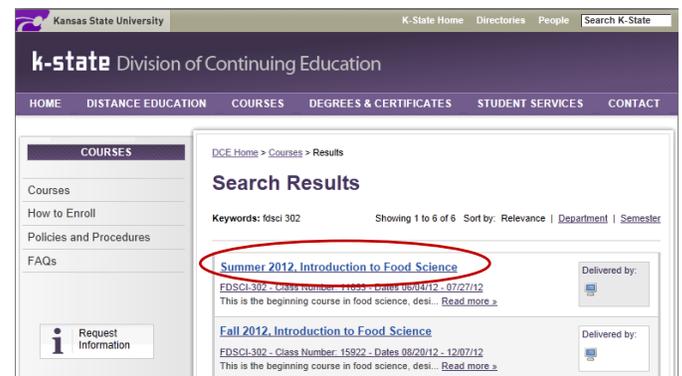
- Go to [www.global.k-state.edu](http://www.global.k-state.edu).
- Select “Programs and Courses” in the purple bar across the top.



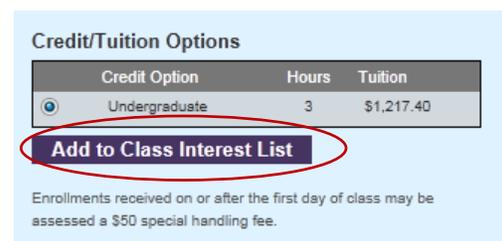
- On the Class Search page, type in the class number or course title for the class you are wishing to take and click ‘Search’. As an example, let’s explore the web using FDSCI 302.



- Select the course title “Fall 2014, Introduction to Food Science”



- Click on the Add to Class Interest List.



# NON-DEGREE STUDENT ENROLLMENT PROCEDURES

The following are the procedures non-degree seeking students should perform to obtain the Food Science Certificate.

f) Answer NO to all the Getting Started questions, **only if you have not previously enrolled at K-State**. If you have taken classes you should answer No, Yes, No.

**Getting Started**

Are you a current student at K-State?  Yes  No Not Sure?

Have you ever taken classes at K-State?  Yes  No

Do you wish to apply now, or are you currently admitted to a degree or certificate program at K-State?  Yes  No Not Sure?

To enroll as a nondegree-seeking student in K-State undergraduate classes through the Division of Continuing Education (DCE), complete the application form. You will be notified by e-mail, usually within one to five

g) Fill out the online application for admission that appears after you answer the questions. The online application is titled: Undergraduate Application. Click on “application form”.

You will receive an email notification within two to five business days. This email will include your Wildcat Identification Number (WID) and instructions on how to enroll in the iSIS system. Once you receive the email notification that you have nondegree status you can create your eID and verify it with your WID number.

## **Step 2. Create an electronic identity (eID).**

You will need an eID to enroll in and pay for your class. Remember you cannot complete this step until you have received the email notification containing your WID.

To create your eID visit <http://eid.k-state.edu> and click the Register now! link. Follow the directions given on this website.

**Sign in to K-State**  
Always sign out and close your browser when you are finished using K-State services.

**Sign in**

K-State eID

Password

**Sign in**

**Need a K-State eID?**  
As part of the K-State community, you must register an eID, your key to electronic resources at K-State.

**Register now!** ➔

**The final step of the eID creation process involves validating your identity as a K-State student. You must validate your eID at the end of this eID creation process to get access to the systems below.**

# NON-DEGREE STUDENT ENROLLMENT PROCEDURES

The following are the procedures non-degree seeking students should perform to obtain the Food Science Certificate.

## Step 3. Enroll in your class.

Now that you have created and verified your eID, you will be able to log in to the student information system (iSIS).

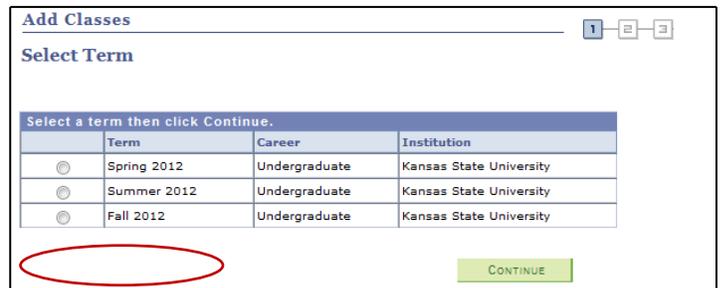
- a) Log on at <http://isis.k-state.edu>
- b) Click on the **Student Center** link. From there, you will be able to enroll in a class, pay for the class, and view your grade.



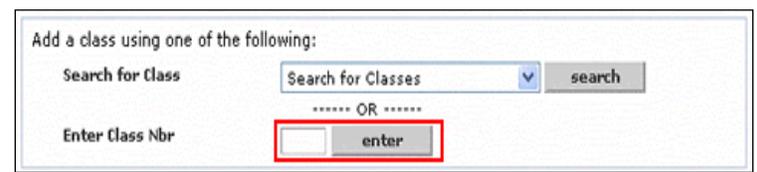
- c) From the Student Center, click on the **Add a Class** link.



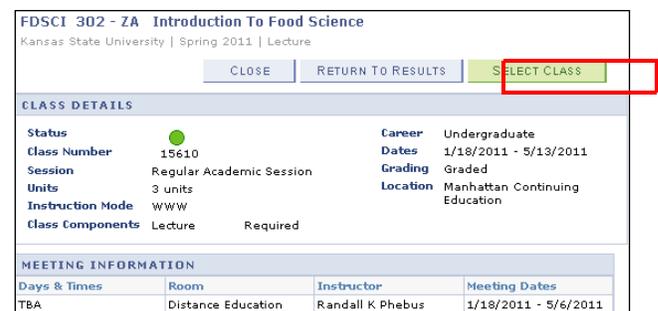
- d) Choose semester wanted and click continue.



- e) Enter the Class Number and click enter.



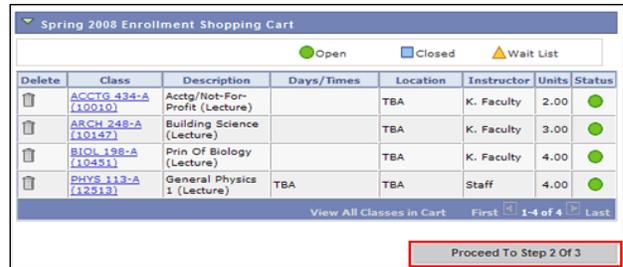
- e) Verify the class. Then click the **Select Class** button.



# NON-DEGREE STUDENT ENROLLMENT PROCEDURES

The following are the procedures non-degree seeking students should perform to obtain the Food Science Certificate.

f) After reviewing your Enrollment Shopping Cart, click on the box “Proceed to Step 2 of 3”



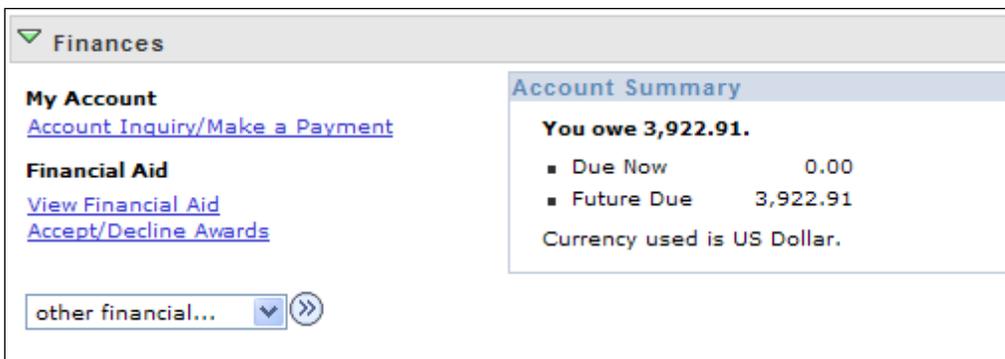
g) Click the **Finish Enrolling** button.



**Dropping a Class:** If you find you need to drop the class, click on the **Drop a Class** link from the **Student Center** and follow similar steps.

## Step 4. Pay for your class.

From the **Student Center**, view the **Finances** section. Click on the **Account Inquiry/Make a Payment** link to begin the payment process. You will NOT be sent a bill by mail. For additional information you may want to view the tutorial on eBills. <http://www.k-state.edu/controller/cashiers/Student/eBillTutorial.htm>



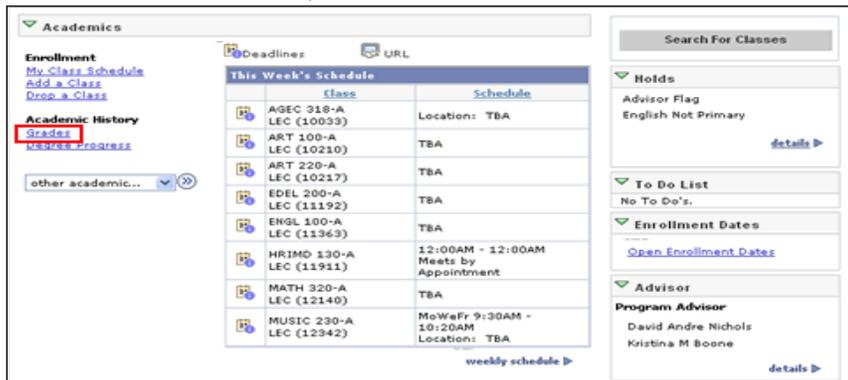
\*\*This is an example; this is not the actual amount.

# NON-DEGREE STUDENT ENROLLMENT PROCEDURES

The following are the procedures non-degree seeking students should perform to obtain the Food Science Certificate.

## Step 5. Viewing Your Grades.

From the **Student Center**, click the **Grades** link. Choose the desired term and click **Continue**.



The screenshot shows the 'Academics' section of a student center. On the left, under 'Academic History', the 'Grades' link is highlighted with a red box. The main area displays 'This Week's Schedule' with a table of classes. On the right, there are sections for 'Search For Classes', 'Holds', 'To Do List', 'Enrollment Dates', and 'Advisor'.

Class	Schedule
AGEC 318-A LEC (10033)	Location: TBA
ART 100-A LEC (10210)	TBA
ART 220-A LEC (10217)	TBA
EDEL 200-A LEC (11192)	TBA
ENGL 100-A LEC (11363)	TBA
HRIMD 130-A LEC (11911)	12:00AM - 12:00AM Meets by Appointment
MATH 320-A LEC (12140)	TBA
MUSIC 230-A LEC (12342)	MoWeFr 9:30AM - 10:20AM Location: TBA

For assistance:

Elissa Mullinix, Program Coordinator  
K-State Global Campus  
785-532-2567 or 1-800-622-2578  
[emullinix@k-state.edu](mailto:emullinix@k-state.edu)

K-State IT Help Desk  
785-532-7722 or 1-800-865-6143  
[www.k-state.edu/its/helpdesk](http://www.k-state.edu/its/helpdesk)  
[helpdesk@k-state.edu](mailto:helpdesk@k-state.edu)

## APPENDIX B SUGGESTED COURSE PLANNERS & ELECTIVE COURSE LISTS

Following are the Suggested Course Planners for Fall, Spring and Summer semesters. Please select the planner that corresponds to the semester you are beginning your coursework. Using the Suggested Course Planner will allow you to track your progress through the program. You will find the Electives Course Lists after the Suggested Course Planners. Use these lists to determine which electives to take according to the semester(s) they are

## Elective Course Lists by Semester

Elective courses are listed below according to the semester(s) they are offered. Use these lists to determine what courses to enroll in when the Course Planner allows you to choose elective courses. The courses in italics require prerequisites. Be sure to reference the course descriptions in the Program Guidelines listed previously in this document or online in order to complete the correct prerequisites before enrolling in a course. The courses in the shaded rows may be used as electives if they are not used as core courses.

### FALL SEMESTER

Course #	Course Title	C/H
ASI 318	<i>Fundamentals of Nutrition</i>	3
ASI 350	<i>Meat Science</i>	3
ASI 671	<i>Meat Selection &amp; Utilization</i>	2
ASI 776	<i>Meat Industry Technology</i>	3
FDSCI 302	Intro to Food Science	3
FDSCI 305	<i>Fund of Food Processing</i>	3
FDSCI 307	Appl Micro Meat & Poultry	3
FDSCI 600	<i>Microbiology of Food</i>	2
FDSCI 690	<i>Principles of HACCP</i>	2
FDSCI 695	<i>Quality Assurance of Food</i>	3
FDSCI 725	<i>Food Analysis</i>	3
FDSCI 740	<i>Research &amp; Development of Food Products</i>	4
GRSC 101	Intro to Grain Science and Industry	3
HN 132	Basic Nutrition	3
HN 400	<i>Human Nutrition</i>	3
HN 701	<i>Sensory Analysis</i>	3

### SPRING SEMESTER

Course #	Course Title	C/H
ASI 318	<i>Fundamentals of Nutrition</i>	3
ASI 350	<i>Meat Science</i>	3
ASI 671	<i>Meat Selection &amp; Utilization</i>	2
ASI 776	<i>Meat Industry Technology</i>	3
FDSCI 302	Intro to Food Science	3
FDSCI 305	<i>Fund of Food Processing</i>	3
FDSCI 307	Appl Micro Meat & Poultry	3
FDSCI 501	<i>Food Chemistry</i>	3
FDSCI 600	<i>Microbiology of Food</i>	2
FDSCI 690	<i>Principles of HACCP</i>	3
FDSCI 695	<i>Quality Assurance of Food</i>	
FDSCI 740	<i>Research &amp; Development of Food Products</i>	4
HN 132	Basic Nutrition	3
HN 400	<i>Human Nutrition</i>	3

### SUMMER SEMESTER

Course #	Course Title	C/H
ASI 318	<i>Fundamentals of Nutrition</i>	3
ASI 671	<i>Meat Selection &amp; Utilization</i>	2
FDSCI 305	<i>Fund of Food Processing</i>	3
FDSCI 307	Appl Micro Meat & Poultry	3
FDSCI 600	<i>Microbiology of Food</i>	2
HN 132	Basic Nutrition	3
HN 400	<i>Human Nutrition</i>	3