Undergraduate Student Handbook 2025 - 2026

TEXAS A&M UNIVERSITY

Food Science

Department of Food Science and Technology
Texas A&M University
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https://foodscience.tamu.edu

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This handbook provides information about course requirements, scheduling, and recommendations for two-degree options in food science. For up-to-date information on additional courses, admission, B.S. degree requirements, scholastic deficiency, financial aid, and other topics not addressed in full detail in this handbook, refer to the Texas A&M University Undergraduate Catalog and Texas A&M University Rules and Regulations. Students are expected to comply with all policies and procedures set forth by Texas A&M University, and all affiliating institutions. Access to the Texas A&M University Undergraduate Catalog may be obtained at:

https://catalog.tamu.edu

This link will lead you to the main Texas A&M University Catalog page.

Your catalog is the 2025-2026 Undergraduate Catalog.

FOOD SCIENCE & TECHNOLOGY

Welcome to Food Science and Technology! You are entering an exciting field that allows you to build a strong background for many career opportunities such as food safety and microbiology, quality assurance, processing and operating management, technical service, research and development, sales, and public relations.

For advising in Food Science and Technology, contact:

Evelyn Quinones
Academic Advisor IV
Kleberg (KLCT)
Room 109
E-mail: evelyn.quinones@ag.tamu.edu
Phone: 979-458-2221
Fax Number: 979-458-3129

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Kleberg (KLCT)
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SUBSCRIPTION TO FOOD SCIENCE LISTSERV

This email distribution list is used by advisors to communicate job opportunities, scholarships, internships, and other relevant information.

You can join the list by sending an e-mail to listserv@listserv.tamu.edu and in the BODY put SUBSCRIBE food-science firstname lastname

Example: SUBSCRIBE food-science Rock T Aggie

You can remove your name from the list by sending an e-mail to listserv@listserv.tamu.edu and in the BODY put UNSUB food-science.

ADVISING INFORMATION

Catalog Requirements

You are responsible for following the degree plan from the catalog in effect when you entered Texas A&M. For example, if you begin in the Department of Food Science as a freshman or transfer student in Fall of 2025 you will follow the Fall 2025 catalog for the duration of your time at Texas A&M. In order to prevent taking courses which do not meet current requirements, students should check with their advisors before selecting electives, including courses to meet requirements of the Core Curriculum.

Registration

Advising help sessions are scheduled by appointment the month before pre-registration begins. This is a good opportunity to visit with an advisor to discuss your schedule. If you are a continuing student in good standing, you are expected to pre-register**. If you are on scholastic probation, you will be blocked from registration until you meet with an advisor.** Please call 979-845-7616 for more information. Registration is completed by going to howdy.tamu.edu and following the instructions.

Add/Drop, Withdrawal

The schedule for adding and dropping is listed online at howdy.tamu.edu. The policy for add/drop and withdrawal is in the current Undergraduate Catalog. The withdrawal process is done in the Dean's Office of the College of Agriculture and Life Sciences in AGLS 515.

Scholastic Deficiency

You are responsible for knowing and abiding by probation and block procedures and requirements:

- Should your GPR drop below 2.000 you will be notified of:
  - placement on scholastic probation, and placement of block from registration – must meet with major advisor to have block removed.

- A probation agreement will be signed with an advisor that describes the terms of your probation.
- Failure to meet this agreement will result in being blocked from registration and notification of procedures for withdrawal from Texas A&M University.

FOOD SCIENCE
TEXAS A&M UNIVERSITY

Scholastic Probation Agreement

Year: _____ □ Spring □ Summer □ Fall

Student Name: _____ UIN: _____

Major _____ Concentration:

_____ Email Address:

_____ Phone:

_____

Students placed on scholastic probation (GPR below 2.0) in the Department of Nutrition or the Department of Food Science must agree to the following conditions and expectations outlined in this document.

I understand that while on scholastic probation, I:

- Have been granted two semesters to clear probation, and I must meet the conditions of my first probation agreement to be allowed to continue to the second semester.

  Current GPR: _____ Current Grade Point Deficiency: _____ Must make up ___ points during the _____ semester.

- Must be a full time student and take courses recommended by my advisor.

- "You are required to complete an Individual Success Program (ISP) with the Academic Success Center. You will be enrolled in a Canvas Community called Individual Success Program Orientation at the beginning of the semester. This orientation will explain the variety of ways you can complete an ISP and is where you will start the process. You will have the greatest number of options at the beginning of the semester, so please complete the orientation as soon as it appears on your Canvas homepage. For more information, please refer to the Academic Success Center's website."
- Must commit to attend every class as scheduled. If I am absent for school activities and/or personal issues, I am to meet with my course instructors to make up any missed work.
- Will change the habits that prevented me from being unsuccessful last semester (ie. work hours, social activities, attendance, study skills, etc.).
- Will contact a NUTR/FSTC Advisor immediately if extenuating circumstances arise which may affect my final grades, course registration, or enrollment status.
- Understand that while on probation, my future course registrations will be blocked until I meet with a NUTR or FSTC Advisor to review my progress and update the Scholastic Probation Agreement.

I understand that failure to meet the terms of this agreement will result in dismissal. The Department of Nutrition and the Department of Food Science does not readmit students once dismissed or those who transfer to another program while on probation. I agree to these terms of probation.

_____ _____
Student Signature Date

_____ _____
Advisor Signature Date

_____ _____
Department Head or Academic Designate Date

NOTES:

1. Student Registration

1.5 Curriculum Violation: Degree-Seeking Graduate and Undergraduate Students

1.5.1 A student is expected to register for a schedule of courses that follows the program of study for a degree in his or her college. A student who elects not to follow the program of study must obtain approval from his or her academic advisor, department head or college Dean or designee, and the Dean or designee of the college offering the courses. A student who fails to obtain approval may be, by his or her Dean or designee, blocked from registration, removed from the inappropriate course(s) and/or required to register for a prescribed schedule of courses.

NOTES:

REGISTRATION, SCHEDULE BUILDER, AND DEGREE PLANNER

Registration and Schedule Builder

Students can check in Howdy (approximately mid-to-late March for Summer/Fall registration OR mid-October for Spring registration) to view their assigned registration times for College Station. Students registering for Students registering for College Station courses will do so in accordance with the College Station registration schedule on the following link: https://aggie.tamu.edu/registration-and-records/classes/registration-information/undergraduate-registration-schedules

Prior to the start of pre-registration, prior to each new registration cycle, students should expect to do the following:

- Check for holds by going to your "My Profile" icon
  - Contact the offices having placed the registration holds to determine what is needed in order to remove the holds PRIOR to your pre-registration date.
- Complete the Location Update for the term you expect to register (i.e. College Station, Galveston, Qatar, etc.)
- Complete the Terms of Use acknowledgement for the term you expect to register (i.e. College Station, Galveston, Qatar, etc.)

Registration and schedule builder tutorial videos can be found at the following link: https://howdy.tamu.edu/uPortal/p/Registration-Intermediate.ctf1/

Degree Planner

The Undergraduate Degree Planner is a course planning tool designed to facilitate the timely completion of your degree and to assist in planning the courses required to fulfill your degree program requirements. As its name implies, it is a planner for your degree so that you meet all the requirements needed to graduate in a timely manner.

If this is your first time using a degree planner or you are confused on how to use it well, download the Undergraduate Degree Planner Student Guide: https://www.tamug.edu/advising/pdf/DegPlan.pdf

There is also a short tutorial that explains how to use the degree planner which can be found here:https://cdn.eis.tamu.edu/secure/TAMU/MyRecord/Undergraduate_Degree_Planner_3.0.mp4

FINANCIAL AID, SCHOLARSHIPS, AND TUITION REBATES

Financial Aid

Financial aid consists of scholarships and grants, loans and part-time employment. To determine your eligibility to receive financial assistance, you must submit the Free Application for Federal Student Aid (FAFSA) each academic year. You may access the electronic version of the FAFSA online at https://studentaid.gov/. To contact a financial aid counselor call (979) 847-1787. Information concerning tuition, fees, and financial aid is published in the Texas A&M University Undergraduate Catalog or online at https://financialaid.tamu.edu/.

Scholarships

Department of Food Science and Technology (for continuing students)

- Timeline: Application window opens October 15th and closes February 1st
- Application is made at https://uwide.tamu.edu/
- Amount awarded varies
- Students are recognized at the Department Banquet during the Fall semester
- Scholarships are disbursed within the first one to two weeks of the semester
- More information about FSTC scholarships can be found at: https://foodscience.tamu.edu/scholarships-and-financial-aid/

Institute of Food Technologists

- Timeline: Application window opens in January and closes in February
- Information available at https://www.ift.org/community/students/scholarships

Alamo Section IFT

- Application closes in October
- Up to $3,000 award
- For more information visit https://alamoift.org/

Longhorn IFT

- For more information visit https://www.longhorn-ift.org/

National Fellowships

- A large variety of national fellowships are available for application annually.
- A listing of all national fellowships can be found here: https://launch.tamu.edu/national-fellowships/fellowship-opportunities
- Assistance in applying for national fellowships can be found at the Texas A&M University National Fellowship office. More information can be found here: https://launch.tamu.edu/national-fellowships/becoming-a-candidate

Refund of Tuition and Fees

A student may drop courses during the first four days of a fall or spring semester. Refunds will not be issued for classes dropped after the 12th class day of a full semester. Please see the TAMU official academic calendar for specific dates.

Tuition Rebate

Undergraduate students who attempt no more than three hours in excess of the minimum number of semester credit hours required to complete their degree program may be entitled to a $1,000 rebate if they meet the criteria. Students must apply PRIOR to commencement during their last term. Several conditions apply and students must meet all specified criteria.

STUDENT ORGANIZATIONS

Food Science Club

Open to all undergraduate or graduate students who are interested in a career in any aspect of the food industry. The club offers activities that encourage networking, leadership, and educate members on the principles of food science. The club meets weekly with local and out-of-state food companies about potential careers and what it's like to work in the field. Meetings are held on Wednesdays during the Spring and Fall semesters at 6pm in KLCT (Kleberg Center) 127. For more information visit: https://foodscience.tamu.edu/department-updates/food-science-club-news/

Be sure to follow the club's social media pages for updates and join the club's GroupMe!

- Instagram: https://www.instagram.com/tamu_fsc/
- LinkedIn: https://www.linkedin.com/company/tamu-iftsa/?viewAsMember=true
- GroupMe: https://groupme.com/join_group/47295705/t7Qo9V

Institute of Food Technologists (IFT) Student Association

Become a more successful student. Enhance your future as a food science professional. Take advantage of IFT Student Association (IFTSA) opportunities to set yourself apart through competitions, networking, and leadership opportunities.

For more information visit: https://www.ift.org/community/students

College of Agriculture and Life Sciences Student Organizations

The Texas A&M University COALS contains a variety of student organizations. For more information visit: https://aglifesciences.tamu.edu/student-organizations/

Texas A&M University Student Organizations

Information regarding all other Texas A&M University student organizations can be found at the following link: https://www.tamu.edu/campus-community/student-life/student-orgs-and-activities.html

REQUIREMENTS FOR A B.S. DEGREE IN FOOD SCIENCE & TECHNOLOGY

A minimum of 120 semester hours must be completed. All courses on your individual degree plan must be completed. A minimum of 36 semester hours of 300 and/or 400 level coursework must be successfully completed in residence at Texas A&M University to obtain a baccalaureate degree. A minimum of 12 of those 36 hours must be in the major. See the current Undergraduate Catalog for more information.

Food Science and Technology is an exciting multidisciplinary field that prepares majors with a comprehensive knowledge of the biological, physical and engineering sciences to develop new food products, design innovative processing technologies, improve food quality and nutritive value, enhance the safety of foods and ensure the wholesomeness of our food supply. Food Science majors apply the principles learned in the basic sciences such as food chemistry, biochemistry, genetics, microbiology, food engineering and nutrition to provide consumers with safe, wholesome and attractive food products that contribute to their health and well-being. For more information, visit http://foodscience.tamu.edu.

The undergraduate curriculum is approved by the Institute of Food Technologists (IFT) and offers two tracks, a Food Science Option and an Industry Option. These tracks provide promising career opportunities in areas such as food product/process design, technical service, research and development, quality assurance, food safety, food law, regulatory oversight, technological innovation, marketing, corporate sales, sensory evaluation and operations management. There are numerous opportunities available for corporate internships, scholarships and study abroad programs that provide real-world experience and enhance opportunities for employment after completing a baccalaureate degree. The major also provides an excellent background for those interested in professional schools, graduate studies, medicine, veterinary medicine, dentistry, pharmacy, physical therapy, nursing, occupational therapy and public health.

Food Science Option

The Food Science option provides a strong knowledge base and fundamental understanding of chemistry, biology, engineering, physics, statistics, genetics, biochemistry, microbiology and nutrition that is applied toward the preservation, processing, packaging and distribution on foods that are wholesome, affordable and safe. The goal of the curriculum is to prepare Food Scientists for career opportunities in the food and allied industries or for further studies in graduate or professional schools. See an academic advisor for specific course listings.

Food Industry Option

The Food Industry option integrates knowledge from the basic disciplines of chemistry, microbiology, physics and biology and applies scientific principles from food engineering, food processing operations, sensory evaluation, food safety, HACCP, quality assurance and management to produce foods that are wholesome, affordable and safe. The goal of the curriculum is to prepare Food Technologists for careers in the food and related industries. These careers may involve food processing, manufacturing, technical service, food product development, operations management, regulatory oversight and other technology-based opportunities.

CURRICULUM IN FOOD SCIENCE AND TECHNOLOGY
OPTION: FOOD SCIENCE
CATALOG NO. 148 (2025-2026)[1]

FRESHMAN YEAR

First Semester		*Second Semester*	
ENGL 103 or 104	3	American History Elective[2]	3
MATH 140	3	MATH 142	3
CHEM 119	4	CHEM 120	4
FSTC 201	3	BIOL 111	4
FSTC 210	1	Free Elective	2
	14		16

SOPHOMORE YEAR

First Semester		*Second Semester*	
NUTR 202	3	CHEM 258	4
CHEM 257	4	American History Elective[2]	3
POLS 206	3	ACCT 209[3]	3
Lang., Phil. & Culture Elective	3	Creative Arts Elective[2]	3
Economics Elective	3	PHYS 201	4
	16		17

JUNIOR YEAR

First Semester		*Second Semester*	
FSTC 311	3	FSTC 312/313	4
ENGL 210	3	FSTC Elective[4]	4
POLS 207	3	STAT 301, 302, or 303	3
CHEM 315/318	4	MGMT 309	3
Free Elective	3		14
	16		

SENIOR YEAR

First Semester		*Second Semester*	
FSTC 326/327	4	FSTC 315 or AGSM 315	3
FSTC 314	3	FSTC 401	3
FSTC Elective[4]	3	BICH 303 or 410	3
Free Elective	3	Free Elective	1
	13	FSTC 444	3
		FSTC 481	1
			14

A total of 120 hours is required for graduation; 36 hours of 300/400 level courses are required to meet the TAMU residency requirement.

1. Catalog should correspond with your first semester.
2. University Core Curriculum. Six hours of international and cultural diversity are required. Selection must be from courses on the approved list. Selection can be courses that also satisfy the requirement for social and behavioral sciences, visual and performing arts, humanities, or electives.
3. Students may take ACCT 229 Principles of Accounting.
4. Students may choose from ANSC 307, 457; FSTC 281, 300, 305, 307, 316, 319, 324, 406, 407, 410, 416, 420, 422, 430, 457, 485, 489, 491; HORT 419, 420, 421; NUTR 211, 320; POSC 406.
5. Students may choose from AGEC 105, ECON 202 or 203.
6. Students may earn a chemistry minor by taking 6 hours of additional chemistry courses from an approved list as free electives. See the Department of Chemistry for more details. Students seeking a minor in chemistry must complete the Declaration of Minor in Chemistry form and have it approved by the undergraduate advisor in Chemistry (Room 104 Chemistry) and their FSTC advisor.

CURRICULUM IN FOOD SCIENCE AND TECHNOLOGY
OPTION: FOOD SCIENCE
CATALOG NO. 148 (2025-2026)*

University Core Curriculum
Citizenship

_____History Elective (3) ***(TCCN: HIST 1301)***
_____History Elective (3) ***(TCCN: HIST 1302)***
_____POLS 206 (3) ***(TCCN: GOVT 2305/2302)***
_____POLS 207 (3) ***(TCCN: GOVT 2306/2301***)

Communication
_____ENGL 103 or 104 (3) ***(TCCN: 1301)***
_____ENGL 210 (3) ***(TCCN: 2311)***

Natural Sciences
_____CHEM 119 (4) ***(TCCN: 1111, 1311, & 1411***)
_____CHEM 120 (4) ***(TCCN: 1112, 1312, & 1412***)

Language, Philosophy and Culture
_____Language, Philosophy, and Culture Elective (3)

Mathematics and Statistics*
_____MATH 140 (3) ***(TCCN: 1324)***
_____MATH 142 (3) ***(TCCN: 1325)***
_____STAT 302 (3)

Social and Behavioral Sciences
_____AGEC 105 or ECON 202 or 203 (3)

Creative Arts
_____Creative Arts Elective (3)

International & Cultural Diversity
_____3 hours *(can be used to satisfy*
_____3 hours *other requirements)*

Writing Intensive Credits (must be FSTC)
_____FSTC 313 (1)
_____FSTC 481 (1)

Science Courses (Credit hours)
Physics

_____PHYS 201 (4) ***(TCCN: PHYS 1401)***

Biochemistry
_____BICH 303 or 410 (3)

Biology
_____BIOL 111 (4) ***(TCCN: 1406)***

Nutrition
_____NUTR 202 (3) ***(TCCN: BIOL 1322)***

Chemistry
_____CHEM 257 (4)
_____CHEM 258 (4)
_____CHEM 315 (3)
_____CHEM 318 (1)

Required Food Science Courses
_____ FSTC 201 (3)
_____ FSTC 210 (1)
_____ FSTC 311 (3)
_____FSTC 312/313 "W" (4)
_____FSTC 314 (3)
_____FSTC 315 (3)
_____FSTC 326/327 (4)
_____FSTC 401 (3)
_____FSTC 481 "C" (1)
_____FSTC 444 (3)
_____FSTC Electives (4)***
_____FSTC Electives (3)***

Business Requirement
_____ ACCT 209 or 229 (3)
_____ MGMT 309 (3)

Free Electives (9 total)**
_____ Free Electives
_____ Free Electives
_____ Free Electives

*** - Prerequisites for MATH 142: Undergraduate level MATH 140 Minimum Grade of C or Undergraduate level MATH 150 Minimum Grade of C or TAMU MPE for Math 142 13 or TAMU Math Placement Total 22 or TAMU MPE for Math 142 Ver. 2 18**

CURRICULUM IN FOOD SCIENCE AND TECHNOLOGY
OPTION: INDUSTRY
CATALOG NO. 148 (2025-2026)[1]

FRESHMAN YEAR

First Semester		*Second Semester*	
ENGL 103 or 104	3	American History Elective[2]	3
MATH 140	3	MATH 142	3
CHEM 119	4	CHEM 120	4
FSTC 201	3	Economics Elective[5]	3
FSTC 210	1	Lang., Phil. & Culture Elective[2]	3
	14		16

SOPHOMORE YEAR

First Semester		*Second Semester*	
BIOL 111	4	ACCT 209	3
CHEM 257	4	American History Elective[2]	3
POLS 206	3	Creative Arts Elective[2]	3
NUTR 202	3	PHYS 201	4
	14	Free Elective	3
			16

JUNIOR YEAR

First Semester		*Second Semester*	
FSTC 311	3	AGEC 314	3
ENGL 210	3	FSTC 312/313	4
POLS 207	3	STAT 302	3
Free Elective	3	MGMT 309	3
FSTC Elective[3]	3	Free Elective	2
	15		15

SENIOR YEAR

First Semester		*Second Semester*	
FSTC 326/327	4	FSTC 481 Seminar	1
FSTC 314	3	FSTC 401	3
FSTC 315 or AGSM 315	3	BICH 303 or 410	3
FSTC Elective[3]	3	FSTC 444	3
Free Elective	1	Free Elective	6
	14		16

A total of 120 hours is required for graduation; 36 hours of 300/400 level courses are required to meet the TAMU residency requirement.

1. Catalog should correspond with your first semester.
2. University Core Curriculum. Six hours of international and cultural diversity are required. Selection must be from courses on the approved list. Selection can be courses that also satisfy the requirement for social and behavioral sciences, visual and performing arts, humanities, or electives.
3. Students may choose from ANSC 307, 457; FSTC 281, 300, 305, 307, 316, 319, 324, 406, 407, 410, 416, 420, 422, 430, 457, 485, 489, 491; HORT 419, 420, 421; NUTR 211, 320; POSC 406.
4. Students may choose from AGEC 105, ECON 202 or 203.
5. Students may achieve a business minor by taking the following courses as free electives: ISYS 209, MGMT 209, FINC 409, MKTG 409.

CURRICULUM IN FOOD SCIENCE AND TECHNOLOGY
INDUSTRY OPTION
CATALOG NO. 148 (2025-2026)

University Core Curriculum
Citizenship

_____History Elective (3) ***(TCCN: HIST 1301)***
_____History Elective (3) ***(TCCN: HIST 1302)***
_____POLS 206 (3) ***(TCCN: GOVT 2305/2302)***
_____POLS 207 (3) ***(TCCN: GOVT 2306/2301)***

Communication
_____ENGL 103 or 104 (3) (***TCCN: 1301)***
_____ENGL 210 (3) ***(TCCN: 2311)***

Natural Sciences
_____CHEM 119 (4) ***(TCCN: 1111, 1311, & 1411***)
_____CHEM 120 (4) ***(TCCN: 1112, 1312, & 1412)***

Languages, Philosophy, and Culture
_____Languages, Philosophy, and Culture Elective (3)

Mathematics and Statistics*
_____Math 140 (3) ***(TCCN: 1324)***
_____Math 142 (3) ***(TCCN: 1325)***
_____STAT 302 (3)

Social and Behavioral Sciences
_____AGEC 105 or ECON 202 or 203 (3)

Creative Arts
_____Creative Arts Elective (3)

International & Cultural Diversity
_____3 hours *(can be used to satisfy*
_____3 hours *other requirements)*

Writing Intensive Credits (must be FSTC)

_____ FSTC 313 (1)
_____ FSTC 481 (1)

Science Courses (Credit hours)
Physics

_____PHYS 201 (4) ***(TCCN: PHYS 1401)***

Biochemistry
_____BICH 303 or 410 (3)

Biology
_____BIOL 111 (4) ***(TCCN:1406)***

Nutrition
_____NUTR 202 (3) ***(TCCN: BIOL 1322)***

Chemistry
_____CHEM 257(4)

Required Food Science Courses
_____ FSTC 201 (3)
_____ FSTC 210 (1)
_____ FSTC 311 (3)
_____FSTC 312/313 (4)
_____FSTC 314 (3)
_____FSTC 315 (3)
_____FSTC 326/327 (4)
_____FSTC 401 (3)
_____FSTC 481 (1)
_____FSTC 444 (3)
_____FSTC Electives (6)
_____FSTC Electives (3)

Business Requirement
_____ACCT 209 (3)
_____MGMT 309 (3)
_____AGEC 314 (3)

Free Electives (12 total)
_____ Free Electives
_____ Free Electives
_____ Free Electives
_____ Free Electives

*** - Prerequisites for MATH 142: Undergraduate level MATH 140 Minimum Grade of C or Undergraduate level MATH 150 Minimum Grade of C or TAMU MPE for Math 142 13 or TAMU Math Placement Total 22 or TAMU MPE for Math 142 Ver. 2 18**

FOOD SCIENCE CERTIFICATE OPTIONS

While not required for graduation, certificates allow students to gain targeted knowledge and skills in a specific area of interest. Certificates will appear on your official transcript to formally recognize your achievement. All certificates require acceptance into the certificate program and completion of 15 credit hours consisting of a mix of required and elective courses. To enroll for a certificate program, meet with your department academic advisor to discuss certificate options and how these courses may apply to your specific degree plan.

Food Diversity Certificate

This program provides an in-depth study of religious and ethnic foods, focusing on food processing, quality control, record keeping, and global certifications for foods and food ingredients.

Our food supply is internationally connected and highly dependent on additives and ingredients from around the world representing different cultures and processing regulations. As such, issues of food safety, food authentication, and food certifications are prevalent and issues of food diversity are a nexus between the food industries and consumers.

The Food Diversity Innovation Program (FDIP) encompasses key principles of increasing importance to the global food industry including religious and ethnic foods and certified food systems, such as organic, non-GMO, gluten-free, allergen-free, and other personal/socially conscious certifications. Certified food systems require extensive employee training and record-keeping to verify authenticity, safety, processing adulterations, and fraud. Our endowed FDIP program was established in 2016 as a sustainable high-impact research and education model based on religious and ethnic foods and other certified foods to educate students through high-impact learning in concert with the food industry. The current research and education portfolio of FDIP also includes the training program for environmental health and the interdisciplinary program in toxicology at the graduate and undergraduate levels with research in human exposure to toxins in food and water and environmental impacts of food production. These programs provide high-impact-learning modules for existing courses and research activities for graduate and undergraduate students who are exploring complexities of diverse food systems, environmental and food toxicology, food safety, and food authentication/adulteration/fraud while engaging in experiential learning and critical-thinking activities that increase their ability to thrive and excel in diverse work-environments.

Coffee Processing and Quality Certificate

This program offers focused coursework on coffee production, processing, and quality evaluation, emphasizing their connections to various food products.

The Certificate in Coffee Processing and Quality, offered by the Department of Food Science and Technology, provides concentrated studies in coffee production, processing, and quality measurements as they relate to other food commodities. The program also explores the role of coffee and other food ingredients and products in human health and wellbeing. The undergraduate level stand-alone Certificate in Coffee Processing and Quality will prepare students in the College of Agriculture and Life Sciences, and other colleges, to effectively address the demand for a well-trained workforce in the coffee industry.

CERTIFICATE COURSE REQUIREMENTS

Food Diversity Certificate

Required Course		Credits
FSTC/NUTR 300	Religious and Ethnic Foods	3
Elective Courses – Select four of the following		
ANSC 307	Meats	3
FSTC 281	Introduction to Fermentation and Brewing Sciences	3
FSTC 316	Food Biomanufacturing and Cellular Agriculture	3
FSTC 324	Food Safety and Preventive Controls for Human Food	3
FSTC 416	Precision Fermentation and Future of Foods	3
FSTC 470/ANSC 470	Quality Assurance for the Food Industry	3
FSTC 485	Directed Studies	3
Total Semester Credit Hours		**15**

Coffee Processing and Quality Certificate

Required Courses		Credits
FSTC 324	Food Safety and Preventive Controls for Human Food	3
or ANSC/FSTC 326	or Food Bacteriology	3
FSTC 430	Innovative Functional Food Ingredients	3
FSTC 487/ANSC 487	Sensory Evaluation of Foods	3
HORT 450	Processing Coffee and High-Value Horticultural Crops	3
Elective Courses – Select one of the following		
AGEC 485	Directed Studies	3
AGEC 489	Special Topics in…	3
AGEC 491	Research	3
BAEN 427	Engineering Aspects of Packaging	3
FSTC 312	Food Chemistry	3
FSTC 485	Directed Studies	3
FSTC 491	Research	3
HORT 485	Directed Studies	3
HORT 491	Research	3
Total Semester Credit Hours		**15**

MINORING IN BUSINESS OR CHEMISTRY

A minor is a secondary area of academic focus that complements your major. A minor is not a requirement and is displayed on your transcript after graduation but not displayed on your diploma. The Food Industry Option requires a few extra classes to minor in Business and the Food Science option requires a few extra classes to minor in Chemistry.

Minor in Business

Mays Business School offers a business minor for undergraduate non-business majors. Students interested in pursuing a future MBA, or the MS Business Master's degree, may find that when combined with appropriate statistics and economics coursework, a business minor provides the business foundation required by most graduate business programs.

Students applying for a business minor must have a 2.0 or better overall GPA. Application is made in the student's home college or major department. Students are encouraged to start taking business minor courses as soon as the minor is declared.

To be awarded the business minor and receive transcript recognition, students must obtain a grade of C or better in each required course. Once declared, minor requirements become graduation requirements. The minor will be recognized on the transcript after graduation, but not on the diploma.

Minor in Chemistry

Students seeking a minor in chemistry must complete the Declaration of Minor in Chemistry form and have it approved by the undergraduate advisor in chemistry and their academic advisor. A minor in Chemistry should represent course work taken in the discipline beyond courses that might be used to satisfy core curriculum science requirements (8 credits). Therefore, though CHEM 119 or CHEM 107/CHEM 117 and CHEM 120 are prerequisites to all the listed courses, they are not considered part of the minor program. The course work listed represents various sub-disciplines within the field of Chemistry and would give the student an overall knowledge base fitting a Minor in Chemistry. This is consistent with the statement on minors published by the American Chemical Society.

Minor in Business Program Requirements

The minor in business consists of six specific courses chosen to develop foundational knowledge in the basic aspects of business, including accounting, finance, management, marketing, and management information systems.

The courses listed below constitute the 18 hours required for a minor in business.

Required Courses		**Credits**
ACCT 209	Survey of Accounting Principles	3
FINC 409	Survey of Finance Principles [1]	3
ISTM 209	Business Information Systems Concepts [2]	3
MGMT 209	Principles of Business Regulations and Law	3
MGMT 309	Survey of Management [1]	3
MKTG 409	Principles of Marketing [1]	3
Total Semester Credit Hours		**18**

[1] Course must be taken in residence at Texas A&M. No transfer courses or substitutions will be allowed except through approved exchange and affiliate provider study abroad programs.

[2] The Information Systems CLEP exam is available for students who have not taken ISTM 209 and wish to demonstrate mastery of the course concepts. See your academic advisor for additional information.

Students must earn a grade of C or better in each course listed above to be awarded the business minor and receive transcript recognition.

Course equivalents may be available for lower-level business minor coursework (200-level courses). Refer to the business minor webpage for further information.

Minor in Chemistry Program Requirements

The student will choose five lecture courses (14-15 credits) and three laboratory courses (3-5 credits) from categories A. through E. below. The student must take at least one course from four of the five categories. Students must have a C average in all courses taken for a minor in Chemistry. CHEM 491 and CHEM 485 credits will not be allowed to count for the minor nor used in the Chemistry GPA calculation. Substitution of courses without the CHEM prefix will not be allowed.

A. Organic Chemistry		**Credits**
CHEM 227	Organic Chemistry I	3
CHEM 228	Organic Chemistry II	3
CHEM 237	Organic Chemistry Laboratory	1
CHEM 238	Organic Chemistry Laboratory	1
CHEM 257	Organic Chemistry I – Structure and Function	4
CHEM 258	Organic Chemistry II – Reactivity and Applications	4
B. Analytical Chemistry		
CHEM 315	Fundamentals of Quantitative Analysis [1]	3
CHEM 316	Quantitative Analysis [1]	2
CHEM 318	Quantitative Analysis Laboratory	1
C. Physical Chemistry		
CHEM 310	Elements of Physical Chemistry [2]	3
CHEM 311	Physical Chemistry Laboratory	1
CHEM 322	Physical Chemistry for Engineers [2]	3
CHEM 325	Physical Chemistry Laboratory I	1
CHEM 326	Physical Chemistry Laboratory II	1
CHEM 327	Physical Chemistry I [2]	3
CHEM 328	Physical Chemistry II	3
D. Inorganic Chemistry		
CHEM 220	Physics and Chemistry of Inorganic Materials	3
CHEM 362	Descriptive Inorganic Chemistry	3
CHEM 383	Chemistry of Environmental Pollution	3
E. Advanced Chemistry		
CHEM 415	Analytical Chemistry	3
CHEM 433	Advanced Inorganic Chemistry Laboratory	2
CHEM 434	Analytical Instrumentation Laboratory	2
CHEM 446	Organic Chemistry III	3
CHEM 456	Chemical Biology	3
CHEM 462	Inorganic Chemistry	3
CHEM 464	Nuclear Chemistry	3
CHEM 466	Polymer Chemistry	3
CHEM 468	Materials Chemistry of Inorganic Materials	3
CHEM 470	Industrial Chemistry	3
CHEM 483	Green Chemistry	3
CHEM 489	Special Topics in…	1-4

[1] Students may not count both CHEM 315 and CHEM 316

[2] Students may only count one from CHEM 310, CHEM 322, or CHEM 327.

FOOD SCIENCE COURSE DESCRIPTIONS

FSTC 201 Food Science (Credit 3)
The fundamental biological, chemical and physical scientific principles associated with the study of foods; topics include food composition and nutrition, food additives and regulations, food safety and toxicology, food processing, food engineering, food biotechnology, product development and sensory evaluation.

FSTC 210 Horizons in Nutrition and Food Science (Credit 1)
Introduction to nutrition and food science career opportunities through presentations by nutrition and food science researchers and industry professionals; addresses issues of professionalism including portfolio development, teamwork, and critical thinking skills. Cross-listed with NUTR 210.

FSTC 281 Introduction to Fermentation and Brewing Sciences (Credit 3)
Master fermentation and brewing science, from microbial selection to bio-separation, ensuring food safety and quality compliance.

FSTC 300 Religious and Ethnic Foods (Credit 3)
Understanding religious and ethnic foods with application to product development, production, and nutritional practices; emphasis on different food rules and priorities with attention given to different religious and ethnic groups within the US and around the world. *Prerequisites*: Junior or senior classification or approval of instructor; basic knowledge of food science and nutrition helpful. Cross-listed with NUTR 300.

FSTC 305 Fundamentals of Baking (Credit 3)
Fundamentals of baking; chemical and physical properties of ingredients, methods of baking all products, fundamental reactions of dough, fermentation, and oven baking. (***Only offered in the Fall semester)*** *Prerequisites*: CHEM 222 or 257 or approval of instructor.

FSTC 311 Principles of Food Processing (Credit 3)
Principles and practices of canning, freezing, dehydration, pickling and specialty food manufacture; fundamental concepts of various techniques of preparation, processing, packaging and use of additives; processing plants visited. ***(Only offered in the Fall semester)*** *Prerequisites*: FSTC 201; junior or senior classification or approval of department head or instructor.

FSTC 312 Food Chemistry (Credit 3)
The fundamental and relevant chemistry and functionality of the major food constituents (water, carbohydrates, lipids, proteins, phytochemical nutraceuticals) and study of food emulsion systems, acids, enzymes, gels, colors, flavors and toxins. (***Only offered in the Spring semester)*** *Prerequisites*: FSTC 201; CHEM 257 or approval of department head or instructor.

FSTC 313 Food Chemistry Laboratory (Credit 1), **Approved "W" Course
Laboratory exercises investigating specific molecules, such as food acids, enzymes, pigments and flavors, and chemical interactions in foods, such as oxidation reactions, emulsion systems, and functional properties from a fundamental chemistry rather than an analytical perspective. ***(Only offered in the Spring semester)*** *Prerequisites*: FSTC 201; CHEM 257 or approval of department head or instructor.

FSTC 314 Food Analysis (Credit 3)
Selected standard methods for assay of food components; principles and methodology of both classical and instrumental techniques for food analysis. ***(Only offered in the Fall semester)*** *Prerequisites*: FSTC 201; FSTC 311; CHEM 257 or approval of department head or instructor.

FSTC 315 Food Processing Engineering Technologies (Credit 3)
Elementary mechanics, physical and thermal properties of food and processing materials, heat transfer, mass and energy balances, psychrometrics (properties of air), insulation. *Prerequisites*: Grade of C or better in PHYS 201 or PHYS 206, or approval of instructor. Cross-listed with AGSM 315.

FSTC 316 Fermentation Technology for Alternative Protein Production (Credit 3)
Exploration of fermentation science, cellular agriculture, alternative proteins, and lab techniques for bioprocessing, microbial communities, and food safety. (***Only offered in the Spring semester)*** *Prerequisite*: Junior or senior classification.

FSTC 319 Molecular Methods for Microbial Detection and Characterization (Credit 3)
Exploration of vital molecular methods crucial for identifying and characterizing microbial communities across industries such as fermentation and brewing. (***Only offered in the Fall semester)*** *Prerequisites*: BIOL 111; BIOL 112 or BIOL 206; junior or senior classification.

FSTC 320 Understanding Obesity: A Social and Scientific Challenge (Credit 3)
Perspectives of obesity in food science, nutrition, health and psychology; study of obesity factors in relation to genetics, exercise physiology and sociology with emphasis on food and nutrition. *Prerequisites:* Junior or senior classification or approval of instructor. Cross-listed with NUTR 320.

FSTC 324 Food Safety and Preventive Controls for Human Food (Credit 3)
Microbiological food spoilage, fermentation and safety; U.S. Food and Drug Administration (FDA) recognized curriculum for "preventive controls qualified individual" within the FDA Hazard Analysis and Risk-based Preventive Controls for Human Food regulation. ***(Only offered in the Spring semester)*** *Prerequisites*: Junior or senior classification or approval of instructor.

FSTC 326 Food Bacteriology (Credit 3)
Microbiology of human foods and accessory substances; raw and processed foods; physical, chemical and biological phases of spoilage; standard industry techniques of inspection and control. *Prerequisite*: Junior or senior classification or approval of instructor. Cross-listed with ANSC 326.

FSTC 327 Food Bacteriology Laboratory (Credit 1)
Laboratory to accompany ANSC 326 or FSTC 326. Cross-listed with ANSC 327.

FSTC 330 Dairy and Food Technology (Credit 3)
Principles and practices involved in processing of milk into market milk, butter, cheese and cheese foods; fundamental principles of these processes as related to their design and control.

FSTC 331 Dairy and Food Technology Laboratory (Credit 1)
Manufacture of frozen, freeze-dehydrated, concentrated and dehydrated dairy foods; fundamental aspects of freezing, concentration and dehydration of foods.
Prerequisite: FSTC 330 or approval of department head.

FSTC 401 Food Product Development (Credit 3)
Design and develop food products using principles of food chemistry, food processing, nutrition, sensory analysis and statistics; team collaborate to improve food product characteristics to meet the needs of a changing society.
Prerequisites: FSTC 201, FSTC 311, FSTC 312, FSTC 313, FSTC 314, FSTC 315, FSTC 326, or concurrent enrollment; senior classification or approval of instructor.
NOTE: TAKE THIS COURSE YOUR LAST SPRING SEMESTER.

FSTC 410 Nutritional Pharmacometrics of Food Compounds (Credit 3)
Nutritional pharmacokinetics and pharmacodynamics of food compounds; specific examples of toxicological and pharmacological effects of food compounds. *Prerequisites*: NUTR 201, NUTR 202, NUTR 203, CHEM 222 or CHEM 227 or CHEM 257, or approval of instructor; junior or senior classification. Cross-listed with NUTR 410.

FSTC 416 Precision Fermentation and Future of Foods (Credit 3)
Exploration of precision fermentation; bioprocessing to gene editing, and its applications in sustainable food production. *Prerequisites*: Junior or senior classification.

FSTC 420 Study Abroad: Italy (Credit 3)
Explore principles of Mediterranean diet, European nutrition regulatory aspects, wine-making and food processing in Italy.

FSTC 422 Study Abroad: Brazil (Credit 3)
Sustainable nutrition and food processing in Brazil.

FSTC 430 Innovative Functional Food Ingredients (Credit 3)
Exploration of the impact of functional food ingredients on human health and the microbiome, processing, quality control, and regulatory compliance under FDA and FTC guidelines. (***Only offered in the Spring semester)*** *Prerequisites*: FSTC 201 and FSTC 311, or FSTC 314, or FSTC 313; or approval of instructor.

FSTC 444 Fundamentals of Food Law (Credit 3)
History, development of, and fundamental principles behind current food regulations, including food labeling, adulteration, food safety, food additives, dietary supplements, and import and export laws; overview of government agency jurisdiction, international law and ethics. (***Only offered in the Spring semester)*** *Prerequisites:* FSTC 201; junior or senior classification.

FSTC 457 Hazard Analysis and Critical Control Point System (Credit 3)
Hazard Analysis and Critical Control Point (HACCP) principles specifically related to meat and poultry; microbiological and process overviews; good manufacturing practices and standard operating procedures development. ***(Only offered in the Fall semester)*** *Prerequisites*: FSTC 326 or ANSC 326, or approval of instructor. Cross-listed with ANSC 457.

FSTC 470 Quality Assurance for the Food Industry (Credit 3)
Principles of food system process control including statistical process control (SPC) and the tools required to assure uniform communication and understanding of quality assurance systems. ***(Only offered in the Fall semester)***
Prerequisite: Junior or senior classification. Cross-listed with ANSC 470.

FSTC 481 Seminar (Credit 1) ** *Approved "C" Course*
Guidelines and practice in journal article review and making effective technical presentations; strategies for conducting a job search; development of résumés and letters and interviewing targeted for careers in the food industry or graduate school.
Prerequisite: Senior classification in food science and technology.
NOTE: TAKE THIS COURSE YOUR LAST FALL SEMESTER.

FSTC 487 Sensory Evaluation of Foods (Credit 3)
Application of sensory science principles and practices to food systems including an understanding of discriminative, descriptive and consumer sensory techniques. (***Only offered in the Spring semester)*** *Prerequisites:* CHEM 222 or CHEM 228 or CHEM 258; junior or senior classification. Cross-listed with ANSC 487.

UNDERGRADUATE SUPPORTING COURSES

ACCT 209 Survey of Accounting Principles (Credit 3)
Accounting survey for non-business majors; non-technical accounting procedures, preparation and interpretation of financial statements and internal control. May not be used to satisfy degree requirements for majors in business. Business majors who choose to take this course must do so on a satisfactory/unsatisfactory basis.

AGEC 105 Introduction to Agricultural Economics (Credit 3)
Characteristics of our economic system and basic economic concepts; survey of the farm and ranch firm and its organization and management; structure and operation of the marketing system; functional and institutional aspects of agricultural finance; government farm programs.

AGEC 314 Marketing Agricultural and Food Products (Credit 3)
Operations involved in movement of agricultural commodities from farmer to consumer via several intermediaries; functions involve buying, selling, transportation, storage, financing, grading, pricing and risk bearing; agricultural supply chain or value chain is studied in detail; marketing aspects of commodities and differentiated goods.
Prerequisites: AGEC 105 or 3 hours of economics; and junior or senior classification.

AGEC 315 Food and Agricultural Sales (Credit 3)
Principles of professional sales techniques used in food and agricultural firms; develop a professional sales presentation; study current agribusiness industry professional salespersons. *Prerequisites*: Junior or senior classification.

ANSC 307 Meats (Credit 3)
Integrated studies of the meat animal processing sequence regarding the production of meat-type animals and the science and technology of their conversion to human food
Prerequisites: Grade of C or better in ANSC 113; junior classification or approval of instructor.

ANSC 467 Processed Meat Food Operations (Credit 3)
Application of scientific and business principles to manufacturing and process flow of commercial meat food products. *Prerequisites*: ANSC 307 or FSTC 307 or approval of department head.

ANSC 487 Sensory Evaluation of Foods (Credit 3)
Application of sensory science principles and practices to food systems including an understanding of discriminative, descriptive and consumer sensory techniques.
Prerequisites: CHEM 222 or CHEM 228; junior or senior classification.

BAEN 427 Engineering Aspects of Packaging (Credit 3)
Introduction to properties and engineering aspects of materials for use as components of a package and/or packaging system; principles of design and development of packages; evaluation of product-package-environment interaction mechanisms; testing methods; environmental concerns; regulations; food packaging issues.
Prerequisites: Junior or senior classification or approval of instructor.

BIOL 111 Introductory Biology (Credit 4)
First half of an introductory two-semester survey of contemporary biology that covers the chemical basis of life, structure and biology of the cell, molecular biology and genetics; includes laboratory that reinforces and provides supplemental information related to the lecture topics.

BICH 303 Elements of Biological Chemistry (Credit 3)
Survey of the biochemical sciences designed for the non-biochemistry major; overview of the chemistry and metabolism of biologically important molecules, the biochemical basis of life processes, cellular metabolism and regulation. Students requiring biochemistry in greater depth should register for BICH 410 and BICH 411.
Prerequisites: CHEM 222, CHEM 227 or CHEM 257; not open to biochemistry majors.

BICH 410 Comprehensive Biochemistry I (Credit 3)
Structure, function and chemistry of proteins and carbohydrates; kinetics, mechanisms and regulation of enzymes; metabolism of carbohydrates. Not open to biochemistry or genetics majors. *Prerequisites:* CHEM 228 or CHEM 258; junior or senior classification.

CHEM 119 Fundamentals of Chemistry I (Credit 4)
Introduction to modern theories of atomic structure and chemical bonding; chemical reactions; stoichiometry; states of matter; solutions; equilibrium; acids and bases; coordination chemistry ; methods and techniques of chemical experimentation; qualitative and semiquantitative procedures applied to investigative situations
Prerequisites: Completion of at least 90% of the ALEKS chemistry preparatory module.

CHEM 120 Fundamentals of Chemistry II (Credit 4)
Theory and applications of oxidation-reductions systems; thermodynamics and kinetics; complex equilibria and solubility product; nuclear chemistry; descriptive inorganic and organic chemistry; introduction to analytical and synthetic methods and to quantitative techniques to both inorganic and organic compounds with emphasis on an investigative approach. *Prerequisites*: CHEM 119, or CHEM 107 and CHEM 117

CHEM 257 Organic Chemistry I – Structure and Function (Credit 4)
Introduction to the chemistry of carbon-containing compounds, including general principles and application to various academic, industrial, and biological processes; includes elementary operations and techniques of organic chemistry laboratories.
Prerequisites: CHEM 102 or 120.

CHEM 258 Organic Chemistry II – Reactivity and Applications (Credit 4)
Continuation of CHEM 257; introduction to the chemistry of carbon-containing compounds, including general principles and application to various academic, industrial, and biological processes; includes elementary operations and techniques of organic chemistry laboratories. *Prerequisites*: CHEM 257 or CHEM 227 and CHEM 237

CHEM 315 Fundamentals of Quantitative Analysis (Credit 3)
Quantitative and statistical methods of analysis; solution chemistry; chemical equilibrium of analytically useful reactions; advanced analytical methods including electrochemistry, separations and kinetic methods.
Prerequisites: CHEM 102 or CHEM 120.

CHEM 318 Quantitative Analysis Laboratory (Credit 1)
Laboratory work consists of selected experiments in quantitative analysis designed to typify operations of general analytical lab, including chemical analyses by volumetric and gravimetric methods; introduction to chemical measurements by spectroscopic and separations techniques and associated instrumentation.
Prerequisites: CHEM 102 or 114; CHEM 315 or 316 or registration therein.

CHEM 362 Descriptive Inorganic Chemistry (Credit 3)
Introduction to inorganic chemistry with a focus in descriptive inorganic chemistry, bonding theories in inorganic molecules and in the solid state, redox chemistry, descriptive main group and transition metal chemistry; ligand field theory, molecular magnetism and electronic spectra in transition metal complexes.
Prerequisites: CHEM 102 or CHEM 120.

CHEM 383 Chemistry of Environmental Pollution (Credit 3)
Chemical pollutants in the air, in water and on land; their generation, chemical reactivity, action on environment and disappearance through chemical mechanisms; chemistry of existing pollution abatement. *Prerequisites:* CHEM 120; junior or senior classification.

CHEM 415 Analytical Chemistry (Credit 3)
Theory and practical aspects of modern instrumental methods of quantitative analysis; instrumental approaches to selectivity and sensitivity; examples of major, minor and trace component analysis. *Prerequisites:* CHEM 315.

CHEM 433 Advanced Inorganic Chemistry Laboratory (Credit 2)
Preparation, characterization and properties of bioinorganic, organometallic and macromolecular inorganic compounds; special techniques (glove box manipulations and double-manifold Schlenk lines) for handling air-sensitive materials.
Prerequisites: CHEM 362 or registration therein.

CHEM 434 Analytical Instrumentation Laboratory (Credit 2)
Practical application of modern instrumental methods of quantitative analysis; atomic and molecular techniques to conduct chemical characterizations and analyses.
Prerequisites: CHEM 318; CHEM 415 or concurrent enrollment.

CHEM 446 Organic Chemistry III (Credit 3)
Principles and applications of organic chemistry for students majoring in chemistry, chemical engineering, materials science, biological, and physical science: emphasis on chemical reactivity, mechanistic chemistry, and synthesis.
Prerequisites: CHEM 228 or CHEM 258; or approval of instructor.

CHEM 456 Chemical Biology (Credit 3)
Application of chemical principles to biological phenomena; capstone course for advanced students, integrating organic or inorganic chemistry with biology.
Prerequisites: CHEM 228 or CHEM 258 or equivalent; junior or senior classification.

CHEM 466 Polymer Chemistry (Credit 3)
Mechanisms of polymerization reactions of monomers and molecular weight distributions of products; principles, limitations and advantages of most important methods of molecular weight determination; relationship of physical properties to structure and composition; correlations of applications with chemical constitution.
Prerequisites: CHEM 228 or CHEM 258; CHEM 315 or equivalent.

CHEM 470 Industrial Chemistry (Credit 3)
Applications of organic and inorganic chemical reactions in the manufacture of commercial products; chemistry of petroleum refining and petrochemical processing; industrial polymerization processes; commodity and fine chemical production; influence of kinetics and thermodynamics on economics of industrial chemical production; pollution abatement technology.
Prerequisites: CHEM 228 or CHEM 258; junior or senior classification.

CHEM 483 Green Chemistry (Credit 3)
Environmentally benign chemistry; the design of chemical products and processes that reduce or eliminate the use and generation of hazardous substances; twelve principles of Green Chemistry; atom economy; use of renewable resources; catalysis for Green Chemistry; alternative solvents and reaction media; energy and the environment.
Prerequisites: CHEM 228 or CHEM 258; junior or senior classification.

ENGL 104 Composition and Rhetoric (Credit 3)
Focus on referential and persuasive researched essays through the development of analytical reading ability, critical thinking and library research skills.
Prerequisite: Freshman or sophomore classification

ENGL 210 Technical and Professional Writing (Credit 3)
Focus on writing for professional rhetorical situations; correspondence and researched reports fundamental to the workplace—memoranda, letters, electronic correspondence, research proposals and presentations; use of visual rhetoric and document design in print and electronic mediums; emphasis on audience awareness, clarity of communication and collaborative team-work.

FINC 409 Survey of Finance Principles (Credit 3)
Finance survey for non-business majors; financial markets, the investment banking process, interest rates, financial intermediaries and the banking system, financial instruments, time value of money concepts, security valuation and selection, and international finance. *Prerequisites*: Junior or senior classification.

HORT 416 Understanding Wine - From Vines to Wines and Beyond (Credit 3)
Facets of wine in the United States and around the world; the history of wine, grape growing and winemaking, types of wine, wine etiquette, beer and spirits, sensory evaluation, wine marketing, and winery tasting room and event management.
Prerequisites: Must be 21 years of age; junior or senior classification or approval of instructor.

HORT 420 Concepts of Wine Production (Credit 3)
Classic wine grapes of the world and where they are produced; evaluation of wine style and quality through formal laboratory tastings. *Prerequisites*: HORT 201 or FSTC 201; must be 21 years of age; junior or senior classification.

HORT 421 Enology (Credit 3)
Provides a basic understanding of each step of the wine making process; emphasis on home and small scale commercial wine production as related to Texas conditions. *Prerequisites*: Must be 21 years of age; junior or senior classification.

ISTM 209 Business Information Systems Concepts (Credit 3)
Introduction to the use of computers in data and document management and as a problem-solving tool for business; fundamental concepts of information technology and theory; opportunities to use existing application software to solve various business information systems oriented problems.

MATH 140 Mathematics for Business and Social Sciences (Credit 3)
Application of common algebraic functions, including polynomial, exponential, logarithmic and rational, to problems in business, economics and the social sciences; includes mathematics of finance, including simple and compound interest and annuities; systems of linear equations; matrices; linear programming; and probability, including expected value. Only one of the following will satisfy the requirements for a degree: MATH 140 or MATH 168. *Prerequisites:* High school algebra I and II and geometry; not open to senior classification.

MATH 142 Business Calculus (Credit 3)
Limits and continuity; techniques and applications of derivatives including curve sketching and optimization; techniques and applications of integrals; emphasis on applications in business, economics, and social sciences. Only one of the following will satisfy the requirements for a degree: MATH 142, MATH 147, MATH 151 or MATH 171. *Prerequisites:* Grade of C or better in MATH 140 or MATH 150, or equivalent or acceptable score on Texas A&M University math placement exam; not open to senior classification.

MGMT 209 Principles of Business Regulations and Law (Credit 3)
Foundational information about the U.S. legal system and dispute resolution, and their impact on business; includes general principles of law, the relationship of business and the U.S. Constitution, state and federal legal systems, the relationship between law and ethics, contracts, sales, torts, agency law, intellectual property and business law in the global context. May not be used to satisfy degree requirements for majors in business. *Prerequisite*: Sophomore classification

MGMT 309 Survey of Management (Credit 3)
Survey for non-business majors of the basic functions and responsibilities of managers; includes the environmental context of management, planning and decision making, organization structure and design, leading and managing people, and the controlling process; issues of globalization, ethics, quality and diversity integrated throughout the course. May not be used to satisfy degree requirements for majors in business. *Prerequisite*: Junior classification

MKTG 409 Principles of Marketing (Credit 3)
Survey of the activities and managerial decisions involved in creating and communicating value to customers; topics include strategic marketing, social and ethical issues, buyer behavior, marketing research, market segmentation and managerial issues related to the marketing mix, product, price, distribution and promotion. May not be used to satisfy degree requirements for a major in business.
Prerequisites: Junior classification

NUTR 202 Fundamentals of Human Nutrition (Credit 3)
Principles of nutrition with application to the physiologic needs of individuals; food sources and selection of an adequate diet; formulation of Recommended Dietary Allowances; nutritional surveillance; for non-nutrition majors only.

NUTR 211 Scientific Principles of Foods (Credit 4)
Basic principles underlying selection, preparation and preservation of food in relation to quality standards, acceptability and aesthetics; introduction to composition, nutritive value, chemical and physical properties of foods; introduction to experimental study of foods. *Prerequisites*: CHEM 119; NUTR 202 or NUTR 203; Dietetics (DPD) track; or approval of instructor.

PHYS 201 College Physics (Credit 4)
Fundamentals of classical mechanics, heat, and sound. Primarily for architecture, education, premedical, predental, and preveterinary medical students

POLS 206 American National Government (Credit 3)
Survey of American national government, politics, and constitutional development.

POLS 207 State and Local Government (Credit 3)
Survey of state and local government and politics with special reference to the constitution and politics of Texas.

POSC 406 Poultry Further Processing (Credit 4)
Science and practice of value-added products; physical, chemical, microbiological and functional characteristics of value-added poultry products as they affect consumer acceptance, efficiency of production and regulatory approval.
Prerequisites: CHEM 222; DASC 326 or FSTC 326; POSC 309; POSC 405; junior or senior classification or approval of instructor.

STAT 302 Statistical Methods (Credit 3)
Intended for undergraduates in the biological sciences. Introduction to concepts of random sampling and statistical inference; estimation and testing hypotheses of means and variances; analysis of variance; regression analysis; chi-square tests. Only one of the following will satisfy the requirements for a degree: STAT 201 or BUSN 203; STAT 301, STAT 302, STAT 303.
Prerequisite: MATH 168 or equivalent; junior or senior classification.