

NUTRITIONAL SCIENCES

Graduate Program Head	Catharine Ross
Program Code	NUTR
Campus(es)	University Park (Ph.D., M.S.) World Campus (M.P.S.)
Degrees Conferred	Doctor of Philosophy (Ph.D.) Master of Science (M.S.) Master of Professional Studies (M.P.S.) Dual-Title Ph.D. in Nutritional Sciences and Clinical and Translational Science
The Graduate Faculty	View (https://secure.gradsch.psu.edu/gpms/?searchType=fac&prog=NUTR)

Ph.D., M.S., Dual-title Ph.D. (Nutritional Sciences and Clinical and Translational Sciences)

Graduates of the M.S. and Ph.D. programs are prepared for careers in basic and applied research in nutrition and in college teaching. The course of study is planned to meet the professional objectives of the individual student. Students may emphasize molecular and cellular nutritional sciences, nutritional biochemistry, applied human nutrition, applied animal nutrition, nutrition education, and nutrition in public health. Supporting courses are available in biochemistry, physiology, genetics, microbiology, biophysics, food science, health policy and administration, human development and family studies, anthropology, sociology, psychology, public health sciences, and statistics.

Current research emphasizes minerals, vitamin A, lipid metabolism, metabolic disorders, nutrition and behavior, nutrition education strategies, evaluation of dietary intake and nutritional status, nutrition policy and health promotion and disease prevention across the life cycle.

Facilities include well-equipped nutrition science laboratories with animal facilities supervised by a University laboratory animal resource staff. The Diet Assessment Center and the metabolic kitchens serve as laboratories for students in community nutrition, nutrition education, and metabolic nutrition.

M.P.S.

The online professional master's degree (M.P.S.) is designed for those seeking to become registered dietitians, for those already registered and interested in enhancing their careers, and for those interested in pursuing a career with a focus in Nutritional Sciences. Graduates of the program may expect to become leaders on the health care team and other practice teams, and share their knowledge and expertise with other health care professionals and colleagues. Graduates will be positioned for career success and will be innovators in today's dynamic health and wellness sector.

The M.P.S. degree is also offered with an experiential learning track that requires additional course work. Upon completion of the experiential learning track, students will receive a Verification Statement which qualifies them to take the Registered Dietitian Nutritionist credentialing examination.

This is a supervised experiential learning track of the M.P.S. degree program. This track requires that the student complete an additional 9 credits for a total of 39 credits and includes an experiential learning

component (6 credits) integrated with the coursework. Three credits coursework for the Experiential Learning Track of the M.P.S. are online and 6 credits of the coursework are in residence at either the Hershey, PA or University Park, PA locations.

Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (<http://gradschool.psu.edu/prospective-students/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<http://gradschool.psu.edu/graduate-education-policies/>).

Master of Professional Studies (M.P.S.)

Scores from the Graduate Record Examinations (GRE) are not required for admission.

College graduates with an undergraduate degree in nutrition, dietetics, public health or related health sciences will be considered for admission. Applicants should have a minimum grade-point average of 3.00 (on a 4.00 scale) and three supporting recommendations. Exceptions may be made for students with special backgrounds, abilities, and interests at the discretion of the program. When openings are limited, the best-qualified candidates are given priority.

The basic expectations for admission from undergraduate studies include:

- 3 credits in physiology (or 6 credits in Anatomy & Physiology I and II),
- 3 credits in biochemistry,
- 3 credits in organic chemistry,
- 3 credits in introductory nutrition (equivalent to or more advanced than NUTR 251 at Penn State), and
- 3 credits in advanced nutrition.

If these courses were taken more than 10 years prior to application, they may be accepted at the Programs Director's discretion. Students can be provisionally admitted (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/provisional-admission/>) to the program without these basic expectations, but they must complete all identified deficiencies with a 3.00 grade-point average or above on a 4.0 scale within the first two semesters after acceptance, prior to beginning graduate course work.

Experiential Track of the M.P.S. Program

College graduates with an undergraduate degree in nutrition, dietetics, public health or related health sciences will be considered for admission. Applicants should have a minimum grade-point average of 3.00 (on a 4.00 scale) and three supporting recommendations. Exceptions may be made for students with special backgrounds, abilities, and interests at the discretion of the program. Scores from the Graduate Record Examination (GRE) are not required for admission.

The basic expectations for admission to the Experiential Track from undergraduate studies include:

- 3 credits in physiology (or 6 credits in Anatomy & Physiology I and II),
- 3 credits in biochemistry,
- 3 credits in organic chemistry,
- 3 credits in introductory nutrition (equivalent to or more advanced than NUTR 251 at Penn State),
- 3 credits in Lifecycle Nutrition,

- 3 credits in Nutrient Metabolism (macronutrient and micronutrient), and
- 3 credits in Medical Nutrition Therapy.

In addition, students must have a total of 500 hours of appropriately documented work or volunteer experience completed within two years of application. Of the 500 hours, 300 hours must be in a nutrition or dietetics-related field.

If any of these courses were completed more than 10 years prior to application, they may be accepted at the Program Director's discretion. The exception is if Medical Nutrition Therapy was taken more than 5 years prior to application, it may be accepted at Program Director's discretion.

For students with a bachelor's degree from an ACEND accredited Didactic Program in Dietetics (DPD), a DPD Verification Statement is required for admission into the Experiential Track of the graduate program.

Students can be provisionally admitted to the Experiential Track of the M.P.S. program without these basic expectations, but they must complete all identified deficiencies with a B grade (3.00 on a 4.0 scale) within the first two semesters after acceptance, prior to taking the following courses: NUTR 800 Food Systems and Organization Management and NUTR 895A, NUTR 895B and NUTR 895C. Students previously matriculated in the M.P.S. program (graduate degree only) must complete an Assessment of Prior Learning form before enrolling in NUTR 895A, NUTR 895B, or NUTR 895C.

Master of Science (M.S.) and Doctor of Philosophy (Ph.D.)

Scores from the Graduate Record Examinations (GRE), or from the Medical College Admission Test (MCAT), are required for admission. At the discretion of the graduate program, the GRE or other test scores may be waived for an individual on a case-by-case basis.

College graduates with an undergraduate degree in nutrition, animal sciences, food science, dietetics, or a related biological or social science will be considered for admission. Applicants should have a minimum grade-point average of 3.00 (on a 4.00 scale), an acceptable score on the GRE (an average quantitative and verbal score above the fiftieth percentile), and three supporting recommendations. Exceptions may be made at the discretion of the program for students with special backgrounds, abilities, and interests. When openings are limited, the best-qualified applicants are given priority.

The basic expectations for admission from undergraduate studies include: 6 credits in chemistry (organic and inorganic); 3 credits each in physiology, biochemistry, and nutrition; and physics, calculus, and analytical chemistry for some research areas in nutrition science, and social science for public health and community nutrition. Students with more than 8 credits of deficiency and a superior record may be provisionally admitted (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/provisional-admission/>) to the graduate degree program. The deficiencies identified must be made up with a 3.00 grade-point average or better within the first two semesters.

Degree Requirements

Master of Professional Studies (M.P.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-700 Professional Degree Policies (<http://gradschool.psu.edu/graduate-education-policies/>).

The program can be completed on a full-time basis in 24 months or students may elect to complete the program on a part-time basis. Requirements for the completion of the Master of Professional Studies in Nutritional Sciences degree include 30 credits at the 500 and 800 level, with a minimum of 6 credits of 500-level course work:

Code	Title	Credits
Required Courses		
NUTR 805	Advanced Nutrient Metabolism	4
NUTR 540	Research Methods	3
NUTR 801	Leadership in the Nutrition Profession	2
NUTR 810	Nutritional Assessment and Diagnosis	3
NUTR 820	Advanced Clinical Nutrition	3
NUTR 830	Advanced Nutrition and Health Program Planning	3
NUTR 840	Advanced Nutrition Counseling	3
NUTR 850	Leadership Concepts and Application for the Nutrition Professional	3
STAT 500	Applied Statistics	3
Electives		
Elective credits may be chosen from a list of approved electives maintained by the program office.		
Culminating Experience		
NUTR 860	Capstone Project in Nutritional Sciences	2-5
Total Credits		30

All students must enroll in NUTR 860 and successfully complete the Capstone Project in order to earn the M.P.S. degree. Depending on the nature of the proposed Capstone Project, the program will approve between 2 and 5 credits of NUTR 860 to count towards the degree requirements for a total of 30 credits (minimum). Elective credits may be chosen from a list of approved electives maintained by the program office.

Experiential Track of the M.P.S. Program

Upon completion of the Experiential Learning track of the M.P.S. degree program, students will receive a Verification Statement which qualifies them to take the Registered Dietitian Nutritionist credentialing examination.

In addition to the 30 credits, as described above for the M.P.S. degree, students accepted into the Experiential Track of the M.P.S. Program will be required to take the following additional courses:

Code	Title	Credits
Required Courses		
NUTR 800	Food Systems and Organization Management	3
NUTR 895A	Internship-Clinical	2
NUTR 895B	Internship-Food Systems and Organization Management	2
NUTR 895C	Internship-Community	2
Total Credits		9

The total number of credits required for completion of the Experiential Track of the M.P.S. Program is 39 credits (minimum).

Master of Science (M.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (<http://gradschool.psu.edu/graduate-education-policies/>)

The graduate program in Nutritional Sciences offers the M.S. degree with an emphasis in basic nutritional sciences, applied human nutrition, or nutrition in public health. The M.S. degree requires a minimum of 30 credits of course work at the 400, 500, 600, or 800 level, including at least 12 credits in 500-level courses and 6 credits in thesis research (NUTR 600 or NUTR 610).

Code	Title	Credits
Required Courses		
NUTR 501	Regulation of Nutrient Metabolism I	4
NUTR 502	Regulation of Nutrient Metabolism II	3
NUTR 520	Readings in Nutrition	2
NUTR 551	Seminar in Nutrition	1
4 additional credits at the 500 level from a list maintained by the program		4
<i>Supporting Courses</i>		
ENGL 418	Advanced Technical Writing and Editing (or equivalent)	3
3 credits in Statistics		3
Electives		
Elective credits may be chosen from a list of approved electives maintained by the program office. Students pursuing an M.S. degree with an emphasis in nutrition and public health are required to complete a 4-credit field experience.		4
Culminating Experience		
NUTR 600	Thesis Research	6
or NUTR 610	Thesis Research Off Campus	
Total Credits		30

Students must write and defend a master's thesis accepted by the advisers and committee members, the head of the graduate program, and the Graduate School, and the student must pass a thesis defense.

Doctor of Philosophy (Ph.D.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (<http://gradschool.psu.edu/graduate-education-policies/>)

The Ph.D. requires a minimum of 25 credits of course work at the 400, 500, 600, or 800 level, including 13 credits in the following core required courses:

Code	Title	Credits
Required Courses		
NUTR 501	Regulation of Nutrient Metabolism I	4
NUTR 502	Regulation of Nutrient Metabolism II	3
NUTR 520	Readings in Nutrition	1
NUTR 551	Seminar in Nutrition	1
4 additional credits at the 500 level from a list maintained by the program		4

Electives

12 elective credits chosen in consultation with advisers and Ph.D. committee, from a list of approved electives maintained by the program office	12
Total Credits	25

In addition, one credit of NUTR 520, NUTR 551 or NUTR 590 per year is required until after the semester in which the Comprehensive Exam is passed.

Students must pass a qualifying examination designed to assess the student's potential and academic preparation for doctoral study. Qualifying examinations must be scheduled in compliance with Graduate Council policy (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-604-qualifying-examination-research-doctorate/>). For students with a master's degree, the qualifying examination must be scheduled prior to earning 24 graduate credits or prior to completing 3 semesters following admission to the graduate program, whichever comes first. The qualifying examination is administered and evaluated by the Graduate Qualifying Examination Committee. After completion of the qualifying examination, each student will form a Ph.D. committee comprised of Graduate Faculty internal and external to the Graduate Program in Nutritional Sciences, in accordance with Graduate Council requirements (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/phd-dissertation-committee-formation/>). Students must pass a comprehensive examination, the specific format and content of which is determined in consultation with the Ph.D. committee. A successful defense of the dissertation proposal and the writing of a satisfactory dissertation accepted by the Ph.D. committee, the head of the graduate program, and the Graduate School, along with the passing of a final oral examination in Nutritional Sciences, is required.

English Competence

Written and oral English competency will be determined by the qualifying examination committee and remediation assigned, if necessary. Competence must be formally attested by the program before the doctoral student's comprehensive examination is scheduled.

Dual-Titles

Dual-Title Ph.D. Degree in Nutritional Sciences and Clinical and Translational Sciences

Requirements listed here are in addition to requirements listed in GCAC-208 Dual-Title Graduate Degree Programs (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-208-dual-title-graduate-degree-programs/>).

This dual-title degree program emphasizes interdisciplinary scholarship at the interface of basic sciences, clinical sciences, and human health. Students in the dual-title program are required to have two advisers from separate disciplines: one individual serving as the primary adviser in the Graduate Program in Nutritional Sciences and another individual serving as the secondary adviser in an area covered by the dual-title program who is a member of the Clinical and Translational Sciences faculty.

Doctoral students with research and educational interests in clinical and translational science may apply for the Dual-Title Ph.D. Degree in Nutritional Sciences and Clinical and Translational Sciences following admission to the Graduate School and Nutritional Sciences and prior to taking the qualifying examination in Nutritional Sciences. An admissions committee comprised of faculty affiliated with the dual-title program will evaluate applicants. Applicants must have a graduate GPA of at least

3.5 in a research area related to human health. Prospective dual-title program students will write a statement of purpose that addresses the ways in which their research and professional goals will be enhanced by an interdisciplinary course of study in clinical and translational sciences.

Students must apply and be admitted to the graduate program in Nutritional Sciences and The Graduate School before they can apply for admission to the dual-title degree program. After admission to their primary program, students must apply for admission to and meet the admissions requirements of the Clinical and Translational Sciences dual-title program. Refer to the Admission Requirements section of the Clinical and Translational Sciences Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/clinical-translational-sciences/>). Doctoral students must be admitted into the dual-title degree program in Clinical and Translational Sciences prior to taking the qualifying examination in their home department.

To qualify for the dual-title degree, students must satisfy the degree requirements for the Ph.D. in Nutritional Sciences. In addition, students pursuing the dual-title Ph.D. in Nutritional Sciences and Clinical and Translational Sciences must complete the degree requirements for the dual-title Ph.D. in Clinical and Translational Sciences, listed on the Clinical and Translational Sciences Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/clinical-translational-sciences/>). Approximately 12 credits of course work required for the CTS dual-title may also be counted as required elective courses for the Ph.D. in Nutritional Sciences.

The qualifying examination committee for the dual-title Ph.D. degree will be composed of Graduate Faculty from Nutritional Sciences and must include at least one Graduate Faculty member from the Clinical and Translational Sciences program. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. There will be a single qualifying examination, containing elements of both Nutritional Sciences and Clinical and Translational Sciences. Dual-title graduate degree students may require an additional semester to fulfill requirements for both areas of study and, therefore, the qualifying examination may be delayed one semester beyond the normal period allowable.

In addition to the general Graduate Council requirements for Ph.D. committees (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/phd-dissertation-committee-formation/>), the Ph.D. committee of a Nutritional Sciences and Clinical and Translational Sciences dual-title Ph.D. student must include at least one member of the Clinical and Translational Sciences Graduate Faculty. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. If the chair of the Ph.D. committee is not also a member of the Graduate Faculty in Clinical and Translational Sciences, the member of the committee representing Clinical and Translational Sciences must be appointed as co-chair. The Clinical and Translational Sciences representative on the student's Ph.D. committee will develop questions for and participate in the evaluation of the comprehensive examination.

Students in the dual-title program are required to write and orally defend a dissertation on a topic that is approved in advance by their Ph.D. committee and reflects their original research and education in Nutritional Sciences and Clinical and Translational Sciences. Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. The

dissertation must be accepted by the Ph.D. committee, the head of the graduate program, and the Graduate School.

Student Aid

Graduate assistantships available to students in this program and other forms of student aid are described in the Tuition & Funding (<http://gradschool.psu.edu/graduate-funding/>) section of The Graduate School's website. Students on graduate assistantships must adhere to the course load limits (<http://gradschool.psu.edu/graduate-education-policies/gsad/gsad-900/gsad-901-graduate-assistants/>) set by The Graduate School.

Graduate assistantships are only available for students in the M.S. and Ph.D. degree programs.

Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

Nutrition (NUTR) Course List (<https://bulletins.psu.edu/university-course-descriptions/graduate/nutr/>)

Learning Outcomes

Master of Science (M.S.)

1. **Know:** Students will demonstrate knowledge of the basic principles of nutrition science and an understanding of the primary literature both in basic and applied areas of research. The core demonstration will include comprehension of current knowledge in the field and an understanding of study design, methods, results, and significance and the application of this comprehension/understanding to problems in biology, biochemistry, medicine, and public health.
2. **Apply/Create:** Students will be able to synthesize the research findings in their specialty area and generate ideas for a novel research project; they will be able to articulate the rationale for the proposed novel research project and clearly describe a specific hypothesis to be tested; they will demonstrate the ability to use best practices in the field of nutrition science to design a research study to test this hypothesis and carry it to completion.
3. **Communicate:** Students will be able to convey ideas or arguments in clear, concise, well-organized papers and proposals as well as in formal, oral presentations.
4. **Critical thinking:** Students will master the ability to critique the primary nutrition science literature. This will be demonstrated by the student's ability to identify the research question, experimental design and conclusions in a scientific article in the field; they will also be able to apply their knowledge of statistics and experimental design to critique methodology and conclusions in a scientific article in the field.
5. **Professional practice:** Students will demonstrate knowledge and comprehension of research ethics issues which are relevant to the field of nutrition science including working with animal and human populations, ethical principles related to authorship, plagiarism, and conflicts of interest. They will also contribute to the profession through service.

Doctor of Philosophy (Ph.D.)

1. **Know:** Students will demonstrate knowledge of the basic principles of nutrition science and an understanding of the primary literature both in basic and applied areas of research. The core demonstration will include comprehension of current knowledge in the field and an understanding of study design, methods, results, and significance and the application of this comprehension/understanding to problems in biology, biochemistry, medicine, and public health.
2. **Apply/Create:** Students will be able to synthesize the research findings in their specialty area and generate ideas for a novel research project; they will be able to articulate the rationale for the proposed novel research project and clearly describe a specific hypothesis to be tested; they will demonstrate the ability to use best practices in the field of nutrition science to design a research study to test this hypothesis and carry it to completion.
3. **Communicate:** Students will be able to convey ideas or arguments in clear, concise, well-organized papers and proposals as well as in formal, oral presentations.
4. **Critical thinking:** Students will master the ability to critique the primary nutrition science literature. This will be demonstrated by the student's ability to identify the research question, experimental design and conclusions in a scientific article in the field; they will also be able to apply their knowledge of statistics and experimental design to critique methodology and conclusions in a scientific article in the field.
5. **Professional practice:** Students will demonstrate knowledge and comprehension of research ethics issues which are relevant to the field of nutrition science including working with animal and human populations, ethical principles related to authorship, plagiarism, and conflicts of interest. They will also contribute to the profession through service.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Campus	University Park
Graduate Program Head	A Catharine Ross
Director of Graduate Studies (DGS) or Professor-in-Charge (PIC)	Laura E Murray-Kolb
Program Contact	Mary B Balboni 110 Chandlee Laboratory University Park PA 16802-610 mbm145@psu.edu (814) 865-3448
Program Website	View (https://hhd.psu.edu/nutrition/nutritional-sciences-graduate-program/)

Campus	World Campus
Graduate Program Head	A Catharine Ross
Director of Graduate Studies (DGS) or Professor-in-Charge (PIC)	Gina Pazzaglia
Program Contact	Debra Marie Jozefick 110 Chandlee Laboratory University Park PA 16802-610 dmj15@psu.edu (814) 865-6323
Program Website	View (http://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-nutritional-sciences-masters-degree/overview/)