# Food and Nutritional Sciences

The Food and Nutritional Sciences Programme is jointly offered by the Departments of Biochemistry and Biology.

## Course List

| *Code* | *Course Title* | *Unit* |
|---|---|---|
| FNS0411 | Directed Research in Food and Nutritional Sciences I | 2 |
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| FNS2001 | Introduction to Food Science and Technology | 2 |
| FNS2002 | Nutrition for Health | 2 |
| FNS2010 | Fundamentals of Human Physiology | 3 |
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| FNS4150 | Introduction to Medical Nutrition Therapy | 3 |
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| FNS4160 | Nutrition Planning and Food Policy | 3 |
| FNS4161 | Nutrition Planning and Food Policy Laboratory | 1 |
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| FNS4180 | Food Microbiology | 3 |
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| FNS4190 | Food Safety and Toxicology | 3 |
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## Course Description

FNS0411
Directed Research in Food and Nutritional Sciences I
2 U; 2 STOT; 1st term
In this course, students will undertake a small research project under the supervision of a faculty member. Research work will commence during the summer vacation immediately preceding the student's final year of attendance. The results of the research, as they relate to the recent relevant literature, will be presented as a seminar during the final year.

* *Course offered in 2005-06 and before.*

FNS0421
Directed Research in Food and Nutritional Sciences II
2 U; 2 STOT; 2nd term
Students will meet periodically with the supervisor to discuss and interpret their research data. These discussions will culminate in the production of a comprehensive written report which will be submitted for assessment near the end of the student's final term of attendance.

FNS2001
Introduction to Food Science and Technology
2 U; 2 Lect.; 1st term
This course will provide an overview of various topics in food science and technology. Lectures will include discussions of general areas of interest chosen to stimulate and foster students' interest in both food science and food technology. The course will cover topics that include basic food chemistry, food processing and preservation, food microbiology and fermentation, food safety and toxicology, food engineering, food biotechnology, food evaluation and product development, etc. Relevant examples will be cited to strengthen the basic understanding of the principles in each topic. Local issues related to food will also be discussed.

FNS2002
Nutrition for Health
2 U; 2 Lect.; 2nd term
This course provides an overview of the basic concepts and principles of nutrition science and how to apply the principles of good nutrition in everyday life to the planning of healthy eating for optimal health, performance and disease prevention. Students will also be able to identify some common Hong Kong nutrition problems and the role of nutrition in their origins, prevention and therapy. The course will also expose the students to some additional nutritional issues of current health or research significance.

FNS2010
Fundamentals of Human Physiology
3 U; 3 Lect.; 1st term
This course involves the study of the functions of the human body, including homeostasis and negative feedback in control of physiological parameters; transport mechanisms; body fluids and the cardiovascular system; the respiratory system: pulmonary function, mechanics of respiration, $O_2$ and $CO_2$ exchange and transport; the provision of nutrients and the gastrointestinal system; the renal system and elements of renal function; the nervous system; the endocrine system; sensory physiology; and immunology.

FNS2011
Fundamentals of Human Physiology Laboratory
l U; 3 Lab.; 1st term
To accompany FNS2010.

FNS3010
Nutrition and Human Development
3 U; 3 Lect.; 2nd term
This course will introduce students to the study of human growth, development, nutrition and health. Particular reference will be made to dietary needs for growth and development and the importance of establishing healthy eating patterns. It includes coverage of pre-natal development, maternal nutrition, infant growth and feeding, growth and nutrition in childhood and adolescence, nutrition in the middle years, and ageing and nutrition.

FNS3011
Nutrition and Human Development Laboratory
l U; 3 Lab.; 2nd term
To accompany FNS3010.

FNS3030
Nutritional Biochemistry
3 U; 3 Lect.; 1st term
This component will provide students with the background required to appreciate the biochemical aspects of nutrition and the impact of nutrition-related factors on normal human biochemistry. Areas covered include the digestion and absorption of nutrients, energy intake and expenditure, nutrition and metabolism of carbohydrate, cholesterol homeostasis, metabolism of dietary fats and their effect on lipoprotein cholesterol, nitrogen metabolism, and minerals and vitamins and their roles in biochemical processes.

FNS3031
Nutritional Biochemistry Laboratory
l U; 3 Lab.; 1st term
To accompany FNS3030.

FNS3110
Food Chemistry and Analysis
3 U; 3 Lect.; 1st term
This course will cover the basic chemical and analytical aspects of major food components (water, carbohydrates, lipids and proteins) and minor food components (vitamins, minerals, pigments and food additives including flavors, colorants and preservatives). Emphasis will be made on the chemical reactions and changes in these food constituents during processing, handling and storage. The principles and applications of chemical and instrumental analysis of food will also be discussed.

FNS3111
Food Chemistry and Analysis Laboratory
1 U; 3 Lab.; 1st term
To accompany FNS3110.

FNS4110
Food Technology
3 U; 3 Lect.; 2nd term
In this course, students will examine the principles behind food processing technology, including various conventional equipment used and their effects on the sensory, microbiological and nutritional quality of a range of foods e.g., meats, vegetables, fruits. Topics may also include food processing, waste management, etc., and basic principles of food engineering.

FNS4111
Food Technology Laboratory
1 U; 3 Lab.; 2nd term
To accompany FNS4110.

FNS4120
Community Nutrition
3 U; 3 Lect.; 1st term
Community nutrition recognizes that the control and prevention of nutrition problems are not merely biomedical in nature, but are embedded in the community of the affected individuals. A community nutritionist assesses and monitors not only physiological and dietary, but also social, cultural, technological and psychological information from many sources to determine needs and identify opportunities for sound, appropriate interventions that improve nutritional health. Because well-conceived nutrition surveys are basic tools for prioritising problems and deciding program plans and evaluations to provide better nutrition services to the public, the course will first introduce community nutrition survey design to the students. Making healthier choices, however, requires lifelong change in thinking and action at both individual and community levels. The rest of the course examines applications of current individual and group nutritional behaviour change theories to promote healthier diets.

FNS4121
Community Nutrition Laboratory
l U; 3 Lab.; 1st term
To accompany FNS4120.

FNS4130
Food Industry Economics and Management Studies
3 U; 3 Lect.; 1st term
This course is designed to develop an awareness of the applications of management in the food related industries, introducing students to the economic framework within which the food industry operates.

FNS4131
Food Industry Economics and Management Studies Laboratory
l U; 3 Lab.; 1st term
To accompany FNS4130.

FNS4140
Food Service Systems and Catering Studies
3 U; 3 Lect.; 2nd term
This course will cover the practical and organizational skills needed for basic food preparation. It will also include critical evaluation of food production and service systems - traditional and modern hospital catering; the determining factors in menu planning and their application to sectors of the catering industry; compilation of menus; recipe modification for large-scale production; costing aspects; product standardization and quality control; safety and hygiene aspects related to the storage, production and service of commodities; relevant statutory requirements for safe and hygienic practices within catering operations; the factors involved in the control and use of food commodities - purchasing, storage, preparation and service; and practical food preparation and service. Students will then be introduced to accepted food production and service techniques which will reinforce and apply to the above. Analytical skills will be applied in the appraisal of menu items, commodities and processes and their influence on consumer acceptability.

FNS4141
Food Service Systems and Catering Studies Laboratory
l U; 3 Lab.; 2nd term
To accompany FNS4140.

FNS4150
Introduction to Medical Nutrition Therapy
3 U; 3 Lect.; 1st term
This course will introduce the aetiology and dietary management of selected diet-related diseases including obesity; anorexia and other eating disorders; diabetes mellitus; cardiovascular diseases including hyper-lipidaemias; diseases of the alimentary canal, liver, kidney and gall bladder; gout; cancer; pancreatitis and food allergies. It will also cover nutritional concern for AIDS patients and the interaction of drugs and nutrients. Medical nutrition therapy examines the theory behind the treatment of disease with the help of diet. The related applied aspects of dietetics, including the practical skills associated with the preparation, use and evaluation of special diets, and the development of interview and communication skills, will also be covered.

FNS4151
Introduction to Medical Nutrition Therapy Laboratory
l U; 3 Lab.; 1st term
To accompany FNS4150.

FNS4160
Nutrition Planning and Food Policy
3 U; 3 Lect.; 2nd term
This course explores the emergence of food and nutrition policies from their multisectoral agricultural, population, health, environmental, economic, technological and political origins. The class will examine case studies from the international arena, focusing on Asian regional and local food and nutrition policy developments. Because nutrition promotion to the public is an integral component of these policies, a final portion of this course is devoted to the design of effective nutrition promotion and communication strategies for specific groups, including needs assessment, planning, implementation and evaluation.

FNS4161
Nutrition Planning and Food Policy Laboratory
1 U; 3 Lab.; 2nd term
To accompany FNS4160.

FNS4170
Food Product Development and Quality Control
3 U; 3 Lect.; 1st term
This course explores various stages of food product development, and the importance of quality assurance. Topics include idea development, taste-panelling, shelflife, packaging, production, costing procedures, market research and advertising, commercialization, food ingredient functionality, food product optimization, food regulations, the ISO 9000 series of standards, HACCP, etc.

FNS4171
Food Product Development and Quality Control Laboratory
2 U; 3 Lab.; 1st term
To accompany FNS4170.

FNS4180
Food Microbiology
3 U; 3 Lect.; 2nd term
This course considers the microorganisms in food safety, spoilage, and production. Topics discussed include food-borne disease agents and their control, food sanitation/hygiene, growth parameters of food spoilage agents, destruction of microbes in food, food fermentations, and the biotechnology of microbes as a resource for the food industry. The principles and practices of modern and rapid analytical methods for monitoring microbiological qualities of foods will also be discussed.

FNS4181
Food Microbiology Laboratory
1 U; 3 Lab.; 2nd term
To accompany FNS4180.

FNS4190
Food Safety and Toxicology
3 U; 3 Lect.; 2nd term
This course aims to give students an overview of food toxicology. Topics include the principles of toxicology, determination of food toxicants, toxicity testing, biotransformation, natural toxins in animal and plant foodstuffs, fungal toxins, industrial waste contaminants, pesticide residues, food additives and toxicants generated during processing.

FNS4191
Food Toxicology Laboratory
1 U; 3 Lab.; 2nd term
To accompany FNS4190.

## Study Scheme

*1. Major Programme*

### A. Applicable to students admitted in 2006-07 and thereafter

Students are required to complete a minimum of 64 units of courses as follows:

(i) Required Courses (Please see Note): 40 units
FNS2001, 2002, 2010/2011, 3010/3011, 3030/3031, 3110/3111, BCH2010#/2710#, 2030#/2730#, BIO2310#/2312#, 3410#/3412#

(ii) One group of elective courses from: 24 units
- (a) Six elective courses with laboratories from: FNS4110/4111, 4120/4121, 4130/4131, 4140/4141, 4150/4151, 4160/4161, 4170/4171, 4180/4181, 4190/4191; or
- (b) Five elective courses with laboratories from those listed in (ii)(a) plus STOT courses FNS0411 and 0421; or
- (c) Five elective courses with laboratories from those listed in (ii)(a) plus one elective course with laboratory from either BCH4050#/4650#, 4060#/4660#, 4130#/4730#, BIO4320#/4322#, 4410#/4412# or ENS3320#/3920#; or

(d) Four elective courses with laboratories from those listed in (ii)(a) plus one elective course with laboratory from either BCH4050#/4650#, 4060#/4660#, 4130#/4730#, BIO4320#/4322#, 4410#/4412# or ENS3320#/3920#, plus STOT courses FNS0411 and 0421.

Total: 64 units

# *to be included in the Major GPA as well.*

**Recommended course pattern**

| | | |
|---|---|---|
| *First Year of Attendance* | | 23 units |
| 1st term | : | FNS2001, 2010/2011, BCH2010/2710 |
| 2nd term | : | BCH2030/2730, BIO2310/2312, FNS2002 |
| *Second Year of Attendance* | | 21 units |
| 1st term | : | FNS3030/3031, 3110/3111, BIO3410/3412 |
| 2nd term | : | FNS3010/3011 |
| | | plus one elective course with laboratory |
| *Third Year of Attendance* | | 20 units |
| The rest of elective courses not yet taken from (ii) | | |

Total: 64 units

Note: *Applicable to students admitted in 2006-07 and thereafter*
Students should obtain Grade "D" or above in the courses of FNS2001, 2002, 2010/2011, BCH2010/2710, 2030/2730, and BIO2310/2312. Otherwise, they are required to repeat the courses. Students who cannot meet the Grade "D" requirement in any one of the courses mentioned above after two attempts will be required to withdraw from the University. Please refer to Reg. 15.2 (e) of the General Regulations Governing Full-time Undergraduate Studies.

## B. Applicable to students admitted in 2005-06 and before

Students are required to complete a minimum of 62 units of courses as follows:

(i) Required Courses (Please see Note): 38 units
FNS2000, 2010/2011, 3010/3011, 3030/3031, 3110/3111, BCH2010#/2710#, 2030#/2730#, BIO2310#/2312#, 3410#/3412#

(ii) One group of elective courses from: 24 units

(a) Six elective courses with laboratories from: FNS4110/4111, 4120/4121, 4130/4131, 4140/4141, 4150/4151, 4160/4161, 4170/4171, 4180/4181, 4190/4191; or

(b) Five elective courses with laboratories from those listed in (ii)(a) plus STOT courses FNS0411 and 0421; or

(c) Five elective courses with laboratories from those listed in (ii)(a) plus one elective course with laboratory from either BCH4050#/4650#, 4060#/4660#, 4130#/4730#, BIO4320#/4322#, 4410#/4412# or ENS3320#/3920#; or

(d) Four elective courses with laboratories from those listed in (ii)(a) plus one elective course with laboratory from either BCH4050#/4650#, 4060#/4660#, 4130#/4730#, BIO4320#/4322#, 4410#/4412# or ENS3320#/3920#, plus STOT courses FNS0411 and 0421.

Total: 62 units

# *to be included in the Major GPA as well.*

**Recommended course pattern**

| | | |
|---|---|---|
| *First Year of Attendance* | | 21 units |
| 1st term | : | FNS2000, 2010/2011, BCH2010/2710 |
| 2nd term | : | BCH2030/2730, BIO2310/2312 |
| *Second Year of Attendance* | | 21 units |
| 1st term | : | FNS3030/3031, 3110/3111, BIO3410/3412 |
| 2nd term | : | FNS3010/3011 |
| | | plus one elective course with laboratory |
| *Third Year of Attendance* | | 20 units |
| The rest of elective courses not yet taken from (ii) | | |

Total: 62 units

Note: *Applicable to students admitted in 2005-06 and before*
Students should obtain Grade "D" or above in the courses of FNS2000, 2010/2011, BCH2010/2710, 2030/2730, and BIO2310/2312. Otherwise, they are required to repeat the courses. Students who cannot meet the Grade "D" requirement in any one of the courses mentioned above after two attempts will be required to withdraw from the University. Please refer to Reg. 15.2(e) of the General Regulations Governing Full-time Undergraduate Studies.

## *2. Faculty Language Requirement*

(Please refer to the "Faculty Language Requirement" of Faculty of Science for details.)

## *3. Major/Faculty Requirement for S6 Entrants*

(Please refer to the "Major/Faculty Requirement for S6 Entrants" of Faculty of Science for details.)