

Nutritional Sciences

College of Medicine

The impact of nutrition on health and disease has produced major clinical and public policy challenges that are shaping research and career opportunities for highly trained nutritional scientists in academia, industry and government. Disease prevention efforts, increased health consciousness and an aging population are further fueling the demand for nutritional scientists. The interdisciplinary Division of Nutritional Sciences enables students in its Ph.D. and Master's of Science programs to explore the interrelationship between environmental factors and nutrients and their effect on biochemistry, physiology and disease development. More than 50 faculty members provide teaching and individualized research guidance across over 20 departments and divisions in the University's Colleges of Medicine, Health Sciences and Agriculture, as well as the Colleges of Pharmacy, Nursing, and Education.

One of the Center's primary areas of research and training targets nutrition and chronic diseases, with a focus on obesity and associated disorders of cardiovascular disease, diabetes and cancer. Other specialty areas include nutrition and oxidative stress, nutrition and aging, clinical nutrition, animal nutrition and food science.

Further information may be obtained by writing to the Director of Graduate Studies, Division of Nutritional Sciences, 521 CTW Building, 900 South Limestone, University of Kentucky, Lexington, KY 40536-0200.

Applicants for the Ph.D. and Master's of Science programs must meet admissions requirements for the both the University of Kentucky Graduate School and for the Division of Nutritional Sciences.

Master of Science

Admission Requirements

1. A baccalaureate degree from a fully accredited institution of higher learning.
2. A minimum undergraduate grade point average of 2.9 on undergraduate coursework and a 3.0 on all graduate work.
3. An average Graduate Record Examination (GRE) score on the verbal, quantitative and analytical sections greater than the 30th percentile.
4. For international applicants, a minimum score of 550 on the paper-based Test of English as a Foreign Language (TOEFL), which has a maximum score of 667; score of 213 on the computer-based TOEFL (maximum 300), or 79 on the internet-based TOEFL. The minimum International English Language Testing Service (IELTS) score is a 6.5. All applicants must demonstrate proficiency in verbal and written English.
5. Admission for the M.S. in Nutritional Sciences with Clinical Nutrition Emphasis is limited to those with a B.S. in Dietetics, having an RD, or being RD eligible.
6. Course Prerequisites: you would need to have taken an undergraduate physiology course (PGY 206 at UK) and it is highly recommended that you have taken 1 year of general chemistry (CHE 105 and 107 at UK) and 1 semester of organic chemistry (CHE 236 at UK). Biochemistry is also a prerequisite course but it can be taken your first semester for graduate credit (BCH 401G). It has prerequisites of CHE 107 and CHE 236.

Admissions Process

All those interested in graduate study at the University of Kentucky Graduate School must apply online

via Hobson's ApplyYourself Application Network. There is a \$65 application fee for domestic applicants and a \$75 application fee for international applicants. Please note that the application cannot be submitted without paying this fee.

The following information must be submitted online to the Graduate School via ApplyYourself:

1. Transcripts from all higher education institutions attended. The Graduate School requires an overall grade point average of 2.9 on all undergraduate work, and a 3.00 on all graduate work
2. GRE scores are required for admission. GRE scores should be sent directly from Educational Testing Service (ETS); the Institutional Code for the GRE for the UK Graduate School is R1837.
3. TOEFL or IELTS scores are required for all applicants whose native language is not English. TOEFL scores should be sent directly from Educational Testing Service (ETS); the Institutional Code for the TOEFL for the UK Graduate School is R1837. IELTS scores should be sent directly from the International English Language Testing Service, specifying the University of Kentucky Graduate School, Lexington KY as the recipient institution.
4. Curriculum vitae.
5. A brief essay, no longer than two single-spaced pages, describing long-term career goals and how the M.S. Program in Nutritional Sciences would advance these goals.
6. Three letters of recommendation.
7. Research Assistantship Application Form (optional): <http://pharmns.med.uky.edu/pharmns-research-assistant-application-form>.

Research Assistantships

Applicants who have been accepted into the M.S. program and can also apply for a Research Assistantship with individual faculty. Interested applicants should submit a completed Research Assistantship Application Form with their application materials to the Center's Director of Graduate Studies by the application deadline listed below.

Degree Requirements

Prerequisites-200 level or equivalent physiology course. Recommended a 400 level biochemistry course

Core Courses	Total credits required for degree (30)	
NS/CNU 601	Integrated Nutritional Sciences Part I	3 credits
NS/ASC/CNU 602	Integrated Nutritional Sciences Part II	3 credits
NS/CNU/FCS 603	Integrated Nutritional Sciences Part III	2 credits
NS/CNU/NFS704	Current Topics	1 credit
STA 570	Basic Statistical Analysis	4 credits OR
IBS 611	Practical Statistics	1 credit
NS 771	Seminar in Nutritional Sciences	0-1** credits
NS/CNU/NFS 782	Special Problems	1-6* credits
NS/CNU 609	Ethics	1 credits

Core Credits = 15 *Plan B Only **Plan A Only

Courses for Emphasis in Clinical Nutrition Prerequisite- B.S. in Dietetics and/or meeting ADA Dietetics requirements for internship

CNU 501	Nutraceuticals and Functional Foods	2 credits OR
CNU 502	Obesity: Cell to Community	2 credits
NS/CNU 702	Clinical Nutrition Problem Based Case Studies	1-3 credits

CNU 611	Advanced Medical Nutrition Therapy	2 credits
CNU 612	Examination Skills for the Clinical Nutritionist	2 credits
Emphasis Credits = 8-10 Electives to equal a minimum of 30 credit hours		

Courses for Emphasis in Wellness and Sports Nutrition

NS/CNU 605	Wellness and Sports Nutrition	3 credits
KHP 600	Exercise Stress Testing and Prescription	3 credits
KHP 620	Advanced Exercise Physiology	3 credits
CNU 501	Nutraceuticals and Functional Foods	2 credits
Emphasis credits = 14 Electives to equal a minimum of 30 credit hours		

Courses for Emphasis in Community Nutrition

CPH 605	Epidemiology	3 credits
DHN 603	Advanced Community Program Development	3 credits
DHN 607	Food Related Behaviors	3 credits
Emphasis credits= 15 Electives to equal a minimum of 30 credit hours		

Courses for Emphasis in Molecular and Biochemical Nutrition

BCH 607 (IBS 601)	Biomolecules & Metabolism	3 credits
BCH 608	Biomolecules and Molecular Biology	3 credits OR
IBS 602	Molecular Biology & Genetics	3 credits
NS/CNU 606	Molecular Biology Applications in Nutrition	2 credits
Emphasis Credits= 8 Electives to equal a minimum of 30 credit hours		

Approved Electives

The student must successfully complete a minimum of 6 credit hours in electives. Elective courses are recommended by the DGS and/or the Advisor.

Suggested elective courses include:

IBS 604	Cell Signaling	3 credits
IBS 605	Experimental Genetics	2 credits
IBS 607	Seminar in Integrated Biomedical Sciences	0 credit
IBS 609	Research in Integrated Biomedical Sciences	1 credit
NS/CNU 606	Molecular Biology Applications in Nutrition	2 credits
CNU 501	Nutraceuticals and Functional Foods	2 credits
CNU 502	Obesity: Cell to Community	2 credits
CNU 611	Advanced Medical Nutrition Therapy	2 credits
CNU 612	Examination Skills for the Clinical Nutritionist	2 credits
CNU/NS 604	Lipid Metabolism	3 credits
CNU/NS 605	Wellness and Sports Nutrition	3 credits
CNU/NS 702	Problem-Based Case Studies	1-5 credits
ASC 681	Energy Metabolism	3 credits
ASC 683	Protein metabolism	3 credits
ASC 689	Physiology of Nutrient Digestion/Absorption	3 credits
ASC 684	Advanced Ruminant Nutrition	3 credits
ASC 686	Advanced Non-ruminant Nutrition	3 credits
FSC 638	Food Proteins	3 credits
FSC 640	Food Lipids	3 credits
FSC 434G	Food Chemistry	4 credits

BCH 610	Biochemistry of Lipids and Membranes	3 credits
BCH/BIO/MI 615	Molecular Biology	3 credits
CPH 605/PM 620	Epidemiology	3 credits
CPH 645	Food Systems, Malnutrition and Public Health	3 credits
EDP 661	Counseling Techniques II	3 credits
GS 610	College Teaching	3 credits
KHP 420G	Physiology of Exercise	3 credits
KHP 621	Advanced Exercise Physiology	3 credits
KHP 621	Exercise and Coronary Heart Disease	3 credits
KHP 720	Sport Medicine	3 credits
KHP 781	Theory and Methodology of Body Composition	3 credits
MI 685	Advanced Immunology	3 credits
MI 710	Molecular Cell Biology	3 credits
PGY 604	Advanced Cardiovascular Physiology	3 credits
PGY 607	Hormonal Control Mechanisms	3 credits
BCH 609	Plant Biochemistry	3 credits

Doctor of Philosophy

Admission Requirements

There are two ways to be admitted into the PhD program:

- Direct Admission <http://pharmns.med.uky.edu/pharmns-phd-application> or
- IBS Program <http://www.mc.uky.edu/ibs/default.asp>

Direct Admission Requirements for the Ph.D. Program

Applicants must meet the following requirements for admission to the University of Kentucky Graduate School and the Graduate Center for Nutritional Sciences:

1. A baccalaureate degree from a fully accredited institution of higher learning.
2. An M.S. degree with a Grade Point Average (GPA) of 3.2 or above on a 4.0 scale, or a B.S. degree with a GPA of 3.0 or above on a 4.0 scale.
3. An average Graduate Record Examination (GRE) score on the verbal, quantitative and analytical sections that is greater than the 50th percentile.
4. For international applicants, a minimum score of 550 out 667 maximum possible is required on the paper-based Test of English as a Foreign Language (TOEFL), a minimum 213 score on the computer-based TOEFL (maximum 300), or 79 on the internet-based TOEFL. The minimum International English Language Testing Service (IELTS) score is 6.5. All applicants must demonstrate proficiency in verbal and written English.
5. Course Prerequisites: an undergraduate physiology course (PGY 206 at UK), 1 year of general chemistry (CHE 105 and 107 at UK), and 1 semester of organic chemistry (CHE 236 at UK).

Application Process

All those interested in graduate study at the University of Kentucky Graduate School must apply online via Hobson's ApplyYourself Application Network. There is a \$65 application fee for domestic applicants and a \$75 application fee for international applicants. Please note that the application cannot be submitted without paying this fee.

The following information must be submitted online to the Graduate School via ApplyYourself:

1. Transcripts from all higher education institutions attended. The Graduate School requires an average of 2.9 on all undergraduate work, and a 3.00 on all graduate work. Please note: the Graduate Center for Nutritional Sciences requirements are higher. GRE scores are required for admission. GRE scores should be sent directly from Educational Testing Service (ETS); the Institutional Code for the GRE for

the UK Graduate School is R1837.

2. TOEFL or IELTS scores are required for all applications whose native language is not English. TOEFL scores should be sent directly from ETS; the Institutional Code for the TOEFL for the UK Graduate School is R1837. IELTS scores should be sent directly from the IELTS, specifying the University of Kentucky Graduate School, Lexington, KY as the recipient institution.
3. Curriculum vitae
4. A brief essay, no longer than two single-spaced pages, describing long-term career goals and how the Ph.D. Program in Nutritional Sciences would advance these goals.
5. Three letters of recommendation
6. Completed Research Assistant Application Form (<http://pharmns.med.uky.edu/pharmns-research-assistant-application-form>).

Research Assistantships and Laboratory Rotations

Ph.D. applicants are required to apply for a Research Assistantship, which represents an integral part of the Ph.D. program. Applicants accepted into the Ph.D. program also may apply to participate in a Laboratory Rotation Program. This program enables students to work four to nine months in as many as three laboratories before selecting an advisor.

Degree Requirements

Doctoral Degree Requirements

Students are required to complete the core curriculum. Elective courses to be taken will be recommended by the advisory committee.

Academic Course Prerequisites to Program:

Biology (2 semesters)

General Chemistry (2 semesters)

Organic Chemistry (1 semester)

Undergraduate Biochemistry and Physiology

Some courses are cross-listed with other units and departments, but for clarity only the “NS” prefixes are listed below.

Core Curriculum

NS 601	Integrated Nutritional Sciences I	3 credits
NS 602	Integrated Nutritional Sciences II	3 credits
NS 603	Integrated Nutritional Sciences III	2 credits
NS 704	Current Topics in Nutrition	1 credit
NS 771	Graduate Seminar in Nutritional Sciences	1 credit**
NS 609	Ethics in Clinical Research	1 credit OR
TOX 600	Ethics in Scientific Research	1 credits
STA 570	Basic Statistical Analysis	4 credits OR
IBS 611	Practical Statistics	1 credit
IBS 601	Biomolecules & Metabolism	3 credits OR
IBS 602	Molecular Biology & Genetics	3 credits
IBS 603	Cell Biology	3 credits
IBS 606	Integrated Medical Sciences	3 credits OR
PGY 502	Principles of Systems, Cellular and Molecular Physiology OR	5 credits
PGY 412G	Principles of Human Physiology	4 credits
Electives	Electives	7-12 credits
Total		36 credits

****All Ph.D. students must register for 0 credit (except for the one semester registered for 1 credit) and attend all GCNS seminars during their residency at the University of Kentucky. Minimum of 1 credit is required before qualifying examination. In addition, all GCNS doctoral candidates will present a seminar once/year post-qualifying exam.**

Electives The student must successfully complete a minimum of 7 credit hours in electives. Elective courses are recommended by the Advisor and approved by the Advisory Committee.

Suggested courses are listed below:

IBS 607	Seminar in Integrated Biomedical Sciences	0 credit
IBS 608	Special Topics in Integrated Biomedical Sci.	2 credits
IBS 609	Research in Integrated Biomedical Sciences	1 credit
IBS 610	Critical Readings/Small Groups	2 credits
NS/CNU 606	Molecular Biology Applications in Nutrition	2 credits
NS 790	Research in Nutritional Sciences (before qualifying exam)	1-6 credits
CNU 501	Nutraceuticals and Functional Foods	2 credits
CNU 502	Obesity: Cell to Community	2 credits
CNU 611	Advanced Medical Nutrition Therapy	2 credits
CNU 612	Examination Skills for the Clinical Nutritionist	2 credits
CNU/NS 604	Lipid Metabolism	3 credits
CNU/NS 605	Wellness and Sports Nutrition	3 credits
CNU/NS 702	Problem-Based Case Studies	1-5 credits
ASC 681	Energy Metabolism	3 credits
ASC 683	Protein metabolism	3 credits
ASC 689	Physiology of Nutrient Digestion/Absorption	3 credits
ASC 684	Advanced Ruminant Nutrition	3 credits
ASC 686	Advanced Non-ruminant Nutrition	3 credits
FSC 638	Food Proteins	3 credits
FSC 640	Food Lipids	3 credits
FSC 434G	Food Chemistry	4 credits
BCH 610	Biochemistry of Lipids and Membranes	3 credits
BCH/BIO/MI 615	Molecular Biology	3 credits
CPH 605/PM 620	Epidemiology	3 credits
CPH 645	Food Systems, Malnutrition and Public Health	3 credits
EDP 605	Counseling Techniques	3 credits
GS 610	College Teaching	3 credits
KHP 420G	Physiology of Exercise	3 credits
KHP 620	Advanced Exercise Physiology	3 credits
KHP 621	Exercise and Coronary Heart Disease	3 credits
KHP 720	Sport Medicine	3 credits
KHP 781	Theory and Methodology of Body Composition	3 credits
MI 685	Advanced Immunology	3 credits
MI 710	Molecular Cell Biology	3 credits
PGY 604	Advanced Cardiovascular Physiology	3 credits
PGY 607	Hormonal Control Mechanisms	3 credits
BCH 609	Plant Biochemistry	3 credits

Residency Requirement

NS 767	Residency Credit in Nutritional Sciences (post-qualifying exam)	2 hr/semester
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Graduate Courses

NS 601	Integrated Nutritional Sciences I (Same As CNU 601)	(3)
NS 602	Integrated Nutritional Sciences II (Same As ASC 602)	(3)
NS 603	Integrated Nutritional Sciences III (Same As CNU 603)	(2)
NS 604	Lipid Metabolism (Same As CNU 604)	(3)
NS 605	Wellness And Sports Nutrition (Same As PT/CNU 605)	(3)
NS 606	Molecular Biology Applications In Nutrition (Same As CNU 606)	(2)
NS 607	Food Related Behaviors (Same As NFS/ANT/BSC 607)	(3)
NS 609	Ethics In Clinical Sciences Research (Same As CNU 609)	(1)
NS 620	Nutrition And Aging (Same As NFS 620)	(2)
NS 630	Advanced Community Nutrition (Same As NFS 630)	(3)
NS 640	Human Nutrition: Assessment (Same As NFS 640)	(3)
NS 680	Laboratory Methods In Nutritional Sciences (Same As ASC 680)	(4)
NS 701	Nutrition And Chronic Diseases (Same As CNU 701)	(4)
NS 702	Clinical/Wellness Problem-Based Case Studies	(1-3)
NS 704	Current Topics In Nutritional Sciences (Same As CNU/NFS 704)	(1)
NS 748	Master's Thesis Research (Same As NFS 748)	(0)
NS 749	Dissertation Research	(0)
NS 767	Dissertation Residency Credit	(2)
NS 768	Residence Credit For The Masters Degree (Same As NFS 768)	(1-6)
NS 769	Residence Credit For The Doctor's Degree	(0-12)
NS 771	Graduate Seminar In Nutritional Sciences	(0-1)
NS 782	Special Problems (Same As CNU/NFS 782)	(1-6)
NS 790	Research In Nutritional Sciences (Same As CNU/NFS 790)	(0-6)
CNU 601	Integrated Nutritional Sciences I (Same As NS 601)	(3)
CNU 603	Integrated Nutritional Sciences III (Same As NS 603)	(2)
CNU 604	Lipid Metabolism (Same As NS 604)	(3)
CNU 605	Wellness And Sports Nutrition (Same As NS/PT 605)	(3)
CNU 606	Molecular Biology Applications In Nutrition (Same As NS 606)	(2)
CNU 608	Nutritional Immunology (Same As NS 608)	(3)
CNU 609	Ethics In Clinical Sciences Research (Same As NS 609)	(1)
CNU 611	Advanced Medical Nutrition Therapy	(2)
CNU 612	Examination Skills For The Clinical Nutritionist	(2)
CNU 701	Nutrition And Chronic Diseases (Same As NS 701)	(4)
CNU 702	Clinical/Wellness Problem-Based Case Studies	(1-3)
CNU 704	Current Topics In Nutritional Sciences (Same As NFS/NS 704)	(1)
CNU 782	Special Problems (Same As NFS/NS 782)	(1-6)
CNU 790	Research In Nutritional Sciences (Same As NFS/NS 790)	(0-6)