



Department of **PHARMACOLOGY** & **NUTRITIONAL SCIENCES**

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Multidisciplinary M. S. Program in Nutritional Sciences

University of Kentucky

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This handbook is a guide for M.S. students in Nutritional Sciences, their academic advisors and other faculty members. The handbook provides an overview of the requirements and processes, degree and curriculum requirements, references and links to forms that need to be completed, Graduate School and other valuable information. However, it is not intended as a formal commitment or binding agreement. Policies and requirements can vary within a given year from those outlined herein, in response to altered circumstances, and may be changed without notice. For additional information, please consult the Department of Pharmacology and Nutritional Sciences website: <http://pharmns.med.uky.edu/>

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Welcome to New Graduate Students

The Division of Nutritional Sciences hopes your graduate years will be enjoyable and rewarding. The challenges you will face will create a sound research and applied skills foundation and help make your future years productive and successful. The information in this handbook is intended to serve as a guide for your matriculation through our graduate program. Students should familiarize themselves with the information provided herein.

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Mission

The Nutritional Sciences M.S. program is an interdisciplinary program that provides high-quality educational training and research experience across a wide spectrum of nutrition-related subjects. The program's mission is to train highly skilled nutritional scientists equipped to tackle critical nutrition-related disease and health issues and pursue promising careers in academic, industrial and professional environments in the rapidly expanding field of nutritional sciences.

Program Overview

The Division of Nutritional Sciences within the Department of Pharmacology and Nutritional Sciences provides an opportunity for advanced multidisciplinary graduate studies in nutrition. Through its Ph.D. and Master's of Science programs, the Division of Nutritional Sciences enables students to explore the interrelationship between environmental factors and nutrients and their effect on biochemistry, physiology and disease development. Students have access to faculty expertise across 28 departments and divisions at the University's Colleges of Medicine, Pharmacy, Health Sciences and Agriculture as well as the Colleges of Arts and Sciences and Education. Administratively, the Division of Nutritional Sciences is housed in the Department of Pharmacology and Nutritional Sciences in the College of Medicine.

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

More than 60 faculty members provide teaching and individualized research guidance for graduate students in academic units including Plant Sciences; Animal Sciences; Anthropology; Behavioral Science; Biochemistry; Clinical Sciences; Dietetics and Human Nutrition; Horticulture and Landscape Architecture; Internal Medicine; Kinesiology and Health Promotion; Microbiology and Immunology; Neurology; Nutrition and Food Science; Oral Health Science; Pathology and Laboratory Medicine; Pharmacology; Pharmacy; Physiology; Psychiatry; Surgery; and Toxicology.

Research Opportunities and Resources

Approximately 36,000 square feet of laboratory space have been dedicated to Nutritional Sciences. This research space houses state-of-the-art equipment for cell culture, human and animal studies using state-of-the-art trace mineral, vitamin, lipid, amino acid, hormone, enzyme, stable and radioactive isotope, microcirculatory, energy assessment, electrophoresis and molecular biology technologies. The University of Kentucky has in place multiple core facilities, among them a microarray facility as well as cores for electron microscopy, confocal microscopy, flow cytometry and magnetic resonance imaging.

Clinical research facilities for training and research, all within walking distance of each other, include the Center for Clinical and Translational Science (CCTS), the University of Kentucky Hospital, the Veterans Administration Hospital, Sanders-Brown Center on Aging, the Gill Heart Institute, the University of Kentucky Medical Center Outpatient Clinics, and the Markey Cancer Center. Both the UK Medical Center and the VA Medical Center have clinical research units with ongoing nutritional studies. Opportunities for community-based research exist locally, throughout the state and in international settings.

The University's W.T. Young Library offers more than 2 million volumes and 13 branch libraries, as well as access to eJournals and eBooks. Two of these libraries are of particular value to students in Nutritional Sciences: the Agriculture Library, located in the Agricultural Science Center North, and the Medical Library, located in the Medical Center. More information can be obtained by referring to the Graduate School Bulletin or calling the appropriate library.

The Nutritional Sciences Graduate Master's of Science Program

Overview of the courses for Master's in Nutritional Sciences

Core Courses for MS Total credits required for degree (30)

Prerequisites-200 level or equivalent physiology course. A 400 level biochemistry course is highly recommended.

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

Core Credits = 12-15

*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) |
| OR CNU 502 | Obesity Cell to Community | (2) |
| NS/CNU 702 | Clinical Nutrition Problem Based Case Studies | (1-3) |
| CNU 611 | Advanced Medical Nutrition Therapy | (2) |
| CNU 612 | Examination Skills for the Clinical Nutritionist | (2) |

Emphasis Credits = 7-9

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) |
| KHP 600 | Exercise Stress Testing and Prescription | (3) |
| KHP 620 | Advanced Exercise Physiology | (3) |
| CNU 501 | Nutraceuticals and Functional Foods | (2) |

Emphasis credits = 11

Electives to equal a minimum of 30 credit hours

Courses for Emphasis in Community Nutrition

| | | |
|---------|--|-----|
| CPH 605 | Epidemiology | (3) |
| NFS 603 | Advanced Community Program Development | (3) |
| NFS 607 | Food Related Behaviors | (3) |

Emphasis credits= 9

Electives to equal a minimum of 30 credit hours

Courses for Emphasis in Molecular and Biochemical Nutrition

| | | |
|-------------------|---|-----|
| IBS 601 (BCH 607) | Biomolecules and Metabolism | (3) |
| BCH 608 | Biomolecules and Molecular Biology | (3) |
| OR IBS 602 | Molecular Biology and Genetics | (3) |
| NS/CNU 606 | Molecular Biology Applications in Nutrition | (2) |

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:

| | | |
|------------|--|-------------|
| NS/NFS 607 | Food-Related Behaviors | 3 credits |
| NS/CNU 606 | Molecular Biology Applications in Nutrition | 2 credits |
| NS 790 | Research in Nutritional Sciences | 1-6 credits |
| CNU 501 | Nutraceuticals and Functional Foods in Health and Disease Prevention | 2 credits |
| CNU 502 | Obesity C2C: Cell to Community | 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 | Introduction to Counseling: Techniques I | 3 credits |
| GS 610 | College Teaching | 3 credits |
| KHP 420G | Physiology of Exercise | 3 credits |
| KHP 620 | Advanced Exercise Physiology | 3 credits |
| KHP 720 | Sports Medicine | 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 |

ADMISSIONS

Admission Requirements

Admission to the Graduate School and the Division of Nutritional Sciences requires:

1. A baccalaureate degree from a fully accredited institution of higher learning.
2. A minimum undergraduate grade point average of 2.9, and 3.0 on all graduate work.
3. An average 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 TOEFL** (maximum 667), a minimum score of 213 on the **computer-based TOEFL** (maximum 300) or a minimum score of 79 on the **internet-based TOEFL** (maximum 120). 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 to M.S. in Nutritional Sciences with Clinical Nutrition Emphasis is limited to those with a B.S. in Dietetics, or who have met the ADA requirements for a dietetics internship.

Admission 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 undergraduate grade point average of 2.75 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.
 - a. TOEFL scores should be sent directly from Educational Testing Service (ETS); the Institutional Code for the TOEFL for the UK Graduate School is R1837.
 - b. 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.

Research Assistantships

Applicants who have been accepted into the M.S. program 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 Director of Graduate Studies by the application deadline listed below. These are allocated on a very competitive basis.

Application Deadlines

Application deadlines for Graduate School admission are as follows:

| | <u>Fall Admission</u> | <u>Spring Admission</u> |
|-----------------------------|------------------------------|--------------------------------|
| <u>Domestic</u> | <u>July 15</u> | <u>December 1</u> |
| <u>International</u> | <u>March 15</u> | <u>August 22</u> |

State Residency Requirements

- The University of Kentucky and all other state-supported institutions of higher education assess tuition fees based on Kentucky or non-Kentucky residency. The Commonwealth of Kentucky Council on Post-Secondary Education establishes the policy determining residency. Students with residency questions should contact the Registrar's Office in the Funkhouser Building.

DEGREE REQUIREMENTS

General Graduate School Requirements

The M.S. in Nutritional Sciences will be conferred upon a candidate who has completed either a thesis ("Plan A") or non-thesis ("Plan B") program option. Both options require satisfactory completion of all required coursework and passing an oral comprehensive exam. All related Graduate School Forms can be found at <http://gradschool.uky.edu/studentforms>

Advisor and Advisory Committee

Candidates for the M.S. degree will be guided in their studies and research by the Director of Graduate Studies and/or a Major Professor/Research Advisor who is a member of the Nutritional Sciences faculty. The Director of Graduate Studies will serve as the Advisor if no faculty advisor is initially selected.

- The Committee for the Final Oral Examination or thesis defense should be selected at least three months prior to the scheduled exam date.
- The Committee should consist of three Graduate Faculty, with at least two members with an appointment in Nutritional Sciences.
- The student submits the form for the *Final Oral Examination* request to the Graduate School: https://ris.uky.edu/cfdocs/gs/MastersCommittee/Student/Selection_Screen.cfm which is then routed to the DGS.

Degree Requirements

1. **Plan A:** M.S. students who have selected this option are required to:
 - a. Register for one (1) credit hour of seminar to present thesis research (NS 771-001) and zero credit for two semesters (NS 771-002). Students may also take additional credit hours in research (NS 790).
 - b. Complete the residency requirement (NS 768, see below).
 - c. Submit a research thesis.
 - d. Pass the oral final exam.

2. **Plan B:** Students who have selected this option are required to:
 - a. Register for zero credit hours for 2 semesters of seminar (NS 771-002).
 - b. Register for at least one credit hour of Special Problems (NS 782) but not more than 6.
 - c. Pass an oral final exam.

Residency Requirements for M.S. Students with "Plan A"

Each student must earn 6 credit hours of residency credit (NS 768) at the University of Kentucky.

Registration in NS 748 (0 credits)

Registration in NS 748 is limited to Plan A master's students who have completed all course requirements and have taken 6 credit hours of NS 768 (see above). Registration in NS 748 guarantees that a student is considered to be in full-time status for the purposes of student financial aid and loan deferments. The DGS must certify that the student is working at least half-time (i.e., 20 hours per week) on the thesis. Registration in 748 is limited to a maximum of six semesters (not counting summer terms).

Final Examination for M.S. Candidate

- Plan A: An oral exam covering course material and thesis data.
- Plan B: A comprehensive oral exam.
- At least two weeks prior to scheduling the exam, the student will submit Request for Final Master's Degree Examination form to the Graduate School:
https://ris.uky.edu/cfdocs/gs/MastersCommittee/Student/Selection_Screen.cfm

Procedure for Scheduling M.S. Final Examination

1. File Application for Degree with the Graduate School: An *Application for Degree* must be filed with the Graduate School via MyUK **within 30 days** after the beginning of the semester that the student expects to complete his or her work. Go to the following: <https://myuk.uky.edu/irj/portal> . After logging in, click on Student Services / myRecords / Graduate Degree Application
2. Ask 3 faculty members to be on your advisory committee: at least two members must have an appointment in Nutritional Sciences.
3. Set up a date and time when you and all of your committee members can meet for the Final Examination. This can be done conveniently using a Doodle poll: <http://doodle.com/> . However, do not send Doodle polls to faculty until after they have agreed to serve on your committee.
4. Once the date and time are set, contact the Graduate Coordinator, Ms. Veronique Thibault, (323-6124; vthibau@uky.edu), who can reserve a room. Usually students reserve a conference room in CTW.
5. Go to the following website at least two weeks before the date of your exam: https://ris.uky.edu/cfdocs/gs/MastersCommittee/Student/Selection_Screen.cfm and click the link: Complete and Submit the Required Master's / Specialist Final Examination Online
6. After logging in, add the names of your committee members, and the date, time, and location of your exam

Application for Degree

An *Application for Degree* must be filed with the Graduate School via MyUK **within 30 days** after the beginning of the semester that the student expects to complete his or her work.

GENERAL TIMELINE FOR DEGREE PROGRAM

Before the First Semester

1. Meet with the Director of Graduate Studies and develop a coursework plan for the first semester and a preliminary plan for the rest of your program.
2. Attend the new student orientation.

First Semester

1. The number one priority for your first semester is to do well in your courses.
2. Contact faculty members about your special problem.
3. 11th-14th weeks of the semester: Pre-registration for the next semester. All current students must pre-register, or pay a late fee.

Subsequent Semesters

1. Continue to do well in your courses
2. Work on special problem
3. 11th-14th weeks of the semester: Pre-registration for the next semester. All current students must pre-register, or pay a late fee.

Final Semester

1. File Application for Degree with the Graduate School: An Application for Degree must be filed with the Graduate School via MyUK within 30 days after the beginning of the semester. Go to the following website: <https://myuk.uky.edu/irj/portal> After logging in, click on Student Services / myRecords / Graduate Degree Application
2. Form your MS advisory committee and then schedule your MS oral exam—the procedure is listed above under Advisor and Advisory Committee, and Procedure for Scheduling M.S. Final Examination.

ADDITIONAL INFORMATION

Research Integrity

- All biomedical research in Nutritional Sciences follows strict federal and state mandates concerning research protocols, use of laboratory animals and research involving human subjects.
- The Office of Research Integrity (ORI) both supervises and monitors adherence to these mandates.
- The ORI also supports the institution in promoting ethical conduct of research and educating UK students and employees regarding research misconduct regulations.

Honor Code/Plagiarism

- Pursuit of a graduate degree in Nutritional Sciences constitutes an agreement to adhere to high standards of honesty and ethical behavior.
- Cheating, plagiarism, and any scientific misconduct such as falsification of data or deliberate misuse of equipment will be reviewed by the Graduate Program Committee and are causes for dismissal from the program.
- Procedures outlined in the UK Student Code will be adhered to with respect to a charge of misconduct.

Evaluation of Academic Performance (Termination of a Student)

- Student progress will be monitored periodically by the DGS. Students are required to submit a progress report and updated *curriculum vitae* annually to the Graduate Coordinator, Veronique Thibault, (MS310 UKMC; Phone: (859) 323-6124; E-Mail: vthibau@uky.edu). Student progress will be reviewed by the Graduate Program Committee.
- Students must maintain a semester GPA of at least 3.0 in all coursework, satisfactory performance in lab rotations, satisfactory participation in seminars, and adherence to the rules and procedures described in this handbook.
- Students who fall below a 3.0 GPA in any one semester will be evaluated on an individual basis by the Graduate Program Committee for placement on probation, with the possibility of dismissal.
- Graduate students in a Research Assistant (RA) position must adhere to the contract of this position as defined in the GSAS form. If documentation demonstrates that conditions of the position are not met, then the RA contract may be terminated, pending final approval by the Division Director.

Communication Skills

- The development of good communication skills is an important part of graduate education. These skills are improved through a wide range of activities including seminar courses; journal clubs; teaching experiences; writing of manuscripts, research proposals, grants and the final dissertation; and presentations at local, regional and national meetings.
- Proficiency in English is required of all graduate students in the Nutritional Sciences M.S. program. English as a Second Language classes are available to Nutritional Sciences students. Please contact the DGS for further information.

Projected Average Timetable for Completing the Proposed M.S. Requirements

- Course work and research: 1.5 to 3 years.

Holiday/Vacation for Students

- Students on Research Assistantships can take two weeks of vacation per year in addition to holidays approved for all staff at the University of Kentucky.
- Spring Break is **not** a break for students on assistantships; the Christmas/New Year holiday usually falls between December 25th and January 1st.
- Effective communication between students and their advisors before vacation times is in everyone's best interest.
- RA's must submit a UK Absence Record, signed by both the student and the advisor for all travel, sick, and vacation time. These records will be maintained in the GCNS payroll files for each RA.

Financial Aid

- The UK Office of Student Financial Aid assists students in procuring work-study opportunity and loans: <http://www.uky.edu/FinancialAid/>.
- Awards for study also are available on a competitive basis through the Graduate School <http://gradschool.uky.edu/student-funding>
- In addition, Research Assistantships are available through the Nutritional Sciences program and/or individual investigators on a contractual basis.

Housing

- The UK Housing Office operates and assigns apartments to accommodate full-time graduate students and their families.
- Efficiency, one-bedroom, and two-bedroom apartments are available.
- An application must be filed with the Housing Office along with a reservation/security deposit.
- Assignments are made according to the date the application is received.
- See the Graduate School Bulletin for further details or contact the Housing Office:
<http://www.uky.edu/AuxServ/housing.html>.
- Many students live in conveniently located off-campus housing, with one-bedroom apartments renting from \$400 to \$450 per month and two-bedroom apartments renting from \$485 to \$550 per month.

Classroom Etiquette & Health Care Colleges Code of Student Professional Conduct:

- While taking a class in the MSNS program, students must behave in a way that demonstrates respect for faculty and students, and that supports the learning environment for all students. During classtime, computers, cellular phones, and other Internet-enabled devices may not be used to check email, browse the Internet or conduct work for other classes. Such behavior distracts other students and interferes with the faculty member's ability to teach. At their discretion, faculty may issue additional restrictions regarding use of laptops and other electronic devices.
- Additional information related to the Code of Student Professional Conduct for Health Care Colleges is available at:
<http://www.uky.edu/regs/files/HCCcode.pdf>