

**GRADUATE CENTER
for
NUTRITIONAL SCIENCES**

**Fall 2009
Multidisciplinary Ph.D. Program
in Nutritional Sciences**

University of Kentucky

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This handbook is a guide for students of the Ph.D. program 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 resources and other valuable information. For additional information, please consult the Center's Website <http://www.mc.uky.edu/nutrisci>

Welcome New Graduate Students

The Graduate Center for Nutritional Sciences hopes your graduate years will be enjoyable and rewarding. The challenges you will face will create a sound research foundation and help make your future years as a basic research scientist 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, and with that described in the Graduate School Bulletin.

www.research.uky.edu/gc/bulletin/bullinfo.shtml

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The Ph.D. Program for Students Admitted to IBS

Integrated Biomedical Sciences Program (First Year of Graduate School)

The IBS program is composed of first year biomedical graduate students in the College of Medicine, University of Kentucky. The seven participating departments and centers include Anatomy & Neurobiology; Microbiology, Immunology & Molecular Genetics; Molecular & Biomedical Pharmacology; Molecular & Cellular Biochemistry; Graduate Center for Nutritional Sciences; Graduate Center for Toxicology; and Physiology. The IBS Program consists of both coursework and laboratory rotations completed during the first year of graduate school. The 2008-2009 curriculums are described below. Detailed information about these courses can be obtained at www.mc.uky.edu/ibs/overview/curriculum.asp

FALL Semester

IBS 601 Biomolecules and Metabolism (3 hours)
IBS 603 Cell Biology (3 hours)
IBS 605 Experimental Genetics (3 hours)
IBS 607 Seminar in Integrated Biomedical Sciences (0 hours)
IBS 609 Research in Integrated Biomedical Sciences (1 hour)

SPRING Semester

IBS 602 Biomolecules and Molecular Biology (3 hours)
IBS 604 Cell Signaling (3 hours)
IBS 606 Integrated Biomedical Sciences (4 hours)
IBS 607 Seminar in Integrated Biomedical Sciences (0 hours)
IBS 609 Research in Integrated Biomedical Sciences (1 hour)

SUMMER Session

TOX 600 Ethics in Scientific Research (1 hour)

All IBS students take four laboratory rotations (two per semester) among any of the participating departments. The purpose of the rotations is for the student to both gain experience in a working scientific lab and to find a faculty member who will serve as a research advisor. Selection of a research advisor is a mutual decision of the student and faculty member and is made by the end of the spring semester.

Additional information about the IBS program can be obtained at the IBS web page (<http://www.mc.uky.edu/ibs>), or by directly contacting the IBS program by e-mail (ibs@lsv.uky.edu) or by phone at (859) 323-0004.

Nutritional Sciences Graduate Program

The Nutritional Sciences Curriculum – Direct admission or through IBS

Nutritional Sciences students follow the curriculum described below. Students may enter the Nutritional Sciences Program from IBS or through direct admission (year 1). Students with extensive prior training in nutrition may petition the Graduate Committee to evaluate modification of the curriculum. Note that graduate students must register for a minimum of 9 hours per semester until they pass their qualifying exam.

Some courses are cross-listed with other units and departments, but for clarity, only the “NS” prefixes are listed below. Students in the Nutritional Science programs should always register under the “NS” prefix.

Core Courses:

NS 601	Integrated Nutritional Sciences I	3 credits
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The material covered in CNU/NS 601 consists of three major emphasis areas: (1) review of carbohydrate, lipid, and protein structure, synthesis, absorption, and metabolism, (2) the impact of nutritional influences on macronutrient metabolism to health and disease, (3) the influence of macronutrient metabolism on the regulation of energy balance.

NS 602	Integrated Nutritional Sciences II	3 credits
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Integrated study of the properties, metabolism, biochemical and physiological functions and interactions of vitamins and minerals, and their relationships to chronic diseases, deficiency symptoms and toxicity.

CNU/NS 603	Integrated Nutritional Sciences III	2 credits
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Working knowledge of dietary requirements and guidelines, nutritional assessment, food safety issues and nutritional requirements through the lifecycle.

NS 771	Graduate Seminar in Nutritional Sciences	1 credit**
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Seminars by students, postdoctoral fellows and faculty both internal and external to the University in areas of nutritional sciences

NS 704	Current Topics in Nutrition	1 credit
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Seminars by students, postdoctoral fellows and faculty both internal and external to the University in areas of nutritional sciences

NS 609	Ethics in Clinical Research or TOX 600 or Ethics in Scientific Research	1 credit
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Students will examine ethical issues in biomedical research using a case-study approach. Representative issues addressed may include data selection and retention, plagiarism, scientific review of grants and manuscripts, scientific misconduct, and informed consent.

Electives

Students must successfully complete a minimum of 8 credit hours in electives. Elective courses are recommended by the Advisor and approved by the Advisory Committee.

Suggested courses are listed below:

IBS604	Cell Signaling	3 credits
IBS605	Experimental Genetics	2 credits
IBS 607	Seminar in Integrated Biomedical Sciences	0 credit
IBS 609	Research in Integrated Biomedical Sciences	1 credit
NS/NFS 607	Food-Related Behaviors	3 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 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 608	Nutritional Immunology	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
EDP661	Counseling Techniques II	3 credits
GS610	College Teaching	3 credits
KHP420G	Physiology of Exercise	3 credits
KHP 621	Advanced Exercise Physiology	3 credits

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KHP 621	Exercise and Coronary Heart Disease	3 credits
KHP 720	Sport Medicine	3 credits
KHP 781	Theory and Methodology of Body Composition Assessment	3 credits
MI685	Advanced Immunology	3 credits
MI 710	Molecular Cell Biology	3 credits
PGY604	Advanced Cardiovascular Physiology	3 credits
PGY607	Hormonal Control Mechanisms	3 credits
BCH 609	Plant Biochemistry	3 credits

Residency Requirement

NS767	Residency Credit in Nutritional Sciences (Post-qualifying exam)	2hr/semester
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Example of Second Year Ph.D. Curriculum for IBS Students

Second Year

Fall Semester

NS 601	Integrated Nutritional Sciences I	3 credits
STA 570	Basic Statistical Analysis	4 credits
NS 771	Graduate Seminar in Nutritional Sciences	1 credit
Elective		1

Spring Semester

NS 602	Integrated Nutritional Sciences II	3 credits
CNU/NS 603	Integrated Nutritional Sciences III	2 credits
NS 704	Current Topics in Nutrition	1 credit
NS 771	Graduate Seminar in Nutritional Sciences	0 credit
Elective		3 credits

*IBS 604 & 605 taken in year one will fulfill elective requirements.

Example of Ph.D. Curriculum for Students Directly Admitted into the Nutritional Sciences Program

First Year

Fall Semester

BCH 607	Biomolecules & Metabolism or	3 credits
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CHE 550	Biological Chemistry I	3 credits
IBS 603	Cell Biology	3 credits
NS 609	Ethics in Clinical Research	1 credit
NS 771	Graduate Seminar in Nutritional Sciences	0 credit
Elective		<u>2</u> credits
		9

Spring Semester

BCH 608	Biomolecules & Molecular Biology	3 credits
IBS 606	Integrated Medical Sciences	4 credits
NS 771	Graduate Seminar in Nutritional Sciences	0 credit
Electives		<u>2</u> credits
		9

Second Year

Fall Semester

NS 601	Integrated Nutritional Sciences I	3 credits
NS 771	Graduate Seminar in Nutritional Sciences	0 credit
STA 570	Basic Statistical Analysis	4 credits
Electives		<u>2</u> credits
		9

Spring Semester

NS 602	Integrated Nutritional Sciences II	3 credits
NS 603	Integrated Nutritional Sciences III	2 credits
NS 771	Graduate Seminar in Nutritional Sciences	1 credit
NS 704	Current Topics in Nutrition	1 credit
Elective		<u>2</u> credit

Doctoral Candidacy

Students become doctoral candidates after passing the qualifying exam. Students have five years to earn their doctoral degree after the exam, unless the Graduate School is petitioned to allow additional time.

Students who passed their qualifying exams before 2005

Doctoral candidates register for research (NS 749 or 769) even after other class work is completed. Students should register for NS 769 (up to 9 hours a semester) until they have satisfied the residence requirements of the Graduate School by accumulating 18 hours. Afterwards the department registers them for either NS 749 or 769 for zero credit hours each semester. The Graduate School recommends that international students or students with outstanding student loans be registered in NS 749. It is the student's responsibility to inform the department about such loans or other issues. However, the Graduate School only permits registration in NS 749 for a total of six semesters.

Students who have or will take their qualifying exams in 2005 or later years

Doctoral candidates register for NS 767 (Dissertation Research, 2 hours) every semester, as well as in the second summer session, even after all other class work is completed.

A. Advisor and Advisory Committee

- The Thesis Advisor is a member of the Nutritional Sciences faculty and will guide Ph.D. candidates in their studies. The Advisor is the appointed Chair of the Advisory Committee and the primary contact in all matters pertaining to graduate studies.
- The Advisory Committee is an advising and program planning entity involved in the administration of the Qualifying Examination, supervision of the preparation of the dissertation, and the administration of the Final Oral Examination on the dissertation.
- The Advisory Committee should be formed prior to the completion of 18 credit hours of graduate work and at least one semester prior to the Qualifying Examination.
- The Advisory Committee consists of at least four members, all of whom must be members of the Graduate Faculty. The majority of the members must be full members of the Graduate Faculty.
- The Chair and two other members of the Advisory Committee must be from the Graduate Center for Nutritional Sciences. At least one representative must be from outside the Center.
- The Advisor and Advisory Committee are appointed by the Graduate School Dean upon receiving the *Advisory Committee Request* form from the DGS. (<http://www.research.uky.edu/gS/AdvisoryCommittee.pdf>).

B. Qualifying Examination for the Ph.D. Student

A qualifying examination is required of all doctoral students. It verifies that the student has sufficient understanding of and competence in his/her chosen field in order to become a Doctoral Candidate.

- The Qualifying Examination is given after completing the course requirements for the Graduate Center for Nutritional Sciences.

- Students must submit a completed *Recommendation for Qualifying Examination* form (<http://www.research.uky.edu/gs/RecommQualExam.pdf>) to the DGS three weeks prior to the scheduled examination.
- The DGS then schedules the Qualifying Examination, which the Graduate School must approve two weeks before it takes place.
- The DGS will report the results of the Qualifying Examination to the Graduate School within 10 days of its conclusion.

If the result of the qualifying exam is failure, the Committee determines the conditions to be met before another examination may be given. The minimum time between examinations is four months; however, a second examination must be taken within one year after taking the first examination. A third examination is not permitted.

The Qualifying Examination should be completed in four weeks and consists of two parts:

Written Examination:

Part I. *Closed book examinations consisting of questions written by each Advisory Committee member.* Students may take each part of the committee member's written examination on separate days; however, the written examination must be completed within one week. (Note: Each faculty is required to provide exam questions that will take approximately three (3) hours for the student to answer.)

Part II. *Open book examinations.* Completion of a research proposal on a novel topic developed in consultation with the advisor and approved by the Advisory Committee. The topic may be related to the thesis project, and must be developed and written independently. The proposal is due seven (7) days before the oral examination and not later than three (3) weeks from the start of the closed book examination. The student is encouraged to initiate development of the proposal as early as possible after entry into the program.

C. Doctoral Dissertation

Prior to the Final Examination, the doctoral candidate must present a dissertation that represents the culmination of a major research project. It must be a well-reasoned, original contribution to knowledge in the field of study and should provide evidence of high scholarly achievement.

The student's Advisor will provide the primary guidance in planning and preparing the dissertation, however other members of the Advisory Committee should be consulted and may be involved as well.

The dissertation should be written so that the chapters are the format of manuscripts (which will be submitted to refereed journals for publication).

All core members of the Advisory Committee must read the dissertation prior to signing the Dissertation Approval Form

<http://www.rgs.uky.edu/gs/dissertationapproval>

The Advisory Committee must approve it two weeks before the scheduled defense. The dissertation form must conform to the specific instructions prepared by the Graduate School. A copy of the Instructions for the Preparation of Theses and Dissertations may be obtained from the Graduate School Website.

<http://www.research.uky.edu/gs/thesdissprep.html>

Students may submit a thesis or dissertation either in printed form, or totally electronic form. Although the required format for electronic theses and dissertations (ETDs) is nearly identical to that for the traditional printed version, there are some important differences and exceptions. See ETD Website at: <http://www.uky.edu/ETD>

Students should also review the Graduate School's dissertation requirements in Preparation for Theses and Dissertations (www.rgs.uky.edu/gs/thesdissprep.html) *Dissertation fee payments should be made at the Student Billing Services, 18 Funkhouser Building. Students may also have their dissertation copyrighted if desired. See the UK Graduate Bulletin for details.* <http://www.research.uky.edu/gs/bulletin/bullinfo.shtml>

D. Final Examination

The Final Examination will consist of an open formal seminar presentation on the dissertation topic followed by an oral exam. It will include a defense of the dissertation and may be as comprehensive in the major and minor areas as the Advisory Committee chooses. An expanded Advisory Committee chaired by the Advisor conducts the oral examination. The Dean of the Graduate School and the President of the University are "ex officio" members of all final examination committees.

The examination is a public event; scheduling is published and announced prior to the date of defense. Any member of the University may attend.

- At least 30 days prior to the Final Examination, following notification by the Advisor that a copy of the dissertation has been distributed to members of the Advisory Committee, the DGS will present to the Graduate School as *Notification of Intent to Schedule a Final Doctoral Examination*.
<http://www.research.uky.edu/gs/DissertationApproval.pdf>
- The Notification form must arrive at the Graduate School **a minimum of 8 weeks** prior to the first day of the anticipated week of defense. At this time, the Graduate Dean appoints an Outside Examiner as a core member of the Advisory Committee.
- The Final Examination must take place no later than **eight days prior to the last day of classes of the semester** in which the student expects to graduate. At the time the Final Examination is scheduled (at least two weeks before the date desired), the *Request for Final Doctoral Examination* <http://www.research.uky.edu/gs/RequestFinalDocExam.pdf> , plus a signed *Dissertation Approval Form* <http://www.research.uky.edu/gs/DissertationApproval.pdf> , along with an acceptable copy of the dissertation, must be presented to the Graduate School. The draft must be complete in content, including all footnotes, tables, figures, and appendices. A full bibliography or set of references must be included, along with a title page and abstract.
- After the Final Examination is passed, the final copy of the dissertation is prepared. Final copies are submitted to the Graduate School along with the signature of the Advisor and the DGS.
- The dissertation in its final form must be received in the Graduate School office **Within 60 days of the Final Examination**. *If this deadline is not met, the Candidate must undergo a second examination.*

E. Application for Degree

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

<http://www.research.uky.edu/gS/GSDegreeCard.pdf>

F. Degree Guidelines/General Graduate School Requirements

The Ph.D. degree will be conferred on a candidate who has:

- Completed all coursework
- Passed a comprehensive qualifying examination in nutritional sciences as well as the dissertation project
- Presented a satisfactory dissertation
- Passed a final oral examination
- Shows evidence of creative scholarly attainment

Link to Graduate School Forms: <http://www.research.uky.edu/gS/gSforms.html>

Academic Topics

Research Integrity

- All biomedical research at the Graduate Center for 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. <http://www.research.uky.edu/ori/>
- The ORI also supports the institution in promoting ethical conduct of research and educating UK students and employees regarding research misconduct regulations.
- Students must adhere to all approved protocol and procedures set forth by their mentors.

Honor Code/Plagiarism

- Pursuit of a graduate program at the Graduate Center for 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. <http://www.uky.edu/StudentAffairs/Code/part1.html>

Evaluation of Academic Performance (Termination of a Student)

- Student progress will be monitored periodically by the DGS and reviewed by the Graduate Advising 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 the 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 the 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 Center Director.

Communication Skills

- The development of good communication skills is a vital part of graduate education. These skills are improved through a wide range of activities including seminar courses, journal clubs, teaching experiences, the writing of manuscripts, research proposal and grant applications, presentations at local, regional and national meetings, as well as the final dissertation.
- Proficiency in English is required of all graduate students in the Graduate Center for Nutritional Sciences. English as a Second Language classes are available to the Center's students. Please contact the DGS for further information.

Research Presentations

Students are encouraged to present research data at national/international professional meeting such as those organized by the Federation of American Societies for Experimental Biology (FASEB), American Association for Cancer Research, American Heart Association, Society for Free Radical Biology and Medicine, American College of Nutrition, American Dietetics Association and Institute of Food Technologists. These meetings provide an opportunity to interact with peers, faculty and others with common interests.

Student Travel Support Requirements

Support for travel to professional meeting will be provided only when a research paper is to be presented. An application must be completed and accompanied by the following documents:

- An abstract of the paper to be presented
- A copy of the invitation to present or a program confirmation card (a copy of the meeting program with the student's name listed as a presenter).
- An itemized budget of expenses.
- Students must acknowledge the "Graduate Center for Nutritional Sciences" as their affiliation when presenting a paper with slides or a poster.
- Students must submit an application to the Graduate School to obtain travel support.

The Graduate School has established monthly deadlines for the submission of applications requesting travel support.

- Deadlines and the *Student Support Travel* form can be found at <http://www.research.uky.edu/gsfellowship/studentssupport.html>
- The Graduate School will fund expenses covering no more than three days. Mere attendance at professional meetings will not be supported.

Teaching Experience

- Students are encouraged to attend the Annual Teaching Assistant Orientation Workshop sponsored by the Graduate School each fall.
- Students are also encouraged to take both GS 610 (College Teaching, 1 credit hr) and GS 650 (Preparing Future Faculty, 1 credit hr), to prepare for academic careers and enhance their teaching skills.

Integrated Biomedical Sciences Program

Students are expected to assist the department in introducing new students to the IBS program. This may include attending lunches and question/answer sessions, or by giving tours or demonstrations at the request of the Chair or DGS.

Miscellaneous

Vacations and Holidays

New students should be aware that graduate school differs from undergraduate study in that graduate work is a full-time endeavor throughout the 12 months of the year. In general, students are expected to be in lab during the workweek when not in class or studying. Students should also be aware that time-sensitive scientific research can often require work on holidays, weekends, and nights. The department recommends the following guidelines for planning time off:

- Students on Research Assistantships should be allowed 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 assistantship; 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.

Personal Safety: Students should always consult with a faculty member before using new equipment, toxins, chemicals or infectious agents. Students should also be aware that the University requires specific safety training before using various methods and equipment. The following is a partial list of University web pages where you can register for specific training classes or review appropriate safety manuals.

Blood Borne Pathogens: <http://ehs.uky.edu/classes.html>

Chemicals and Lab Safety: <http://ehs.uky.edu/classes.html>

Hazardous Waste: <http://ehs.uky.edu/classes.html>

Lab Animals: http://www.research.uky.edu/ori/univet/training/Web-Based_Training.htm

Laser Safety: <http://ehs.uky.edu/radiation/laser.html>

Radiation Safety: <http://ehs.uky.edu/radiation/radsafe.html>

Additional safety information: <http://ehs.uky.edu/ohs/welcome.html>

Keys: Requests for lab or equipment room keys must be approved by your research advisor and departmental chair. Key forms are obtained from the departmental administrator.

Photocopier Privileges: Students may use the departmental photocopier for either research or academic, but not personal, use. An access code may be obtained from the departmental administrator.

Student Mailboxes: GCNS Students have individual mailboxes in the mailroom on the 5th floor of the Wethington Building in close proximity to the GCNS Administrative Offices.

E-Mail: All GCNS Ph.D. Students are required to activate their UK e-mail addresses. All correspondence from the Department as well as from the departmental staff will be communicated only through the UK e-mail system.