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.
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.

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)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS/CNU 601</td>
<td>Integrated Nutritional Sciences Part I</td>
<td>3</td>
</tr>
<tr>
<td>NS/ASC/CNU 602</td>
<td>Integrated Nutritional Sciences Part II</td>
<td>3</td>
</tr>
<tr>
<td>NS/CNU/FCS 603</td>
<td>Integrated Nutritional Sciences Part III</td>
<td>2</td>
</tr>
<tr>
<td>NS/CNU/NFS704</td>
<td>Current Topics</td>
<td>1 credit</td>
</tr>
<tr>
<td>STA 570</td>
<td>Basic Statistical Analysis</td>
<td>4 credits OR</td>
</tr>
<tr>
<td>IBS 611</td>
<td>Practical Statistics</td>
<td>1 credit</td>
</tr>
<tr>
<td>NS 771</td>
<td>Seminar in Nutritional Sciences</td>
<td>0-1** credits</td>
</tr>
<tr>
<td>NS/CNU/NFS 782</td>
<td>Special Problems</td>
<td>1-6* credits</td>
</tr>
<tr>
<td>NS/CNU 609</td>
<td>Ethics</td>
<td>1 credit</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNU 501</td>
<td>Nutraceuticals and Functional Foods</td>
<td>2 credits OR</td>
</tr>
<tr>
<td>CNU 502</td>
<td>Obesity: Cell to Community</td>
<td>2 credits</td>
</tr>
<tr>
<td>NS/CNU 702</td>
<td>Clinical Nutrition Problem Based Case Studies</td>
<td>1-3 credits</td>
</tr>
</tbody>
</table>

Suggested elective courses include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBS 604</td>
<td>Cell Signaling</td>
<td>3 credits</td>
</tr>
<tr>
<td>IBS 605</td>
<td>Experimental Genetics</td>
<td>2 credits</td>
</tr>
<tr>
<td>IBS 607</td>
<td>Seminar in Integrated Biomedical Sciences</td>
<td>0 credit</td>
</tr>
<tr>
<td>IBS 609</td>
<td>Research in Integrated Biomedical Sciences</td>
<td>1 credit</td>
</tr>
<tr>
<td>NS/CNU 606</td>
<td>Molecular Biology Applications in Nutrition</td>
<td>2 credits</td>
</tr>
<tr>
<td>NS/CNU 607</td>
<td>Nutraceuticals and Functional Foods</td>
<td>2 credits</td>
</tr>
<tr>
<td>NS/NFS02</td>
<td>Obesity: Cell to Community</td>
<td>2 credits</td>
</tr>
<tr>
<td>CNU 611</td>
<td>Advanced Medical Nutrition Therapy</td>
<td>2 credits</td>
</tr>
<tr>
<td>CNU 612</td>
<td>Examination Skills for the Clinical Nutritionist</td>
<td>2 credits</td>
</tr>
<tr>
<td>NS/NS 604</td>
<td>Lipid Metabolism</td>
<td>3 credits</td>
</tr>
<tr>
<td>NS/CNU 605</td>
<td>Wellness and Sports Nutrition</td>
<td>3 credits</td>
</tr>
<tr>
<td>NS/CNU 702</td>
<td>Problem-Based Case Studies</td>
<td>1-5 credits</td>
</tr>
<tr>
<td>ASC 681</td>
<td>Energy Metabolism</td>
<td>3 credits</td>
</tr>
<tr>
<td>ASC 683</td>
<td>Protein metabolism</td>
<td>3 credits</td>
</tr>
<tr>
<td>ASC 689</td>
<td>Physiology of Nutrient Digestion/Absorption</td>
<td>3 credits</td>
</tr>
<tr>
<td>ASC 684</td>
<td>Advanced Ruminant Nutrition</td>
<td>3 credits</td>
</tr>
<tr>
<td>ASC 686</td>
<td>Advanced Non-ruminant Nutrition</td>
<td>3 credits</td>
</tr>
<tr>
<td>FSC 638</td>
<td>Food Proteins</td>
<td>3 credits</td>
</tr>
<tr>
<td>FSC 640</td>
<td>Food Lipids</td>
<td>3 credits</td>
</tr>
<tr>
<td>FSC 434G</td>
<td>Food Chemistry</td>
<td>4 credits</td>
</tr>
</tbody>
</table>
1. Transcripts from all higher education institutions attended. The Graduate School requires an average GPA of 3.0 or above on a 4.0 scale.

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://pharms.med.uky.edu/pharms-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.

Doctor of Philosophy

Admission Requirements

There are two ways to be admitted into the Ph.D program:

- Direct Admission [http://pharms.med.uky.edu/pharms-phd-application]
- 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 average Graduate Record Examination (GRE) score on the verbal, quantitative and analytical sections that is greater than the 50th percentile.
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

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

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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.
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5. Three letters of recommendation
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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

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

Graduate Courses

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