NUTRITIONAL SCIENCE (AGLS)

Nutritional science looks at the connection between diet and health. Students learn how diet can play a crucial role in the cause, treatment, and prevention of many diseases. There are degree program options within nutritional science. The pre-health professional and research option coursework prepares students for work in research laboratories, graduate study in nutrition or biological sciences, or entrance into health professional programs, such as medical, dental, physician assistant, and pharmacy schools. Students gain a strong science education along with human nutrition expertise. Additional options in health coach and nutrition and wellness prepare students for work positions in program planning and evaluation for community, public health, non-profit, and corporate wellness programs addressing the growing public interest in nutrition, wellness, and preventative health. Students learn about the role of nutrition and healthy eating for disease prevention and wellness.

The department also offers a nutrition minor (http://catalog.iastate.edu/previouscatalogs/2022-2023/collegeofagricultureandlifesciences/foodscienceandhumannutrition/#undergraduateminortext).

Student Learning Outcomes

Upon graduation, students should be able to:

- Communicate effectively in their field of study using written, oral, visual and/or electronic forms.
- Demonstrate proficiency in ethical data collection and interpretation, literature review and citation, critical thinking and problem solving.
- Facilitate and participate effectively in a group, team, or organization.
- Plan life-long learning activities with the aim of improving professional skills.
- Integrate creativity, innovation, or entrepreneurship in ways that produce value.
- Describe sociocultural competence relative to diversity, equity and/or inclusion.
- Explain how human activities impact the natural environment and how societies are affected.
- Meet program specific learning outcomes for the Nutritional Science major.

Administered by the Department of Food Science and Human Nutrition

- Pre-Health Professional and Research Option
- Health Coach Option
- Nutrition and Wellness Option

PRE-HEALTH PROFESSIONAL AND RESEARCH OPTION

Total Degree Requirement: 120 cr.

Students must fulfill International Perspectives and U.S. Diversity requirements by selecting coursework from approved lists. These courses may also be used to fulfill other area requirements. Only 65 cr. from a two-year institution may apply to the degree which may include up to 16 technical cr.; 9 P-NP cr. of electives; 2.00 minimum GPA.

International Perspectives: 3 cr.
U.S. Diversity: 3 cr.
Communications and Library: 13 cr.

ENGL 150	Critical Thinking and Communication	3
ENGL 250	Written, Oral, Visual, and Electronic Composition	3
ENGL 314	Technical Communication	3
LIB 160	Introduction to College Level Research	1
SP CM 212	Fundamentals of Public Speaking	3
Total Credits		**13**

Humanities and Social Sciences: 6-12 cr.

Select Humanities courses from approved list		3
Select Social Science course from approved list		3
If H Sci student, select:		6
Additional Humanities course		
Additional Humanities or Social Science course		

Ethics 3 cr.

FS HN 342	World Food Issues: Past and Present	3

Mathematical Sciences: 6-12 cr.

Select at least 3 credits from:		3-8
MATH 140	College Algebra	
MATH 143	Preparation for Calculus	
MATH 160	Survey of Calculus	
MATH 165	Calculus I	
MATH 165 & MATH 166	Calculus I and Calculus II	
Select at least 3 credits from:		3-4
STAT 101	Principles of Statistics	
STAT 104	Introduction to Statistics	
Total Credits		**6-12**

Physical Sciences: 17 cr.

CHEM 177	General Chemistry I	4
CHEM 177L	Laboratory in General Chemistry I	1
CHEM 178	General Chemistry II	3
CHEM 178L	Laboratory in College Chemistry II	1
CHEM 331	Organic Chemistry I	3
CHEM 331L	Laboratory in Organic Chemistry I	1
CHEM 332	Organic Chemistry II	3

CHEM 332L	Laboratory in Organic Chemistry II	1
Total Credits		**17**

Biological Sciences: 24-29 cr.

BIOL 211	Principles of Biology I	3
BIOL 211L	Principles of Biology Laboratory I	1
BIOL 212	Principles of Biology II	3
BIOL 212L	Principles of Biology Laboratory II	1
BIOL 255	Fundamentals of Human Anatomy	3
BIOL 255L	Fundamentals of Human Anatomy Laboratory	1
Select at least 3 credits from:		3-4
BIOL 256 & 256L	Fundamentals of Human Physiology and Fundamentals of Human Physiology Laboratory	
or BIOL 335	Principles of Human and Other Animal Physiology	
BIOL 313	Principles of Genetics	3
Select at least 3 credits from:		3-6
BBMB 301	Survey of Biochemistry	
BBMB 316	Principles of Biochemistry	
BBMB 404 & BBMB 405	Biochemistry I and Biochemistry II	
MICRO 201	Introduction to Microbiology	2-3
or MICRO 302	Biology of Microorganisms	
MICRO 201L	Introductory Microbiology Laboratory	1
or MICRO 302L	Microbiology Laboratory	
Total Credits		**24-29**

Food Science and Human Nutrition: 36 cr.

FS HN 110	Professional and Educational Preparation	1
FS HN 167	Introductory Human Nutrition and Health	3
FS HN 203	Contemporary Issues in Food Science and Human Nutrition	1
FS HN 265	Nutrition for Active and Healthy Lifestyles	3
FS HN 360	Advanced Nutrition and the Regulation of Metabolism in Health and Disease	3
FS HN 361	Nutrition and Health Assessment	2
FS HN 362	Nutrition and Health Throughout the Lifecycle	3
FS HN 467	Molecular Basis of Nutrition in Disease Etiology and Health Promotion	3
FS HN 492	Research Concepts in Human Nutrition	2
Select at least 15 additional credits from:		15
BIOL 314	Principles of Molecular Cell Biology	
FS HN 214 & FS HN 215	Scientific Study of Food and Advanced Food Preparation Laboratory (or FS HN 115 lab)	
FS HN 242	The US Food System	
FS HN 311	Food Chemistry	
FS HN 365	Obesity and Health	
FS HN 367	Medical Terminology for Health Professionals	
FS HN 403	Food Laws and Regulations	
FS HN 420	Food Microbiology	
FS HN 430	U.S. Health Systems and Policy	
FS HN 461	Medical Nutrition and Disease I	
FS HN 463	Community Nutrition and Health	
FS HN 464	Medical Nutrition and Disease II	
FS HN 466	Nutrition Counseling and Education Methods	
FS HN 490C	Independent Study: Nutrition	
FS HN 499	Undergraduate Research	
FS HN 575	Processed Foods	
NUTRS 501	Biochemical and Physiological Basis of Nutrition: Macronutrients and Micronutrients	
NUTRS 504	Nutrition and Epigenetic Regulation of Gene Expression	
NUTRS 562	Advanced Nutrition Assessment	
PHYS 131 & 131L	General Physics I and General Physics I Laboratory	
or PHYS 231 & 231L	Introduction to Classical Physics I and Introduction to Classical Physics I Laboratory	
PHYS 132 & 132L	General Physics II and General Physics II Laboratory	
or PHYS 232 & 232L	Introduction to Classical Physics II and Introduction to Classical Physics II Laboratory	
Total Credits		**36**

Electives: 0-9 cr. Select from any university coursework to earn at least 120 total credits. Students planning to apply to health professional programs should review entrance requirements and select appropriate courses as electives.

Concurrent B.S. and M.S. Program: Well-qualified students in Nutritional Science, pre-health professional and research option, who are interested in graduate study may apply for concurrent enrollment in the Graduate College to simultaneously pursue both a Bachelor of Science (B.S.) degree in Nutritional Science and a Master of Science (M.S.) degree in Nutritional Sciences. For more information, refer to www.fshn.hs.iastate.edu (http://www.fshn.hs.iastate.edu)

CURRICULUM FOR HEALTH COACH OPTION AND NUTRITION & WELLNESS OPTION

Total Degree Requirement: 120 cr.

Students must fulfill International Perspectives and U.S. Diversity requirements by selecting coursework from approved lists. These courses may also be used to fulfill other area requirements. Only 65 cr.

from a two-year institution may apply to the degree which may include up to 16 technical cr.; 9 P-NP cr. of electives; 2.00 minimum GPA.

International Perspectives: 3 cr.
U.S. Diversity: 3 cr.
Communications/Library: 10 cr.

ENGL 150	Critical Thinking and Communication	3
ENGL 250	Written, Oral, Visual, and Electronic Composition	3
LIB 160	Introduction to College Level Research	1
SP CM 212	Fundamentals of Public Speaking	3
Total Credits		**10**

Humanities and Social Sciences: 15-18 cr.

Select Humanities course from approved list		3
PSYCH 101	Introduction to Psychology	3
or PSYCH 230	Developmental Psychology	
SOC 134	Introduction to Sociology	3
POL S 344	Public Policy	3
FS HN 342	World Food Issues: Past and Present (this course can also meet the IP requirement)	3
If H Sci student, select additional Humanities course		3

Mathematical Sciences: 6-8 cr.

Select at least 3 credits from:		3-4
MATH 140	College Algebra	
MATH 143	Preparation for Calculus	
MATH 160	Survey of Calculus	
MATH 165	Calculus I	
Select at least 3 credits from:		3-4
STAT 101	Principles of Statistics	
STAT 104	Introduction to Statistics	
Total Credits		**6-8**

Physical Sciences: 5 cr.

CHEM 163	College Chemistry	4
or CHEM 177	General Chemistry I	
CHEM 163L	Laboratory in College Chemistry	1
or CHEM 177L	Laboratory in General Chemistry I	
Total Credits		**5**

Biological Sciences: 18-19 cr.

BIOL 211	Principles of Biology I	3
BIOL 211L	Principles of Biology Laboratory I	1
BIOL 212	Principles of Biology II	3
BIOL 212L	Principles of Biology Laboratory II	1
BIOL 255	Fundamentals of Human Anatomy	3
BIOL 255L	Fundamentals of Human Anatomy Laboratory	1
BIOL 256 & 256L	Fundamentals of Human Physiology and Fundamentals of Human Physiology Laboratory	3-4
or BIOL 335	Principles of Human and Other Animal Physiology	
MICRO 201	Introduction to Microbiology	2
MICRO 201L	Introductory Microbiology Laboratory	1
Total Credits		**18-19**

Food Systems: 5 cr.

FS HN 242	The US Food System	3
FS HN 342	World Food Issues: Past and Present (course shown above)	3
FS HN 442	Issues in Food and Society	2
Total Credits		**8**

Food Science and Human Nutrition: 36 cr.

FS HN 101	Food and the Consumer	3
FS HN 110	Professional and Educational Preparation	1
FS HN 111	Fundamentals of Food Preparation	2
FS HN 115	Food Preparation Laboratory	1
FS HN 167	Introductory Human Nutrition and Health	3
FS HN 203	Contemporary Issues in Food Science and Human Nutrition	1
FS HN 264	Fundamentals of Nutritional Biochemistry	3
or BBMB 301	Survey of Biochemistry	
FS HN 265	Nutrition for Active and Healthy Lifestyles	3
FS HN 361	Nutrition and Health Assessment	2
FS HN 364	Nutrition and Prevention of Chronic Disease	3
FS HN 365	Obesity and Health	3
FS HN 430	U.S. Health Systems and Policy	2
FS HN 445X	Strategies for Personal Food Waste Reduction	1
FS HN 463	Community Nutrition and Health	3
FS HN 495	Practicum	2
COMST 450B	Special Topics in Communication Studies: Health Communication	3
Total Credits		**36**

HEALTH COACH OPTION: 18 credits

KIN 258	Principles of Physical Fitness and Conditioning	2
KIN 358	Exercise Physiology	3
KIN 458	Principles of Fitness Assessment and Exercise Prescription	4
PSYCH 101	Introduction to Psychology	3
or PSYCH 230	Developmental Psychology	
PSYCH 422	Counseling Theories and Techniques	3

PSYCH 485	Health Psychology	3
Total Credits		**18**

Select additional electives to reach 120 total semester credits.

NUTRITION & WELLNESS OPTION: 10-18 credits of electives

At least 9 credits of electives must be 300-400 level courses. Select from any university coursework to earn at least 120 total credits.

NOTE:

Students are encouraged to pursue a minor, such as:

- Communication studies
- Culinary food science
- Entrepreneurship
- Environmental studies
- Event management
- Exercise science
- Global health
- Health promotion
- Hospitality management
- Human development and family studies
- Leadership studies

Go to FS HN courses. (http://catalog.iastate.edu/previouscatalogs/2022-2023/azcourses/fs_hn/)

Nutritional Science, B.S.

Options: Health Coach[1], Nutrition & Wellness[2]

First Year

Fall	Credits	Spring	Credits
FS HN 110	1	FS HN 101	3
FS HN 167	3	CHEM 163 or 177	4
MATH 140, 143, 160, or 165	3-4	CHEM 163L or 177L	1
BIOL 211	3	BIOL 212	3
BIOL 211L	1	BIOL 212L	1
ENGL 150	3	Course based on option:	3
LIB 160	1	PSYCH 101 or 230[1]	
		Elective[2]	
	15-16		**15**

Second Year

Fall	Credits	Spring	Credits
MICRO 201	2	FS HN 203	1
MICRO 201L	1	FS HN 242	3
FS HN 264	3	FS HN 265	3
BIOL 255	3	BIOL 256 and 256L, or 335	3-4
BIOL 255L	1	FS HN 111	2
ENGL 250	3	FS HN 115	1
Course based on option:	2-3		
KIN 258[1]			
Elective[2]			
	15-16		**13-14**

Third Year

Fall	Credits	Spring	Credits
FS HN 364	3	FS HN 342	3
PSYCH 101 or 230	3	FS HN 361	2
SP CM 212	3	FS HN 365	3
STAT 104 or 101	3-4	COMST 450B	3
Course based on option:	3	Humanities (H Sci) or elective (AgLS)	3
KIN 358[1]		Course based on option:	3
Elective[2]		PSYCH 485[1]	
		300-400 level elective[2]	
	15-16		**17**

Fourth Year

Fall	Credits	Spring	Credits
FS HN 442	2	FS HN 430	2
FS HN 463	3	FS HN 445X	1
Humanities	3	FS HN 495	2
SOC 134	3	POL S 344	3
Course based on option:	3	Course based on option:	3
PSYCH 422[1]		KIN 458[1]	
300-400 level elective[2]		300-400 level elective[2]	
		Electives (choose electives to total at least 120 credits)	2-4
	14		**13-15**

[1, 2] Courses for options: Health Coach[1], Nutrition & Wellness[2]

Note: This sequence is only an example. The number of credits taken each semester should be based on the individual student's situation. Factors that may affect credit hours per semester include student ability, employment, health, activities, and grade point consideration.

Nutritional Science, B.S.

Option: Pre-Health Professional & Research

Freshman

Fall	Credits	Spring	Credits
FS HN 110	1	FS HN 167	3
CHEM 177	4	CHEM 178	3
CHEM 177L	1	CHEM 178L	1
BIOL 211	3	BIOL 212	3
BIOL 211L	1	BIOL 212L	1
ENGL 150	3	MATH 140, 143, 160, or 165	3-4
LIB 160	1		
Humanities	3		
	17		**14-15**

Sophomore

Fall	Credits	Spring	Credits
CHEM 331	3	CHEM 332	3
CHEM 331L	1	CHEM 332L	1
BIOL 313	3	BBMB 301 or 316, or BBMB 404 and 405 the next year	3
STAT 101 or 104	3-4	FS HN 265	3
ENGL 250	3	FS HN 203	1
SP CM 212	3	Social Science	3
	16-17		**14**

Junior

Fall	Credits	Spring	Credits
BIOL 255	3	BIOL 256 and 256L, or 335	3-4
BIOL 255L	1	FS HN 361	2
FS HN 360	3	FS HN 362	3
MICRO 201 or 302	2-3	Humanities/Social Sci. (H Sci) or elective*	3
MICRO 201L or 302L	1	Additional course from approved list**	3
Humanities course (H Sci) or elective*	3		
FS HN 342	3		
	16-17		**14-15**

Senior

Fall	Credits	Spring	Credits
FS HN 492	2	ENGL 314	3
Additional course from approved list**	3	FS HN 467	3
Additional course from approved list**	3	Additional course from approved list**	3
Additional course from approved list**	3	US Diversity (if not already taken) or elective*	3
Elective*	3-4	Elective*	2-3
	14-15		**14-15**

* Choose elective courses to total equal to or greater than 120 credits.

** Select at least 15 additional credits from: BIOL 314; FS HN 214 with lab (FS HN 115 or 215); FS HN 242, 311, 365, 367, 403, 420, 430, 461, 463, 464, 466, 490C, 499, 575; NUTRS 501, 504; PHYS 131 or 231/L; PHYS 132 or 232/L.

Note: This sequence is only an example. The number of credits taken each semester should be based on the individual student's situation. Factors that may affect credit hours per semester include student ability, employment, health, activities, and grade point consideration.

More information on the Nutrition minor can be found here: http://catalog.iastate.edu/collegeofagricultureandlifesciences/foodscienceandhumannutrition/#undergraduateminortext (http://catalog.iastate.edu/previouscatalogs/2022-2023/collegeofagricultureandlifesciences/foodscienceandhumannutrition/#undergraduateminortext).

The Department of Food Science and Human Nutrition offers a Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) in Nutritional Sciences. More information can be found here: https://www.grad-college.iastate.edu/academics/programs/apresults.php?id=84.