Nutrition at Cornell: An Option for You?

Nutritional Sciences (NS-CHE and NS-CALS)

What is Nutritional Sciences?
Nutritional Sciences is a broad, problem-solving field that draws upon biology, chemistry, and the social sciences to answer questions such as:

- How do dietary patterns influence the health and well-being of individuals, communities, and populations?
- What are the biological mechanisms through which nutrients affect metabolism?
- What are recommended dietary patterns for people of different activity levels and medical conditions?
- How can people be encouraged to adopt and maintain healthy eating patterns?
- What are the roles of governments and businesses in providing accessible, healthy food supplies and in promoting healthy eating practices?

Where will a Nutrition major lead me?
The Nutrition major is excellent preparation for several different career interests:

- **Medicine** and other health careers such as physical therapy, physician's assistant, or pharmacy
- **Dietetics** including nutrition counseling, clinical nutrition, community nutrition, and management of food and nutrition services in business and the health industry
- **Fitness and Wellness** including corporate wellness, sports nutrition, exercise science, and athletic training
- **Nutrition Communications** including nutrition education and outreach programs for businesses, governments, and community organizations
- **International Nutrition & Global Health** including programs concerned with hunger, health, and food supply issues in non-industrialized countries
- **Research** including careers that use biochemical, physiological, genomic, clinical, and social science methods to understand how food, diet, and health are related

Following graduation most nutrition majors pursue their career interests through programs of advanced study including graduate school, dietetic internships, and medical school.

I'm Unsure About My Interests!
During the first two years the curriculum allows you to explore the general field of Nutritional Sciences while you complete courses in chemistry, biology, and the social sciences that provide the foundation for the nutrition major and many other majors as well.

Expect your career interests to develop and possibly change while you are at Cornell. You may take advantage of the different speakers and seminars offered throughout the year to learn about various career options. You can discuss your career interests with your faculty advisor and with college counselors specializing in career planning. If you want to explore other majors, your advisor will suggest some people to contact.

How Does Faculty Advising Work?
Every Nutrition major has a faculty advisor from the Division of Nutritional Sciences. New students meet with their advisors at a scheduled time during the orientation period. You will then meet with your advisor at least twice a year -- during conferences scheduled in October and April to plan your schedule for the next term.

During the first meeting with your advisor, you will find out how to contact him/her when you need to consult with him/her in the future. Most faculty members prefer that students make an appointment through a sign-up sheet, e-mail, or phone call. Some faculty members have scheduled office hours as well.
Your advisor will help you plan courses to meet your academic interests and suggest special opportunities for individual study or experiences outside the classroom. Advisors approve course enrollment schedules.

Keeping in touch with your faculty advisor is very important. Contact him or her whenever you have questions about your academic program or if you are having academic difficulties of any kind. Academic problems are more easily managed when you contact your advisor early!

If you have questions about your faculty advisor or are unable to contact your advisor, you can come to or call the Academic Affairs Office (B21 Savage, 255-4410, aadns@cornell.edu). If you wish to change your advisor, contact Terry Mingle (B21 Savage, 255-4410, tpm2@cornell.edu). See the information sheet, “Working with Your Faculty Advisor”, in the TAN pages, for tips about how you can develop a good relationship with this important person.

What Courses Will I Be Taking?
The core curriculum includes introductory chemistry and biology, organic chemistry, biochemistry, physiology and math as well as introductory courses in the social sciences. Students complete five core courses in nutritional sciences:

- **NS 1150**: Nutrition, Health and Society (fresh yr, fall)
- **NS 2450**: Social Science Perspectives on Food and Nutrition (soph yr, fall)
- **NS 3450**: Introduction to Physicochemical and Biological Aspects of Foods (soph or junior yr, fall)
- **NS 3310**: Physiological and Biochemical Bases of Nutrition (junior yr, spring)
- **NS 3320**: Methods in Nutritional Sciences (senior yr, fall)

In addition, you will select at least three advanced courses in nutritional sciences from a wide variety of choices such as:

- **NS 3060**: Nutritional Problems of Developing Nations
- **NS 3150**: Obesity and the Regulation of Body Weight
- **NS 3220**: Maternal and Child Nutrition
- **NS 3470**: Human Growth and Development: Biological and Behavioral Interactions
- **NS 4130**: Nutritional Genomics-Evolution and Environment
- **NS 4210**: Nutrition for Sport and Exercise (summer only)
- **NS 4250**: Nutrition Communications
- **NS 4310**: Mineral Nutrition and Chronic Disease
- **NS 4315**: Nutrient Requirements and Recommendations: Biological Aspects
- **NS 4370**: Nutritional Immunology and Infectious Diseases
- **NS 4410**: Nutrition and Disease
- **NS 4444**: Sports Nutrition and Supplements: Concepts and Evidence
- **NS 4450**: Food Policy for Developing Nations
- **NS 4500**: Public Health Nutrition
- **NS 4570**: Health, Poverty, and Inequality: A Global Perspective
- **NS 4750**: Mechanisms Underlying Mammalian Developmental Defects

You will also take courses to meet general education requirements for your college. Detailed advising notes in the BLUE pages outline the course requirements and give sample schedules for the four-year program of study. A strong foundation in chemistry and biology is required for the nutrition major. The sequencing of chemistry and biology courses is very important because of the prerequisites for advanced courses and the fact that some chemistry and biology courses are offered (or begin) in the fall semester only. New majors, including transfer students, should plan chemistry courses and biology courses carefully to assure an appropriate sequencing of courses. For details, see "Core Biology and Chemistry" in the BLUE pages.
Can Undergraduates Do Research?
Yes! The Honors Research Program is designed to challenge academically talented students who have a strong interest in research. In the junior year, each student in the Research Honors Program participates in a seminar course and plans an independent research project which s/he develops and conducts in the junior/senior year under the direction of a faculty member. Each student in the Honors Research Program completes a thesis and presents a seminar on the research problem at the end of the senior year. See the information sheet, Honors Research Program (GOLD pages) for more information.

You can also become involved in research through independent study and employment. The information sheet, Undergraduate Research, (GOLD pages) lists the names of faculty members who work with undergraduate students in research and explains how students can find research opportunities.

Field Experience
Field experience helps you put theory into practice and lets you explore different career opportunities. You can earn credit for field experience in Ithaca or another location. Some examples of field placements include: counseling clients in a wellness or fitness program, developing nutrition education materials for children and teaching children in a school-age child care program about nutrition. The information sheet, Field Experiences in Food, Nutrition, and Health for Undergraduates, (GOLD pages) tells you more about field study opportunities.

The Urban Semester or Study Abroad
The Urban Semester in New York City or a semester abroad offers learning experiences that may be career related or simply broadening. The college and university offices will help you find and arrange these experiences. If you are interested in the Urban Semester or Study Abroad, speak with your advisor. You must plan your course schedule well in advance in order to complete the courses required by your college, major, and career interests by graduation. For more details see the information sheet Study Abroad or an Urban Semester (GOLD pages).

Nutrition Majors in Action
You can become a member or leader in the Health and Nutrition Society (HealthNutS), the undergraduate student organization. With the goals of promoting healthy eating practices in the Cornell and Ithaca communities and encouraging interaction among DNS students and faculty members, HealthNutS has a busy agenda including faculty-student activities, food drives, and nutrition education for day care programs, local elementary schools, and programs for residents of adult care homes.

Undergraduate Teaching Assistant:
Qualified juniors/seniors have the opportunity to apply to be undergraduate teaching assistants for some introductory level courses. Undergraduate teaching assistants work with faculty members and graduate teaching assistants and learn about college teaching and various instructional methods. Students receive academic credit for this learning experience through NS 4030. Interested students should contact the faculty member who teaches the course for which they would like to assist.

How Can I Prepare for My Career Interests?
Students are encouraged to explore different career interests through their courses and special seminars offered throughout the year. Faculty advisors and college counselors who specialize in career planning can help students think through their interests. In a one credit course, NS 1200, Nutrition and Health: Issues, Outlooks and Opportunities (spring term), students can meet experts working in different fields and learn about critical issues and trends in these fields as well as the requisite knowledge and skills to work in the following areas:
1. Medicine and Other Health Careers:
The course recommendations for all Cornell students who plan to apply to medical and/or dental school include: 8 credits of general or inorganic chemistry, 8 credits of organic chemistry, 8 credits of introductory biology, at least one advanced course in biology, 8 credits of physics, one year of college mathematics, and 6 credits of English composition. With the exception of physics and one year of math, these courses are included in the core curriculum for the nutritional sciences majors.

More information about medical school course requirements is available from the University’s Health Careers Office, 203 Barnes Hall (5-5044). They have excellent resource materials and advising services for students who wish to pursue careers in medicine. Review the Cornell Health Careers web site:

http://www.career.cornell.edu/paths/health/index.cfm

For more information, see the handout Pre-Med Planning (CHERRY pages).

2. Dietetics, Nutrition Counseling, Clinical Nutrition, Community Nutrition, and Management:
Students who wish to pursue careers in managing food and nutrition services or providing nutrition advice to promote health and/or manage disease states should complete the academic requirements for The American Dietetic Association (ADA). In addition to courses required for the major, students complete:

- Nutrition and the Life Cycle (NS 1220)
- Food for Contemporary Living (NS 2470)
- Food Service Management (HADM 1360)
- Nutrition Communications (NS 4250)
- Nutrition and Disease (NS 4410)
- Implementation of Nutrition Care (NS 4420)
- Public Health Nutrition (NS 4500)
- Applied Dietetics in Foodservice Systems (NS 4880)

AND

- Human Anatomy and Physiology-laboratory (NS 3420)

AND

- Microbiology

Faculty in the Division’s dietetic program provides career advice and also help students compile their applications to the post-baccalaureate supervised practice component (dietetic internship), which is the next step in pursuing a career as a registered dietitian (R.D.). Additional information about the requirements of The Academy of Nutrition and Dietetics can be obtained from Emily Gier, eg47@cornell.edu, in 307 MVR Hall and from the advising handout, Who Should Consider the Dietetics Program (CHERRY pages).

Additional Career Interests....

3. Fitness, Sports Nutrition, and Physical Therapy:
Undergraduate nutrition majors can complete the Applied Exercise Science Concentration at Ithaca College. This program involves 3 courses at Ithaca College: Kinesiology, Exercise Physiology, and Biomechanics of Human Movement. These courses usually begin in the junior year and are taken as part of an exchange program between Cornell and Ithaca College. This program requires careful course schedule planning. Students who wish to apply to graduate schools in physical therapy add courses in physics, anatomy, math and psychology to the requirements for the nutrition major. Detailed information sheets about the Applied Exercise Science Concentration (BLUE pages) and Physical Therapy Career Options (CHERRY pages) are available.

4. Nutritional Biochemistry and Genomics:
Students interested in careers in nutritional biochemistry and genomics should complete the more rigorous chemistry and biology course sequences required for the major. In addition, two semesters of calculus and physics are recommended. Electives of particular interest may include advanced biology and chemistry courses and nutritional science courses related to the physiology, biochemistry, genomics and metabolism of different nutrients and disease states. Students are encouraged to participate in a laboratory research program during their undergraduate program.

5. **International Nutrition & Global Health:**
For students interested in preparing for work in international settings, various departments throughout Cornell University offer courses of potential interest including, but not limited to, courses in language, international agriculture, education, agricultural economics, anthropology, and rural sociology.

6. **Nutrition and Agriculture:**
Students interested in human nutrition and its relationship to food production, food processing, and farm and food policy should consider electives in the following areas: food science, animal science, horticultural sciences, agricultural economics, natural resources, international agriculture, and plant sciences.

7. **Graduate Study:**
Students who want to apply to graduate school should select courses appropriate for admission to their programs of choice. Admission to many graduate programs in the biological and medical sciences may require a year of college mathematics, two semesters of organic chemistry, and physics. For more information see the DNS information sheet on Applying to Graduate School (CHERRY pages).

**Advanced Placement Credit:**
Students with Advanced Placement (AP) Credit may apply credits toward graduation requirements. See the introductory pages of the Cornell University Courses of Study for a summary of the AP test scores required for placing out of specific Cornell courses. Check with individual colleges for specific rules concerning the use of AP credit.

Applying AP credits toward requirements gives students more flexibility in planning courses. Nutrition majors with AP credit in biology and chemistry may wish to take some introductory courses in these subjects at Cornell in preparation for advanced courses. Pre-med students should see the materials from the Health Careers Advising Center and at the website: http://www.ca hack http://www.career.cornell.edu/paths/health/index.cfm

Freshman choosing to use AP credits towards biology or chemistry should enroll in courses to meet college distribution requirements. Entrance into second level courses at Cornell in chemistry (organic) and biology (e.g., physiology) as a freshman is not recommended.

Students are responsible for providing the Registrar of their college with the appropriate documentation to have AP credit applied toward graduation requirements. For details, please read the information sheet, Using AP Credit to Meet Requirements (BLUE pages).

**A Division in Two Colleges**
The Division of Nutritional Sciences (DNS) at Cornell is a unit of both the College of Human Ecology and the College of Agriculture and Life Sciences. It’s a “Division” instead of a department because it is part of two colleges. Cornell undergraduates may study nutrition in two ways:

- **Nutritional Sciences – CHE** through the College of Human Ecology
- **Nutritional Sciences – CALS** through the College of Agriculture and Life Sciences

Students in both programs complete the same biology, chemistry, and nutrition courses, but they develop their majors in different ways through their use of elective courses in the respective colleges. Biology majors in the College of Arts and Sciences and the College of Agriculture and Life Sciences can concentrate in nutrition.
through the Human Nutrition program of study in the biology major. For more information about which program is best for you, contact the Academic Affairs Office in B21 Savage Hall.

For College admission information, contact:

- **Office of Admissions, College of Agriculture and Life Sciences**, 177 Roberts Hall, (607) 255-2036 [http://cals.cornell.edu/admissions/](http://cals.cornell.edu/admissions/)

Read about our “other” major, Human Biology, Health and Society, on the following pages.

**Faculty and Facilities**

The Division of Nutritional Science’s about 50 faculty members are involved in undergraduate teaching, graduate teaching, research, and nutrition outreach to the public through Cornell Cooperative Extension. Most of the DNS faculty members work in MVR, Savage and Kinzelberg Halls. In addition to housing offices and classrooms, these buildings also contain specialized research facilities.