The University of Hong Kong

http://www.hku.hk/

- The oldest tertiary education institution in Hong Kong
- Established on March 11th, 1912
- Dr. Sun Yat-Sun was one of our graduate

12 Faculties & Departments:
Architecture, Arts, Business and Economics, Dentistry, Education, Engineering, Law, Medicine, Science, Social Sciences, Graduate School, School of Professional and Continuing education (SPACE)
SCHOOL OF BIOLOGICAL SCIENCES

• The Kadoorie Biological Science Building

• Our School:
  • Over 40 academic staffs
  • Over 10 post-doctoral fellows
  • 150 research students
  • 40 technical and administrative staff

http://www.biosch.hku.hk
Biological Environment

Endocrinology
Cell Biology

FNS Integrated

Plant Science
Undergraduate Programmes
Major/Minor

Biological Sciences

Ecology and Biodiversity

Food and Nutritional Science

Molecular Biology & Biotechnology
B.Sc. in Food & Nutritional Science Major/Minor at HKU

Dr. Jennifer Wan  Dr. Jimmy Louie  Dr. Hani El-Nezami  Dr. C.B. Chan
Dr. Jetty Lee
Prof. Nagendra Shah  Dr. Mingfu Wang  Dr. Olivier Habimana  Dr. Tanja Sobko
Since 1991
First Food & Nutrition Program Established in Hong Kong
What is Food Science?

The discovery of knowledge related to food and the processing of biomaterials

Physical and Chemical properties of Food

Food Product & Development
Develop and solve problems with Food Technology
Food Biotechnology

Genetic Modified Food (GM Food)

Hydroponic Farming
Food Science also Considers…

Hygiene, Manufacturing, Preservation, Transport and Storage, Quality, Waste Management, ....of Food
How do we connect?

What’s good/bad in the food?

Food Chemistry

Food Processing

Food microbiology

Dose it change if we process?

Is it safe?
Food Technology

- Improving food safety, biosecurity, and product traceability.
- Better nutrient delivery mechanisms in foods.
- Nanomaterials to enhance packaging performance and health impact.
- Nanotechnology for improving food processing, quality and sensory system.

*Fluorescent nanoparticles make spotting bad bacteria on food easy.*
Is Food or Medicine??

Chinese dishes

Haw fruit, *Crataegus pinnatifida*

Food extract

Yoghurt

Kimchi
Food Science

Nutritional Science
What is Nutritional Science?

*Nutritional Science looks at the connection between diet and health. Students learn how diet can play a crucial role in the cause, treatment, and prevention of many diseases.*

About how human beings can:
- ingest,
- digest,
- absorb,
- transport,
- utilize nutrients
Diet and Diseases

Cardiovascular Diseases

Hypertension

Diabetes

Obesity

http://hk-diabetes.com/index2.htm
What do we teach?

Food Chemistry
- Chemical components and function
- Chemical changes during processing and storage

Nutrition & Life Cycle, Nutrigenomics
- Genes
- Metabolism

Food Processing and Engineering, Meat, Dairy & Grain Sciences
- Pasteurization and sterilization
- Packaging
- Heat transfer UHT-milk
- Refrigeration
Food Microbiology
- *Good bugs*, e.g. milk → *Lactic bacteria* → yoghurt
- *Bad bugs*

Food Waste Management, Food Hygiene, Food Environment & Health
- *Biofilms*
- *Bugs in our environment*

Food Analysis & Product Development
- *Analysis of food components & physical properties*
- *R&D for new food products*

Dietary Assessment, Clinical Nutrition, Public Health, Nutrition and Sports Performance
- *Nutrition and health*
- *Community diet and health status*
- *Diseases*
The Kadoorie Biological Sciences Building

FNS Teaching Lab (1/F)
Kitchen & Nutrition Room (5/F)
Food Lab (5/F)
Courses to Major in FNS

- Science foundation courses
- Disciplinary courses (5)
- Disciplinary core courses (3)
- Disciplinary electives (4)*
- Capstone learning requirement (1)
FNS Capstone (Year 3-4)

- Project (Final year and directed studies)
- Internship (hospital, food companies, NGO)
- Product development & Evaluation
- Advanced Practicum for Food & Nutrient Analysis
Job Opportunities

Healthcare

Industry

Agriculture

Environment

Personalised Nutrition

Retail

International Organization for Standardization
JOBS in the FOOD INDUSTRY
Food Industry

- Manufacturing
- QA/QC
- R&D
- Marketing & Retailing
- Food Services (e.g. hotels, restaurants, catering)
- Logistics
- Procurement
Plan your career with FNS

**Disciplinary core courses**
- From molecules to cells
- Introduction to food and nutrition
- Principles of food chemistry
- Biostatistics
- Biological Sciences laboratory course
- Principles of biochemistry

**Advanced disciplinary core courses**
- Nutritional biochemistry
- Food microbiology
- Food and nutrient analysis

**Advanced disciplinary electives**
- Food and nutritional toxicology
- Food hygiene and quality control
- Food processing and engineering
- Food waste management

**Capstone**
- Food and nutritional science internship e.g. quality assurance, quality control

- **Quality control/quality assurance**
- **Hygiene inspector**
- **Food safety**
Plan your career with FNS

**Disciplinary core courses**
- From molecules to cells
- Introduction to food and nutrition
- Principles of food chemistry
- Biostatistics
- Biological Sciences laboratory course
- Principles of biochemistry

**Advanced disciplinary core courses**
- Nutritional biochemistry
- Food microbiology
- Food and nutrient analysis

**Advanced disciplinary elective courses**
- Food and nutritional toxicology
- Functional foods
- Food processing and engineering
- Food waste management

**Capstone**
- Food product development and evaluation
- Internship/Research

- **Product development in industry**
- **Research and analytical laboratory e.g. centre of food safety, consumer council**
Jobs in Health Sectors:

Hospital, Institution, Schools:

- Dietitian, Nutritionists
- Consultants
- Nutrition Product Specialist
- Health Inspector
Research: M.Phil. & Ph.D.

M.Sc. in Food Industry: Management & Marketing Health Sectors

M.Sc. in Food Safety and Toxicology

PgD Dietetics (HKUSPACE)

MSc Dietetics (Overseas)
Plan your career with FNS- NEW!

**Disciplinary core courses**
- From molecules to cells
- Introduction to food and nutrition
- Principles of food chemistry
- Biostatistics
- Biological Sciences laboratory course
- Principles of biochemistry

**Advanced disciplinary core courses**
- Nutritional biochemistry
- Food microbiology
- Food and nutrient analysis

**Advanced disciplinary (choose to select) electives**
- Food and nutritional toxicology
- Functional foods
- Nutrition and life cycle
- Food processing and engineering
- Meat, dairy and grain sciences
- Plant and food biotechnology
- Food waste management
- Food hygiene and quality control
- Clinical nutrition
- Public health nutrition

**Capstone**
- Food product development and evaluation (and/or)
- Advanced practicum on food and nutrient analysis

+ 1 year

- M.Sc. in Food Industry: Management & Marketing Health Sectors
- M.Sc. in Food Safety and Toxicology
There are 2 main options

- Enroll in the PgD/MSc program run by HKUSPACE
- Enroll in a BSc or Masters program majoring in dietetics in one of the following countries:
  1. United Kingdom
  2. United States
  3. Canada
  4. Australia
For the HKUSPACE program

- Joint program with University of Ulster
- First enrolled into the PgD in Human Nutrition
- Need good GPA to upgrade to PgD or MSc in Dietetics, i.e. not a guaranteed entry
- Program NOT offered annually – need to keep an eye on website to check for opening of application
- Intake quota ~25-30 – limited by Hospital Authority so no scope to increase in near future
- Overseas applicant also eligible – competition is fierce
- More information could be found on program website: http://hkuspace.hku.hk/prog/msc-in-human-nutrition-dietetics
Dietitian (Others)

Entry requirements

Most Masters level programs have similar entry requirements as those are required by the DAA

In general, as a minimum:

1. 2 x biochemistry (course code 3000 or above), e.g. BIOL3202 + an elective
   - Some 2000 level courses may be acceptable, e.g. BIOL2220 – check with the university as they are the ones who make the decision
2. 2 x physiology (course code 3000 or above), e.g. BIOL3205 + an elective
3. 2 x basic chemistry courses e.g. CHEM1042, CHEM2442

Need to check with the respective universities for the actual requirement

You need to provide them with course outline/description

IDP Australia in Wan Chai offers free admission advice to prospective students which may be helpful in this case

https://www.idp.com/hongkong/studyabroad

Some courses not included in the FNS curriculum. You may need to take them in Chemistry and Biomedical Sciences.

PLAN EARLY!!
Plan your career with FNS: Dietitian (HKUSPACE & Australia)

**Disciplinary core courses**
- From molecules to cells
- Introduction to food and nutrition
- Principles of food chemistry
- Biostatistics
- Biological Sciences laboratory course
- Principles of biochemistry

**Advanced disciplinary core courses**
- Nutritional biochemistry
- Food microbiology
- Food and nutrient analysis

**Advanced disciplinary electives**
- Nutrition and the life cycle
- Dietary Assessment
- Clinical Nutrition
- Public health nutrition
- Human physiology

**Additional courses (not in the curriculum)**
- Foundation chemistry (if DSE chemistry was not taken)
- General chemistry
- Fundamentals in Organic Chemistry
- Molecular biology
- Endocrinology: human physiology II

**Application (July-September)**

**Capstone**
- Food and nutritional science internship e.g. public health, community nutrition, health company, hospital authority, NGO
• **Focus** on food for health and discovery of bioactive food components.

• Over 10 staffs: Prof Shah; Drs – Chan, Lee, Louie, Habimana, El-Nezami, Wan, Wang

- Food Science
- Food and Virology
- Food and Nutrition Toxicology
- Nutrogenomics
- Nutrition and Public Health
- Chinese herbal Medicine
- Novel Food and Bioactive food components
Research

FNS & Health

Food Contaminants, Prebiotics, Probiotics, Dairy products, Dietary habits, Functional Food, Fats, Chinese medicine
FNS & Biological Environment

Water Quality Monitoring, Rapid detection of toxicants in seafood, Food & Environment, Biofilms

Food and Environmental Hygiene Department
The Government of the Hong Kong Special Administrative Region

Bio-film Formation

PLAY & GROW
Hong Kong
Research

FNS & Innovative Products

Facilities

Human Nutrition Laboratory

Swire Marine Institute (SWIMS)

Animal House

Biological Science Museum
Facilities

Large Scale Aquarium

Fresh Water Aquarium

Tissue Culture Room

Plant Growth Chamber

Green House
Facilities

- Pasteuriser
- Texture Analyser
- ICP-OES/ICP-MS
- Flow Cytometer
- LC-(QToF)MS/MS
- Microcalorimeter, GE Micro iTC 200
- Genetic Analyzer
- Real-Time PCR
- Atomic Absorption Spectrometer
- GC-MS
- Confocal Microscope
- HPLC
- Genetic Analyzer
SBS have over 1500 undergraduates from local and international cities

Undergraduates’ Life at SBS

Experiential Learning
Undergraduates of FNS Students

300 closed group members

i-FNS
A guide to unforgettable experience

Science Student Ambassadors Scheme

With the initiative to promote science education and the 6001 Bachelor of Science Programme of Faculty of Science, teachers from the Faculty have been visiting secondary schools upon request, to deliver Science Talks on different science disciplines, or Admission Talks on the admission policy and curriculum. To make the events achievable, the Faculty has recruited students as the Science Student Ambassadors to share their university lives and learning experience with prospective students via school talk programmes, campus visits and also being the student representatives in various Faculty-wide functions. In the last 4 years, over 100 BSc and BSc(JC) students were recruited as our Science Student Ambassadors.
Student Peer Advisers in 2018-19

• General roles
  – to offer advice in relation to academic studies to freshmen; and
  – to facilitate freshmen’s smooth transition from secondary to university education

• You are highly encouraged to contact the following Student Peer Advisers (SPAs) if you have any questions about your study (their contacts can be found at the Faculty’s website)

  • Mr CHAN Chi Him Jeffrey (BSc Year 4)
  • Miss CHENG Pui Sum (BSc Year 4)
  • Miss CHEUNG Hui In (BSc Year 4)
  • Mr CHEUNG Wing Ming (BSc Year 4)
  • Miss CHOI Vivian Wai Wan (BSc Year 3)
  • Mr LEE Wang Yan (BSc Year 3)
http://www.scifac.hku.hk
FNS Lead Coordinator: jettylee@hku.hk

Q & A
Thank you!!