FOOD INDUSTRY OPTION, B.SC. - HUMAN NUTRITIONAL SCIENCES

Overview/Entrance Requirements

Students majoring in Human Nutritional Sciences (HNS) will be admitted to the 4-year degree program, the second-degree program, or the Human Nutritional Sciences/Culinary Arts program. Students in the 4-year degree program must choose from the Nutrition Option, the Foods Option, or the Food Industry Option.

Degree Requirements

Bachelor of Science (Human Nutritional Sciences) - Food Industry Option

Course	Title	Hours
AGRI 1600	Introduction to Agrifood Systems	3
AGRI 2400	Experimental Methods in Agricultural and Food Sciences [1]	3
One of the following [2]		3-6
BIOL 1410	Anatomy of the Human Body	
BIOL 1020 & BIOL 1030	Biology 1: Principles and Themes and Biology 2: Biological Diversity, Function and Interactions	
BIOL 1412	Physiology of the Human Body [2]	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1130	Introduction to Organic Chemistry [3]	3
or CHEM 1110	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties	
CHEM/MBIO 2730	Elements of Biochemistry 1 [4]	3
CHEM 2740	Introduction to the Biochemistry Laboratory [5]	3
CHEM/MBIO 2750	Elements of Biochemistry 2 [6]	3
FOOD 4150	Food Microbiology 1	3
HEAL 2600	Integration of Health Determinants of Individuals	3
HEAL 3000	Introduction to Social Epidemiology	3
HNSC 1200	Food: Facts and Fallacies	3
HNSC 1210	Nutrition for Health and Changing Lifestyles	3
HNSC 2000	Research Methods and Presentation	3
HNSC 2130	Nutrition Through the Life Cycle	3
HNSC 2140	Basic Principles of Human Nutrition	3
HNSC 2150	Composition, Functional and Nutritional Properties of Foods	3
HNSC 2160	Principles of Food Preparation and Preservation	3
HNSC 4100	Current Issues in Food and Human Nutrition	3
PSYC 1200	Introduction to Psychology	3-6
or SOC 1000	Introduction to Sociology	
Total Hours		**63-69**

1. STAT 2000 (Basic Statistical Analysis 2) can be substituted for AGRI 2400 (Experimental Methods in Agricultural and Food Sciences).
2. Students selecting BIOL 1020 and BIOL 1030 are not required to complete BIOL 1410. If BIOL 1020 and BIOL 1030 are taken, the 3 additional credit hours will be used towards free electives. Under required courses, students must take BIOL 1412. Students can substitute both BIOL 1410 and BIOL 1412 with both BIOL 2410 and BIOL 2420.
3. Students can hold CHEM 2100 (Organic Chemistry 1: Foundations of Organic Chemistry) in place of CHEM 1130 (Introduction to Organic Chemistry).
4. Under required courses, students can use either CHEM 2700/MBIO 2700 (Biochemistry 1: Biomolecules and an Introduction to Metabolic Energy) in place of CHEM 2730/MBIO 2730 (Elements of Biochemistry 1).
5. Under required courses, students can take either CHEM 2720 (Principles and Practices of the Modern Biochemistry Laboratory) in place of CHEM 2740 (Introduction to the Biochemistry Laboratory).
6. Under required courses, students can use CHEM 2710/MBIO 2710 (Biochemistry 2: Catabolism, Synthesis, and Information Pathway) in place of CHEM 2750/MBIO 2750 (Elements of Biochemistry 2).

Food Industry Option

Course	Title	Hours
ABIZ 1000	Introduction to Agribusiness Management	3
or GMGT 1010	Business and Society	
FOOD 4310	Introduction to HACCP	3
HNSC 3260	Food Quality Evaluation	3
HNSC 3300	Vitamins and Minerals in Human Health	3
or HNSC 3310	Macronutrients and Human Health	
HNSC 3330	Ingredient Technology for Designed Foods	3
HNSC 4280	Food Product Development	3
HNSC 4364	Foods Industry Option Practicum	6
MKT 2210	Fundamentals of Marketing	3
Free Electives [1,2]		9-15
One of the following concentrations:		15
Quality Assurance Concentration		
Food Product Development Concentration		
Food Industry Management Concentration		
Total Hours		**51-57**

1. Students selecting BIOL 1020 and BIOL 1030 are not required to complete BIOL 1410. If BIOL 1020 and BIOL 1030 are taken, the additional 3 credit hours will be used towards free electives. Under required courses, students must take BIOL 1412. Students can substitute both BIOL 1410 and BIOL 1412 with both BIOL 2410 and BIOL 2420.
2. Students can apply for the Cooperative Education Program. Two work terms are required to graduate with Co-op designation. Co-op courses (3 credit hours each) are used towards free electives.

Progression Plan

Suggested Progression of Program: Food Industry Option

Course	Title	Hours
Year 1		
HNSC 1200	Food: Facts and Fallacies	3
HNSC 1210	Nutrition for Health and Changing Lifestyles	3
AGRI 1600	Introduction to Agrifood Systems	3
One of the following		3
BIOL 1410	Anatomy of the Human Body (or)	
BIOL 1020 & BIOL 1030	Biology 1: Principles and Themes and Biology 2: Biological Diversity, Function and Interactions	
BIOL 1412	Physiology of the Human Body	3
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1110 or CHEM 1130	Introductory Chemistry 2: Interaction, Reactivity, and Chemical Properties or Introduction to Organic Chemistry	3
PSYC 1200 or SOC 1000	Introduction to Psychology or Introduction to Sociology	6
Free Elective(s) - credit hours (0-6) depend on selections above		3
	Hours	**30**
Year 2		
HNSC 2000	Research Methods and Presentation	3
HNSC 2130	Nutrition Through the Life Cycle	3
HNSC 2140	Basic Principles of Human Nutrition	3
HNSC 2150	Composition, Functional and Nutritional Properties of Foods	3
HNSC 2160	Principles of Food Preparation and Preservation	3
ABIZ 1000 or GMGT 1010	Introduction to Agribusiness Management or Business and Society	3
AGRI 2400	Experimental Methods in Agricultural and Food Sciences	3
CHEM/MBIO 2730	Elements of Biochemistry 1	3
CHEM 2740	Introduction to the Biochemistry Laboratory	3
CHEM/MBIO 2750	Elements of Biochemistry 2	3
	Hours	**30**
Year 3		
HNSC 3260	Food Quality Evaluation	3
HNSC 3330	Ingredient Technology for Designed Foods	3
FOOD 4150	Food Microbiology 1	3
HEAL 2600	Integration of Health Determinants of Individuals	3
HEAL 3000	Introduction to Social Epidemiology	3
MKT 2210	Fundamentals of Marketing	3
Concentration Electives		6
Free Electives		6
	Hours	**30**
Year 4		
HNSC 3300 or HNSC 3310	Vitamins and Minerals in Human Health or Macronutrients and Human Health	3
HNSC 4100	Current Issues in Food and Human Nutrition	3
HNSC 4280	Food Product Development	3
HNSC 4364	Foods Industry Option Practicum	6
FOOD 4310	Introduction to HACCP	3
Concentration Electives		9
Free Elective		3
	Hours	**30**
	Total Hours	**120**

Concentrations

Students in the Food Industry Option must complete one of the following three concentrations (15 credit hours). Select 15 credit hours of course work from one of the lists that follow.

Students are required to ensure prerequisites will be met for the courses in their selected concentration. Prerequisites for concentration courses may result in additional courses or free electives needed.

Quality Assurance Concentration

Course	Title	Hours
FOOD 4160	Food Analysis 1	3
FOOD 4250	Food Analysis 2	3
FOOD 4500	Food Safety and Regulations	3
HNSC 4270	Sensory Evaluation of Food	3
STAT 3000	Applied Linear Statistical Models	3
STAT 3170	Statistical Quality Control	3

Food Product Development Concentration

Course	Title	Hours
FOOD 4160	Food Analysis 1	3
FOOD 4250	Food Analysis 2	3
FOOD 4500	Food Safety and Regulations	3
Up to one of the following:		3
FOOD 3160	Frozen Dairy Products	
FOOD 3170	Cheese and Fermented Milk Products	
FOOD 3200	Baking Science and Technology	
HNSC 4270	Sensory Evaluation of Food	3
HNSC 4290	Food, Nutrition and Health Policies	3
HNSC 4540	Functional Foods and Nutraceuticals	3
STAT 3000	Applied Linear Statistical Models	3

Food Industry Management Concentration

Course	Title	Hours
ACC 1100	Introductory Financial Accounting	3
GMGT 2060	Management and Organizational Theory	3
GMGT 3010	Management Decision-Making	3
HRIR 2440	Human Resource Management	3
MKT 3220	Marketing Research	3
HNSC 3342	Management for Food and Nutrition Professionals	3
Select any GMGT course at the 3000 level		3

Cooperative Education Program

Co-operative Education is a process that alternates periods of academic study with periods of paid work experience relating to the co-op student's area of study. Through the Co-operative Education Program, full-time, paid work terms provide the students with practical experience and provide guidance for further career specialization or further academic study.

Students secure full-time, paid co-op work placements with a faculty-approved employer(s) that are each a minimum of 420 hours, to be completed within 4 months. The faculty supports students on both a group and individual basis to determine their learning goals for the work placement. Students are expected to attend an orientation session as well as participate in a series of self-evaluations under the guidance of a sessional instructor. Prior to starting each work term, students will register in AGRI 2002 (first placement), AGRI 3002 (2nd placement), and AGRI 4002 (3rd placement) within the term that their co-op placement will take place and pay the fees. Students must submit a reflective written report at the end of the work term and are evaluated for both overall participation and the report on a Pass/Fail basis.

Degree Program

Admission: Students who have been admitted to an undergraduate program within the faculty are eligible to apply to the Co-operative Education Program. Students are advised that satisfying the entrance requirements does not guarantee a place in the Co-operative Education Program. Full admission into the Program is dependent upon a student's ability to secure a work term placement. Normally, the first work term would take place at the end of the second academic year allowing students to pursue professional development activities in year one. However, with approval of the Faculty and employer, the first work term could commence after the first year of a four-year or second-degree program. Students admitted into the Program must maintain good academic standing (minimum DGPA of 2.0).

Employment Term Requirements: The Co-operative Education Program requires the student to secure two full-time, paid co-op work terms (minimum of 420 hours each) with a faculty approved employer(s). A third work term is optional. Prior to starting the work term, students are required to register in the appropriate Agricultural and Food Sciences Co-operative Education Work Term Course within the set deadlines and pay the fee. Successful completion of a work term includes participating in a mid-work term interview with the Co-op Coordinator and completion of a written work term report at the end of each work term. Students who receive a passing grade on the work term reports for all required work terms graduate with the Co-operative Education designation acknowledged on their parchment.

During a work term, a co-op student may take a maximum of one additional course worth up to six credit hours for a total of nine (9) credit hours. Co-op credit hours earned can be used towards free elective requirements in any degree program.

Diploma Program

Admission: To be considered for admission in the Cooperative Education Program, a first year diploma student must have a minimum Degree GPA of 2.0, and have completed at least 24 credit hours of studies by the end of the academic year of application.

Students are advised that satisfying the entrance requirements does not guarantee a place in the Cooperative Education Program. Full admission into the program is dependent upon the student receiving a job placement through the Cooperative Education Office.

Employment Term Requirements: The student will receive three credits for completing the Cooperative Education Program. Students are required to register in the employment term course and pay the fee prior to starting the employment term.