

FOOD SCIENCE AND HUMAN NUTRITION

**HUMAN NUTRITION  
PRE-PROFESSIONAL  
OPTION  
STUDENT HANDBOOK**

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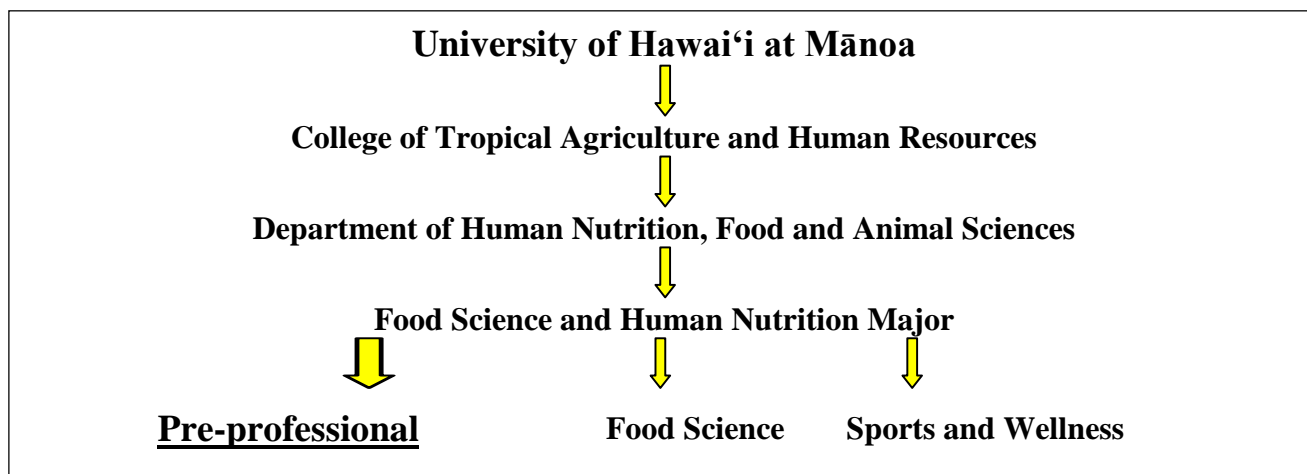
**Department of Human Nutrition, Food and Animal  
Sciences College of Tropical Agriculture and Human  
Resources University of Hawai`i at Mānoa, Honolulu,  
Hawai`i**

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CTAHR Academic Advisors  
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Advising Appointments: <https://ctahradv.youcanbook.me>

## Welcome

Welcome to the Pre-professional option in the Food Science and Human Nutrition Major (FSHN). We are a part of the Department of Human Nutrition, Food and Animal Sciences. This course of study allows students to study other areas of science, foods, and nutrition. With guidance from their advisor, students can design a course of study to meet their course requirements to prepare them for different aspects of applied nutrition, food science, post- baccalaureate studies in other health professional programs (medicine, dental, pharmacy), or an advanced research degree in nutrition or other biomedical sciences. However, this course of study **does not** meet all the undergraduate academic course work requirements of the Academy of Nutrition and Dietetics.



*Note: Every effort has been made to ensure that the material in this handbook is accurate, up-to-date, and complete. However, errors and changes occasionally occur. It is always a good idea to double check with your advisor before taking any course, which is one of the reasons the department requires mandatory advising of all students. For those not yet in the program and would like to make sure they are on the right track please feel free to contact the CTAHR academic advisors (e-mail: [ctahradv@hawaii.edu](mailto:ctahradv@hawaii.edu); schedule your appointment at [ctahradv.youcanbook.me](http://ctahradv.youcanbook.me)).*

## Student Learning Outcomes

Upon completion of the Bachelor of Science in FSHN Pre-professional option, students will be able to:

1. Know, apply and critically analyze and evaluate concepts related to the science of food and nutrition with a focus on humans.
2. Develop written & oral skills commensurate with the ability to summarize, evaluate, synthesize, and appropriately communicate scientific concepts to a variety of audiences.
3. Acquire personal characteristics and leadership, management, and human relations skills appropriate to professional practice in careers related to food science and human nutrition.
4. Recognize and uses appropriate technologies, such as computer applications and/or food and nutrition laboratory methodologies.
5. Identifies and develops skills to gain successful admission into entry level careers or post-graduate education.
6. Develop problem-solving and critical thinking skills.
7. Demonstrate participation in community service.
8. Identify community issues from local to global levels.

## Admission into the University of Hawai'i Pre-professional Program

Undergraduate students interested in the Pre-professional option may apply either as freshmen, upperclassmen, or as transfer students at any time of the year once admission requirements are met. Freshmen may declare at the time of application or within their first semester. Students who want to transfer into the food science and human nutrition (FSHN) major are required to have a minimum GPA of 2.0. Please visit the Office of Admissions website for details about applying: <http://manoa.hawaii.edu/admissions/>

Students who have taken courses at another university or community college outside of the University of Hawai'i system must arrange to have their official transcripts sent to the UH-Mānoa Admissions Office for evaluation of transfer credits. Courses not meeting the university core requirements, but are acceptable academically, will be transferred and counted as elective credits. Check the "Transfer Credit Database" created by the UH Admissions Office to see how your courses transfer to UH, <http://www.hawaii.edu/transferdatabase/>.

Upon entering the program, students will be required to meet with academic advisors to identify their career objectives and select an appropriate option for study. Contact the CTAHR academic advisors at [ctahradv@hawaii.edu](mailto:ctahradv@hawaii.edu) or schedule an appointment at [ctahradv.youcanbook.me](http://ctahradv.youcanbook.me).

## Degree Requirements

The FSHN program sheets and four year plans can be found at the following link: <http://manoa.hawaii.edu/ovcaa/programsheets/>. Please scroll down the page to the College of Tropical Agriculture and Human Resources.

Accepted students who have set up their UH username and password may also find their requirements on their STAR GPS Registration page. Log onto your STAR Account by visiting: <https://www.star.hawaii.edu/>.

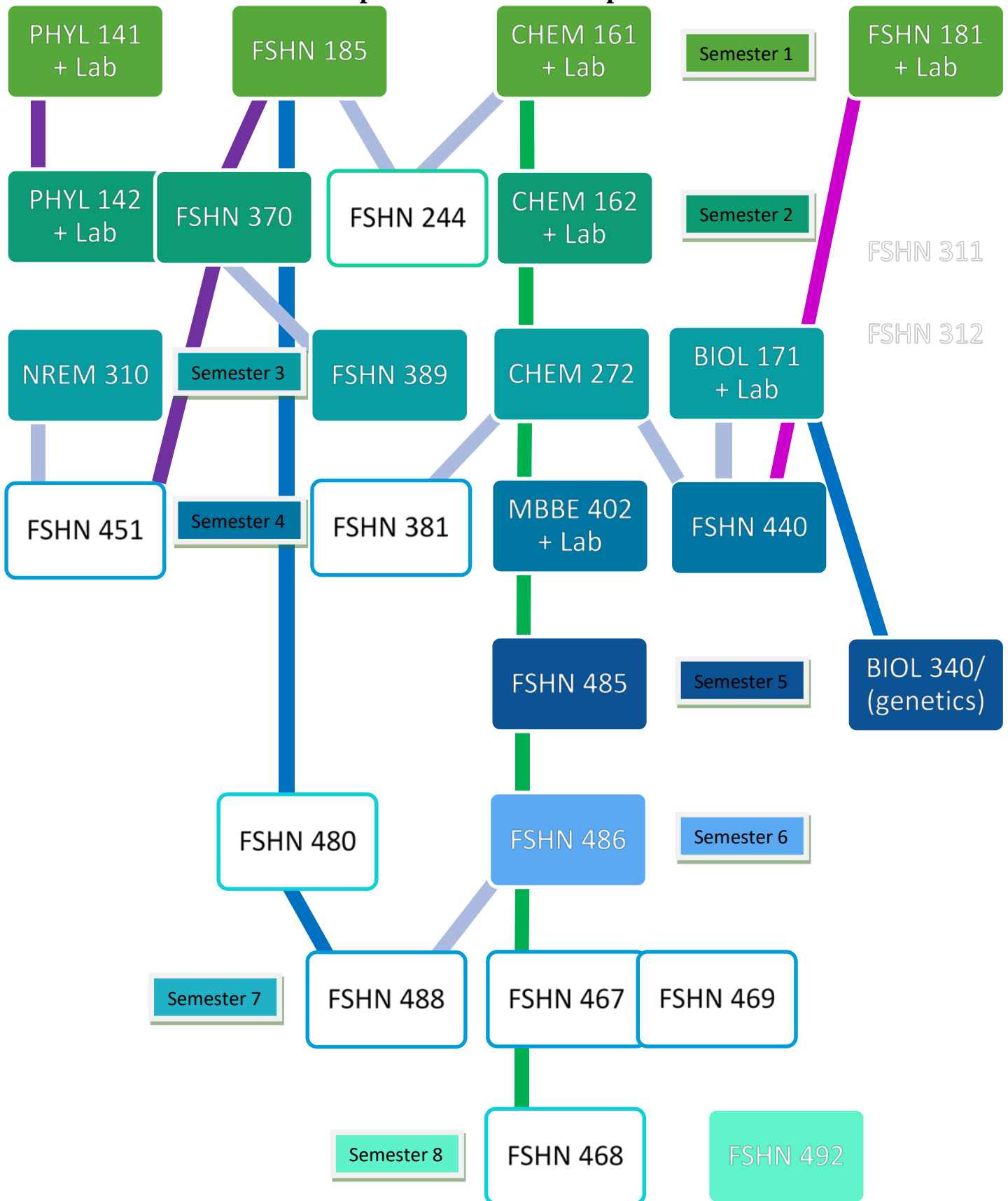
## Registration

Students register for courses online through [STAR GPS Registration](#). STAR GPS Registration is an easy-to-navigate registration system that shows courses students need to graduate in a timely manner and allows students to personalize their academic plan to fit their unique college experience. STAR GPS Registration allows students to do the following:

- Register for classes that count directly into their degree/credential so they don't go off track
- A visual calendar of the classes students are choosing and how they fit together
- Direct integration of students' class schedule into their Google calendar
- Easily switch classes using the add/drop options
- Search for classes at any UH campus
- View transcript

For help about STAR, students can meet with an academic advisor or visit the help website: <https://www.star.hawaii.edu/help/#/>. Registration dates and times are published on the Registration Timetable: <http://myuhinfo.hawaii.edu/object/uhmtimetable.html>

## Pre-professional Roadmap



**ANY 9 credits of the hollowed classes may be taken as FSHN elective**

## Pre-professional Option Certifications

To combine nutrition science with the fields of the Pre-professional option, students should plan to obtain specific certifications in addition to the academic degree in the Food Science and Human Nutrition Pre-professional Option. Certifications to consider include:

The Human Nutrition option can serve as a nutrition science-based pre-professional program that leads in many directions. Students planning to apply for specific professional programs such as medical school, pharmacy school, graduate study, etc. should plan ahead by structuring their elective classes to meet the professional requirements of their field of interest. It can be beneficial to obtain student memberships in professional organizations related to the student's areas of interest.

*Certifications in Nutrition* (For Registered Dietitian, see the Dietetics Student Handbook.)

### **Certified Nutrition Specialist (CNS)**

A CNS has an advanced degree (master's, doctoral, or professional level) in nutrition or closely allied subject and has additionally met the requirements of the American College of Nutrition (ACN). Requirements include a minimum of 1000 hours of professional experience and successful performance on a written examination covering the broad science of nutrition, ranging from basic aspects through clinical and research applications. CNS's are required to maintain their certification by earning continuing nutrition education (CNE) credits, generally through attendance at educational programs in nutrition.

Additional information can be found at: <https://nutritionspecialists.org/>

### **Physician Nutrition Specialist**

A Physician Nutrition Specialist® (PNS) is a physician with training in nutrition who devotes a substantial career effort to nutrition and who can assume a leadership role in coordinating interdisciplinary clinical nutrition services and education in academic health centers, other medical centers, private practice, and other health care settings. PNSs generally have backgrounds in the specialties of internal medicine, pediatrics, family medicine, or general surgery, and sometimes in subspecialties such as adult or pediatric gastroenterology, endocrinology, critical care, nephrology, cardiology, or others. They have completed a period of defined nutrition training, in addition to categorical residency training, that includes mastery of a defined core of knowledge and completion of a period of mentored clinical nutrition experience, which may be obtained in a nutrition fellowship or as part of training in another subspecialty. They have satisfied all requirements of, and are certified by, the American Board of Physician Nutrition Specialists.

Additional information can be found at: <http://www.ptcny.com/clients/nbpns/>

## Career options

### **Professional Schools**

The Pre-professional Human Nutrition Option within the FSHN major allows students to meet professional school requirements while completing major requirements. Professional schools include Medical, Dental, and Pharmacy schools. Students interested in Physician Assistant programs can also meet admission criteria while completing FSHN major course work.

Students interested in applying to a professional school are encouraged to meet with a Pre-Health/Pre-Law Advising Center (PAC) representative to learn about professional school admission criteria and application process. They are located in Sinclair Library, room 108. They can be reached by phone at 808-956-8646. For more information about PAC visit their website at <http://manoa.hawaii.edu/undergrad/PAC/>.

## **Graduate Education**

Many students who select the Pre-professional Human Nutrition Option within the FSHN major can continue their education as Masters or Doctoral students in the biological sciences. More information about these programs can be found in this booklet and at the following websites:

MS- [https://cms.ctahr.hawaii.edu/hnfas2/Academics/NutritionalSciences\(MS\).aspx](https://cms.ctahr.hawaii.edu/hnfas2/Academics/NutritionalSciences(MS).aspx)

PhD- [https://cms.ctahr.hawaii.edu/hnfas2/Academics/Nutrition\(PhD\).aspx](https://cms.ctahr.hawaii.edu/hnfas2/Academics/Nutrition(PhD).aspx)

## **Research**

The Pre-professional Human Nutrition Option within the FSHN major provides students with the opportunity to conduct independent research projects by enrolling in FSHN 499 with a mentoring faculty member. Students who have undergraduate research experience may pursue careers after graduation in nutrition research as study staff or laboratory assistants.

## **Graduate Record Exam**

Graduate Record Exam (GRE) scores are often required for graduate programs, especially for combined internship/graduate programs. The 4-hour general GRE test is administered at the University of Hawai'i in the Queen Lili'uokalani Center for Student Services in the Testing Center. The cost is currently \$205. To prepare for taking the GRE you can either purchase GRE practice books and software from most bookstores and/or you can download a GRE practice test for free from <http://www.ets.org/gre/>. For further information, contact the Testing Center at 956-3454.

## **Undergraduate FSHN (Council) Student Club**

You are encouraged to join the Student FSHN Council for a nominal fee of \$5.00/semester. You will have a chance to meet other students in your major and have the opportunity to share information and good times. Often graduating seniors leave behind jobs or career opportunities that are now available to you. Their website is:

<https://sites.google.com/a/hawaii.edu/uhm-fshn-council/>

## Useful Websites for Students Entering into the University of Hawai'i

### University of Hawai'i <http://www.hawaii.edu/>

All information for students including how to apply, academic calendar, financial aid, catalog, transfer credit search, on-campus activities, housing (dorms), parking, etc., can be found on the following websites:

**UH Mānoa General Catalog** <http://www.catalog.hawaii.edu/>

**UH Academic Calendar** <http://www.hawaii.edu/academics/calendar>

### My UH Services <http://myuh.hawaii.edu>

MyUH Services is a mobile-optimized, one stop shop for UH business tasks, form, apps and more. It includes one-click access to services customized for students, faculty and staff across our 10-campus system.

### STAR <http://www.star.hawaii.edu>

STAR for students is the online degree tracking system for UH. You can view your degree requirements, register for classes, search for scholarships, and view your transcripts through STAR.

### College of Tropical Agriculture and Human Resources Academic Advisors <https://ctahradv.youcanbook.me/>

Use this website to make an appointment with our academic advisors. Advisors can assist you with developing a degree plan and making sure you're taking the appropriate classes for graduation. Meeting with an academic degree advisor is mandatory every semester.

### College of Tropical Agriculture and Human Resources <http://www.ctahr.hawaii.edu/site>

This website offers information about the world of CTAHR, including undergraduate and graduate programs, financial aid and scholarships, course requirements, publications, research projects, student council, faculty, and staff.

### Department of Human Nutrition, Food & Animal Sciences (HNFAS) <http://www.ctahr.hawaii.edu/hnfas/>

This web site shows the different programs, courses, and resources available within the HNFAS department. There is also a link to "Scholarships."

### Food Science Human Nutrition (FSHN) Council <https://sites.google.com/a/hawaii.edu/uhm-fshn-council/>

The FSHN Council strives to nurture students' interest in dietetics, research, community wellness, food service and nutrition by providing the opportunity for students to network with other students, faculty, and professionals in food science, nutrition, and other health-related fields. In addition to enhancing fellowship and facilitating communication, student members are exposed to career information, scholarship opportunities, and community service activities.

**General Education** – UH Core requirements and class listings can be found at:

<http://www.catalog.hawaii.edu/corerequirements/coreRequirements.html>

**Transfer of Credits**, Office of Admissions – <http://www.hawaii.edu/transferdatabase/>

This web site shows information on how your credits transfer into UH Mānoa.

## Student Academic Support Services

Access to student academic support services is important to ensure your success while a student at the University of Hawai'i. Below is a listing of some of these services that can also be found in the University of Hawai'i catalog (<http://www.catalog.hawaii.edu/undergrad-ed/undergrad4.html>).

**Office of Civic and Community Engagement** offers UH Manoa students and community agencies the opportunity to participate in a partnership of volunteer service.

**First Year Programs** ease the transition of new students into the academic and social communities at UH Manoa. First-Year Programs provide the opportunity to develop personal relationships with faculty and other students, enhance active involvement in the educational process, and build connections to UH Manoa.

**International Student Services** provides assistance to international students who come from more than countries to study at UH. Students are advised and helped to adjust to the local and U.S. cultures. Website: <https://www.hawaii.edu/issmanoa/>.

**Kokua Program (Disability Access Services)** provides disability access services to students with documented physical and/or mental disabilities. Services include alternative media production, counseling, early registration, note-taking, sign language interpreting, technology access, testing accommodations and campus transportation. Website: <https://www.hawaii.edu/kokua/>.

**Learning Assistance Center** provides tutoring, workshops, Supplemental Instruction (SI), and one-on-one appointments in which students learn appropriate study strategies and problem solving skills to achieve their academic goals.

**Mānoa Advising Center** serves as an advising office for exploratory students who have not yet declared a major.

**New Student Orientation Program** offers information sessions for first-time students and transfer students.

**Student Success Center** in Sinclair Library offers students a welcoming and convivial place to study and to learn, and provides them the information and skills they need to be successful in their academic career and beyond. The center provides seating that facilitates collaborative learning, is open long hours, and permits students to bring their own snacks, all in a space that has natural light and air.

**Student Support Services** is a federally funded program that provides academic advising and planning, special courses, financial aid advice, graduate and professional school advising, tutoring, mentoring, and academic enrichment activities to program students enrolled at UH Mānoa.

**Mānoa Writing Center** provides free services to equip students with appropriate writing skills so they can become better and more confident writers. Website: <https://sites.google.com/a/hawaii.edu/writingcenter/home>.

Do not hesitate to discuss your needs with your academic degree advisor who can help refer you to the appropriate resource.



## FSHN Course Descriptions

Viewable online at: <http://www.catalog.hawaii.edu/courses/departments/fshn.htm>

**FSHN 101 Success Skills Development in Human Nutrition, Food and Animal Sciences (1)** Combined lecture/discussion intended to provide majors in ANSC and FSHN with opportunities to learn about skills, competencies, and university resources necessary to succeed in college. FSHN and ANSC majors only. A-F only. Pre consent. (Cross-listed as ANSC 101)

**FSHN 141 Culture and Cuisine: The Global Diversity of Food (3)** A timeline of the world history of food and how it relates to culture, diversity, ethnicity, and religion. International food demonstrations and tastings included. **FGB**

**FSHN 181 Introduction to Food Preparation (3)** Lectures, discussions, and demonstrations on how food components contribute to the functional, sensory, and safety characteristics of foods, and what changes occur in foods due to preparation, processing, and storage. Co-requisite: 181L.

**FSHN 181L Food Preparation Lab (1)** (1 3-hr Lab) Experiments in foods emphasizing ingredient function and standard preparation methods for food groups. Co-requisite: 181. **DY**

**FSHN 185 The Science of Human Nutrition (3)** Integration of natural science concepts basic to the study of human nutrition. Emphasis on nutrient requirements of healthy individuals, food sources, functions of nutrients. **DB**

**FSHN 244 Comparative Nutrition (3)** Digestive systems and nutrient functions, interrelationships and metabolism are compared among animal species, including humans. An intermediate, general nutrition course for Food Science and Human Nutrition and Animal Science majors. Pre: ANSC 200 (or concurrent), CHEM 161/L or higher. (Cross-listed as ANSC 244) **DB**

**FSHN 311 Institutional Food Service Management and Sanitation (3)** Critical and essential aspects of managing institutional food service operations and personnel in healthcare settings; understanding menu development and costing, purchasing procedures and inventory control for food and beverages; includes national sanitation exam. Pre: 181 and 181L (or concurrent), or consent.

**FSHN 312 Quantity Foods and Institutional Purchasing (3)** Quantity food and beverage operations, menu development and costing, dietary menu claims, purchasing procedures, inventory control, procurement, transportation, legislation. Institutional food service sanitation, Hazard Analysis Critical Control Point and National Restaurant Association Certification. Pre: 181 and 181L (with a minimum grade of C), or consent.

**FSHN 322 Marketing Nutrition and Food (2)** (1 Lec, 1 3-hr Lab) Fundamental marketing principles applied to nutrition and food. Will include concepts such as the psychology of food purchasing decisions and consumer behavior. Field trips and group projects included. Open to non-majors. Pre: 181/181L, 185, 312; or consent.

**FSHN 350 Humans, Food, and Animals: Ethics, Issues, and Controversies (3)** (2 Lec, 1 3-hr Lab) Ethical issues and other controversies related to human and animal needs; their impact on resource sustainability and quality of life are explored from scientific perspectives. A-F only. Pre: 181 or 185 or ANSC 200 or ANSC 201. (Cross-listed as ANSC 350)

**FSHN 370 Lifespan Nutrition (3)** Physiological changes and nutritional requirements during human life stages: prepregnancy, pregnancy, infancy, childhood, adolescence, adulthood, and older adulthood. Pre: B or better in 185; C or better in CHEM 161/161L; C or better in PHYL 142/142L (or concurrent). **DB**

**FSHN 381 Experimental Foods (3)** Experimental approach to study food preparation problems. Applying basic food science research design to conduct experiments, interpret data and write reports. Subject matter used to

practice critical thinking and problem solving skills. A-F only. Pre: 181/181L, CHEM 161/161L. Co-requisite: 381L. **DB**

**FSHN 381L Experimental Foods Laboratory (1)** Experimental approach to study food preparation, food formulation, and sensory evaluation with laboratory exercises in a certified kitchen environment. Applying basic food science research design to conduct experiments, interpret data and write reports. A-F only. Pre: 181/181L, CHEM 161/161L. Co-requisite: 381. **DY**

**FSHN 389 Nutritional Assessment (2)** Addresses concepts and uses of nutrition assessment tools at individual and community levels. Students will be introduced to national surveys and new, more sophisticated body composition measurements. A-F only. Pre: 185 and 370 (or concurrent).

**FSHN 403 Microbiology of Foods (3)** Microorganisms encountered in foods; types of food spoilage; microbial hazards in food; methods of food preservation. Pre: MICR 130 and MICR 140L, or consent. **DB**

**FSHN 411 Food Engineering (3)** (2 Lec, 1 3-hr Lab) Principles and application of thermodynamics, electricity, fluid mechanics, heat transfer, psychrometry, and material and energy balances of food processing and preservation. Pre: BIOL 171, CHEM 162 or CHEM 181A, MATH 243, PHYS 151 or PHYS 170; or consent. (Cross-listed as BE 411) **DP**

**FSHN 420 Sensors and Instrumentation for Biological Systems (3)** Design course focused on fundamentals of electronic interfacing, control and automation, including biological processes. Topics include sensor physics, basic instrumentation, digital communication, and programming of microcontrollers and other portable computer systems. Pre: EE 160, EE 211, and BE 350 or MATH 302 or MATH 307 or EE 326; or consent. (Cross-listed as BE 420)

**FSHN 430 Food Chemistry (3)** Chemical properties of food constituents studied in relationship to their effects on processing, nutrition, and spoilage. Pre: CHEM 161 and 161L or consent. **DP**

**FSHN 430L Food Chemistry Lab (1)** (1 3-hr Lab) Application of different chemical methods in the study of food constituents—proteins, lipids, carbohydrates, pigments, enzymes, etc. Pre: 430 (or concurrent). **DY**

**FSHN 440 Food Safety (3)** Discussion of potential microbiological, parasitic, chemical, and natural food hazards; food laws and standards; and related aspects of consumer protection. Pre: 181, BIOL 171, and CHEM 272; or consent. **DB**

**FSHN 445 Food Quality Control (3)** Fundamental principles of quality control in the food industry: measurement of quality parameters, utilization and integration of the individual test procedures into grades and standards of quality, sampling, and reporting results.

**FSHN 451 Community Nutrition and Nutrition Education (4)** (4 Lec) Concepts and methods of nutrition program planning and nutrition education; analysis of nutritional problems of local, national, and international communities; strategies used to educate groups or individuals. A-F only. Pre: 370 and either FAMR 380 or NREM 310; or consent.

**FSHN 454 Foundation of Childhood Obesity Prevention in the Pacific (3)** Provide students with a basic overview of the causes and effects of childhood obesity, evidence-based approaches, community-based research, and policies to prevent childhood obesity as it relates to the Pacific region. Pre: 185 (with a minimum grade of B). (Summer only)

**FSHN 455 Childhood Anthropometric and Dietary Assessment Field Techniques (1)** Teaches techniques for measuring anthropometry and collecting dietary intake in children. Online course imitates hands-on training through partnering with local organizations and the use of technology. Repeatable one time. Pre: 185 (with a minimum grade of B). (Summer only)

**FSHN 456 Child Health and Nutrition Monitoring (1)** Covers topics related to health and nutritional status monitoring and surveillance, including epidemiology, biostatistics, health and nutrition surveillance systems, and the uses of technology for conducting these activities. Repeatable one time. Pre: 185 (with a minimum grade of B). (Summer only)

**FSHN 457 Culture and Child Health in the Pacific (3)** In-depth study of culture and child health in the Pacific, including an introduction to the land, people, history, culture, and world views. Explore cultural competency, cultural safety, and multidisciplinary approaches to promote a healthy Pacific. Pre: 185 (with a minimum grade of B). (Summer only)

**FSHN 460 Food Processing Operations (3)** Principles and applications of food dehydration, thermal processing, low temperature preservation, chemical and biochemical preservation, irradiation, packaging, manufacturing, plant sanitation, water and waste management. Pre: 403 and 430, or consent.

**FSHN 467 Medical Nutrition Therapy I (V)** Development of dietary, anthropometric and clinical lab assessment skills measuring nutritional status. Understanding pathophysiology of disease processes, medical terminology and nutritional intervention, utilizing case studies. Pre: 389 and 486 or consent. **DB**

**FSHN 468 Medical Nutrition Therapy II (3)** Understanding of the pathophysiology of disease processes and nutritional intervention, using medical terminology and case studies. Pre: 467 or consent. **DB**

**FSHN 469 Nutrition Counseling Skills (2)** Theory and practice in nutritional counseling. Combined lecture and discussion on nutrition/dietary counseling. Knowledge and theories. Application through lab experiences including role playing, case presentations, and performing actual counseling sessions. A-F only. Pre: 467 (or concurrent) or consent.

**FSHN 475 Applied Human Nutrition (3)** Application of basic nutrition principles; includes sources and functions of essential nutrients and food patterns compatible with nutrient needs, health, disease prevention, and sustainability. Intended for undergraduate and graduate students. Pre: CHEM 161 (or higher) or BIOC 241 (or higher); PHYL 141, BIOL 171; or consent. **DB**

**FSHN 476 Cultural Aspects of Food Habits (3)** Study of eating from behavioral perspectives. Implications for health practitioners and health education. Pre: two classes from ANTH 151 or higher or SOC 100 or higher or PSY 100 or higher.

**FSHN 477 Food Analysis (2)** Principles of sample preparation and chemical and physical analysis of food components using current methodology. Pre: 430; and CHEM 162 or higher; and BIOL 402 or MBBE 402 or PEPS 402.

**FSHN 477L Food Analysis Lab (2)** (2 3-hr Lab) Application of different chemical and physical methods for the identification and quantitation of food components. Co-requisite: 477. **DY**

**FSHN 480 Nutrition in Exercise and Sport (3)** Effects of physiologic demands of exercise on nutrition. Emphasis on physiologic and biochemical basis for nutrition recommendations to enhance exercise participation and optimize athletic performance. Pre: 185, and PHYL 103 or 141 or 301. (Cross-listed as KRS 480) **DB**

**FSHN 485 Nutritional Biochemistry I (3)** Metabolism and biochemistry of carbohydrates, lipids, and proteins, including chemical structure, digestion, absorption, transport, cellular/molecular functions in human nutrition; integration of metabolic pathways; energy metabolism and balance, including relevance to chronic disease. Pre: 185; PHYL 142/142L or PHYL 302/302L; BIOC 341 or higher (or concurrent) or MBBE 402 (or concurrent); or consent. **DB**

**FSHN 486 Nutritional Biochemistry II (3)** Metabolism and biochemistry of vitamins, minerals, and dietary fiber, including chemical structure, digestion, absorption, transport, and cellular/molecular functions in human

nutrition; relevance to establishing nutrient requirements and to mechanisms of chronic disease. Pre: 485 or consent. **DB**

**FSHN 488 Obesity, Science, and Issues (2)** In-depth study of obesity, including research, etiology, treatment, and prevention. Pre: 480 and 486.

**FSHN 491 Topics in Food Science and Human Nutrition (V)** Study and discussion of significant topics, problems, or laboratory experiments. Repeatable unlimited times. Pre: instructor approval.

**FSHN 492 Field Experience (4)** Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. Writing a learning plan and field report. A-F only. Pre: senior standing in FSHN. (Cross-listed as ANSC 492)

**FSHN 494 Food Science Capstone (3)** Field practicum designed to integrate knowledge from previous FSHN courses to develop novel and innovative food products. Students deal with shelf life, marketing, packaging, labeling, sensory evaluation, and quality assurance. Repeatable one time. FSHN majors only. A-F only. Pre: 381 and 460, or consent.

**FSHN 499 Directed Reading and Research (V)** Repeatable unlimited times.