

# Nutritional Sciences and Toxicology

---

## Bachelor of Science (BS)

The Department of Nutritional Sciences and Toxicology offers three undergraduate major program specializations: Physiology and Metabolism, Dietetics, and Toxicology leading to a Bachelor of Science (BS) degree.

The Physiology and Metabolism and Toxicology specializations offer ideal preparations for health-related careers such as medicine, pharmacy, optometry, and dentistry. The two curricula include many courses required for professional school admission. NST graduates who have entered health-related professional schools report appreciation for the in-depth preparation afforded by these specializations.

Now is an exciting time to explore the sciences of nutrition and toxicology. The media have highlighted many questions about the role of diet in development and aging, the safety of genetically modified foods, links among diet, cancer and chronic diseases, and the problems of global malnutrition.

The curriculum, driven by NST faculty research, covers a breadth of topics including functions and mechanisms of nutrient actions to the benefits and hazards of chemical agents, cultural and socio-economic determinants of human diets, and development of programs and policies to address human and environmental health and safety.

## Overview of Specializations

For general information regarding the different specializations within the Nutritional Sciences and Toxicology major, please see below. For further information regarding the different requirements for each, please see the Requirements tab on this page.

### Physiology and Metabolism

This specialization provides a strong foundation in the biological and chemical sciences. The advanced course work focuses on the biochemistry and physiology of nutrients, phytochemicals, and diet-borne toxicants. The Physiology and Metabolism specialization addresses the following topics: nutrients absorption, distribution, and metabolism; functions of nutrients in human health and disease; cellular and molecular regulatory mechanisms by which humans respond to changes in diet; dietary patterns related to health and disease; conceptual and technical processes of nutrition research.

### Dietetics

Dietetics prepares students for a career as a Registered Dietitian (RD). RD's translate the science of nutrition into practical applications in clinical, food service, or community settings. Graduates of this program must complete a dietetics internship and pass a national examination to become an RD.

The Dietetics curriculum provides excellent foundation in the biological and chemical sciences, and a preprofessional focus emphasizing applying knowledge of nutritional sciences to benefit human health and to abate disease. The Dietetics program, known formally as the Didactic Program in Dietetics (DPD) prepares dietitians for positions of leadership in health care, education, industry, government, and community health, as well as in professional organizations. The program fills a community

need for highly trained nutrition professionals, while providing academic background for graduate study in nutrition or related fields. The program focuses on excellence in intellectual development, to development of a professional inquiring attitude, and to equality of opportunity.

Graduates of this program receive preprofessional verification and are eligible to apply to supervised practice programs to receive practical training in multiple aspects of dietetics practice. Such programs generally take nine to twelve months. The DPD program director assists students in applying for supervised practice programs. Upon completion of the academic course work and a postbaccalaureate program of supervised practice, students are eligible to take the nationally administered Registration Examination. Once this exam is passed, the RD credential is earned.

The DPD at UC Berkeley is accredited by the Accreditation Council for Education in Nutrition and Dietetics Education (ACEND) of the Academy of Nutrition and Dietetics (AND).

### Toxicology

This specialization combines a strong foundation in biological and chemical sciences with specialized advanced courses focusing on hazardous and beneficial effects of natural and human-made toxic agents. From industrially produced environmental contaminants and designer drugs to herbs and food products, this field of study applies molecular and computational methods to better understand how these agents interact with living organisms and what should be done to ensure human health and safety.

## Admission to the Major

Freshman students may apply directly to the major, or they may select the College of Natural Resource's undeclared option and declare the major by the end of their fourth semester. For further information regarding how to declare the major after admission including information on a change of major or change of college, please see the College of Natural Resources Undergraduate Student Handbook ([http://www.cnr.berkeley.edu/site/forms/oisa/undergrad\\_handbook.pdf](http://www.cnr.berkeley.edu/site/forms/oisa/undergrad_handbook.pdf)).

## Honors Program

Students who are interested in the honors program should apply during their junior or senior year. Students must have a 3.6 grade point average (GPA) in order to be eligible for the honors program. The honors program is individual research, NUSCTX H196, for two semesters under the supervision of a faculty member. The supervised independent honors research is specific to aspects of the nutritional sciences and toxicology major, followed by an oral presentation, and written report. Acceptance in the CNR honors program is required through an application process. Please contact the CNR Office of Instruction and Student Affairs in 260 Mulford Hall.

## Minor Program

The department offers a minor program in Nutritional Sciences. The course work for the minor addresses topics in Human Nutrition and Nutrient Function. Elective options range from Nutrition in the Community to Metabolic Regulation to Human Diet. The minor is best suited for students already pursuing a bioscience degree: a background in chemistry, organic chemistry, biology, and biochemistry is necessary to be prepared to do upper division work in this field. For information regarding how to declare the minor, please contact the CNR Office of Instruction and Student Affairs in 260 Mulford Hall.

## Other Minor offered by the Department of Nutritional Sciences and Toxicology

Toxicology (<http://guide.berkeley.edu/archive/2016-17/undergraduate/degree-programs/toxicology>) (Minor only)

In addition to the University, campus, and college requirements, listed on the College Requirements tab, students must fulfill the below requirements specific to their major program.

All students must complete R1A & R1B (or equivalent Reading and Comprehension course) before the end of their Sophomore year.

NOTE: The curriculum has been revised effective Fall 2016. Students admitted prior to Fall 16 and following the previous curriculum should refer to the 15-16 Guide

**The College of Natural Resources (CNR) Undergraduate Handbook serves as a guide to the academic policies and information that students need in order to be successful while completing their coursework at Berkeley:**

<https://nature.berkeley.edu/handbook>

## Dietetics Specialization

For Breadth, you are required to take 5 additional units of course work in American Cultures, Arts & Literature, Historical Studies, International Studies, Philosophy & Values, Social & Behavioral Sciences, or Foreign Language. Please refer to the L&S 7 course breadth categories here: <http://ls-advise.berkeley.edu/requirement/7breadth.html>

The curriculum below must be completed within two years of declaring the Dietetics specialization, unless a petition has been approved.

### Lower Division Requirements

Select one course from the following:

ANTHRO 3	Introduction to Social and Cultural Anthropology	4
or ANTHRO 3AC	Introduction to Social/Cultural Anthropology (American Cultures)	
or PSYCH 1	General Psychology	
or PSYCH 2	Principles of Psychology	
or SOCIOL 3AC	Principles of Sociology: American Cultures	

Select one course from the following:

ECON 1	Introduction to Economics	4
or ECON 2	Introduction to Economics--Lecture Format	
or ECON C3	Introduction to Environmental Economics and Policy	

Select one sequence from the following:

MATH 16A & STAT 2	Analytic Geometry and Calculus and Introduction to Statistics	
MATH 1A & STAT 2	Calculus and Introduction to Statistics	
MATH 10A & MATH 10B	Methods of Mathematics: Calculus, Statistics, and Combinatorics and Methods of Mathematics: Calculus, Statistics, and Combinatorics	
CHEM 1A & 1AL	General Chemistry and General Chemistry Laboratory	4
CHEM 3A & 3AL	Chemical Structure and Reactivity and Organic Chemistry Laboratory	5

CHEM 3B & 3BL	Chemical Structure and Reactivity and Organic Chemistry Laboratory	5
NUSCTX 10	Introduction to Human Nutrition	3
MCELLBI 32 & 32L	Introduction to Human Physiology and Introduction to Human Physiology Laboratory	5
BIOLOGY 1A & 1AL	General Biology Lecture and General Biology Laboratory	5

### Upper Division Requirements

MCELLBI 102	Survey of the Principles of Biochemistry and Molecular Biology	4
NUSCTX 103	Nutrient Function and Metabolism	3
NUSCTX 104	Human Food Practices	2
NUSCTX 108A	Introduction and Application of Food Science	3
NUSCTX 108B	Application of Food Science Laboratory	1
NUSCTX 135	Food Systems Organization and Management	4
NUSCTX 145	Nutrition Education and Counseling	2
NUSCTX 160	Metabolic Bases of Human Health and Diseases	4
NUSCTX 161A	Medical Nutrition Therapy	4
NUSCTX 161B	Medical Nutrition Therapy II	4
NUSCTX 166	Nutrition in the Community	3
NUSCTX 192	Junior Seminar in Dietetics	1
NUSCTX 194	Senior Seminar in Dietetics	2
PB HLTH 162A	Public Health Microbiology	3
UGBA 105	Leading People	3

## Toxicology Specialization

For Breadth, you are required to take 14 additional units of course work in American Cultures, Arts & Literature, Historical Studies, International Studies, Philosophy & Values, Social & Behavioral Sciences, or Foreign Language. Please refer to the L&S 7 course breadth categories here: <http://ls-advise.berkeley.edu/requirement/7breadth.html>

### Lower Division Requirements

Select one sequence from the following:

8-12

MATH 16A & MATH 16B & STAT 2	Analytic Geometry and Calculus and Analytic Geometry and Calculus and Introduction to Statistics	
MATH 1A & MATH 1B & STAT 2	Calculus and Calculus and Introduction to Statistics	
MATH 10A & MATH 10B	Methods of Mathematics: Calculus, Statistics, and Combinatorics and Methods of Mathematics: Calculus, Statistics, and Combinatorics	
CHEM 1A & 1AL	General Chemistry and General Chemistry Laboratory	4
CHEM 3A & 3AL	Chemical Structure and Reactivity and Organic Chemistry Laboratory	5
CHEM 3B & 3BL	Chemical Structure and Reactivity and Organic Chemistry Laboratory	5
PHYSICS 8A	Introductory Physics	4
NUSCTX 11	Introduction to Toxicology	3
MCELLBI 32 & 32L	Introduction to Human Physiology and Introduction to Human Physiology Laboratory	5

BIOLOGY 1A & 1AL	General Biology Lecture and General Biology Laboratory	5
---------------------	---	---

## Upper Division Requirements

MCELLBI 102	Survey of the Principles of Biochemistry and Molecular Biology	4
NUSCTX 103 or MCELLBI 136	Nutrient Function and Metabolism Physiology	3
NUSCTX 110	Toxicology	4
NUSCTX 121	Computational Toxicology	3
NUSCTX 171	Nutrition and Toxicology Laboratory	4
NUSCTX 193	Introduction to Research in Toxicology	1

Electives: Select additional courses from the following to bring the unit total to 30 upper division units:

CIV ENG 114	Environmental Microbiology
CIV ENG 115	Water Chemistry
ESPM 100	Environmental Problem Solving
ESPM 119	Chemical Ecology
ESPM 162	Bioethics and Society
ESPM C180	Air Pollution
INTEGBI 117	Medical Ethnobotany
INTEGBI 131	General Human Anatomy
INTEGBI 152	Environmental Toxicology
NUSCTX C114/ ESPM C148	Pesticide Chemistry and Toxicology
NUSCTX 160	Metabolic Bases of Human Health and Diseases
NUSCTX 115	Principles of Drug Action
NUSCTX H196	Honors Research
NUSCTX 199	Supervised Independent Study and Research
PB HLTH 150A	Introduction to Epidemiology and Human Disease
PB HLTH 150B	Introduction to Environmental Health Sciences
PB HLTH 170B	Course Not Available
UGIS 192C	Supervised Research: Biological Sciences
Other CHEM, INTEGBI, MCELLBI, & PLANTBI lecture or lab courses also accepted	

## Physiology and Metabolism Specialization

For Breadth, you are required to take 14 additional units of course work in American Cultures, Arts & Literature, Historical Studies, International Studies, Philosophy & Values, Social & Behavioral Sciences, or Foreign Language. Please refer to the L&S 7 course breadth categories here: <http://ls-advise.berkeley.edu/requirement/7breadth.html>

## Lower Division Requirements

Select one sequence from the following:

8-12

MATH 16A & MATH 16B & STAT 2	Analytic Geometry and Calculus and Analytic Geometry and Calculus and Introduction to Statistics
MATH 1A & MATH 1B & STAT 2	Calculus and Calculus and Introduction to Statistics

MATH 10A & MATH 10B	Methods of Mathematics: Calculus, Statistics, and Combinatorics and Methods of Mathematics: Calculus, Statistics, and Combinatorics	
CHEM 1A & 1AL	General Chemistry and General Chemistry Laboratory	4
CHEM 3A & 3AL	Chemical Structure and Reactivity and Organic Chemistry Laboratory	5
CHEM 3B & 3BL	Chemical Structure and Reactivity and Organic Chemistry Laboratory	5
PHYSICS 8A	Introductory Physics	4
NUSCTX 10	Introduction to Human Nutrition	3
MCELLBI 32 & 32L	Introduction to Human Physiology and Introduction to Human Physiology Laboratory	5
BIOLOGY 1A & 1AL	General Biology Lecture and General Biology Laboratory	5

## Upper Division Requirements <sup>1</sup>

MCELLBI 102	Survey of the Principles of Biochemistry and Molecular Biology	4
NUSCTX 103	Nutrient Function and Metabolism	3
NUSCTX 160	Metabolic Bases of Human Health and Diseases	4
NUSCTX 170	Experimental Nutrition Laboratory	4
NUSCTX 190	Introduction to Research in Nutritional Sciences	1

Electives: Select 14 units from the Approved Electives List:

NUSCTX 104	Human Food Practices
NUSCTX 108A	Introduction and Application of Food Science
NUSCTX 110	Toxicology
NUSCTX C114	Pesticide Chemistry and Toxicology
NUSCTX 115	Principles of Drug Action
NUSCTX 161A	Medical Nutrition Therapy
NUSCTX 161B	Medical Nutrition Therapy II
NUSCTX 166	Nutrition in the Community
NUSCTX 193	Introduction to Research in Toxicology
NUSCTX H196	Honors Research
NUSCTX 199	Supervised Independent Study and Research
PLANTBI C112	General Microbiology or PB HLTH 16 Public Health Microbiology
PLANTBI C114	Introduction to Comparative Virology
INTEGBI 117	Medical Ethnobotany
INTEGBI 123A	Exercise and Environmental Physiology with Laboratory
INTEGBI 131	General Human Anatomy
INTEGBI 140	Biology of Human Reproduction
MCELLBI 104	Genetics, Genomics, and Cell Biology
MCELLBI 132	Biology of Human Cancer
MCELLBI 135A - MCELLBI 135V	
PB HLTH 170B	Course Not Available
ESPM C126	Animal Behavior
UGIS 192C	Supervised Research: Biological Sciences
Other INTEGBI, MCELLBI, PLANTBI, and CHEM lecture or lab courses also accepted	

- <sup>1</sup> Students can choose up to 10 units of dietetic courses from the Approved Elective List to substitute for the upper division nonelective requirements: NUSCTX 104, NUSCTX 108A, NUSCTX 161A, NUSCTX 166 and NUSCTX 166.

Students who have a strong interest in an area of study outside their major often decide to complete a minor program. These programs have set requirements and are noted officially on the transcript in the memoranda section, but they are not noted on diplomas.

## General Guidelines

1. All courses taken to fulfill the minor requirements below must be taken for graded credit.
2. A minimum grade point average (GPA) of 2.5 is required for courses used to fulfill the minor requirements.
3. No more than one upper division course may be used to simultaneously fulfill requirements for a student's major and minor programs.

At least one of the five upper division courses below must be taken during the academic year (i.e., not all courses may be Summer Session courses).

No substitutions to the courses listed below will be permitted.

Students must complete all prerequisite requirements before enrolling in upper division Nutritional Sciences and Toxicology courses.

## Lower Division Prerequisites

CHEM 1A	General Chemistry	3
CHEM 3A	Chemical Structure and Reactivity	3
CHEM 3B	Chemical Structure and Reactivity	3
BIOLOGY 1A	General Biology Lecture	3

## Minor Requirements

NUSCTX 10	Introduction to Human Nutrition	3
NUSCTX 103	Nutrient Function and Metabolism	3
NUSCTX 160	Metabolic Bases of Human Health and Diseases	4

Select two or more of the following:

NUSCTX 104	Human Food Practices	
NUSCTX 108A	Introduction and Application of Food Science	
NUSCTX 110	Toxicology	
NUSCTX C114/ ESPM C148	Pesticide Chemistry and Toxicology	
NUSCTX 115	Principles of Drug Action	
NUSCTX 121	Computational Toxicology	
NUSCTX/ ESPM C159	Human Diet	
NUSCTX 161A	Medical Nutrition Therapy	
NUSCTX 166	Nutrition in the Community	
NUSCTX 190	Introduction to Research in Nutritional Sciences	
NUSCTX 193	Introduction to Research in Toxicology	
NUSCTX H196	Honors Research (only available for students in CNR)	

NUSCTX 199 Supervised Independent Study and Research

## General Guidelines

1. All courses taken to fulfill the major requirements below must be taken for graded credit, other than courses listed which are offered on a *Pass/No Pass* basis only. Other exceptions to this requirement are noted as applicable.
2. A minimum cumulative grade point average (GPA) of 2.0 is required.
3. A minimum GPA of 2.0 in upper division major requirements is required.
4. At least 15 of the 30 required upper division units must be taken in the College of Natural Resources (except for students majoring in Environmental Economics and Policy; please see the EEP major adviser for further information)(NST-Dietetics has 43 upper division requirements).
5. A maximum of 16 units of independent study (courses numbered 97, 98, 99, 197, 198, and 199) may count toward graduation, with a maximum of 4 units of independent study per semester.
6. No more than 1/3 of the total units attempted at UC Berkeley may be taken *Pass/No Pass*. This includes units in the Education Abroad Program and UC Intercampus Visitor or Exchange Programs.
7. A maximum of 4 units of physical education courses will count toward graduation.

For full details around all requirements, please see our Student Handbook: <https://nature.berkeley.edu/handbook>

Reading and Composition (<http://guide.berkeley.edu/undergraduate/colleges-schools/natural-resources/reading-composition-requirement>)

In order to provide a solid foundation in reading, writing and critical thinking all majors in the College require two semesters of lower division work in composition. Students must complete a first-level reading and composition course by the end of their second semester and a second-level course by the end of their fourth semester.

Foreign Language (<http://guide.berkeley.edu/undergraduate/colleges-schools/natural-resources/foreign-language-requirement>) : **EEP Majors only**

The Foreign Language requirement is only required by Environmental Economics and Policy (EEP) majors. It may be satisfied by demonstrating proficiency in reading comprehension, writing, and conversation in a foreign language equivalent to the second semester college level, either by passing an exam or by completing approved course work.

Quantitative Reasoning (<http://guide.berkeley.edu/undergraduate/colleges-schools/natural-resources/quantitative-reasoning-requirement>) : **EEP Majors only**

The Quantitative Reasoning requirement is only required by Environmental Economics and Policy (EEP) majors. The requirement may be satisfied by exam or by taking an approved course.

## Undergraduate Breadth

Undergraduate breadth provide Berkeley students with a rich and varied educational experience outside of their major program. Breadth courses are built into CNR major requirements. The EEP major is the only CNR



major that requires the entire 7 course breadth. As the foundation of a liberal arts education, breadth courses give students a view into the intellectual life of the University while introducing them to a multitude of perspectives and approaches to research and scholarship. Engaging students in new disciplines and with peers from other majors, the breadth experience strengthens interdisciplinary connections and context that prepares Berkeley graduates to understand and solve the complex issues of their day.

## High School Exam Credit

CNR students may apply high school exam credit (Advanced Placement, International Baccalaureate, A-Level Exam) towards many College and Major Requirements. See AP Exam Equivalency Chart and Higher Level IB Exam Equivalency Chart in the CNR Student Handbook (<https://nature.berkeley.edu/handbook>) for more information.

## Units Requirements

Students must complete at least 120 semester units of courses subject to certain guidelines:

- At least 36 units must be upper division courses, including a minimum of 15 units of upper division courses in the College of Natural Resources.
- A maximum of 16 units of Special Studies coursework (courses numbered 97, 98, 99, 197, 198, or 199) is allowed towards the 120 units; a maximum of four is allowed in a given semester.
- A maximum of 4 units of Physical Education from any school attended will count towards the 120 units.
- Students may receive unit credit for courses graded P (including P/ NP units taken through EAP) up to a limit of one-third of the total units taken and passed on the Berkeley campus at the time of graduation.

## Semester Unit Minimum

All CNR students must enroll in at least 13 units each fall and spring semester.

## Semester Unit Maximum

To request permission to take more than 19.5 units in a semester, please see the major adviser.

## Semester Limit

Students admitted as freshmen must graduate within 8 fall/spring semesters at UC Berkeley. Students admitted as transfer students must graduate within 4 fall/spring semesters at UC Berkeley. Students who go on EAP and UCDC can petition for additional semesters. Summer session, UC Extension and non-UC study abroad programs do not count towards this semester limit. Students approved for double majors or simultaneous degrees in two colleges may be granted an additional semester. CNR does not limit the number of total units a student can accrue.

## Senior Residence Requirement

After reaching senior status (90 semester units earned), students must complete at least 24 of the remaining 30 units in at least two semesters in residence at the College of Natural Resources. To count as residence, a semester must consist of at least four passed units. Inter-campus Visitor, Education Abroad Program, UC Berkeley Washington Program, and UC Berkeley Extension units do not count toward this requirement.

Students may use Summer Session to satisfy one semester of the Senior Residence Requirement, provided that four units of coursework are completed.

## Modified Senior Residence Requirement

Participants in the UC Education Abroad Program (UCEAP) or the UC Berkeley Washington Program may meet a modified Senior Residence Requirement by completing 24 of their final 60 semester units in residence (excluding UCEAP). At least 12 of these 24 units must be completed after senior status is reached.

Most students automatically fulfill the residence requirement by attending classes here for four years. In general, there is no need to be concerned about this requirement, unless students go abroad for a semester or year or want to take courses at another institution or through University Extension during their senior year. In these cases, students should make an appointment to see an adviser to determine how they can meet the Senior Residence Requirement.

## Grade Requirements

- A 2.0 UC GPA is required for graduation.
- A 2.0 average in all upper division courses required of the major program is required for graduation.

## Learning Goals

1. To provide preparation in critical thinking, problem solving, and analytical skills.
2. To provide insight and in-depth information on the interaction of natural and man-made toxicants with people and their impact on human health and disease (depth).
3. To provide strong academic preparation for successful contributions to research, education, industry and government, and/or participation in advanced studies in health and biosciences (breadth).
4. To inspire students to advance the health and well-being of citizens (value).

In the College of Natural Resources, we provide holistic, individual advising services to prospective and current students who are pursuing major and minors in our college. We assist with a range of **topics** including course selection, academic decision-making, achieving personal and academic goals, and maximizing the Berkeley experience.

If you are looking to explore your options, or you are ready to declare a major, double major, or minor, contact the undergraduate adviser for your intended major. Visit our website (<https://nature.berkeley.edu/advising/meet-cnr-advisors>) to explore all of our advising services.

### Undergraduate Adviser, Nutritional Sciences and Toxicology

Nicole Lowy  
[nlowy@berkeley.edu](mailto:nlowy@berkeley.edu)  
260 Mulford Hall  
510-642-2879

## Nutritional Sciences

### NUSCTX 10 Introduction to Human Nutrition 3 Units

Terms offered: Spring 2018, Fall 2017, Summer 2017 Second 6 Week Session

This course focuses on relationships between diet and health, and responses of the human body to diet and food components, including macro and micro nutrients, water, phytochemicals, and alcohol. This course also provides an overview of the interplay between nutrients and physiological and behavioral responses. Lectures, which address contributions of diet to optimal health or disease risk, are based on current nutritional, biochemical, and medical knowledge. Goals include enabling students to make informed decisions about their nutritional needs and current issues concerning nutrition.

Introduction to Human Nutrition: Read More [+]

#### Rules & Requirements

**Credit Restrictions:** Students will receive no credit for 10 after taking 103 or 160.

#### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of lecture and 1 hour of discussion per week

#### Summer:

6 weeks - 6 hours of lecture and 1.5 hours of discussion per week

8 weeks - 4 hours of lecture and 2 hours of discussion per week

#### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

Introduction to Human Nutrition: Read Less [-]

### NUSCTX 11 Introduction to Toxicology 3 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

Discussion of principles for the evaluation of toxic hazard of natural and man-made substances present in the environment, the workplace, food, drink, and drugs. The bases for species selectivity, individual variations in sensitivity and resistance, and the combined effects of toxic agents will be addressed. Issues related to the impact of toxic agents in modern society will be emphasized.

Introduction to Toxicology: Read More [+]

#### Rules & Requirements

**Prerequisites:** Open to students pursuing science and non science majors

#### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of lecture and 1 hour of discussion per week

#### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructors:** Vulpe, Nomura, Wang

Introduction to Toxicology: Read Less [-]

### NUSCTX 20 Personal Food Security and Wellness 2 Units

Terms offered: Spring 2018, Fall 2017, Spring 2017

The course goal is to develop life-skills and decision-making processes to maintain healthy eating throughout the lifespan. The course will improve students' nutrition-related behaviors by addressing attitudes, knowledge, skills and barriers related to food selection, purchasing and preparation and how these intersect with food security. The course will provide students with the foundation of nutrition knowledge and cooking skills to be able to prepare healthful meals in consideration of limitations such as food availability, food budgeting and time management.

Personal Food Security and Wellness: Read More [+]

#### Hours & Format

**Fall and/or spring:** 15 weeks - 1 hour of lecture and 2 hours of laboratory per week

#### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

Personal Food Security and Wellness: Read Less [-]

## NUSCTX 24 Freshman Seminar 1 Unit

Terms offered: Spring 2018, Fall 2017, Spring 2017

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Freshman Seminar: Read More [\[+\]](#)

### Rules & Requirements

**Repeat rules:** Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes.

### Hours & Format

**Fall and/or spring:** 15 weeks - 1 hour of seminar per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** The grading option will be decided by the instructor when the class is offered. Final exam required.

**Instructor:** Chang

**Formerly known as:** Nutritional Sciences 24

Freshman Seminar: Read Less [\[-\]](#)

## NUSCTX 98 Directed Group Study 1 - 3 Units

Terms offered: Fall 2016, Spring 2016, Fall 2015

Study of special topics in nutritional sciences that are not covered in depth in regular courses.

Directed Group Study: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** Lower division standing and consent of instructor

**Repeat rules:** Course may be repeated for credit.

### Hours & Format

**Fall and/or spring:** 15 weeks - 1-3 hours of directed group study per week

### Summer:

6 weeks - 3-8 hours of directed group study per week

8 weeks - 2-6 hours of directed group study per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Offered for pass/not pass grade only. Final exam not required.

**Formerly known as:** Nutritional Sciences 98

Directed Group Study: Read Less [\[-\]](#)

## NUSCTX 103 Nutrient Function and Metabolism 3 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015

Delivery of nutrients from foods to mammalian cells; major metabolic pathways; function of nutrients in energy metabolism, nitrogen and lipid metabolism, structural tissues and regulation; essentiality, activation, storage, excretion, and toxicity of nutrients.

Nutrient Function and Metabolism: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** Required: Bio 1A, Recommended: MCB 32 and 102

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructors:** Sul, Olzmann

Nutrient Function and Metabolism: Read Less [\[-\]](#)

## NUSCTX 104 Human Food Practices 2 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

This nutrition course with an anthropological perspective examines why we eat what we eat by addressing environmental, socio-economic, political, cultural, and personal components of the human diet. Cuisines from a sampling of countries and regions are discussed.

Human Food Practices: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** 10 recommended

### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of lecture per week

**Summer:** 6 weeks - 5 hours of lecture per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

Human Food Practices: Read Less [\[-\]](#)

## NUSCTX 104AC Human Food Practices AC 3 Units

Terms offered: Not yet offered

This course will broadly address the historical, ecological, socioeconomic, biological, political, cultural, and personal components of the human diet in addition to nutrition problems, programs, and consumer protection. It is a nutrition course with an anthropological slant that examines why we eat what we eat and contributes to the pursuit of multidisciplinary degrees in nutrition policy and planning. As an American Cultures course, we will also discuss cuisines from a variety of different countries and regions, with a specific focus on those in America, and examine how race and ethnicity affect diet, food access, and relationship with food. Introduction to Human Nutrition (NST10) is recommended as a prerequisite.

Human Food Practices AC: Read More [ + ]

### Rules & Requirements

**Prerequisites:** Nutritional Sciences and Toxicology 10 (Recommended)

**Requirements this course satisfies:** Satisfies the American Cultures requirement

### Hours & Format

**Summer:** 8 weeks - 4 hours of lecture and 2 hours of discussion per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Rasmussen

Human Food Practices AC: Read Less [ - ]

## NUSCTX W104 Food, Culture, and the Environment AC 3 Units

Terms offered: Not yet offered

This course will broadly address the historical, ecological, socioeconomic, biological, political, and cultural environments impacting the human diet in addition to nutrition problems, programs, and consumer protection. It is a nutrition course with an anthropological slant that examines why we eat what we eat and contributes to the pursuit of multidisciplinary degrees in nutrition policy and planning. As an American Cultures course, we will discuss cuisines from a variety of different countries and regions, with a specific focus on those in America, and examine how race and ethnicity affect diet, food access, and the human relationship with food.

Food, Culture, and the Environment AC: Read More [ + ]

### Rules & Requirements

**Prerequisites:** Nutritional Sciences and Toxicology 10 (Recommended)

**Requirements this course satisfies:** Satisfies the American Cultures requirement

### Hours & Format

**Summer:** 8 weeks - 4 hours of web-based lecture per week

**Online:** This is an online course.

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Rasmussen

Food, Culture, and the Environment AC: Read Less [ - ]

## NUSCTX 108A Introduction and Application of Food Science 3 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015

Evaluation of the chemical, physical, functional, and nutritional properties of foods. Emphasis on how these properties, and preparation, processing, and storage, influence quality characteristics of food products. Introduction and Application of Food Science: Read More [ + ]

### Rules & Requirements

**Prerequisites:** Molecular and Cell Biology 102 (may be taken concurrently), or consent of instructor

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Rasmussen

Introduction and Application of Food Science: Read Less [ - ]



## NUSCTX 108B Application of Food Science Laboratory 1 Unit

Terms offered: Fall 2017, Fall 2016, Fall 2015

Experimental evaluation of the chemical, physical, functional, and nutritional properties of foods, and the changes occurring during preparation that affect quality characteristics of food products.

Application of Food Science Laboratory: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** 108A or concurrent enrollment

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of laboratory per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Rasmussen

Application of Food Science Laboratory: Read Less [\[-\]](#)

## NUSCTX 110 Toxicology 4 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015

A comprehensive survey of the principles of modern toxicology and their applications in evaluating the safety of foods, additives and environmental contaminants. Mechanisms of metabolic activation, detoxification, gene regulation, and selective toxicity are emphasized.

Toxicology: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** BIOLOGY 1A, 1AL, and Chemistry 3B (or equivalent courses)

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructors:** Wang, Nomura

Toxicology: Read Less [\[-\]](#)

## NUSCTX C114 Pesticide Chemistry and Toxicology 3 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

Chemical composition of pesticides and related compounds, their mode of action, resistance mechanisms, and methods of evaluating their safety and activity.

Pesticide Chemistry and Toxicology: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** Introductory courses in organic chemistry and biology, or consent of instructor

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Casida

**Also listed as:** ESPM C148

Pesticide Chemistry and Toxicology: Read Less [\[-\]](#)

## NUSCTX 115 Principles of Drug Action 2 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

Basic principles and quantitative aspects of drug action and risk/benefit as applied to the discovery, design, and development of human therapeutics. The course will highlight the importance of integrating pharmacology, toxicology, and pharmacokinetics to create effective and safe treatments for human disease. Special emphasis will be placed on pharmacogenomics and variation in individual response.

Principles of Drug Action: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** 110, and Molecular and Cell Biology 102

### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of lecture per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Johnson

Principles of Drug Action: Read Less [\[-\]](#)

## NUSCTX 121 Computational Toxicology 3 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

Introducing the use of bioinformatics tools useful in linking the molecular structure of chemicals to the toxicity they induce in biological systems. Discussions on the highly interactive process of collecting, organizing, and assimilating chemistry and toxicology information - and the use of computer programs to visualize, browse, and interpret this information to discover chemical structure-toxicity correlations. The importance of these concepts in drug discovery and development and food safety will be emphasized.

Computational Toxicology: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** BIOLOGY 1A, 1AL, and Chemistry 3B (or equivalent courses). NST 110 also recommended

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Johnson

Computational Toxicology: Read Less [\[-\]](#)

## NUSCTX 135 Food Systems Organization and Management 4 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

Principles of organization and management applied to institutional food service systems: production and delivery systems, management of resources, quality assurance, equipment, layout, marketing, personnel management, fiscal management. Laboratory experiences, projects and field work in institutional situations.

Food Systems Organization and Management: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** Consent of instructor

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 3 hours of fieldwork per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Rasmussen

Food Systems Organization and Management: Read Less [\[-\]](#)

## NUSCTX 145 Nutrition Education and Counseling 2 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

This course will focus on communicating nutrition messages through nutrition education and nutrition counseling. Students will develop and implement theory-based nutrition education interventions and conduct mock counseling sessions for various populations and conditions. Strategies for effective nutrition instruction, counseling, and behavior change will be discussed.

Nutrition Education and Counseling: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** 161A and 161B or concurrent enrollment in these courses. Dietetic majors only

### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of lecture per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** McCain

Nutrition Education and Counseling: Read Less [\[-\]](#)

## NUSCTX C159 Human Diet 4 Units

Terms offered: Spring 2016, Spring 2015, Spring 2013

Since we eat every day, wouldn't it be useful to learn more about human dietary practices? A broad overview of the complex interrelationship between humans and their foods. Topics include the human dietary niche, biological variation related to diet, diet and disease, domestication of staple crops, food processing techniques and development of regional cuisines, modern diets and their problems, food taboos, human attitudes toward foods, and dietary politics.

Human Diet: Read More [\[+\]](#)

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Milton

**Also listed as:** ESPM C159

Human Diet: Read Less [\[-\]](#)

## NUSCTX 160 Metabolic Bases of Human Health and Diseases 4 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

The physiological bases of human nutrient homeostasis and common disorders resulting from over and under nutrition will be discussed with a specific focus on macronutrients. Topics related to nutrient deficiency and excess will include adaptation to starvation and the effects of caloric restriction on life-span, obesity and its complications, lipoprotein metabolism and cardiovascular disease, as well as a detailed discussion of the causes, disease mechanisms, and treatment of diabetes mellitus. Metabolic Bases of Human Health and Diseases: Read More [+]

### Rules & Requirements

**Prerequisites:** Required: Bio 1A, Recommended: MCB 102 or 103

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructors:** Stahl, Napoli

Metabolic Bases of Human Health and Diseases: Read Less [-]

## NUSCTX 161A Medical Nutrition Therapy 4 Units

Terms offered: Fall 2017, Fall 2015, Fall 2014

This fall course serves as the first of a two part series that addresses the nutritional component of treating disease. The Nutrition Care Process of the Academy of Nutrition and Dietetics provides the framework for nutritional status assessment, diagnosis, nutrition intervention, and evaluation. Disease pathophysiology, diagnosis, medical and pharmacological treatments, and nutritional therapies for prevention and treatment are explored for conditions common throughout the lifecycle. The first part focuses on cardiovascular disease. Additional diseases are addressed in 161B in the spring semester. This course will provide an opportunity to apply knowledge of MNT through case studies and various activities.

Medical Nutrition Therapy: Read More [+]

### Rules & Requirements

**Prerequisites:** 103 and 160

### Hours & Format

**Fall and/or spring:** 15 weeks - 4 hours of lecture per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** McCain

Medical Nutrition Therapy: Read Less [-]

## NUSCTX 161B Medical Nutrition Therapy II 4 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

This is the second course of a two part series that is a continuation of addressing nutrition as a component of disease treatment. The Nutrition Care Process will be applied and disease pathophysiology, diagnosis, medical and pharmacological treatments and nutritional therapies for prevention and treatment will be explored for various disease states.

Medical Nutrition Therapy II: Read More [+]

### Rules & Requirements

**Prerequisites:** Nutritional Science and Toxicology 103, 160, and 161A, or consent of instructor

### Hours & Format

**Fall and/or spring:** 15 weeks - 4 hours of lecture per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

Medical Nutrition Therapy II: Read Less [-]

## NUSCTX 166 Nutrition in the Community 3 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015

This course addresses basic nutrition in the context of the community. It explores nutrition programs that serve various segments of the population and the relationships of these programs to nutrition policy at the local, national, and international levels. Community assessment is used as the basis for program planning, implementation, and evaluation. The specific needs of population groups (infants, children, women, and the elderly) are considered and questions of food security are investigated.

Nutrition in the Community: Read More [+]

### Rules & Requirements

**Prerequisites:** 10 recommended; upper division standing required

### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/ Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Henderson

Nutrition in the Community: Read Less [-]

## NUSCTX 170 Experimental Nutrition Laboratory 4 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

Basic principles and techniques used in human and animal nutrition research. Students design, execute, and analyze experiments.

Experimental Nutrition Laboratory: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** Nutritional Sciences and Toxicology 103 and a course in statistics

**Credit Restrictions:** Students will receive no credit for Nutritional Sciences and Toxicology 170 after taking Nutritional Science and Toxicology 171 or Nutritional Sciences 171. A deficient grade in Nutritional Sciences 170 may be removed by taking Nutritional Sciences and Toxicology 170.

### Hours & Format

**Fall and/or spring:** 15 weeks - 8 hours of laboratory per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam not required.

**Instructor:** Leitman

Experimental Nutrition Laboratory: Read Less [\[-\]](#)

## NUSCTX 171 Nutrition and Toxicology Laboratory 4 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015

Basic principles and techniques used in human and animal nutrition and toxicology research. Students design, execute, and analyze experiments. Nutrition and Toxicology Laboratory: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** Nutritional Sciences and Toxicology 110, Molecular and Cell Biology 104 or 142 (may be taken concurrently) or Integrative Biology 141

**Credit Restrictions:** Students will receive no credit for Nutritional Sciences and Toxicology 171 after taking Nutritional Sciences and Toxicology 170 or Nutritional Sciences 170. A deficient grade in Nutritional Sciences 171 may be removed by taking Nutritional Sciences and Toxicology 171.

### Hours & Format

**Fall and/or spring:** 15 weeks - 8 hours of laboratory per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Leitman

Nutrition and Toxicology Laboratory: Read Less [\[-\]](#)

## NUSCTX 190 Introduction to Research in Nutritional Sciences 1 Unit

Terms offered: Spring 2018, Fall 2017, Spring 2017

Students will be asked to prepare an oral and written report on a topic selected from the current research literature in nutritional sciences.

Introduction to Research in Nutritional Sciences: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** 103

### Hours & Format

**Fall and/or spring:** 15 weeks - 1 hour of lecture per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam not required.

**Formerly known as:** Nutritional Sciences 190

Introduction to Research in Nutritional Sciences: Read Less [\[-\]](#)

## NUSCTX 192 Junior Seminar in Dietetics 1 Unit

Terms offered: Fall 2017, Fall 2016, Fall 2015

This seminar course explores the professional roles and responsibilities of dietitians as well as career opportunities within the field. Current issues in the practice of dietetics will be discussed. Students will do research and present an oral report to the class. Each student will begin to develop his or her professional portfolio.

Junior Seminar in Dietetics: Read More [\[+\]](#)

### Rules & Requirements

**Prerequisites:** Upper division standing and consent of instructor

### Hours & Format

**Fall and/or spring:** 15 weeks - 1 hour of lecture per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

Junior Seminar in Dietetics: Read Less [\[-\]](#)

## NUSCTX 193 Introduction to Research in Toxicology 1 Unit

Terms offered: Spring 2018, Spring 2017, Spring 2016

Students will be asked to prepare an oral and written report on a topic selected from the current research literature in toxicology.

Introduction to Research in Toxicology: Read More [+]

### Rules & Requirements

**Prerequisites:** 110 or consent of instructor

### Hours & Format

**Fall and/or spring:** 15 weeks - 1 hour of seminar per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**Instructor:** Kubo

**Formerly known as:** Nutritional Sciences 193

Introduction to Research in Toxicology: Read Less [-]

## NUSCTX 194 Senior Seminar in Dietetics 2 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

This course will cover the changes that are occurring in the field of dietetics. Students will explore revisions of the national nutritional standards and guidelines, issues related to complementary and alternative nutrition practices, the area of genomics as it is expected to affect practice, professional ethics in the changing health care environment, reimbursement for professional services, legislation related to the field of dietetics, and other emerging issues.

Senior Seminar in Dietetics: Read More [+]

### Rules & Requirements

**Prerequisites:** Upper division standing and consent of instructor

### Hours & Format

**Fall and/or spring:** 15 weeks - 1 hour of lecture and 1 hour of discussion per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

Senior Seminar in Dietetics: Read Less [-]

## NUSCTX H196 Honors Research 4 Units

Terms offered: Fall 2016, Spring 2016, Spring 2015

Supervised independent honors research specific to aspects of the Nutritional Science and Toxicology major, followed by an oral presentation, and a written report.

Honors Research: Read More [+]

### Rules & Requirements

**Prerequisites:** Upper division standing and minimum GPA. See CNR Honors website for current minimum GPA. [http://nature.berkeley.edu/site/honors\\_program.php](http://nature.berkeley.edu/site/honors_program.php)

**Repeat rules:** Course may be repeated for credit.

### Hours & Format

**Fall and/or spring:** 15 weeks - 12 hours of independent study per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Letter grade. Final exam not required.

**Formerly known as:** Nutritional Sciences H196

Honors Research: Read Less [-]

## NUSCTX 197 Field Study in Food and Nutritional Sciences 1 - 3 Units

Terms offered: Fall 2016, Spring 2008, Spring 2007

Supervised experience in off-campus organizations relevant to specific aspects of foods and nutritional sciences. Regular individual meetings with faculty sponsor and written reports required.

Field Study in Food and Nutritional Sciences: Read More [+]

### Rules & Requirements

**Repeat rules:** Course may be repeated for credit.

### Hours & Format

**Fall and/or spring:** 15 weeks - 0 hours of fieldwork per week

### Summer:

6 weeks - 1-5 hours of fieldwork per week

8 weeks - 1-4 hours of fieldwork per week

### Additional Details

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Offered for pass/not pass grade only. Final exam not required.

**Formerly known as:** Nutritional Sciences 197

Field Study in Food and Nutritional Sciences: Read Less [-]



## **NUSCTX 198 Directed Group Study 1 - 3 Units**

Terms offered: Fall 2016, Spring 2016, Fall 2015

Study of special topics in food science or nutrition that are not covered in depth in regular courses.

Directed Group Study: [Read More](#) [+]

### **Rules & Requirements**

**Prerequisites:** Consent of instructor

**Repeat rules:** Course may be repeated for credit.

### **Hours & Format**

**Fall and/or spring:** 15 weeks - 1-3 hours of directed group study per week

### **Additional Details**

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Offered for pass/not pass grade only. Final exam not required.

**Formerly known as:** Nutritional Sciences 198

Directed Group Study: [Read Less](#) [-]

## **NUSCTX 199 Supervised Independent Study and Research 1 - 4 Units**

Terms offered: Fall 2017, Fall 2016, Spring 2016

Upper division laboratory and independent research under the direction of a faculty supervisor. Written report required upon completion of the project.

Supervised Independent Study and Research: [Read More](#) [+]

### **Rules & Requirements**

**Prerequisites:** Upper division standing and consent of instructor

**Repeat rules:** Course may be repeated for credit.

### **Hours & Format**

**Fall and/or spring:** 15 weeks - 0 hours of independent study per week

#### **Summer:**

6 weeks - 1-3 hours of independent study per week

8 weeks - 1-3 hours of independent study per week

### **Additional Details**

**Subject/Course Level:** Nutritional Sciences and Toxicology/  
Undergraduate

**Grading/Final exam status:** Offered for pass/not pass grade only. Final exam not required.

**Formerly known as:** Nutritional Sciences 199

Supervised Independent Study and Research: [Read Less](#) [-]