DEPARTMENT OF
FOOD SCIENCE
UNIVERSITY OF ARKANSAS

Undergraduate Handbook
2015-2016

www.foodscience.uark.edu
Welcome to Food Science!

Welcome to the Department of Food Science and the University of Arkansas. The Food Science faculty and staff are pleased you have chosen Food Science as your major and we know that you will enjoy this interesting and rewarding discipline. You are joining a nationally recognized program consistently ranked in the top 10 nationally and we are proud to count you among our ranks. Your enrollment in Food Science represents a very important decision in your academic education and professional career development. By completing the B.S.A. degree requirements in this program you will have achieved professional credentials that are nationally recognized. The Food Science curriculum is designed to provide science-based knowledge for competencies important in achieving successful professional careers.

Career opportunities for students with degrees in Food Science are abundant and diverse. The driving force for the diversity of employment opportunities is that U.S. consumers spend over one billion dollars every day for food. The increasing demand for new, safe, high quality and nutritious foods requires educated, energetic and innovative Food Science graduates. With your degree in Food Science you will be a major participant in this exciting field of specialization with opportunities to improve the world’s food supply and the health and enjoyment of the global population. There will be many challenges and rewards!

The Department of Food Science is recognized for excellent student advising, student relations and communications. Cathy Hamilton, who you know or will know, serves as our leader for Food Science undergraduate student advising. You can be assured that your course selections and scheduling for successful degree completion are our priorities and that Ms. Hamilton or myself will always be available to provide accurate information. In addition to academic program advising, you will be provided information regarding scholarship, internship and extracurricular opportunities. Please don’t hesitate to ask us if you need assistance with anything related with your degree program in Food Science.

The Department of Food Science is fortunate to have faculty who are outstanding teachers and student mentors. The faculty are genuinely concerned that students learn information and develop skills associated with new technologies and scientific knowledge. During your academic program you will have the opportunity to become acquainted with the Food Science faculty. In addition, many students take advantage of part-time employment opportunities to work on research projects with faculty, staff and graduate students in the Department and I encourage you to take advantage of this opportunity to gain hands-on experience.

Extracurricular activities are abundant at the University of Arkansas and I encourage you to participate in those of interest to you. The Food Science Club offers several opportunities outside-the-classroom to have fun, help others and learn. In addition, events such as the College Bowl Competition, Food & Beverage Innovation Competitions and the Ozark section of the Institute of Food Technologists programs are exciting opportunities. There are also opportunities for studies abroad and internships that I strongly encourage you to pursue as such experiences will make you more competitive when you seek employment in the food industry.

We look forward to working with you during your studies and career in Food Science. Our primary mission is to assist you with your education and provide guidance for your future. Please let me or other faculty and staff know of any questions you may have. Again, welcome and congratulations on choosing to major in Food Science!

Jean-François Meullenet
Professor and Head
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DEGREES IN FOOD SCIENCE

The general requirements for a Bachelor of Science in Agriculture with a major in Food Science are:

1) 120 total credit hours, including
   a) University core requirements (see appendix for rationale behind general education core)
   b) Bumpers College requirements
   c) Food Science departmental core requirements
   d) General electives
2) 36 credit hours must be in upper division courses (3000 and 4000 level courses)
4) 9 credit hours must be within Bumpers College but outside FDSC departmental code
5) Maximum of 68 credit hours of lower division transfer courses (1000 and 2000 level courses)
6) Minimum GPA of 2.0 on all work attempted at the UA

The Department of Food Science at the University of Arkansas offers three degree concentrations:

**Food Science (FDSC)** – a challenging science-intensive program designed to prepare the student for employment in research, product development, and graduate school.

**Food Technology (FDTN)** – provides an integrated background in food science and business or nutrition designed to prepare the student for careers in the food industry. Students on this concentration are required to complete a minor in business or nutrition.

**Food & Culinary Sciences (FDCU)** – provides an interdisciplinary background in food science and culinary arts designed to prepare the student for a career in product development. The culinary courses required on this concentration are taken at Northwest Arkansas Community College in Rogers, AR or any institution offering equivalent culinary course work.

Specific degree requirements for the three concentrations vary and are outlined in the following pages. The degree check sheets include all requirements to complete the specific concentration. Because our programs require the completion of an internship, typically done in a summer term, students majoring in Food Science are not eligible to participate in the Eight-Semester Degree Completion Program (DCP). Nine-Semester DCP plans have been included in this handbook as they can be useful in determining the typical layout of courses and the course pre-requisites.
## Check Sheet for Food Science Concentration

### 2015-2016

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<th>STUDENT</th>
<th>STUDENT’S ID</th>
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<td>ADVISOR</td>
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### COMMUNICATIONS (6-12 hours)
- ENGL 1013 Composition I unless exempt (FA, SP, SU)
- ENGL 1023 Composition II unless exempt (FA, SP, SU)
(choose two from the approved list of courses)
- Communication Intensive Course
- Communication Intensive Course

### US HISTORY AND GOVERNMENT (3 hours)
(choose one from the following courses)
- HIST 2003 History of American People to 1877 (FA, SP, SU)
- HIST 2013 History of American People to Present (FA, SP, SU)
- PLSC 2003 American National Government (FA, SP, SU)

### MATHEMATICS AND STATISTICS (13 hours)
- MATH 1203 College Algebra (FA, SP, SU)
- MATH 1213 Plane Trigonometry (FA, SP, SU)
- MATH 2554 Calculus I (FA, SP, SU)
(choose one from the following courses)
- STAT 2303 Principles of Statistics (FA, SP, SU)
- STAT 2023 Biostatistics (SP)
- AGST 4023 Principles of Experimentation (FA)

### PHYSICAL AND BIOLOGICAL SCIENCES (27-31 hours)
- BIOL 1543 & BIOL 1541 Principles of Biology (FA, SP, SU)
- BIOL 2013 & BIOL 2011L General Microbiology (FA, SP, SU)
- PHYS 1013 & PHYS 1011L College Physics I (FA, SP, SU)
- CHEM 1103 & CHEM 1101L University Chemistry I (FA, SP, SU)
- CHEM 1223 & CHEM 1221L University Chemistry II (FA, SP, SU)
- CHEM 3813 Intro to Biochemistry (FA, SP, SU)
(choose one from the following options)
- CHEM 2613 & CHEM 2611L Organic Physiological Chemistry (SP, SU)
- OR
- CHEM 3603 & CHEM 3601L Organic Chemistry I (FA, SP, SU)
- CHEM 3613 & CHEM 3611L Organic Chemistry II (SP, SU)

### FINE ARTS AND HUMANITIES (6 hours)
**Category A: Fine Arts (choose one from the following courses)**
- ARCH 1003 Architecture Lecture (FA, SP)
- ARHS 1003 Art Lecture (FA, SP, SU)
- COMM 1003 Film Lecture (FA, SP, SU)
- DANC 1003 Movement & Dance (FA, SP, SU)
- LARC 1003 American Landscape (FA, SP)
- MUL 1003 Music Lecture (FA, SP, SU)
- THTR 1003 Theatre Appreciation (FA, SP, SU)
- THTR 1013 Musical Theatre Appreciation (FA, SP)

**Category B: Humanities (choose one from the following courses)**
- AAST 2023 The African American Experience (FA, SP, SU)
- ARCH 1013 Diversity and Design (SU)
- CLST 1003 Intro to Classical Studies: Greece (FA, odd years)
- CLST 1013 Intro to Classical Studies: Rome (SP, even years)
- COMM 1223 Media, Community and Citizenship (FA, SP)
- ENGL 1213 Introduction to Literature (FA)
- GNST 2003 Intro to Gender Studies (FA, SP, SU)
- HUMN 1124H Honors Equilibrium of Cultures, 500-1600 (SP)
- HUMN 2124H Honors 20th Century Global Culture (SP)
- MUSY 2003 Music in World Cultures (FA, SP)
- PHIL 2003 Intro to Philosophy (FA, SP, SU)
- PHIL 2103 Intro to Ethics (FA, SP, SU)
- PHIL 2203 Logic (FA, SP, SU)
- PHIL 3103 Ethics and the Professions (FA, SP, SU)
- WLT 1113 World Lit I (FA, SP, SU)
- WLT 1123 World Lit II (FA, SP, SU)
- Any Intermediate I Foreign Language (FA, SP, SU)

### SOCIAL SCIENCES (9 hours)
(choose three from the following courses)
- AGEC 1103 Ag Macroeconomics (FA, SP)
- AGEC 2103 Ag Macroeconomics (FA, SP)
- ANTH 1023 Cultural Anthropology (FA, SP, SU)
- COMM 1223 Comm Diverse World (FA, SP)
- ECON 2013 Macroeconomics (FA, SP, SU)
- ECON 2023 Macroeconomics (FA, SP, SU)
- ECON 2143 Basic Economics (FA, SP, SU)
- ECON 2243 Basic Economics (FA, SP, SU)
- GEOG 2003 World Reg. Geography (FA, SP)
- HESC 1403 Life Span Development (FA, SP)
- HIST 1123 World Civ I (FA, SP)
- HIST 2013 History of American People to 1877 (FA, SP, SU)
- HIST 2013 History of American People to Present (FA, SP, SU)
- HUMN 1124H Honors Roots of Culture to 500 C.E. (FA)
- HUMN 2114H Honors Birth of Modern Culture (FA)
- PLSC 2003 Am. Government (FA, SP, SU)
- PLSC 2013 Comparative Politics (FA, SP)
- PLSC 2203 State & Local Govt. (FA, odd yrs)
- PSYC 1013 Introduction to Psychology (FA, SP, SU)
- RESM 2853 Leisure and Society (FA, SP, SU)
- RSOC 2603 Rural Sociology (SP)
- SOCI 1013 Sociology (FA, SP, SU)
- SOCI 2033 Social Problems (FA, SP, SU)

### UNIVERSITY REQUIREMENT (1 hour)
(Required for new freshmen only)
- UNIV 1001 University Perspectives (FA, SP, SU)

### FOOD SCIENCE CORE (26 hours)
- FDSC 1101 Food Science Orientation (FA)
- FDSC 1103 Introduction to Food Science (SP)
- FDSC 1202 Introduction to Food Law (SP)
- FDSC 3103 Principles of Food Processing with lab (FA)
- FDSC 4113 & 4111L Food Analysis with lab (FA)
- FDSC 4304 Food Chemistry with lab (FA)
- FDSC 431V Internship in Food Science (FA, SP, SU)
- FDSC 4413 Sensory Evaluation of Food with lab (FA)
- FDSC 4713 Product Innovation for the Food Scientist with lab (SP)

### ADDITIONAL REQUIREMENTS FOR FOOD SCIENCE CONCENTRATION (10 hours)
- FDSC 4122 & 4121L Food Microbiology and lab (FA)
- FDSC 4754 Engineering Principles of Food Processing with lab (SP)

### ELECTIVES (9-19)

### OTHER GRADUATION REQUIREMENTS
120 total semester hours including:
- 9 hours outside departmental code (FDSC) and within Bumpers College
- 36 semester hours of 3000/4000 level courses
- 30 semester hours in Bumpers College at UA
- Maximum of 68 hours lower division transfer courses
- No more than 25% (31) hours of D grades

5/22/2015
Dale Bumpers College of Agricultural, Food & Life Sciences
NINE-SEMESTER DEGREE COMPLETION PROGRAM
B.S.A. – Food Science (FDSC)
2015-2016

FDSC Requirements: 6-12 hours Communication; 3 hours History; 13 hours Mathematics and Statistics; 27-31 hours Science; 6 hours Fine Arts/Humanities; 9 hours Social Sciences; 36 hours departmental core; 9-19 hours electives

**Bold** – Course meets University Core. Pre-requisites, co-requisites, or recommended courses are in parentheses.

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<td>ENGL 1013 Composition I unless exempt</td>
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<td>MATH 1203 College Algebra</td>
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<td>BIOL 1543/1541L Principles of Biology</td>
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<td>UNIV 1001 University Perspectives</td>
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<td>FDSC 1011 Food Science Orientation</td>
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<td>MATH 1213 Plane Trigonometry (Pre-MATH 1203)</td>
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<td>CHEM 1103/1101L University Chemistry (Pre-MATH 1203)</td>
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<td>FDSC 1103 Introduction to Food Science</td>
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<td>MATH 2554 Calculus I (Pre-MATH 1213)</td>
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<td>CHEM 1123/1121L University Chemistry II (Pre-CHEM 1103)</td>
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<td>NUTR 1213 Fundamentals of Nutrition</td>
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<td>General Elective (FDSC 2603 Science in the Kitchen recommended)</td>
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<td>Communication Intensive Elective (from approved list)</td>
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<td>CHEM 2613/2611L Organic Physiological Chemistry (Pre-CHEM 1123/1121L)</td>
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<td>BIOL 2013/2011L General Microbiology (Pre-BIOL 1543/1541L and one semester of chemistry)</td>
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<tr>
<td>General Elective (FDSC 2701 Food for Health recommended)</td>
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<td>Statistics Elective – choose from STAT 2303 (Pre-MATH 1203), STAT 2023 (Pre-MATH 2554) OR AGST 4023 (Pre-MATH 1203)</td>
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<tr>
<td>PHYS 2013/2011L College Physics (Pre-MATH 1213)</td>
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<td>FDSC 4122/4121L Food Microbiology (Pre-BIOL 2013/2011L or BIOL 2533)</td>
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<td>FDSC 4304 Food Chemistry (Pre-CHEM 2613/2611L or CHEM 3603/3601L)</td>
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<td>FDSC 431V Internship in Food Science (Pre-junior standing)</td>
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<tr>
<td>Communication Intensive Elective (from approved list)</td>
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<tr>
<td>FDSC 3202 Introduction to Food Law</td>
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<td>FDSC 4113/4111L Food Analysis (Pre-FDSC 4304 and CHEM 2613/2611L or CHEM 3603/3601L)</td>
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<tr>
<td>FDSC 4754 Engineering Principles of Food Processing (Pre-PHYS 2013/2011L and MATH 1213)</td>
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<tr>
<td>Fine Arts/Humanities OR Social Science OR History Core Elective</td>
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<td><strong>Total Semester Hours</strong></td>
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<td><strong>Course</strong></td>
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<td>FDSC 3103 Principles of Food Processing (Pre-CHEM 1123/1121L and MATH 2043 or MATH 2554)</td>
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<td>FDSC 4413 Sensory Evaluation of Food (Pre-Statistics)</td>
<td>3</td>
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<tr>
<td>Fine Arts/Humanities OR Social Science OR History Core Elective</td>
<td>3</td>
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<tr>
<td>General Elective</td>
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<td>FDSC 4713 Product Innovation for the Food Scientist (Pre-FDSC 4304, FDSC 3103, FDSC 4413, FDSC 4113/4111L)</td>
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<td>Fine Arts/Humanities OR Social Science OR History Core Elective</td>
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<td>CHEM 3813 Introduction to Biochemistry (Pre-CHEM 2613/2611L or CHEM 3613/3611L)</td>
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COMMUNICATIONS (6-12 hours)
  - ENGL 1013 Composition I unless exempt (FA, SP, SU)
  - ENGL 1023 Composition II unless exempt (FA, SP, SU)
  (choose two from the approved list of courses)
  - Communication Intensive Course
  - Communication Intensive Course

US HISTORY AND GOVERNMENT (3 hours)
  (choose one from the following courses)
  - HIST 2003 History of American People to 1877 (FA, SP, SU)
  - HIST 2013 History of American People to Present (FA, SP, SU)
  - PLSC 2003 American National Government (FA, SP, SU)

MATHMATICS AND STATISTICS (9-12 hours)
  - MATH 1203 College Algebra (FA, SP, SU)
  - MATH 2043 Survey of Calculus (FA, SP, SU)
  (for students declaring AGBS and GBUS minors only)
  - MATH 2053 Finite Mathematics (FA, SP, SU)
  (choose one from the following courses)
  - AGEC 2403 Quantitative Tools for Agriculture (FA)
  - WCOB 1033 Data Analysis and Interpretation (FA, SP, SU)
  - STAT 2303 Principles of Statistics (FA, SP, SU)
  - AGST 4023 Principles of Experimentation (FA)

PHYSICAL AND BIOLOGICAL SCIENCES (20-23 hours)
  - BIOL 1543 & BIOL 1541 Principles of Biology (FA, SP, SU)
  - BIOL 2013 & BIOL 2011 General Microbiology (FA, SP, SU)
  - CHEM 1103 & CHEM 1101 University Chemistry I (FA, SP, SU)
  - CHEM 2123 & CHEM 2121 University Chemistry II (FA, SP, SU)
  - CHEM 2613 & CHEM 2611 Organic Physiological Chemistry (SP, SU)
  (for students declaring GFNU minor only)
  - CHEM 3813 Introduction to Biochemistry (FA, SP, SU)

FINE ARTS AND HUMANITIES (6 hours)
Category A: Fine Arts (choose one from the following courses)
  - ARTS 1003 Art Lecture (FA, SP, SU)
  - COMM 1003 Film Lecture (FA, SP, SU)
  - DANC 1003 Movement & Dance (FA, SP, SU)
  - LARC 1003 American Landscape (FA, SP, SU)
  - MUSY 1003 Music Lecture (FA, SP, SU)
  - THTR 1003 Theatre Appreciation (FA, SP, SU)
  - THTR 1013 Musical Theatre Appreciation (FA, SP, SU)

Category B: Humanities (choose one from the following courses)
  - AAST 2023 The African American Experience (FA, SP, SU)
  - ARTS 1003 Art Lecture (FA, SP, SU)
  - CLST 1003 Intro to Classical Studies: Greece (FA, SP, SU)
  - CLST 1013 Intro to Classical Studies: Rome (FA, SP, SU)
  - COMM 1223 Media, Community and Citizenship (FA, SP, SU)
  - ENGL 1233 Introduction to Literature (FA)
  - GNST 2001 Intro to Gender Studies (FA, SP, SU)
  - HUMN 114H Honors Equilibrium of Cultures, 500-1600 (SP)
  - HUMN 2124H Honors 20th Century Global Culture (SP)
  - MUSY 2003 Music in World Cultures (FA, SP, SU)
  - PHIL 2003 Intro to Ethics (FA, SP, SU)
  - PHIL 2003 Intro to Ethics (FA, SP, SU)
  - PHIL 3013 Ethics and the Professions (FA, SP, SU)
  - WITL 1113 World Lit I (FA, SP, SU)
  - WITL 1123 World Lit II (FA, SP, SU)

Any Intermediate I Foreign Language course (FA, SP, SU)

SOCIAL SCIENCES (9 hours)
(choose three from the following courses; one course must be outside AGEC/ECON discipline; Students pursuing AGBS minor must choose AGEC 1103; Students pursuing GBUS minor must choose ECON 2143)
  - AGEC 1103 Ag Microeconomics (FA, SP, SU)
  - AGEC 2033 Ag Macroeconomics (FA, SP, SU)
  - ANTH 1023 Cultural Anthropology (FA, SP, SU)
  - COMM 1023 Comm Diversity World (FA, SP, SU)
  - ECON 2013 Microeconomics (FA, SP, SU)
  - ECON 2023 Macroeconomics (FA, SP, SU)
  - GEOG 1123 Human Geography (FA, SP, SU)
  - GEOG 2003 World Geography (FA, SP, SU)
  - HESC 2431 Family Relations (FA, SP, SU)
  - HIIT 1113 World Civil I (FA, SP, SU)
  - HIST 1123 World Civil II (FA, SP, SU)
  - HIST 1123 World Civil II (FA, SP, SU)
  - HIST 2003 History of American People to Present (FA, SP, SU)
  - HUMN 1114H Honors Roots of Culture to 500 C.E. (FA)
  - HUMN 2114H Honors Birth of Modern Culture (FA)
  - PLSC 2003 Government (FA, SP, SU)
  - PLSC 2203 State & Local Govt. (FA, SP, SU)
  - RESM 2853 Leisure and Society (FA, SP, SU)
  - SOCIO 2013 Sociology (FA, SP, SU)
  - SOCIO 2033 Social Problems (FA, SP, SU)

UNIVERSITY REQUIREMENT (1 hours)
(Required for new freshmen only)
  - UNIV 1001 University Perspectives (FA, SP, SU)

FOOD SCIENCE CORE (26 hours)
  - FDSC 1011 Food Science Orientation (FA)
  - FDSC 1103 Introduction to Food Science (SP)
  - FDSC 2102 Introduction to Food Law (SP)
  - FDSC 3103 Principles of Food Processing with lab (FA)
  - FDSC 4113 & 4111L Food Analysis and lab (SP)
  - FDSC 4304 Food Chemistry with lab (FA)
  - FDSC 431V3 Internship in Food Science (FA, SP, SU)
  - FDSC 4413 Sensory Evaluation of Food with lab (FA)
  - FDSC 4713 Product Innovation for the Food Scientist with lab (SP)

ADDITIONAL REQUIREMENTS FOR FOOD TECHNOLOGY CONCENTRATION (10-21 hours)
  - FDSC 2503 Food Safety and Sanitation (FA, SP, SU)
  - FDSC 2523 Sanitation and Safety in Food Processing Operations (IR)
  - FDSC 4122 & 4121L Food Microbiology and lab (FA)

Option 1: Agribusiness minor (AGBS-m)
  - WCOB 1120 Computer Competency Requirements (FA, SP, SU)
  - AGEC 2142 & 2141L Agribusiness Financial Records and lab (FA)
  - AGEC 2303 Introduction to Agribusiness (FA, SP, SU)
  - AGEC 3003 Food & Agricultural Marketing (FA, SP)
  - AGEC 4313 Agricultural Business Management (FA)
  - 3000-4000 level business course chosen from departmental codes:
    - ACCT, AGEC, ECON, FINN, ISYS, MGMT, MKTG, SCMT, or WCOB

Option 2: General Business minor (GBUS-m)
  - WCOB 1120 Computer Competency Requirements (FA, SP, SU)
  - ACCT 2013 Accounting Principles (FA, SP, SU)
  - MGMT 3563 Management Concepts & Organizational Behavior (IR)
  - MKTG 2433 Introduction to Marketing (FA, SP, SU)
  - 3000-4000 level Walton College course
  - 3000-4000 level Walton College course
  - *Departmental codes for Walton College courses are: ACCT, ECON, FINN, ISYS, MGMT, MKTG, SCMT, or WCOB

Option 3: General Foods and Nutrition minor (GFNU-m)
  - NUTR 1213 Fundamentals of Nutrition (FA, SP, SU)
  - NUTR 2112 & 2111L Principles of Foods and lab (FA, SP, SU)
  - NUTR 3201 Human Nutrition (SP)
  - NUTR 4213 Advanced Nutrition (FA)
  - (choose two from the following courses)
  - NUTR 2203 Sports Nutrition (SP)
  - NUTR 4223 Life Cycle Nutrition (FA)
  - NUTR 4243 Community Nutrition (SP)

NOTE: Students must declare chosen minor with the Bumpers College Dean's Office.

ELECTIVES (10-19)

OTHER GRADUATION REQUIREMENTS
120 total semester hours including:
9 hours outside departmental code (FDSC) and within Bumpers College
36 semester hours of 3000/4000 level courses
Maximum of 68 hours lower division transfer courses
No more than 25% (31) hours of D grades

Revised 05/22/2015
FDSC Requirements: 6-12 hours Communication; 3 hours History; 9-12 hours Mathematics and Statistics; 20-23 hours Science; 6 hours Fine Arts/Humanities; 9 hours Social Sciences; 44-47 hours departmental core; 10-19 hours electives

### Fall Semester Year 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1013 Composition I unless exempt</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1203 College Algebra</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 1543/1541L Principles of Biology</td>
<td>4</td>
</tr>
<tr>
<td>UNIV 1001 University Perspectives</td>
<td>1</td>
</tr>
<tr>
<td>FDSC 1011 Food Science Orientation</td>
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### Spring Semester Year 1

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<tr>
<td>ENGL 1023 Comp II (Pre-ENGL 1013) unless exempt</td>
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<tr>
<td>CHEM 1103/1101L University Chemistry (Pre-MATH 1203)</td>
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<td>FDSC 1103 Introduction to Food Science</td>
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<tr>
<td>Business minors only – WCOB 1120 Computer Competency</td>
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<tr>
<td>Requirement and MATH 2053 Finite Math (Pre-MATH 1203)</td>
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<tr>
<td>Nutrition minors only – NUTR 1213 Fundamentals of Nutrition</td>
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<tr>
<td>Social Science Core Elective – business minors must choose</td>
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<tr>
<td>AGEC 1103 Principles of Ag Microeconomics (Pre- MATH 1203) OR ECON 2143 Basic Economies-Theory &amp; Practice</td>
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### Fall Semester Year 2

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<tr>
<td>MATH 2043 Survey of Calculus (MATH 1203)</td>
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<tr>
<td>CHEM 1123/1121L University Chemistry II (Pre-CHEM 1103)</td>
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<tr>
<td>Business minors only – AGEC 2142/2141L Agribusiness Financial Records (Pre-WCOB 1120 and AGEC 1103) OR ACCT 2013 Accounting Principles (Pre-WCOB 1120 and MATH 2053)</td>
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<td>Nutrition minors only – NUTR 2112/2111L Principles of Foods (Pre-NUTR 1213 and CHEM 1103)</td>
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<td>General Elective (FDSC 2603 Science in the Kitchen recommended)</td>
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<tr>
<td>FDSC 2503 Food Safety and Sanitation</td>
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### Spring Semester Year 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Communication Intensive Elective (from approved list)</td>
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<tr>
<td>CHEM 2613/2611L Organic Physiological Chemistry (Pre- CHEM 1123/1121L)</td>
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<tr>
<td>Statistics Elective – AGEC 2403 Quantitative Tools for Agribusiness (Pre-AGEC 1103 and MATH 2053) OR AGST 4023 Principles of Experimentation (Pre-MATH 1203 or higher) OR WCOB 1033 Data Analysis and Interpretation (Pre-ISYS 1120 or ISYS 1123 and MATH 2053 or MATH 2554) OR STAT 2303 Principles of Statistics (Pre- MATH 1203)</td>
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<td>Fine Arts/Humanities OR Social Science OR History Core Elective</td>
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<td>General Elective (FDSC 2701 Food For Health recommended)</td>
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### Summer Year 3

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<th>Course</th>
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<tbody>
<tr>
<td>FDSC 431V Internship in Food Science (Pre-junior standing)</td>
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### Fall Semester Year 3

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<th>Course</th>
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<tr>
<td>BIOL 2013/2011L General Microbiology (Pre-BIOL 1543/1541L and one semester of chemistry)</td>
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<tr>
<td>Business minors only – 3000-4000 level business elective OR MKTG 3433 Introduction to Marketing Strategy (Pre-ECON 2413 and WCOB 1033)</td>
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<tr>
<td>Nutrition minors only – NUTR 4223 Life Cycle Nutrition (Pre-NUTR 1213, CHEM 1103 and BIOL 1543/1541L)</td>
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<td>FDSC 4304 Food Chemistry (Pre-CHEM 2613/2611L)</td>
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### Spring Semester Year 3

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<th>Course</th>
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<tr>
<td>Communication Intensive Elective (from approved list)</td>
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<tr>
<td>Business minors only – AGEC 2303 Introduction to Agribusiness (Pre-AGEC 1103) AND AGEC 3303 Food &amp; Agricultural Marketing (Pre-AGEC 1103) OR [MGMT 3563 Management Concepts &amp; Organizational Behavior AND 3000-4000 level business elective]</td>
<td>6</td>
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<tr>
<td>Nutrition minors only – CHEM 3813 Introduction to Biochemistry (Pre-CHEM 2613/2611L) and NUTR 3203 Human Nutrition (Pre-NUTR 1213 and CHEM 2613/2611L)</td>
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<tr>
<td>FDSC 3202 Introduction to Food Law</td>
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<tr>
<td>FDSC 4113/4111L Food Analysis (Pre-FDSC 4304 and CHEM 2613/2611L)</td>
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### Fall Semester Year 4

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<tr>
<td>FDSC 3103 Principles of Food Processing (Pre-CHEM 1123/1121L and MATH 2043 or MATH 2554)</td>
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<tr>
<td>FDSC 4413 Sensory Evaluation of Food (Pre-Statistics)</td>
<td>3</td>
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<tr>
<td>Business minors only – AGEC 4313 Agricultural Business Management (Pre-AGEC 2142/2141L and AGEC 2303) OR 3000-4000 level business elective</td>
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<tr>
<td>Nutrition minors only – NUTR 4213 Advanced Nutrition (Pre-CHEM 3813 and NUTR3203)</td>
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<td>Fine Arts/Humanities OR Social Science OR History Core Elective</td>
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<tr>
<td>General Elective</td>
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### Spring Semester Year 4

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<tr>
<th>Course</th>
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<tr>
<td>FDSC 4713 Product Innovation for the Food Scientist (Pre-FDSC 4304, FDSC 3103, FDSC 4413, FDSC 4113/4111L)</td>
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<td>Business minors only – General Elective</td>
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<tr>
<td>Nutrition minors only – [NUTR 2203 Sports Nutrition (Pre-NUTR 1213) OR NUTR 4243 Community Nutrition (Pre-NUTR 1213)] AND General Elective</td>
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<td><strong>TOTAL HOURS</strong></td>
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Check Sheet for Food and Culinary Sciences Concentration (Partnership with NWACC)
2015-2016

STUDENT ___________________________ STUDENT'S ID ___________________________
ADVISOR ___________________________

COMMUNICATIONS (6-12 hours)
- ENGL 1013 Composition I unless exempt (FA, SP, SU)
- ENGL 1023 Composition II unless exempt (FA, SP, SU)
(choose two from the approved list of courses)
- 3000-4000 level Communication Intensive Course
- 3000-4000 level Communication Intensive Course

US HISTORY AND GOVERNMENT (3 hours)
(choose one from the following courses)
- HIST 2003 History of American People to 1877 (FA, SP, SU)
- HIST 2013 History of American People to Present (FA, SP, SU)
- PLSC 2003 American National Government (FA, SP, SU)

MATHEMATICS AND STATISTICS (9 hours)
- MATH 1203 College Algebra (FA, SP, SU)
- MATH 2043 Survey of Calculus (FA, SP, SU)
- STAT 2303 Principles of Statistics (FA, SP, SU)

PHYSICAL AND BIOLOGICAL SCIENCES (20 hours)
- BIOL 1543 & BIOL 1541L Principles of Biology (FA, SP, SU)
- BIOL 2013 & BIOL 2011L General Microbiology (FA, SP, SU)
- CHEM 1103 & CHEM 1101L University Chemistry I (FA, SP, SU)
- CHEM 1123 & CHEM 1121L University Chemistry II (FA, SP, SU)
- CHEM 2613 & CHEM 2611L Organic Physiol. Chemistry (SP, SU)

FINE ARTS AND HUMANITIES (6 hours)
Category A: Fine Arts (choose one from the following courses)
- ARCH 1003 Architecture Lecture (FA, SP)
- ARHS 1003 Art Lecture (FA, SP, SU)
- COMM 1003 Film Lecture (FA, SP, SU)
- DANC 1003 Movement & Dance (FA, SP, SU)
- LARC 1003 American Landscape (FA, SP)
- MLIT 1003 Music Lecture (FA, SP, SU)
- THTR 1003 Theatre Appreciation (FA, SP, SU)
- THTR 1013 Musical Theatre Appreciation (FA, SP)

Category B: Humanities (choose one from the following courses)
- AAST 2023 The African American Experience (FA, SP, SU)
- ARCH 1013 Diversity and Design (SU)
- CLST 1003 Intro to Classical Studies: Greece (FA, odd years)
- CLST 1013 Intro to Classical Studies: Rome (SP, even years)
- COMM 1233 Media, Community and Citizenship (FA, SP)
- ENGL 1213 Introduction to Literature (FA)
- GNST 2003 Intro to Gender Studies (FA, SP, SU)
- HUMN 1124H Honors Equilibrium of Cultures, 500-1600 (SP)
- HUMN 2124H Honors 20th Century Global Culture (SP)
- MUSY 2003 Music in World Cultures (FA, SP)
- PHIL 2003 Intro to Philosophy (FA, SP, SU)
- PHIL 2103 Intro to Ethics (FA, SP, SU)
- PHIL 2203 Logic (FA, SP, SU)
- PHIL 3103 Ethics and the Professions (FA, SP, SU)
- WLIT 1113 World Lit I (FA, SP, SU)
- WLIT 1123 World Lit II (FA, SP, SU)
- Any Intermediate I Foreign Language (FA, SP, SU)

SOCIAL SCIENCES (9 hours)
(choose three from the following courses)
- AGEC 1103 Ag Microeconomics (FA, SP)
- ANTH 1023 Cultural Anthropology (FA, SP, SU)
- COMM 1023 Comm in Diverse World (FA, SP)
- ECON 2103 Macroeconomics (FA, SP, SU)
- ECON 2143 Basic Economics (FA, SP, SU)
- GEOS 1123 Human Geography (FA, SP, SU)
- GEOS 2003 World Reg. Geography (FA, SP)
- HESC 2413 Family Relations (FA, SP)
- HIST 1123 World Civ I (FA, SP)
- HIST 1123 World Civ II (FA, SP)
- HIST 2003 Am. History to 1877 (FA, SP)
- HIST 2013 Am. History 1877 to Present (FA, SP, SU)
- HUMN 1114H Honors Roots of Culture to 500 C.E. (FA)
- HUMN 2114H Honors Birth of Modern Culture (FA)
- PLSC 2003 Am. Government (FA, SP, SU)
- PLSC 2013 Comparative Politics (FA, SP, SU)
- PLSC 2203 State & Local Govt. (FA, odd yrs)
- PSYC 2003 Psychology (FA, SP, SU)
- RESM 2853 Leisure and Society (FA, SP, SU)
- RSOC 2603 Rural Sociology (SP)
- SOCI 2013 Sociology (FA, SP, SU)
- SOCI 2033 Social Problems (FA, SP, SU)

UNIVERSITY REQUIREMENT (1 hour)
(Required for new freshmen only)
- UNIV 1001 University Perspectives (FA, SP, SU)

FOOD SCIENCE CORE (26 hours)
- FDSC 1011 Food Science Orientation (FA)
- FDSC 1103 Introduction to Food Science (FA)
- FDSC 2102 Introduction to Food Law (SP)
- FDSC 3103 Principles of Food Processing with Lab (FA)
- FDSC 4113 & 4111L Food Analysis and Lab (SP)
- FDSC 4304 Food Chemistry with Lab (FA)
- FDSC 431V(3) Internship in Food Science (FA, SP, SU)
- FDSC 4413 Sensory Evaluation of Food with Lab (FA)
- FDSC 4713 Product Innovation for the Food Scientist with Lab (SP)

ADDITIONAL REQUIREMENTS FOR CULINARY SCIENCES CONCENTRATION (24 hours)
- NUTR 1213 Fundamentals of Nutrition (FA, SP)
- BAKG 1003* Introduction to Baking (FA, SP)
- FDS 2503 Food Safety & Sanitation (FA, SP)
- OR CULY 1003* Safety and Sanitation (FA, SP, SU)
- CULY 1103* Introduction to Food Preparation (FA, SP)
- CULY 1203* Stocks, Sauces and Soups (FA)
- CULY 1303* Center of the Plate Applications (SP)
- CULY 1403* Garde Manger (FA)
- CULY 2003* World Cuisine (FA)
* NWACC course codes

ELECTIVES (10-16 hours)
Note: 8 hours must be upper division

- UNIV 1001 University Perspectives (FA, SP, SU)
- UNIV 1011 University Perspectives (FA, SP, SU)
- UNIV 1013 Diversity and Design (SU)
- UNIV 1203 Ag Microeconomics (FA, SP)
- UNIV 1213 History of American People to 1877 (FA, SP, SU)
- UNIV 1223 History of American People to Present (FA, SP, SU)
- UNIV 1233 Media, Community and Citizenship (FA, SP)
- UNIV 2103 Logic (FA, SP, SU)
- UNIV 2203 Ethics and the Professions (FA, SP, SU)
- UNIV 2303 World Lit I (FA, SP, SU)
- UNIV 2313 World Lit II (FA, SP, SU)
- Any Intermediate I Foreign Language (FA, SP, SU)

OTHER GRADUATION REQUIREMENTS
120 total semester hours including:
- 9 hours outside departmental code (FDSC) and within Bumpers College
- 36 semester hours of 3000/4000 level courses
- Maximum of 68 hours lower division transfer courses
- No more than 25% (31) hours of D grades

5/22/2015
NINE-SEMESTER DEGREE COMPLETION PROGRAM

B.S.A. – Food Science (FDSC) – Food and Culinary Sciences (FDCU)

2014-2015

FDSC Requirements: 6-12 hours Communication; 3 hours History; 9 hours Mathematics and Statistics; 20 hours Science; 6 hours Fine Arts/Humanities; 9 hours Social Sciences; 50 hours departmental core; 11-17 hours electives

**Bold** – Course meets University Core. Pre-requisites, co-requisites, or recommended courses are in parentheses. Italicized courses taken at NWACC.

<table>
<thead>
<tr>
<th>Fall Semester Year 1</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1013 Composition I unless exempt</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1203 College Algebra</td>
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<tr>
<td>BIOL 1543/1541L Principles of Biology</td>
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<td>UNIV 1001 University Perspectives</td>
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<td>FDSC 1011 Food Science Orientation</td>
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<td>Fine Arts/Humanities OR Social Science OR History Core Elective</td>
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<tr>
<th>Spring Semester Year 1</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1023 Comp II (Pre-ENGL 1013) unless exempt</td>
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<td>CHEM 1103/1101L University Chemistry (Pre-MATH 1203)</td>
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<tr>
<td>FDSC 1103 Introduction to Food Science</td>
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<tr>
<td>FDSC 2503 Food Safety and Sanitation - same as CULY 1003</td>
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<tr>
<td>MATH 2043 Survey of Calculus (Pre-MATH 1203)</td>
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<td>CHEM 1123/1121L University Chemistry II (Pre-CHEM 1103)</td>
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<tr>
<td>NUTR 1213 Fundamentals of Nutrition</td>
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<td>Fine Arts/Humanities OR Social Science OR History Core Elective</td>
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<tr>
<td>CULY 1103 Introduction to Food Preparation (Pre-CULY 1003)</td>
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<th>Spring Semester Year 2</th>
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<tr>
<td>Communication Intensive Elective (from approved list-must be 3000-4000 level course)</td>
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<td>CHEM 2613/2611L Organic Physiological Chemistry (Pre-CHEM 1123/1121L)</td>
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<td>BIOL 2013/2011L General Microbiology (Pre-BIOL 1543/1541L and one semester of chemistry)</td>
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<td>General Elective (FDSC 2701 Food for Health recommended)</td>
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<td>CULY 1203 Stocks, Sauces and Soups (Pre-CULY 1003 and CULY 1103)</td>
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<tr>
<td>STAT 2303 Principles of Statistics (Pre-MATH 1203)</td>
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<tr>
<td>FDSC 4304 Food Chemistry (Pre-CHEM 2613/2611L)</td>
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<td>General Elective-must be 3000-4000 level course</td>
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<tr>
<td>Fine Arts/Humanities OR Social Science OR History Core Elective</td>
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<tr>
<td>BAKG 1003 Introduction to Baking (Pre-CULY 1003)</td>
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<td>Communication Intensive Elective (from approved list-must be 3000-4000 level course)</td>
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<td>FDSC 3202 Introduction to Food Law</td>
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<td>FDSC 4113/4111L Food Analysis (Pre-CHEM 2613/2611L)</td>
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<td>Fine Arts/Humanities OR Social Science OR History Core Elective</td>
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<td>CULY 1403 Garde Manger (Pre-CULY 1003, CULY 1103 and CULY 1203)</td>
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<td>FDSC 431V Internship in Food Science (Pre-junior standing)</td>
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<tr>
<td>FDSC 3103 Principles of Food Processing (Pre-CHEM 1123/1121L and MATH 2554 or MATH 2043)</td>
<td>3</td>
</tr>
<tr>
<td>FDSC 4413 Sensory Evaluation of Food (Pre-Statistics)</td>
<td>3</td>
</tr>
<tr>
<td>Fine Arts/Humanities OR Social Science OR History Core Elective</td>
<td>3</td>
</tr>
<tr>
<td>General Elective-must be 3000-4000 level course</td>
<td>3</td>
</tr>
<tr>
<td>CULY 2003 World Cuisine (Pre-CULY 1003, CULY 1103 and CULY 2003)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Semester Hours</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring Semester Year 4</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDSC 4713 Food Product and Process Development (Pre-BIOL 2013/2011L, senior standing, FDSC major or consent)</td>
<td>3</td>
</tr>
<tr>
<td>General Elective-must be 3000-4000 level course</td>
<td>3</td>
</tr>
<tr>
<td>CULY 1303 Center of the Plate Applications (Pre-CULY 1003, CULY 1103 and CULY 1203)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Semester Hours</strong></td>
<td><strong>9</strong></td>
</tr>
<tr>
<td><strong>TOTAL HOURS</strong></td>
<td><strong>120</strong></td>
</tr>
</tbody>
</table>
**Additional Academic Programs**

**Minors**

Students are encouraged to use elective hours to obtain a minor in a particular area of interest. Minors usually require 18-24 hours of coursework and can be chosen from areas of study within the Bumpers College, the Fulbright College of Arts and Sciences, and the Walton College of Business Administration. **If you are interested in pursuing a minor, please contact your advisor as early as possible.** It is important that you declare the minor when you decide. A second advisor from the department of your chosen minor can be consulted to assist you in choosing courses to fulfill your minor requirements.

Common minors for Food Science students include Agricultural Business, General Business, Nutrition, Poultry Science, Animal Science, Psychology and Foreign Languages. Requirements for these minors and any other minor you might be interested in can be found in the University of Arkansas Catalog of Studies.

For students seeking a major in Food Science through the Food Technology concentration, a minor in Agricultural Business, General Business or Nutrition is required and is achieved with required core course work, thus leaving elective hours available for other courses of interest or to pursue a second minor.

**Pre-Professional Programs**

Students interested in pursuing pre-professional programs such as pre-medical, pre-pharmacy, and pre-dental can do so as a Food Science major. The Food Science concentration is easily adapted to fulfill the requirements to enter medical, pharmacy and dental schools. Students pursuing pre-professional programs will have a pre-professional advisor in addition to a Food Science advisor. **If you are pursuing a pre-professional program, it is important that you discuss this with your Food Science advisor.** Your advisor's recommendation of courses may be different with this knowledge. Your Food Science and pre-professional advisors will work together to ensure you fulfill your course requirements for both programs.

**Honors Program**

Qualifying students are encouraged to enter the Bumpers College Honors Program. Minimum qualifications for incoming freshmen are an ACT of 28 and a high school GPA of 3.50. Current UA students and transfer students require a minimum college GPA of 3.50 on no more than 62 hours of completed course work. Honors students are required to take 9 hours of honors coursework, 6 hours of honors thesis and maintain a 3.50 cumulative GPA. The student will conduct a research or creative activity in close association with a faculty mentor. The resulting thesis can be published in *Discovery*, the undergraduate research journal published by the Bumpers College or another applicable professional journal. For more information, visit the Bumpers College Honors Program web page at [http://bumperscollege.uark.edu/honors/index.php](http://bumperscollege.uark.edu/honors/index.php) or contact Dr. Curt Rom (afishnrs@uark.edu; 575-7434). To submit an application visit the Honors College web page at [http://honorscollege.uark.edu/apply.php](http://honorscollege.uark.edu/apply.php).
**Core Competencies in Food Science**

The University of Arkansas is one of only 40 Food Science programs in the United States with a degree plan, the Food Science Concentration, which is approved by the Institute of Food Technologists (IFT), the key international professional society for food scientists. IFT approval imparts a confidence to employers and graduates that a student graduating from an approved program will have attained specific knowledge and skills in the field of Food Science. This approval is based on curriculum requirements that educate students to specific core competencies in Food Science. For students choosing the Food Science Concentration, these core competencies that you should master by graduation are listed below. For students choosing the Food Technology or Food and Culinary Sciences Concentrations, you should master many of these core competencies, but not necessarily all.

<table>
<thead>
<tr>
<th>Content:</th>
<th>By the Completion of the Food Science Program, Students Should:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applied Food Science</strong></td>
<td></td>
</tr>
<tr>
<td>• Integration and application of food science principles (food chemistry, microbiology, engineering/processing, etc.)</td>
<td>• Be able to apply and incorporate the principles of food science in practical, real-world situations and problems.</td>
</tr>
<tr>
<td>• Computer skills</td>
<td>• Know how to use computers to solve food science problems.</td>
</tr>
<tr>
<td>• Statistical skills</td>
<td>• Be able to apply statistical principles to food science applications.</td>
</tr>
<tr>
<td>• Quality assurance</td>
<td>• Be able to apply the principles of food science to control and assure the quality of food products.</td>
</tr>
<tr>
<td>• Analytical and affective methods of assessing sensory properties of food utilizing statistical methods</td>
<td>• Understand the basic principles of sensory analysis.</td>
</tr>
<tr>
<td>• Current issues in food science</td>
<td>• Be aware of current topics of importance to the food industry.</td>
</tr>
<tr>
<td>• Food laws and regulations</td>
<td>• Understand government regulations required for the manufacture and sale of food products.</td>
</tr>
<tr>
<td><strong>Success Skills</strong></td>
<td></td>
</tr>
<tr>
<td>• Communication skills (i.e., oral and written communication, listening, interviewing, etc.)</td>
<td>• Demonstrate the use of oral and written communication skills. This includes such skills as writing technical reports, letters, and memos; communicating technical information to a non-technical audience; and making formal and informal presentations.</td>
</tr>
<tr>
<td>• Critical-thinking/problem-solving skills (i.e., creativity, common sense, resourcefulness, scientific reasoning, analytical thinking, etc.)</td>
<td>• Define a problem, identify potential causes and possible solutions, and make thoughtful recommendations.</td>
</tr>
<tr>
<td>• Professionalism skills (i.e., ethics, integrity, respect for diversity)</td>
<td>• Apply critical-thinking skills to new situations.</td>
</tr>
<tr>
<td>• Life-long learning skills</td>
<td>• Commit to the highest standards of professional integrity and ethical values.</td>
</tr>
<tr>
<td>• Interaction skills (i.e., teamwork, mentoring, leadership, networking, interpersonal skills, etc.)</td>
<td>• Work and/or interact with individuals from diverse cultures.</td>
</tr>
<tr>
<td>• Information acquisition skills (i.e., written and electronic searches, databases, Internet, etc.)</td>
<td>• Explain the skills necessary to continually educate oneself.</td>
</tr>
<tr>
<td>• Organizational skills (i.e., time management, project management, etc.)</td>
<td>• Work effectively with others.</td>
</tr>
<tr>
<td></td>
<td>• Provide leadership in a variety of situations.</td>
</tr>
<tr>
<td></td>
<td>• Deal with individual and/or group conflict.</td>
</tr>
<tr>
<td></td>
<td>• Independently research scientific and nonscientific information.</td>
</tr>
<tr>
<td></td>
<td>• Competently use library resources.</td>
</tr>
<tr>
<td></td>
<td>• Manage time effectively.</td>
</tr>
<tr>
<td></td>
<td>• Facilitate group projects.</td>
</tr>
<tr>
<td></td>
<td>• Handle multiple tasks and pressures.</td>
</tr>
</tbody>
</table>
Food Chemistry & Analysis

- Structure and properties of food components, including water, carbohydrates, protein, lipids, other nutrients, and food additives
- Chemistry of changes occurring during processing, storage, and utilization
- Principles, methods, and techniques of qualitative and quantitative physical, chemical, and biological analyses of food and food ingredients

- Understand the chemistry underlying the properties and reactions of various food components.
- Have sufficient knowledge of food chemistry to control reactions in foods.
- Understand the major chemical reactions that limit shelf life of foods.
- Be able to use the laboratory techniques common to basic and applied food chemistry.
- Understand the principles behind analytical techniques associated with food.
- Be able to select the appropriate analytical technique when presented with a practical problem.
- Demonstrate practical proficiency in a food analysis laboratory.

Food Safety & Microbiology

- Pathogenic and spoilage microorganisms in foods
- Beneficial microorganisms in food systems
- Influence of the food system on the growth and survival of microorganisms
- Control of microorganisms

- Identify the important pathogens and spoilage microorganisms in foods and the conditions under which they will grow.
- Identify the conditions under which the important pathogens are commonly inactivated, killed, or made harmless in foods.
- Utilize laboratory techniques to identify microorganisms in foods.
- Understand the role and significance of microbial inactivation, adaptation, and environmental factors (i.e., aw, pH, temperature) on growth and response of microorganisms in various environments.
- Be able to identify the conditions, including sanitation practices, under which the important pathogens and spoilage microorganisms are commonly inactivated, killed, or made harmless in foods.

Food Processing & Engineering

- Characteristics of raw food material
- Principles of food preservation, including low and high temperatures, water activity, etc.
- Engineering principles, including mass and energy balances, thermodynamics, fluid flow, and heat and mass transfer
- Principles of food processing techniques, such as freeze drying, high pressure, aseptic processing, extrusion, etc.
- Packaging materials and methods
- Cleaning and sanitation
- Water and waste management

- Understand the source and variability of raw food material and their impact on food processing operations.
- Know the spoilage and deterioration mechanisms in foods and methods to control deterioration and spoilage.
- Understand the principles that make a food product safe for consumption.
- Understand the transport processes and unit operations in food processing as demonstrated both conceptually and in practical laboratory settings.
- Be able to use the mass and energy balances for a given food process.
- Understand the unit operations required to produce a given food product.
- Understand the principles and current practices of processing techniques and the effects of processing parameters on product quality.
- Understand the properties and uses of various packaging materials.
- Understand the basic principles and practices of cleaning and sanitation in food processing operations.
- Understand the requirements for water utilization and waste management in food and food processing.
Food Science Club

The Food Science Club is comprised primarily of Food Science undergraduate and graduate students, but it is open to all students across campus. The club’s mission is to promote Food Science to the university and community while providing a social atmosphere for its members. Members participate in monthly meetings, fundraisers, social activities and community service projects. Club functions can be a great way to meet UA Food Science alumni and make contacts with local industries.

All Food Science students are encouraged to join the Food Science Club. Meeting dates and times will be set during the first few weeks of the fall semester. Be sure to check your e-mail for club announcements. More information about the Food Science Club and the current Club Officers can be found at http://foodscience.uark.edu/2423.php. Feel free to contact any club officer for information or contact the club’s faculty advisor, Dr. Jamie Baum (baum@uark.edu).

2014-2015 FDSC Club Officers

President              Sangeeta Mukhopadhyay      smukhopa@uark.edu
Vice President            Tyler Hamedi                tbhamedi@uark.edu
Secretary               Kathryn Haydon              knhaydon@uark.edu
Treasurer              Brianna Neumann           blneuman@uark.edu
Activities Coordinator      Tung Pham                tungpham@uark.edu

If transportation to the club meetings is an issue for you, please don’t hesitate to contact one of the club officers who will gladly assist in working out transportation for you. We hope to see you at the first meeting!

Institute of Food Technologists

Students are also encouraged to join the Institute of Food Technologists (IFT), the national Food Science professional organization and the Institute of Food Technologists Student Association (IFTSA). For more information on IFT and IFTSA, visit their website at www.ift.org and www.iftsa.org.

Food Science undergraduate students are encouraged to attend the Institute of Food Technologists Annual Meeting and Food Expo which is held each summer. Students can attend scientific and educational programming, explore the Food Expo, network with Food Science professionals and participate in the Employment Bureau. Members of IFTSA who apply and are accepted as session monitors at the convention receive free registration and paid hotel accommodations. The convention will be held in the following locations during your tenure as a Food Science undergraduate student:

2016 – Chicago, IL – July 16-19
2017 – Las Vegas, NV – June 25-28
2018 – Chicago, IL – July 15-18
2019 – to be announced
Competitions

Students have the opportunity to participate in a variety of competitions sponsored by the University of Arkansas and a number of outside organizations. Examples of opportunities include:

*Quiz Bowl Team* – the Food Science Quiz Bowl team is comprised of undergraduate and graduate students who compete at the IFTSA Regional College Bowl Competition each year. Winners of each regional competition then compete in the National College Bowl Competition at the Institute of Food Technologists Annual Meeting and Food Expo. If you are interested in joining the Quiz Bowl Team, contact Dr. Navam Hettiarachchy (nhettiar@uark.edu).

*Product Development Teams* – the Food Science Product Development Teams are comprised of undergraduate and graduate students. These teams work throughout the year to develop products for submission to several product development competitions. The UA Product Development Team has been very successful in competitions over the last several years. If you are interested in joining a Product Development Team, contact Dr. Navam Hettiarachchy (nhettiar@uark.edu).

*Research Paper Competitions* – for students choosing to work on a research project with one of our faculty members, there are a number of opportunities to submit the findings in research paper competitions and/or oral and poster competitions. Competitions are available through Gamma Sigma Delta at the U of A and through outside organizations such as Ozarks Food Processors Association and the Institute of Food Technologists. Students interested in doing a research project should contact Cathy Hamilton (hamilton@uark.edu), who will help them to locate a faculty member to work with.

Announcements for upcoming competitions are forwarded to students through their uark email and are posted on boards throughout the department.

Internships

Food Science students are required to participate in an internship at some point during their academic career. An internship is a short-term job for students to gain experience in their chosen field and to apply their Food Science knowledge in a practical situation. While most internships are during the summer, local internships can be done throughout the school year. Participating in an internship makes you a more marketable job applicant, as employers recognize the importance of practical experience.

The Food Science Internship Committee is committed to assisting students in finding internships. Each year the FDSC Internship Committee compiles a booklet containing resumes for students seeking internships and forwards it to prospective employers and various industry contacts. The Committee can often be a good source of industry contacts for students seeking an internship in a specific region. While this resource is available to assist you in locating an internship, *ultimately it is your responsibility to secure your internship.* Additionally, Internship opportunities are announced throughout the year through your uark email and students should also check company websites for internship opportunities.

See “Steps to an Internship” in Appendix for more detailed information about the internship program.
International Internship & Study Abroad Opportunities

Not only is the food industry the largest manufacturing industry in Arkansas, it is the largest in the world! Many familiar food companies have foreign subsidiaries or international business offices and research centers. Opportunities are available for a summer internship internationally and can be tailored to fit your interest. For more information on the possibility of an international summer internship, contact Dr. Andy Proctor (aproctor@uark.edu).

Students also have the opportunity to participate in one of numerous study abroad programs. These programs range from a short summer program to a full semester or even a full year. For more information study abroad opportunities:

1) Visit the UA Food Science Department website for structured food science related international experiences:  http://foodscience.uark.edu/7904.php

2) Visit the UA Office of Study Abroad and International Exchange web site for all available programs for UA students and more study abroad information:  http://studyabroad.uark.edu/

3) Visit the Bumpers College International Programs website for available programs and more study abroad information:  http://bumperscollege.uark.edu/internationalprograms/

4) Visit with appropriate contacts for programs of interest.

Be sure to let your academic advisor, Cathy Hamilton (hamilton@uark.edu), know of your intention to study abroad or participate in an international internship. Planning is very important to ensure you are able to stay on track with your required coursework for your targeted graduation term.
**Academic Advising/Registration/ISIS/UASuccess**

**Academic Advising**

Bumpers College and the Food Science Department take academic advising very seriously. We feel strongly that students are more successful if they visit with an academic advisor at least once per semester. For this reason, advising holds are placed on all Bumpers College students’ student record each semester requiring the student to meet with their advisor before registering for classes.

The academic advisor for the Food Science Department is Cathy Hamilton (hamilton@uark.edu; 575-5299). Students are encouraged to contact Cathy any time they have questions or concerns about their classes and their academic program. For general questions and concerns, feel free to email Cathy or to stop by her office (Food Science Building N113). For academic advising prior to registration, students should reserve an advising appointment through UASuccess (see “UA Success Appointment Scheduling” in the Appendix for information on how to schedule an appointment through UASuccess).

**Holds**

In addition to advising holds, other holds may be placed on your student record for various reasons. Some of these holds prevent enrollment in classes. Common examples of holds that prevent enrollment include past due student account and past due parking holds. It is important that you pay attention to your holds and make every effort possible to eliminate any holds before priority registration begins to ensure you are able to enroll, giving you the best opportunity to get the classes you need.

Visit ISIS Help Center (http://isishelp.uark.edu/help-centers/student.php) for a tutorial on how to view your holds.

**Registration**

Current UA students are able to register for classes during “Priority Registration”. Priority registration typically starts near the first of November for spring classes and the first of April for summer and fall classes. It is recommended that you meet with your advisor before the beginning of Priority Registration so that your advising hold is removed and you are ready to enroll as soon as your enrollment appointment is active (your enrollment appointment is the first day/time you can register for classes for that term). Enrollment appointments are determined based on current standing (freshman, sophomore, junior, senior) and any priority groups you may qualify for. Students should reserve an advising appointment through UASuccess (see “UA Success Appointment Scheduling” in Appendix for information on how to schedule an appointment through UASuccess).
**UASuccess**

UASuccess gives you an easy way to schedule the appointments you need with your instructors, advisors and counselors. It also provides you with lists of resources that can help you be successful as a UA student. You can get to UASuccess by going to your Blackboard account and selecting the UASuccess tab.

See “UA Success Appointment Scheduling” in the Appendix for instructions on scheduling appointments through UASuccess with your advisor or instructors.

**ISIS**

ISIS, the UA’s Integrated Student Information System, is your total access for all things related to your student record. You will use ISIS to enroll in classes, check grades, review academic advisement reports, pay your student account, apply for graduation and many other tasks. ISIS help and tutorials are available on this website: [http://isishelp.uark.edu/262.php](http://isishelp.uark.edu/262.php). Please take the time to review these different ISIS help files. The information contained in them will be very beneficial for your ability to use ISIS to its fullest.

**FERPA (Student Rights and Privacy)**

The Family Educational Rights and Privacy Act of 1974, commonly known as FERPA, is a federal law designed to protect the privacy of student education records. With few exceptions, all student education records are considered confidential and may not be released without written consent of the student. This protection for college education records begins when the student enrolls in a higher education institution, regardless of the student’s age.

The University of Arkansas is dedicated to complying with FERPA and to educating students, faculty, staff, and parents about this important federal law. Each semester students are referred to the Annual Notification of FERPA Rights for Students which outlines their privacy rights. The U.S. Department of Education provides information on FERPA through the Federal Family Policy Compliance Office.

Please visit this website: [http://registrar.uark.edu/761.php](http://registrar.uark.edu/761.php) for information and tutorials on FERPA.

**University of Arkansas Catalog of Studies**

This Catalog of Studies is a comprehensive and interactive reference for your years of study. The Catalog gives you valuable information about degree plans and requirements along with information about campus resources, academic regulations, registration information and regulations, and a list and description of every course offered at the UA. The Catalog of Studies is located at this website - [http://catalog.uark.edu/](http://catalog.uark.edu/). Take a few minutes and familiarize yourself with the Catalog and remember that it is a great source of information while you complete your degree.
Academic Standing Policy

A student's academic status at the University is determined at the end of each term of enrollment (fall, spring, or summer) on the basis of the student's cumulative and/or term grade-point average (GPA) and number of hours attempted. The student's academic status governs his or her re-enrollment status and determines any conditions associated with re-enrollment or denial of enrollment for a subsequent term. Normally, students are notified of their status individually by the University shortly after the end of each term. However, this policy statement is the formal notification to all students of the conditions that determine academic status and the consequences for each term, regardless of individual notification.

Good Status
Upon initial admission and during a student's first term of enrollment, except for students conditionally admitted on academic probation, the student is in good status. A student remains in, or returns to, good academic status at the end of any term when the cumulative GPA is at or above the required minimum of 2.0.

Academic Probation
When a student's cumulative grade-point average at the end of any fall, spring, or summer term is less than a 2.00, the student will be placed on academic probation.

Removal from Academic Probation
When a student's cumulative GPA at the end of any fall, spring, or summer term is a 2.00 or above, he or she will be removed from academic probation.

First-Year Freshmen
First-year freshmen who have less than a 2.00 cumulative grade-point average at the end of their first semester of enrollment are considered at risk. During the first six weeks of their second semester, these at risk students must, at a minimum, consult with an academic advisor to develop a plan to get off of probation before being eligible to register for their third semester courses.

Continuing on Academic Probation
The semester grade point average a student on probation must earn to continue on probation and avoid suspension depends on the cumulative grade hours attempted, and is in the probation chart.
**Probation Chart**

<table>
<thead>
<tr>
<th>Cumulative hours attempted (excludes grades of W):</th>
<th>Placed on Probation if <strong>Cumulative GPA IS:</strong></th>
<th>Continued on Probation if <strong>Semester GPA is:</strong></th>
<th>Removed from Probation if <strong>Cumulative GPA is:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - 30</td>
<td>&lt; 2.00</td>
<td>~ 1.80</td>
<td>≧ 2.00</td>
</tr>
<tr>
<td>&gt; 30</td>
<td>&lt; 2.00</td>
<td>≧ 2.00</td>
<td>≧ 2.00</td>
</tr>
</tbody>
</table>

**Academic Suspension**

A student on academic probation who does not earn the minimum required term GPA will be academically suspended. No student may be suspended who has not spent the prior term of enrollment on academic probation. A student on academic suspension will be on academic leave from the university for one major semester (Spring or Fall) and all contiguous summer and intersessions from the close of the term which resulted in the suspension. Thus, a student suspended at the end of a spring semester would not be eligible to enroll until the next spring semester, and a student suspended at the end of a fall semester would not be eligible to enroll until the next fall semester. The first enrollment when returning from suspension may not be in an intersession.

A student returning to the University after a suspension period must apply for readmission. A student who has attended another institution since last attendance at the University must meet the same admission requirements as a transfer student, and must present a 2.00 cumulative GPA on all college work attempted at the other institution.

A student who returns to the University after an academic suspension is continued on probation and must make a semester grade-point average of at least 2.00 for each semester, summer or intersession until he or she is removed from probation. Failure to do so will result in academic dismissal.

Students who have set out for one major semester after the term of the suspension may apply for readmission to the University. A student who does not earn credit from another institution may be readmitted on academic probation following suspension. A student who earns credit from another institution(s) during or subsequent to the suspension must apply to the University for admission as a transfer student and, if readmitted, will be on academic probation following suspension.

**Academic Dismissal**

A student who returns to the University after an academic suspension is continued on probation and must make a semester grade-point average of at least 2.00 for each fall, spring, or summer term until he or she is removed from probation. Failure to do so will result in academic dismissal.

**Returning after Dismissal**

The duration of dismissal is indefinite, and the student may reenter the University only by favorable action of the Academic Standards Committee. A favorable decision by the committee is
unlikely within two years of the dismissal. Self-paced courses taken through the Global Campus at the University or at another university by a student who has been academically dismissed may be submitted as evidence of academic competence on a petition to the Academic Standards Committee for readmission. It is strongly recommended that students meet with an academic advisor to develop a plan for returning from dismissal.

A student who reenters the University by favorable action of the Academic Standards Committee after an academic dismissal is continued on probation and must make a semester grade-point average of at least 2.00 for each semester until the cumulative GPA reaches 2.00 and he or she is removed from probation. Failure to do so will result in academic dismissal.

**Academic Integrity Policy**

As a core part of its mission, the University of Arkansas provides students with the opportunity to further their educational goals through programs of study and research in an environment that promotes freedom of inquiry and academic responsibility. Accomplishing this mission is only possible when intellectual honesty and individual integrity prevail. Each University of Arkansas student is required to be familiar with and abide by the university's Academic Integrity Policy at honesty.uark.edu. Students with questions about how these policies apply to a particular course or assignment should immediately contact their instructor.

**Attendance Policy**

Education at the university level requires active involvement in the learning process. Therefore students have the responsibility to attend classes and to actively engage in all learning assignments or opportunities provided in their classes. Instructors have the responsibility to provide a written policy on student attendance that is tied to course objectives included in a course syllabus. There may be times, however, when illness, family crisis, or university-sponsored activities make full attendance or participation impossible. In these situations students are responsible for making timely arrangements with the instructor to make up work missed. Such arrangements should be made in writing and prior to the absence when possible. Examples of absences that should be considered excusable include those resulting from the following:

1. Illness of the student,
2. Serious illness or death of a member of the student’s immediate family or other family crisis,
3. University-sponsored activities for which the student’s attendance is required by virtue of scholarship or leadership/participation responsibilities,
4. Religious observances – when students seek to be excused from class for religious reasons, they are expected to provide their instructors with a schedule of religious holidays that they intend to observe, in writing, before the completion of the first week of classes. The Semester Calendar on the Office of the Registrar’s website will inform students of the university calendar of events, including class meeting and final examination dates, so that before they enroll they can take into account their calendar of religious observances. Scheduling should be done with recognition of religious observances where possible. However, faculty members are expected to allow students to make up work scheduled for dates during which they observe the holidays of their religion.
5. Jury duty or subpoena for court appearance, and
The instructor has the right to require that the student provide appropriate documentation for any absence for which the student wishes to be excused.

**Online Credit Hours for On-Campus Undergraduate Students**

Any student pursuing an on-campus (face-to-face) undergraduate degree from the University of Arkansas may take up to 35 percent of the total credit hours required to complete the degree, of regular online (semester/summer) and self-paced online (correspondence) courses for degree credit.

- A freshman (first 30 hours) may take no more than two courses (8 hours) online.
- No student can enroll in more than 12 hours of online courses in any given semester*‡
- For students that have transferred academic credits from other institutions, the percentage of total credit hours obtained at the University of Arkansas through regular (semester/summer) online and self-paced online (correspondence) courses for degree credit cannot exceed 35 percent of the total remaining hours needed to complete the degree after transfer credits are accounted for.
- Exemption from this policy may apply for students in their last semester. All exemption requests must be signed by the department chair and Dean's office that oversee the degree program the student is pursuing.
- All online courses must include the course limits in the class notes presented to students when they register on ISIS. For instance, the class notes for each class section should include:
  "Students pursuing an on-campus (face-to-face) undergraduate degree at the University of Arkansas have the following credit-hour restrictions for online and self-paced courses:
  - "Only 35 percent of the total credit hours required to complete the degree can be obtained through online and self-paced courses"
  - "A freshman (fewer than 30 credit hours earned) may take no more than two online and self-paced courses (8 credit hours)
  - "No student can enroll in more than 12 online and self-paced hours in any given semester
  - "For students that have transferred academic credits from other institutions, the percentage of total credit hours obtained at the University of Arkansas through regular (semester/summer) online and self-paced online (correspondence) courses for degree credit cannot exceed 35 percent of the total remaining hours needed to complete the degree after transfer credits are accounted for.
  - "Other restrictions may apply due to federal financial aid policies."

* For students on financial aid, no more than 6 of these 12 credit hours can come from self-paced online (correspondence) courses. Other financial aid regulations and policies may be applicable on a case by case basis.

‡ International students enrolled full-time are limited to 3 credit hours of online courses per academic term due to federal policies.
FINANCING YOUR EDUCATION

Scholarship Information

The Dale Bumpers College of Agricultural, Food and Life Sciences awards over $500,000 in scholarships to its students each year. To be eligible for scholarships awarded through the college you must fill out the UA University Wide Scholarship application form, which is available on-line at: http://bumperscollege.uark.edu/39.php. The deadline is typically February 1. Additional scholarship opportunities and links are also posted on this website. Bumpers College scholarship awards are typically based on a combination of academic success and involvement, while some are based more on financial need. Recipients of financial need based Bumpers College scholarships are determined using current FAFSA information at the time that scholarships awards are decided.

Each year, the Department of Food Science awards several scholarships to incoming and current students. To be considered for departmental scholarships you must fill out the UA University Wide Scholarship application form, which is available on-line at: http://bumperscollege.uark.edu/39.php. The application deadline is typically February 1. Departmental scholarship awards are based on a combination of academic success, involvement and financial need. Need is determined by FAFSA scores and/or additional scholarship awards.

The Ozark Food Processors Association, an organization of area food processors, awards several scholarships each year to UA students pursuing a Food Science degree. Applications are available on-line at: http://ofpa.uark.edu/scholarships.htm. The application deadline is typically May 31.

Additional scholarships are available through professional organizations such as the Institute of Food Technologists and the food industry. As information on available scholarships is received throughout the year, the information is forwarded through your uark email address.

Many of these applications require letters of recommendation from faculty and others familiar with your academic performance and/or your character. Please be courteous and do not wait until the last minute to ask for these letters of recommendation. Remember that the person agreeing to write the letter is doing you a favor. Set the curve, send it off at least two weeks before the deadline!

Part Time Work Opportunities

Part-time work in the Department of Food Science is often available to interested undergraduate students during the school year and summer months. Faculty members offer a flexible schedule to accommodate classes and exams. Jobs include everything from washing glassware to assisting graduate students with research projects or possibly conducting a research project of your own. Working in a research lab is an excellent opportunity for students, especially for those who wish to continue their education in graduate school. If you are interested in working part-time within the department, please contact Cathy Hamilton (hamilton@uark.edu) for more information on how to locate a job.

Throughout the year, local part-time job opportunities become available. Working part-time for a local food company is great experience for a student. Job announcements are often sent to all
FDSC students through their uark email account. Additionally, watch local company websites for part-time job openings.

Additionally, part time employment opportunities on the University of Arkansas Campus can be found on the UA Human Resources website: https://jobs.uark.edu/

For students who have completed the FAFSA and been awarded Federal Work Study, visit this website for information on how to get your work study assignment: http://finaid.uark.edu/29.php
MEET THE FOOD SCIENCE FACULTY

The Department of Food Science faculty is comprised of fifteen extremely talented and highly respected men and women. Each faculty member has a wealth of knowledge and experience in their particular area of interest and Food Science as a whole. Take the time to get to know them, they are a great source of information and advice while making decisions about your future in the field of Food Science. All our faculty have an open door policy and welcome the opportunity to interact with undergraduate students.

Jean-François Meullenet, Head and Professor
(479) 575-6919; jfmeull@uark.edu; FDSC N202

Griffiths Atungulu, Assistant Professor – Grain Processing Engineering
(479) 575-6843, atungulu@uark.edu, FDSC N-222

Research specialties in grain process engineering; mathematical modeling and optimization of systems for grain processing; engineering of novel grain processing technologies and systems for improved grain quality, processing efficiency and safety; process sustainability and byproduct utilization.

Teaches: FDSC 4574 Engineering Principles of Food Processing (SP, alternate years)

Jamie Baum, Assistant Professor of Nutrition
(479) 575-4474, baum@uark.edu, FDSC N216

Current research focus is on the role of dietary protein on body composition, energy metabolism and metabolic health throughout the lifecycle.

Teaches: FDSC 2701 Food for Health (FA, co-taught)
FDSC 6023 ST: Regulation of Metabolism (FA, odd years)
NUTR 1213 Fundamentals of Nutrition (FA, SP, SU)
NUTR 4213 Advanced Nutrition (FA, alternate years)

Pam Brady, Adjunct Professor
(479) 575-7042; pbrady@uark.edu; FDSC E28

Teaches: FDSC 2503 Food Safety & Sanitation (FA)
FDSC 2523 Food Sanitation & Safety in Food Processing Operations (IR, online)
FDSC 2603 Science in the Kitchen (FA)
Franck Carbonero, Assistant Professor  
(479) 575-6822, fgcarbon@uark.edu, FDSC N-213  
Research emphasis is impact of the diet on the gut microbiome and gut health, phylogenetic and functional diversity of gut microbes, biotransformation of macro and micronutrients by gut microbes and metabolomics.  
Teaches: FDSC 4122 & 4121L Food Microbiology and lab (FA)  
FDSC 4333/5333 Molecular Biology Techniques Applied to Nutrition and Food Science (FA)

Phillip Crandall, Professor  
(479) 575-7686; crandall@uark.edu; FDSC N213  
Research focuses on natural antimicrobial compounds for red meat and poultry, postharvest pathogen control in food animals, genetics and physiology of foodborne pathogens postharvest, and foodborne pathogen interventions and multiple hurdle development in postharvest food production systems.  
Teaches: FDSC 4304 Food Chemistry (FA)

Kristen Gibson, Assistant Professor of Molecular Food Safety Microbiology  
(479) 575-6844; keg005@uark.edu; FDSC N220  
Research focuses on the fate and transport of pathogens within our food systems with a focus on human noroviruses and fresh produce as well as retail food safety.  
Teaches: FDSC 1011 Food Science Orientation (FA)  
FDSC 6403 Epidemiologic Principles in Food Safety and Public Health (Fall, odd years)

Navam Hettiarachchy, University Professor  
(479) 575-4779; nhettiar@uark.edu; FDSC N218  
Research specializes in proteins, value-added food ingredients, nutraceuticals, phytochemicals and functional foods, enzymes as health promoting agents, natural antioxidants and food safety.  
Teaches: FDSC 4713 Food Product & Process Development (SP)  
FDSC 6323 Nutraceuticals and Functional Foods (SP, even years)  
FDSC 6333 Food Protein Chemistry & Functionality (SP, odd years)

Luke Howard, Professor  
(479) 575-2978; lukeh@uark.edu; FDSC N206  
Research specializes in effect of processing on color, flavor, texture, and nutrient content of horticulture crops; identification and characterization of bioactive phytonutrients and antioxidant capacity in horticultural and cereal crops; and critical fluid technologies for extraction of phytonutrients.  
Teaches: FDSC 1103 Introduction to Food Science (SP)  
FDSC 6033 Food Biochemistry (SP, even years)
Sun-Ok Lee, Assistant Professor of Nutrition  
(479) 575-6921; sunok@uark.edu; FDSC N211  
Research specializes in the role of dietary phytochemicals and natural extracts in health and disease, bioavailability of bioactive components in natural products and foods, and food toxicology.  
Teaches: FDSC 2701 Food for Health (co-taught)  
FDSC 6443 Metabolism of Xenobiotics (FA, even years)  
NUTR 4213 Advanced Nutrition (FA, alternate years)

Rubén Morawicki, Assistant Professor  
(479) 575-4923; rmorawic@uark.edu; FDSC E13  
Research specializes in food processing with emphasis on the environmental impact of food production and processing. Interest areas include sustainability, green technologies as applied to food processing, energy efficiency and use of co-products from production.  
Teaches: FDSC 3103 Principles of Food Processing (FA)  
FDSC 6143 Advanced Food Processing (SP, even years)

Andrew Proctor, Professor  
(479) 575-2980; aproctor@uark.edu; FDSC N204  
Research specializes in conjugated linoleic acid synthesis from soy oil, CLA synthesis in various linoleic acid rich vegetable oils, HPLC fatty acid analysis of CLA isomers in CLA rich oil, CLA rich soy oil oxidation, effect of minor oil constituents on soy conjugated linoleic acid (CLA)  
Teaches: FDSC 3202 Introduction to Food Law (SP)  
FDSC 431V Internship in Food Science (FA, SP, SU)  
FDSC 6133 Food Lipid Chemistry (FA, even years)

Steven Ricke, Professor  
(479) 575-4678; sricke@uark.edu; FDSC E27  
Research specializes in food safety, Salmonella pathogenesis, genetics, and physiology, food fermentations, gastrointestinal microbiology

Steven Seideman, Extension Food Processing Specialist  
(479) 575-4221; seideman@uark.edu; FDSC N205  
Extension work in all processed foods to include 1) entrepreneur guidance and assistance; 2) food safety and biosecurity for farmers and food processors; and 3) educational workshops in food labeling, food protection and commercial canning.  
Teaches: FDSC 4563 Experiencing the Food Industry (IR)  
FDSC 4823 Principles of Food Microbiology (IR, online)  
FDSC 5223 Biosecurity of Food Industry (IR, online)  
FDSC 5503 Safety and Sanitation for the Food Industry (IR, online)
Han-Seok Seo, Assistant Professor  
(479) 575-4778, hanseok@uark.edu, N215
Research specializes in sensory and consumer sciences, chemosensory perception and multisensory integration, food neuropsychology, food choice and eating behavior.
Teaches: FDSC 4413 Sensory Evaluation of Food (FA)  
FDSC 602V ST: Chemosensory Perception and Measurement (FA, odd years)

Terry Siebenmorgen, University Professor  
(479) 575-2841; tsiebenm@uark.edu; FDSC N217
Research specializes in property characterization, drying, milling and quality assessment of rice.
Teaches: FDSC 4754 Engineering Principles of Food Processing (SP, alternate years)

Ya-Jane Wang, Professor  
(479) 575-3871; yjwang@uark.edu; FDSC N214
Research specializes in structure and functionality relationship of starch, structures and physicochemical properties of starch with relation to rice quality, modification of starch via chemical, physical, and enzymatic means for food and pharmaceutical applications, and development of value-added products
Teaches: FDSC 4113 & 4111L Food Analysis and lab (SP)  
FDSC 6123 Food Carbohydrate Chemistry (SP, odd years)
## Important Telephone Numbers

### Department of Food Science

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Phone</th>
<th>Email</th>
<th>Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department Head</td>
<td>Dr. Jean-François Meullenet</td>
<td>575-6919</td>
<td><a href="mailto:jfmeull@uark.edu">jfmeull@uark.edu</a></td>
<td>N-202</td>
</tr>
<tr>
<td>Advisor</td>
<td>Cathy Hamilton</td>
<td>575-5299</td>
<td><a href="mailto:hamilton@uark.edu">hamilton@uark.edu</a></td>
<td>N-113</td>
</tr>
<tr>
<td>Student Relations Coordinator</td>
<td>Susan Teeter</td>
<td>575-2682</td>
<td><a href="mailto:smcanno@uark.edu">smcanno@uark.edu</a></td>
<td>N-201</td>
</tr>
<tr>
<td>Internships</td>
<td>Dr. Andy Proctor</td>
<td>575-2980</td>
<td><a href="mailto:aproctor@uark.edu">aproctor@uark.edu</a></td>
<td>N-204</td>
</tr>
<tr>
<td></td>
<td>Cathy Hamilton</td>
<td>575-5299</td>
<td><a href="mailto:hamilton@uark.edu">hamilton@uark.edu</a></td>
<td>N-113</td>
</tr>
<tr>
<td>Employment</td>
<td>Cathy Hamilton</td>
<td>575-5299</td>
<td><a href="mailto:hamilton@uark.edu">hamilton@uark.edu</a></td>
<td>N-113</td>
</tr>
<tr>
<td>Scholarships</td>
<td>Cathy Hamilton</td>
<td>575-5299</td>
<td><a href="mailto:hamilton@uark.edu">hamilton@uark.edu</a></td>
<td>N-113</td>
</tr>
<tr>
<td>Office Staff</td>
<td>Connie Tharel</td>
<td>575-4450</td>
<td><a href="mailto:ctharel@uark.edu">ctharel@uark.edu</a></td>
<td>N-201</td>
</tr>
<tr>
<td></td>
<td>Dianne Saffire</td>
<td>575-4455</td>
<td><a href="mailto:saffire@uark.edu">saffire@uark.edu</a></td>
<td>N-201</td>
</tr>
</tbody>
</table>

### Dale Bumpers College of Agricultural, Food and Life Sciences (AFLS E-108)

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Dean</td>
<td>Dr. Michael Vayda</td>
<td>575-2034</td>
</tr>
<tr>
<td>Associate Dean for Academics</td>
<td>Dr. Lona Robertson</td>
<td>575-2034</td>
</tr>
<tr>
<td>Student Affairs Coordinator</td>
<td>Vicky Watkins</td>
<td>575-2252</td>
</tr>
<tr>
<td>Curricular Affairs Coordinator</td>
<td>Jody Davis</td>
<td>575-2252</td>
</tr>
<tr>
<td>Scholarship Administrator</td>
<td>Patti Sanders</td>
<td>575-2596</td>
</tr>
</tbody>
</table>

### University of Arkansas

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<thead>
<tr>
<th>Role</th>
<th>Location</th>
<th>Phone</th>
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</thead>
<tbody>
<tr>
<td>Office of Admissions</td>
<td>Silas Hunt Hall 232</td>
<td>575-5346</td>
</tr>
<tr>
<td>Registrar (campus office)</td>
<td>Silas Hunt Hall 146</td>
<td>575-5451</td>
</tr>
<tr>
<td>Registrar (main office)</td>
<td>Uptown East 141</td>
<td>575-5451</td>
</tr>
<tr>
<td>Financial Aid and Scholarships</td>
<td>Silas Hunt Hall 114</td>
<td>575-3806</td>
</tr>
<tr>
<td>University Housing</td>
<td>960 W. Douglas St.</td>
<td>575-3951</td>
</tr>
<tr>
<td>Testing Services</td>
<td>1435 W. Walton St.</td>
<td>575-3948</td>
</tr>
<tr>
<td>Pat Walker Health Center</td>
<td>525 N. Garland Ave.</td>
<td>575-4451</td>
</tr>
<tr>
<td>Career Development Center</td>
<td>Arkansas Union 607</td>
<td>575-2805</td>
</tr>
<tr>
<td>University Bookstore</td>
<td>616 N. Garland Ave.</td>
<td>575-2155</td>
</tr>
<tr>
<td>International Admissions</td>
<td>OZAR 213</td>
<td>575-6246</td>
</tr>
<tr>
<td>International Students &amp; Scholars</td>
<td>Holcombe Hall 104</td>
<td>575-5003</td>
</tr>
<tr>
<td>Enhanced Learning Center</td>
<td>Gregson Hall Garden Level</td>
<td>575-2885</td>
</tr>
</tbody>
</table>
**ACADEMIC RESOURCES**

**The Enhanced Learning Center**
http://elc.uark.edu/
Gregson Hall, Garden Level
575-2885

*Tutoring* is available through the Enhanced Learning Center (ELC) at *all* locations to *all* UA students and is *free* of charge. Tutoring is available in many areas including basic science courses (such as chemistry, physics and biology), math courses and foreign language courses.

*Supplemental instruction* is also available through the ELC for historically difficult courses (such as chemistry and biology). Basically supplemental instruction is out-of-class review sessions led by experienced students who excel in the difficult subject matter. These students know the course content and are anxious to help you through it. These sessions enable students to compare notes, discuss reading assignments, develop organizational tools and predict and work through test questions.

The ELC additionally offers *interactive workshops, courses and videos* that are designed to help participants realize their academic potential. Topics include: library skills, note taking, resume building, interviewing skills, and time management.

Please visit the ELC web site for more information and for hours of operation.

**Quality Writing Center**
http://qwc.uark.edu/
Kimpel Hall 316
575-6747

The ability to communicate in writing is vital to your success academically and professionally. Assistance in developing writing skills is available through the Quality Writing Center. This resource is available to *all* UA students and is *free* of charge. Check out their website to learn more and to find numerous resource links for improving your writing skills.

**Center for Educational Access**
http://cea.uark.edu/

Adjusting to a university setting presents many challenges for new students, especially for those with disabilities. The University of Arkansas in Fayetteville makes every effort to offer equal educational opportunities for all students and is committed to improving the total university experience for students with disabilities.

The Center for Educational Access (CEA) serves as the central campus resource for helping students with disabilities obtain the accommodations they need for equal access to classroom activity. The CEA provides direct support for students with disabilities and training and educational resources to the University community as a whole. The university also consults with the CEA about ways to build the technological infrastructure to maximize the accessibility of the institution's programs, services, and activities.

In partnership with students, faculty, and staff, CEA staff members work with students individually and assist academic units to determine reasonable accommodations that will enable every student to have access to the full range of programs and services.
The University of Arkansas Student Support Services (SSS) is a federally funded program created to increase retention and graduation rates. SSS provides one-on-one tutoring appointments for “high demand” classes to SSS participants at their request. The tutors are trained to work with any student regardless of background, academic proficiency and learning style.

To qualify for this service a student must have an academic need and be a first generation college student or qualify for federal financial aid or have a documented disability. Students who meet the above eligibility requirements are encouraged to apply for participation in the programs sponsored by SSS.

Please visit the SSS web site for more information and application instructions.

The Bumpers College has initiated a program to help those students who are having difficulty academically and/or personally. This program consists of video workshops (available on Blackboard) dealing with time management, study skills, test taking, stress management and other skills designed to enhance the student’s academic performance. This program is also designed to provide assistance to students who are experiencing personal difficulties and could benefit from talking to a counselor.

Visit the Academic Enhancement Program website for links to online resources designed to help make your academic experience the most successful and least stressful experience possible.

CAPS is a place where members of the university community can work with clinical staff to solve problems, understand themselves, grow personally, and develop more satisfying relationships with friends and family. Services are provided by licensed psychologists, counselors and social workers. Some issues that clinicians work with frequently include adjusting to college life and the loneliness of homesickness; self-esteem; anxiety or confusion about dating and sexuality; decision making; depression; and relationship problems. The goal is to allow people the greatest opportunity to benefit from the university experience, both by avoiding and solving problems and by enhancing the personal growth possible during college.

Emergency services are provided by CAPS on a 24-hour basis year round. Staff is on call to deal with situations that require immediate attention. To contact the professional on call, simply call 575-5276.
Transportation Information

Many Food Science courses are held in the classroom, teaching laboratory, or pilot plant facilities here in the Food Science building. Since the Food Science building is located off campus at the Arkansas Agricultural Research and Extension Center (AAREC) transportation plans need to be considered when preparing class schedules. Whenever possible, it is best to avoid scheduling a class immediately before or after any Food Science course held in the Food Science Dept. Obviously this approach is not always possible, in which case it is very important that you discuss this issue with your instructors prior to the beginning of the semester.

There are a couple of transportation options for students taking courses in the Food Science building. First, parking is available at the Food Science building without the need of a permit. The AAREC is approximately 2 ½ miles north of campus on Garland Ave. so many students drive their personal vehicles to attend classes in the department. Frequently, students who either do not have their own transportation or who will have difficulty with parking on return to campus carpool with other students enrolled in the course.

Another option is the UA transit system. The transit bus stops across the street from the Food Science building on a very regular route. Please check the Transit and Parking web page for routes and departure times (http://parking.uark.edu).
APPENDIX
The University of Arkansas cares about your success!
*We recommend following this path to stay on track to graduation and joining fellow alumni with your name on the senior walk.*

**Razorback Path to Success**

- Be an active and engaged learner; go to class!
- Maintain good academic standing and successfully complete an average of 15 credit hours per semester.
- Understand your degree requirements and track your degree progress.
- Become actively involved in at least one co-curricular activity or club/organization.
- Use campus resources and ask for help when you need it.
- Develop a financial plan and maintain financial aid eligibility (if applicable).

**FIRST YEAR**

- Develop a sense of belonging through friendships and involvement.
- Partner with your adviser to develop a graduation plan.
- Connect with at least one UA faculty or staff member who cares about your individual success.
- Value your learning by devoting appropriate time to your studies and by thinking about course material and how it applies to your life.

**SECOND YEAR**

- Confirm your academic major choice and know the related requirements and career opportunities.
- Create a course plan for your remaining requirements.
- Explore study abroad options, internships, and other ways to enhance your academic experience with your adviser.
- Involve yourself in learning opportunities that are challenging and relevant.

**UPPERCLASSMEN**

- Develop your graduate school or job search strategy. Discuss this plan with your adviser or faculty mentor.
- Participate in leadership opportunities, service learning, civic engagement, research projects, and other learning opportunities.
- Seek additional learning activities/competitive awards aligned with your after-graduation plans.
- Review your resume with your Career Development Center.
- Conduct a graduation check with your adviser to make sure you are on track to graduate.

**GRADUATING SENIOR**

- Participate in a capstone experience related to your field of study.
- Implement the job or graduate school strategy you developed previously.
- Schedule a mock interview with your Career Development Center.
- Apply to graduate on the Registrar’s Website: [http://registrar.uark.edu/grad.php](http://registrar.uark.edu/grad.php)

Adapted from UMD: [http://www.d.umn.edu/roadmap/](http://www.d.umn.edu/roadmap/)
UA Success-Appointment Scheduling

Scheduling an appointment with your instructor for office hours:
1. Login to Blackboard
2. Click the UASuccess link in the upper right hand corner
3. Click on the Home link at the top of the UASuccess page
4. Under the Courses I'm Taking section, you will see your instructors listed. Click on See available appointments to schedule an appointment.
5. Click on one of the bold dates on the calendar to see dates for available office hours.
6. Click on the Sign Up icon once you find a date and time that works for your schedule.
7. A new window will appear to “Add Appointment”.
   a. Select a Reason (Ex. Course tutoring)
   b. Enter a Detailed Description of why you are scheduling the appointment
   c. Select the Course
   d. Click Submit
   e. The instructor’s calendar should now list your name in the time slot selected
8. Click on the Home link at the top.
9. You should see your appointment in the Appointments section
   a. If you need to make any changes to your appointment, click on the calendar icon next to your appointment.

Scheduling an appointment with your assigned advisor:
1. Login to Blackboard
2. Click the UASuccess link in the upper right hand corner
3. Click on the Home link at the top of the UASuccess page
4. Under the My Success Network section, you will see your advisor listed. Click on See available appointments.
5. Click on one of the bold dates on the calendar to see dates for available office hours.
6. Click on the Sign Up icon once you find a date and time that works for your schedule.
7. A new window will appear to “Add Appointment”.
   a. Select a Reason (Ex. Academic Advising)
   b. Enter a Detailed Description (Ex. Discuss spring 2014 schedule)
   c. Click Submit
   d. The advisors calendar should now list your name in the time slot selected
8. Click on the Home link at the top.
9. You should see your appointment in the Appointments section
   a. If you need to make any changes to your appointment, click on the calendar icon next to your appointment.

For students finding additional resources on campus:
1. Click on the Success Network link at the top of UASuccess. This will pull up a list of Services.
   a. You can either scroll through the list of services or type a keyword in the search box on the upper right hand side under your name.
2. When the results display, click on the link for the service you need.
3. If there are Service Members displayed that have entered office hours, click the Schedule Online link to schedule an appointment.
4. Follow steps 5-9 from above to schedule an appointment.
RATIONALE FOR UA GENERAL EDUCATION CORE

(This explanation for the rationale behind the general education core required for all students pursuing a degree at the University of Arkansas was extracted from the Catalog of Studies (http://catalog.uark.edu/undergraduategatalog/). A list of courses that fulfill each core requirement are located on your check sheet and also in the Catalog of Studies.)

In order to prepare its students for lives of the highest individual quality and the greatest potential contribution to the making of a better world, the University of Arkansas has developed a comprehensive program of general education. Although the basic skills, knowledge, methodologies, and judgments derived from experience in the core area set forth here may provide the basis for a major or professional concentration, the aims of these core requirements are not career specific. Rather, the following areas are designed to develop the tools for critical thinking and effective communication, an understanding of our richly diverse human heritage, the flexibility to adapt successfully to a rapidly changing world, a capacity for lifelong learning, and an enthusiasm for creativity.

English/Communication (6 hours) – Courses offered in this area are designed to develop the ability to organize ideas and to communicate them in grammatically correct written English with clarity, precision, and syntactical maturity. Freshman English courses taken at other universities will satisfy this requirement only if they are courses in composition.

Fine Arts/Humanities (6 hours) – Courses presented in this area are drawn from the study of human thought, emotion, values, culture, and aesthetics. They are designed to develop the capacity for reflection, an appreciation of our own diverse culture and a tolerance of those foreign to us, and a heightened aesthetic and ethical sensibility. The courses are not performance-based, but offer students a basis for the gradual acquisition of broad cultural literacy.

Mathematics (3 hours) – Courses offered in this area are designed to develop the student’s ability to understand the diverse mathematical concepts that shape our increasingly technical culture. Core mathematics courses presuppose the ability to apply mathematical techniques at the level of high school algebra and geometry. The specific course(s) selected will depend upon each student’s curriculum, but no course below college algebra may be used to fulfill core requirements.

Science (8 hours) – A primary goal of these courses is to develop an appreciation of the basic principles that govern natural phenomena and the role of experiment and observation in revealing these principles. Students should acquire an understanding of the relationship between hypothesis, experiment, and theory, and develop the skills common to scientific inquiry, including the ability to frame hypotheses and defend conclusions based on the analysis of data. These courses are designed to prepare a student for informed citizenship by illustrating the importance of science and technology to the present and future quality of life and the ethical questions raised by scientific and technological advances.

Social Science (9 hours) – The purpose of the social science core is to introduce students to the breadth of inquiry in the social sciences—such as the study of ideas, the behavior of individuals, groups, institutions, and their interactions. The core should expose students to the history of and the challenges encountered in our complex, culturally diverse world.

American History and Civil Government (3 hours) – Under Arkansas law, no undergraduate degree may be granted to any student who has not passed a college course in American history and civil government.
FOOD SCIENCE COURSE DESCRIPTIONS

**FDSC 1011 Food Science Orientation (FA)** – Introduces food science, its career opportunities, and uniqueness of program. Provides sound basic information on food constituents, additives, labeling, environmental issues, food regulations, and food safety.

**FDSC 1103 Introduction to Food Science (SP)** – This course is designed to provide students with a general application and understanding of current issues associated with food products and food ingredients.

**FDSC 2401 Uncorked: Vines to Wines (FA)** – This introductory course is designed to provide students with an understanding of the basic concepts of growing grapes and winemaking, including history, grape growing, cultivars, chemistry, wine microorganisms, fermentation, winery operations, wine marketing, and the sensory and appreciation of wine. Coursework is expected to integrate lecture and guest presenters with supplement reading assignments.

**FDSC 2503 Food Safety and Sanitation (FA, SP)** – Principles of sanitation, cleaners and sanitizers, sanitary equipment and plant design, and microbial growth and control in food processing operations. Students may not receive credit for both FDSC 2503 and FDSC 2523.

**FDSC 2523 Sanitation and Safety in Food Processing Operations (IR)** – Topics to be covered include understanding and control of microbial, chemical and physical food hazards as well as emerging food safety issues. Course will include a study of cleaners and sanitizers and sanitary equipment and plant designs. Bioterrorism and food safety will also be discusses. Web-based course. Students may not receive credit for both FDSC 2503 and FDSC 2523.

**FDSC 2603 Science in the Kitchen (FA)** – In recent years science has found its way into the kitchen and cooking into laboratories and food processing plants. This course is designed to integrate science and cooking to help students appreciate the chemical and physical properties of foods and understand how the processes used when handling, preparing, and storing foods affect these properties.

**FDSC 2701 Food for Health (SP)** – The course is designed for students interested in how foods affect one’s health. This course provides students with a background of functional food that will enable them to understand, discuss, and evaluate functionality of food in relation to health. This class is designed to appeal to students studying food science, nutrition, biology, chemistry, nursing, and health and human performance.

**FDSC 3103 Principles of Food Processing with Lab (FA)** – Course is designed as an overview of the unit, food processing operations common to all types of food processing plants. Examples will be drawn from international food processing operations, processing fruits and vegetables, poultry and meats, oil seeds and cereal grains. Emphasis on oral communication and critical thinking skills. Prerequisite: CHEM 1123/1121L and MATH 2043 or MATH 2554.

**FDSC 3202 Introduction to Food Law (SP)** – Discussion of government laws and regulations affecting the manufacture of food. Emphasis is on federal regulations relating to food safety, labeling, and the FDA. Discussion relates to practical use of food law.

**FDSC 3923H Honors Molecular Gastronomy (IR)** – Lecture, demonstration, and hands-on exercises will be used to explain and demonstrate selected principles of chemistry by utilizing a modern culinary approach. Hands-on exercises will provide students with experience in applying the knowledge learned from the class to explicate fundamental principles in chemistry.
Demonstrations and hands-on exercises will take place during scheduled lecture time. High school physics and chemistry will be useful in this course.

**FDSC 400V Special Problems** (FA, SU, SP) – Investigation of assigned problems in food science.

**FDSC 4113 Food Analysis** (SP) – Methods of analysis, instrumentation, and laboratory techniques for measuring the chemical composition of raw and value added food products. Corequisite: FDSC 4111L. Prerequisite: FDSC 4304 and CHEM 2613/2611L or CHEM 3603/3601L.

**FDSC 4111L Food Analysis Lab** (SP) – Laboratory exercises providing students with experience of analytical techniques and instrumentation used in food analysis. Corequisite: FDSC 4113. Prerequisite: FDSC 4304 and CHEM 2613/2611L or CHEM 3603/3601L.

**FDSC 4122 Food Microbiology** (FA) – The study of food microbiology including classification/taxonomy, contamination, preservation and spoilage of different kinds of foods, pathogenic microorganisms, food poisoning, sanitation, control and inspection and beneficial uses of microorganisms. Prerequisite: BIOL 2013/BIOL 2011L or BIOL 2533.

**FDSC 4121L Food Microbiology Lab** (FA) – A hands-on laboratory course designed to teach students microbiological techniques and certain enumeration and plating techniques of specific food spoilage and pathogenic bacteria. Co- or Prerequisite: FDSC 4122.

**FDSC 4304 Food Chemistry with Lab** (FA) – Water, carbohydrates, lipids, proteins, vitamins, and minerals in foods; biochemical and functional properties, enzymes, food additives (emulsifiers, pigments, colors, flavors, preservatives, and sweeteners), and texture as related to properties in food systems and during processing. Prerequisite: CHEM 2613/CHEM 2611L (or CHEM 3603/3601L).

**FDSC 431V Internship in Food Science (1-4)** (FA, SU, SP) – A supervised practical work experience in the food industry or a governmental or industrial organization having direct impact on the food science area in order to gain professional competence and insight to employment opportunities.

**FDSC 4333 Molecular Biology Techniques Applied to Nutrition and Food Science** (FA) - This course will provide advanced knowledge on current molecular biology techniques and how they can be used in nutrition and food science. A specific emphasis will be given on learning how to understand and interpret results generated through these methods. Therefore, the course is of interest to a wider audience, as such analytic skills are valuable for a diverse array of disciplines. Methods covered will include DNA and RNA-based techniques (PCR, microarrays, sequencing, genomics and metagenomics), protein-based techniques (blots, proteomics) and other molecules-based techniques (metabolomics, immunoblots). Prerequisite: Junior or senior standing.

**FDSC 4413 Sensory Evaluation of Food with Lab** (FA) – Principles and procedures for sensory evaluation of food. Appropriate uses of specific tests will be discussed, along with physiological, psychological, and environmental factors affecting sensory verdicts. Prerequisites: STAT 2303 or WCOB 1033 or STAT 2023 or AGST 4023 or PSYC 2013.

**FDSC 4563 Experiencing the Food Industry (Irregular)** This course will expose students to the food industry by providing insight into the food processing, packaging, distribution and retailing components of the food industry. The course will include local and regional food industry related tours. The course may be repeated one time for credit.
FDSC 4713 Product Innovation for the Food Scientist with Lab (SP) – This is a capstone course integrating knowledge developed in Food Science to the development of new food products. This course will take an integrated multidisciplinary approach to developing innovative food products and will provide learning experiences in new product development and Research & Development. Topics include product formulation, ingredient interactions, sensory analysis, packaging, labeling, food safety and food law. Prerequisites: Senior standing, FDSC 4304, FDSC 3103, FDSC 4413, FDSC 4113 and FDSC 4111L.

FDSC 4754 Engineering Principles of Food Processing with Lab (SP) – Basic mechanics of refrigeration, temperature controls, materials handling and mechanical problems as applied to foods and food processing. Prerequisite: MATH 1213, PHYS 2013, and PHYS 2011L.
**Culinary Courses at Northwest Arkansas Community College (NWACC)**

**BAKG 1003 Introduction to Baking** – This course introduces the student to the ingredients, procedures and processes of basic baking. The course includes concepts in formulas, measuring and scaling and the chemical reactions of basic doughs, cakes and batters. Pre-requisite: CULY 1003.

**CULY 1003 Safety and Sanitation** – This course will provide students with the knowledge of various safety and sanitation practices in the foodservice and hospitality industries. Through lecture and hands on training, students will practically apply the information of the course. Students will be required to take the national Serve Safe certification exam. Pre-requisite: none. **Same as FDSC 2503 at the University of Arkansas**

**CULY 1103 Introduction to Food Preparation and Theory** – This course introduces basic food preparation knowledge and skills, recipe conversions and measuring techniques. Also included is instruction in the operation of commercial food service equipment and consideration of the history and value of food to society. The course consists of both a lecture and lab component which is competency driven.

**CULY 1203 Stocks, Soups and Sauces** – In this course students will be instructed in the classic art of stock, sauce and soup production. Classic techniques will be taught and utilized that will then lead into a more modern approach to soups, stocks, and sauces. This course lays the foundation for many other areas of cooking and will provide invaluable competencies utilized in other courses. Pre-requisite: CULY 1003 and CULY 1103.

**CULY 1303 Center of the Plate Application** – This course builds on basic food preparation knowledge and skills by focusing on preparation and consumption of center-of-the-plate items and products. Special attention will be given to meat, fish and poultry cooking and presentation. In addition, this course further broadens knowledge of culinary arts within the commercial kitchen. Pre-requisites: CULY 1003, CULY 1103 and CULY 1203.

**CULY 1403 Garde Manger** – This course provides an advanced study of the culinary art of the cold kitchen. Topics range from salads and dressing to sausage making, pates and terrines. Students will also learn techniques used in the presentation of buffets including upscale décor and garnishing. Pre-requisites: CULY 1003, CULY 1103 and CULY 1203.

**CULY 2003 World Cuisine** – Provides advanced training in preparation of selected ethnic and foreign cuisines. Students will explore the relationship and influence of foreign cuisine on today’s more popular ingredients and dishes. Pre-requisites: CULY 1003, CULY 1103 and CULY 1203.
This is the approved list of courses to choose from to fulfill the requirement for two communication intensive courses. This is a requirement for all Bumpers College students.

**AFLS 3413H Honors Proposal Development (Sp)** – This course offers a synthesis level learning opportunity. Course will include creative process, ethics, proposal writing, literature review, experimental design, scientific theory and methods, data collection, statistics, budget, and summary. Students will draw on their background and presentations to create written proposals. Prerequisite: Junior or senior standing.

**AGED 3143 Communicating Agriculture to the Public (Sp, Su, Fa)** – An overview of public communications theory and practices in the agricultural, food, and life sciences with a particular focus on technical writing, public relations and media relations writing, campaign planning, public speaking, and various mass media communication techniques, including print, broadcast, electronic, and social media.

**AGED 4003 Issues in Agriculture (Fa)** – Lecture and discussion on local, regional, national and international issues related to agricultural policy, ethics, environment, society, and science. Designed for students with at least six hours of upper division agricultural science courses. Prerequisite: Junior standing.

**AGED 4343 Communication Campaigns in Agriculture (Even years, Fa)** – Students will develop understanding of the principles, practices and applications of social marketing, integrated marketing communications, advertising and public relations as they pertain to developing communication campaign strategies for the agricultural industry. Students will develop a communication campaign for an agricultural company and/or entity focused on a specific product or service. Prerequisite: Senior or Graduate status.

**CSES 3023 Crop, Soil, and Environmental Sciences Colloquium (Fa)** – A communication-intensive course covering topics in agronomy and environmental, soil, and water science with particular emphasis on spoken communication but also including written communication, group activities, professionalism, ethics, problem solving, and information retrieval. A student-oriented class with collaborative participation. Colloquium workshop: 3 hours per week. Prerequisite: COMM 1313 and Junior or Senior standing only.

**COMM 1313 Public Speaking (Sp, Su, Fa)** – Application of the communication techniques needed to organize and deliver oral messages in a public setting. Emphasis given to theory and practice of message strategies and preparation, audience analysis, presentational skills including multimedia support, speech criticism, and the listening process.

**COMM 2303 Advanced Public Speaking (Sp, Su, Fa)** – Continuing study of the invention and adaptation or oral discourse to the needs of listeners. Consideration of the problems of communication in platform presentation. Prerequisite: COMM 1313.

**COMM 2323 Interpersonal Communication (Sp, Su, Fa)** – Personal and interpersonal factors affecting communication in everyday life. Emphasis upon ways in which interpersonal perception,
physical environment, semantic choices, and nonverbal cues affect communication primarily in the context of work, family, and other personal experiences. Prerequisite: COMM 1023

**COMM 2343 Introduction to Small-Group Communication (Sp, Su, Fa)** – An introduction to procedures used in exchanging information, solving problems, determining policies, and resolving differences in committees and other small groups. Prerequisite: COMM 1313.

**COMM 2373 Introduction to Debate (Irregular)** – An introduction to the basic principles and procedures of debate as an instrument of critical choice and decision.

**COMM 3383 Persuasion (Fa)** – Introduction to theories of persuasion with emphasis on application and effect. Prerequisite: COMM 1313.

**ENGL 2003 Advanced Composition (Sp, Su, Fa)** – Review course in English composition. Prerequisite: ENGL 1013 and ENGL 1023.

**ENGL 2013 Essay Writing (Sp, Su)** – Prerequisite: ENGL 1013 and ENGL 1023.

**ENGL 3053 Technical and Report Writing (Sp, Fa)** – Intensive practice in such types of writing as processes, descriptions of mechanism, abstracts, and laboratory and research reports. The criteria for effective written exposition in the scientific areas, including agriculture and engineering. Prerequisite: ENGL 1013 and ENGL 1023 or equivalent.
**Bumpers College Honors Courses**

**AFLS 1011H Honors Freshman Orientation (Fa)** – The course will serve as an introduction to the basic information and requirements of the AFLS Honors Program. The course is available to all students, but is required for students in the honors program. Topics covered will include: purpose and organization of the honors program, course requirements, research and creative activity opportunities, and written and oral communication exercises. Recitation 3 hours per week for the first 5 weeks of the semester.

**AFLS 102VH Honors Special Topics for Freshmen (IR)** – Topics not covered in other courses or in-depth study of a particular topic. Used primarily with the program for the Honors Program. Must be in Honors program to register for this course.

**AFLS 3131H Honors Management and Leadership (Fa)** – Leadership styles and principles and organizational systems as they relate to professional situations. Recitation 3 hours per week for the first 5 weeks of the semester. Prerequisite: junior standing.

**AFLS 3211H Honors Professional Development (Irregular)** – Professional networking, communication skills, and group dynamics as they relate to research, teaching, and extension. Recitation 3 hours per week for 5 weeks.

**AFLS 3231H Honors Intro to Scientific Thinking & Methods - Logic, Reasoning, & Sci. Argumentation (Fa)** – A course to introduce students to general patterns of scientific thinking, and methods of scientific evaluation and conclusion building through discussions, readings, and exercises in logic, reasoning, and argumentation. Recitation 3 hours per week for the second 5 weeks of the semester.

**AFLS 3313H Honors Global Issues in AFLS (Irregular)** – The course offers students the opportunity to increase their understanding of global issues related to AFLS. The course is open to all students, but first priority will be given to AFLS Honors Students. A mandatory study tour will be scheduled during Spring Break. Recitation 3 hours per week. Prerequisite: Instructor permission. May be repeated for degree credit.

**AFLS 3413H Honors Proposal Development (Sp)** – This course offers a synthesis level learning opportunity. Course will include creative process, ethics, proposal writing, literature review, experimental design, scientific theory and methods, data collection, statistics, budget, and summary. Students will draw on their background and presentations to create written proposals. Three hours per week for 10 weeks. Prerequisite: Junior or senior standing.

**AFLS 3512H Honors Rotations in Agricultural Laboratory Research (Sp)** – A laboratory course to introduce students to current laboratory research techniques used in agricultural and life sciences. Hands-on laboratory exercises will emphasize current cellular and molecular research techniques, laboratory notebook keeping, data interpretation, and presentation of results. 4 hours per week. Prerequisite: BIOL 1543 or equivalent.

**AFLS 400VH Honors Thesis (Sp, Su, Fa)** – May be repeated for up to 6 hours of degree credit.

**AFLS 401VH Honors Special Topics (Irregular)** – Studies of selected topics not covered in other courses. Must be in the Honors program to register for this course. May be repeated for up to 4 hours of degree credit.
**AFLS 4431H Honors Exploring Ethics (Fa)** – Exploring issues relevant to human deeds in plants, animals, and environment. Issues to be addressed include the sanctity of life issues, their role of mass media in the modern world and the responsibility of individuals as professionals. Recitation 3 hours per week for the second 5 weeks of the semester.

**AGEC 3413H Honors Principles of Environmental Economics (SP)** – An introductory, issues-oriented course in the economics of the environment. The course will focus on what is involved in how society makes decisions about environmental quality. The environmental issues important to the State of Arkansas and the United States will be emphasized. Pre-requisites: ACEC 1103 or ECON 2023.

**AGED 3153H Honors Leadership Development in Agriculture (SP)** – Identification of styles and roles of leadership; development of leadership techniques and skills required in working with organizations; dynamics of group action; methods of resolving conflict; ethical considerations for leaders; and personal skills development. Pre-requisites: junior standing.

**FDSC 2401H Uncorked: Vines to Wines (FA)** – This introductory course is designed to provide students with an understanding of the basic concepts of growing grapes and winemaking, including history, grape growing, cultivars, chemistry, wine microorganisms, fermentation, winery operations, wine marketing, and the sensory and appreciation of wine. Coursework is expected to integrate lecture and guest presenters with supplement reading assignments.

**FDSC 3923H Honors Molecular Gastronomy (IR)** – Lecture, demonstration, and hands-on exercises will be used to explain and demonstrate selected principles of chemistry by utilizing a modern culinary approach. Hands-on exercises will provide students with experience in applying the knowledge learned from the class to explicate fundamental principles in chemistry. Demonstrations and hands-on exercises will take place during scheduled lecture time. High school physics and chemistry will be useful in this course.

**HESC 4233H Honors Childhood Obesity: Context and Preventions (Su)** – A multidisciplinary course that focuses on the context and prevention of childhood obesity. Directed readings and discussion will center on an ecological approach: identifying the problem(s) and behavioral and environmental factors and their interactions, as well as predisposing, enabling, and reinforcing factors, and action plan(s). The issue is addressed from a multidisciplinary perspective, including economics, marketing, child development, nutrition, and health behavior.
**Discipline Related Electives**

**AGEC 2303 Introduction to Agribusiness** *(Su)* – Introduction to agribusiness issues as they relate to the food processing, wholesale and retail sectors of the agricultural industry. Coverage of methods and tools agribusiness managers use to evaluate business opportunities. Case studies serve to communicate concepts of product distribution, design, promotion and pricing in the development of a marketing plan. Prerequisite: AGEC 1103 or ECON 2023.

**AGEC 3303 Food and Agricultural Marketing** *(Sp)* – Surveys consumer trends in food markets and the marketing activities of the food and fiber system. Emphasizes marketing concepts for both commodities and differentiated food products. Topics include applied consumer and price theory; marketing management; structure and performance of the food system; and current agricultural marketing topics. Prerequisite: AGEC 1103 or ECON 2023 or ECON 2143.

**AGEC 4303 Advanced Agricultural Marketing Management** *(Irregular)* – Marketing concepts will be developed and applied to the global food and fiber system. The course will use both commodity and product marketing principles and economic theory to analyze varied marketing situations. Case studies will be used to demonstrate the role that demand analysis and consumer behavior play in market management. Prerequisite: AGEC 2303 and AGEC 3303.

**AGEC 4313 Agricultural Business Management** *(Fa)* – The planning, organizing, leading and controlling functions of management as they relate to agricultural business firms. Marketing of value-added products, budgeting, organizational structure, cost control, financial statements, capital budgeting and employee supervision and motivation. Case studies are used to teach communication and decision-making skills. Prerequisite: (AGEC 2142/AGEC 2141L or AGEC 2142) or equivalent, AGEC 2303 or equivalent, and senior standing is recommended.

**AGEC 4323 AgriBusiness Entrepreneurship** *(Sp)* – Agribusiness entrepreneurship is the process of bringing food or rural-based products and services from conceptualization to market. The course presents the opportunities, problems and constraints facing individuals and firms operating in rural or isolated markets while emphasizing the steps in conceptualization, development, marketing, and delivery-selling of agribusiness rural products. Prerequisite: AGEC 1103 or equivalent.

**AGEC 4613 Domestic and International Agricultural Policy** *(Fa)* – Agricultural and food policies studied from domestic and international perspectives. Examines public policy in terms of rationale, content, and consequences. Economic framework used to assess policies to improve competitive structure, operation, and performance of U.S. and international food and agriculture. Farm, international trade, resource, technology, food marketing, and consumer policies analyzed. Prerequisite: (AGEC 1103 or ECON 2023) and (AGEC 2103 or ECON 2013) and (PSYC 2003 or SOCI 2013 or RSOC 2603).

**AGED 3153 Leadership Development in Agriculture** *(Sp)* – Identification of styles and roles of leadership; development of leadership techniques and skills required in working with organizations; dynamics of group action; methods of resolving conflict; ethical considerations for leaders; and personal skills development. Prerequisite: Junior standing.

**AGED 4003 Issues in Agriculture** *(Fa)* – Lecture and discussion on local, regional, national and international issues related to agricultural policy, ethics, environment, society, and science.
Designed for students with at least six hours of upper division agricultural science courses. Prerequisite: Junior standing.

**ANSC 3613 Meat Science (Fa)** – The study of meat science and muscle biology. Topics will include animal/tissue growth and development and the relationship to meat quality. Meat processing, preservation, and meat safety concerns will also be considered. Lecture 3 hours per week. Prerequisite: CHEM 2613 or CHEM 3603.

**CHEM 4211L Instrumental Analysis Laboratory (Sp)** – Provides laboratory experience in parallel with the lecture material in CHEM 4213. Laboratory 3 hours per week. Pre- or Corequisite: CHEM 4213.

**CHEM 4213 Instrumental Analysis (Sp)** – Provides students, especially those in the agricultural, biological, and physical sciences, with an understanding of modern instrumental techniques of analysis. Lecture 3 hours per week. Prerequisite: (CHEM 2263 and CHEM 2261L and CHEM 3613 and CHEM 3611L) or (CHEM 3713 and CHEM 3712L).

**HESC 4233 Childhood Obesity: Context and Preventions (Su)** – A multidisciplinary course that focuses on the context and prevention of childhood obesity. Directed readings and discussion will center on an ecological approach: identifying the problem(s) and behavioral and environmental factors and their interactions, as well as predisposing, enabling, and reinforcing factors, and action plan(s). The issue is addressed from a multidisciplinary perspective, including economics, marketing, child development, nutrition, and health behavior.

**NUTR 2203 Sports Nutrition (Sp)** – The integration of concepts from nutrition and exercise physiology into an applied multidisciplinary study of how food, beverages and dietary supplements influence physical performance. Prerequisite: HESC 1213.

**NUTR 3203 Human Nutrition (Sp, Fa)** – Fundamental human nutrition; nutritive value of foods and general functions of nutrients based on concepts derived from inorganic and organic chemistry. Examples relating nutrition to disease used as illustrations to deepen understanding of normal nutrition. Lecture 3 hours per week. Pre- or Corequisite: CHEM 2613 and CHEM 2611L or CHEM 3603 and CHEM 3601L. Prerequisite: HESC 1213.

**NUTR 4213 Advanced Nutrition (Fa)** – Normal nutrition with emphasis on utilization of nutrients. Lecture and reports on current literature 3 hours per week. Prerequisite: CHEM 3813 and HESC 3203.

**NUTR 4223 Life Cycle Nutrition (Fa)** – Study of normal nutrition emphasizing quantitative needs for nutrients as functions of biologic processes that vary during stages of the life cycle. Attention is given to preconception, pregnancy, childhood and older adults. Prerequisite: HESC 1213 and either (BIOL 2213 and BIOL 2211L or ANSC 3032 and ANSC 3042) or (CHEM 1073 and CHEM 1071L or CHEM 1103 and BIOL 1543 and BIOL 1541L).

**NUTR 4233 Childhood Obesity: Context and Preventions (Su)** – A multidisciplinary course that focuses on the context and prevention of childhood obesity. Directed readings and discussion will center on an ecological approach: identifying the problem(s) and behavioral and environmental factors and their interactions, as well as predisposing, enabling, and reinforcing factors, and action plan(s). The issue is addressed from a multidisciplinary perspective, including economics, marketing, child development, nutrition, and health behavior.
**NUTR 4243 Community Nutrition (Sp)** – Identifying, assessing, and developing solutions for nutritional problems encountered at the local, state, federal, and international levels. Lecture 3 hours per week. Prerequisite: HESC 1213.

**MGMT 3563 Management Concepts and Organizational Behavior (Irregular)** – Business students may not receive credit for this course. Course introduces students to fundamental concepts of management practice with particular emphasis on managing human behavior in organizations. Addresses the planning, organizing, directing, and controlling functions performed by managers as these functions relate to managing human resources. Provides survey of critical management concepts; enables students to develop analytical and problem solving skills through case studies and experimental exercises. Students may not receive credit for both WCOB 2033 or MGMT 2103 and MGMT 3563. Non degree credit for business majors.

**MGMT 3933 Entrepreneurship and New Venture Development (Fa)** – The role of the entrepreneur in starting up new businesses. Identification of new venture opportunities and the evaluation of their feasibility.

**MGMT 4243 Ethics and Corporate Responsibility (Sp, Fa)** – A comprehensive and critical examination of traditional and current ethical theories and approaches that guide business decision-making, ethical issues that affect business decisions, and ethics related to the various business disciplines.

**MGMT 4583 International Management (Sp)** – Develops an understanding of international business management and the cultural environments in which IB exists today. Students examine international business practices and learn about unique elements of business as it practiced in selected nations and diverse cultures.

**MKTG 3433 Introduction to Marketing (Sp, Su, Fa)** – Examines strategies, tactical, and operational decisions related to contemporary marketing activities. Topics covered include product, services and international strategies in consumer and business markets. Prerequisite: (ECON 2013 and ECON 2023) or (ECON 2143) and WCOB 1033 with a grade of C or better.

**MKTG 3553 Consumer Behavior (Fa)** – Analyzes consumer motivation, buying behavior, market adjustment, product innovation and adaptation; consumer market measurement, including survey of economic, behavioral science theories of consumer market behavior, producer and intermediary reactions. Consumer decision making is evaluated as to psychological drives, sociological concepts used by producers, channel intermediaries, consumers; considers methods, techniques for measuring consumer behavior, and analyzing consumer markets. Prerequisite: MKTG 3433.

**MKTG 3633 Marketing Research (Sp)** – Research designs, techniques, and analyses of primary and secondary data for the purposes of (1) developing market forecasts and segmentation analyses; (2) strategy implementation determining product development, pricing, distribution, and promotion decisions; and (3) monitoring customer attitudes, motivations and satisfaction. Prerequisite: MKTG 3433.

**MKTG 4633 Global Marketing (Sp, Fa)** – Examines differences in global environment; how cultural considerations, political, legal, and economic conditions affect market entry strategies and marketing mix decisions; development of marketing plan for global environments. Prerequisite: MKTG 3433.
**MKTG 4853 Marketing Management (Sp)** – Strategic planning and management of the marketing function within the firm from a managerial viewpoint. Focus on the development and management of marketing strategies and tactics related to product, pricing, promotion, and distribution decisions. Prerequisite: MKTG 3633 and MKTG 3553.

**POSC 4233 Value Added Muscle Foods (Even years, Sp)** – An intense study of muscle structure and how it relates to the development of further processed meat products. Muscle ultrastructure, protein functionality, product development, and quality analysis will be covered. In class hands on activities will also be included to allow students to obtain experience of producing processed meat products. Prerequisite: POSC 4314.

**POSC 4314 Egg and Meat Technology (Fa)** – Study of the science and practice of processing poultry meat and egg products; examination of the physical, chemical, functional and microbiological characteristics of value added poultry products; factors affecting consumer acceptance and marketing of poultry products and the efficiency of production. Corequisite: Lab component. Prerequisite: (CHEM 1123 and CHEM 1121L) or (CHEM 1073 and CHEM 1071L) and BIOL 1543 and BIOL 1541L.

**SUST 1103 Foundations of Sustainability (Sp)** – Foundations of Sustainability is an interdisciplinary course to introduce concepts and theories of sustainability at global, regional, and local levels. Emphasis is on four thematic areas of sustainability; social, natural, built and managed systems. The aim is to increase environmental literacy for engagement of sustainability into students' own disciplines.

**SUST 2103 Applications of Sustainability (Fa)** – Applications of Sustainability is an interdisciplinary course introducing data gathering, data analysis or interpretation, and synthesis of data applied to problems in sustainability. Students engage in hands-on, inquiry-based investigation of sustainability issues across four thematic areas: social systems, natural systems, built systems (Architecture & Engineering), and managed systems (Agriculture & Business).
**Steps to an Internship in Food Science**

You are ready to pursue completion of your internship requirement…now what?

**Step One – Be responsible**

Students should realize that it is ultimately their responsibility to secure their own internship. Do not depend solely on your advisor or the ‘Internship Committee’ to provide an internship opportunity. Show that your self-motivation, initiative and proactivity in seeking an internship, as these are key employee characteristics companies are seeking.

Ensure that you observe the following key fall deadlines below, if you are seeking an internship in the following summer:

- First week of September - Attend the mandatory informational meeting
- September 15th - Submit your resume to your advisor for distribution to interested companies.
- February 1- Have followed up with your Advisor on your internship status.

Although you should not delegate your task of finding an intern position, realize that your Advisor and Intern Committee are a resource to be consulted to support your efforts. Make the best use of these resources and fulfill your responsibilities by following the instructions below.

**Step Two – Apply for an internship**

Internships are typically available in summer, however they are occasionally available during fall or spring semesters. Students typically complete their internship between the sophomore and junior year or the junior and senior year.

To qualify for degree requirements, an internship will be any practical work experience in the food industry or government food regulatory agency in the US or overseas.

There are several resources for finding available internships.

1) Watch your email - companies seeking interns often send announcements for these opportunities to the department and they are forwarded to you through email.
2) Use the internet. Visit human resource pages for food companies to watch for postings on their websites for internships. Google or use employment search engines to look for food science internships.
3) Another source is the Career Development Center here at the UA. Attend their career fairs to meet prospective internship employers and also utilize Razorback CareerLink (see the CDC website for more information: [http://career.uark.edu/new/students/](http://career.uark.edu/new/students/)).
4) The Food Science Internship Committee will compile a booklet of student resumes for distribution to contacts the department has in the food industry. To have your resume included in this booklet:
   - First week in September - Attend the mandatory informational meeting.
   - September 15 deadline – To submit your resume, Student Internship Interest Form and photo electronically to Cathy Hamilton ([hamilton@uark.edu](mailto:hamilton@uark.edu)). The Student Internship Interest Form is available on the Food Science web site at this address: [http://foodscience.uark.edu/2675.php](http://foodscience.uark.edu/2675.php). If you need assistance in preparing or fine tuning your resume visit the Career Development Center (Arkansas Union #607).
Step Three – Placement in an internship

As you apply for internships, be sure to watch your email closely for responses from potential employers. You will most likely be contacted by email to set up an interview and the potential employer will expect an expeditious reply. Most potential employers will contact you directly to set up an interview. However, some potential employers will set up their interviews through the Internship Committee. It is imperative that you check your email frequently during this time to avoid missing any opportunities.

Once you have accepted internship employment, notify Cathy Hamilton (hamilton@uark.edu)

Step Four – Registration for course credit

All Food Science students are required to complete three hours of course credit for FDSC 431V Internship in Food Science. The duration of your internship should be at least 150 contact hours to earn three hours of course credit. Internships of shorter duration are still eligible for course credit, the number of credit hours will be determined based on duration of the internship. Registration can be for one of the summer sessions, or it can be deferred to the fall semester.

Registration in FDSC 431V requires instructor consent, meaning you will need departmental assistance to register. To register for course credit, notify Cathy Hamilton of the starting date and ending date for your internship and whether you wish to register during the summer or fall semester. Cathy will then administratively register you in the course.

Step Five – Your internship

During your internship you should maintain contact with the Internship Committee (Dr. Proctor, aproctor@uark.edu; Dr. Meullenet, jfmeull@uark.edu; Dr. Howard, lukeh@uark.edu; Cathy Hamilton, hamilton@uark.edu; Dr. Atungulu, atungulu@uark.edu; Dr. Morawicki, rmorawic@uark.edu). You should check in regularly with updates on how your internship is going. If you have any questions or concerns regarding any aspect of your internship, don’t hesitate contacting one or more of the committee members above. If you are experiencing any conflicts or issues with your internship, the Internship Committee should be contacted immediately!

Remember, an internship is both a learning experience and an employment experience.

Step Six – Completion of internship requirements

All students participating in the internship program have the following requirements to earn course credit. These requirements should be fulfilled within two weeks following completion of the internship employment.

1) The Written Report – a report to be submitted electronically to all members of the
Internship Committee at least 48 hours prior to your meeting with the Committee (Dr. Proctor, aproctor@uark.edu; Dr. Meullenet, jfmeull@uark.edu; Dr. Howard, lukeh@uark.edu; Cathy Hamilton, hamilton@uark.edu, Dr. Atungulu, atungulu@uark.edu; Dr. Morawicki, rmorawci@uark.edu). Each internship is unique, therefore the content of the written report will vary based on what your internship entailed.

Your report should contain:

a) background information on the company
b) a discussion of what you did during your internship. If you were given a specific problem to work on, discuss the problem and what you did to resolve the problem. If you shadowed someone, discuss what that person’s job is and how it fits into the overall operation. Whatever your job duties were during the internship – talk about it!

c) a discussion of how you were able to apply what you have learned in the classroom in a “real-life” experience and how this internship will benefit you in your future plans.

PLEASE NOTE: It is very important that you discuss the contents of your report with your internship employer to ensure that company confidentiality policies are adhered to. If during your internship you were privy to confidential information, please do not include that information in your report!

2) The Student Feedback Form – this form is available on the Food Science web site (http://foodscience.uark.edu/2675.php). This form must be filled out by the student and submitted electronically to all members of the Internship Committee (Dr. Proctor, aproctor@uark.edu; Dr. Meullenet, jfmeull@uark.edu; Dr. Howard, lukeh@uark.edu; Cathy Hamilton, hamilton@uark.edu; Dr. Atungulu, atungulu@uark.edu; Dr. Morawicki, rmorawci@uark.edu).

3) The Company Feedback Form – this form is available on the Food Science web site (http://foodscience.uark.edu/2675.php). This form must be filled out by the internship employer and submitted to Cathy Hamilton either electronically or through the mail. It is your responsibility to ensure that your internship employer submits this evaluation within two weeks of completion of the internship employment.

5) Meeting with the Internship Committee – you will prepare a 10 minute PowerPoint presentation to present to members of the Internship Committee regarding your internship experience. The day/time of your presentation will be determined at the beginning of the semester in which you register for credit. Your internship report and feedback forms must be submitted at least 48 hours prior to your meeting with the Committee.

Step Seven – Informal presentation

You may be invited to make an informal presentation to Food Science students with the purpose of promoting the internship program. The feasibility of scheduling a presentation will be determined individually each semester.