

School of Biological Sciences
Faculty of Science
The University of Hong Kong
Food & Nutritional Science Major

Dr. Jetty C.Y. Lee

Curriculum Coordinator

Faculty, Academic & Course Selection Adviser for Food & Nutritional Science

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English as a lingua franca @ HKU

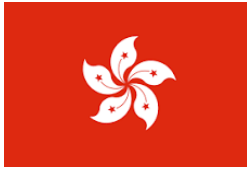


An international community @ HKU

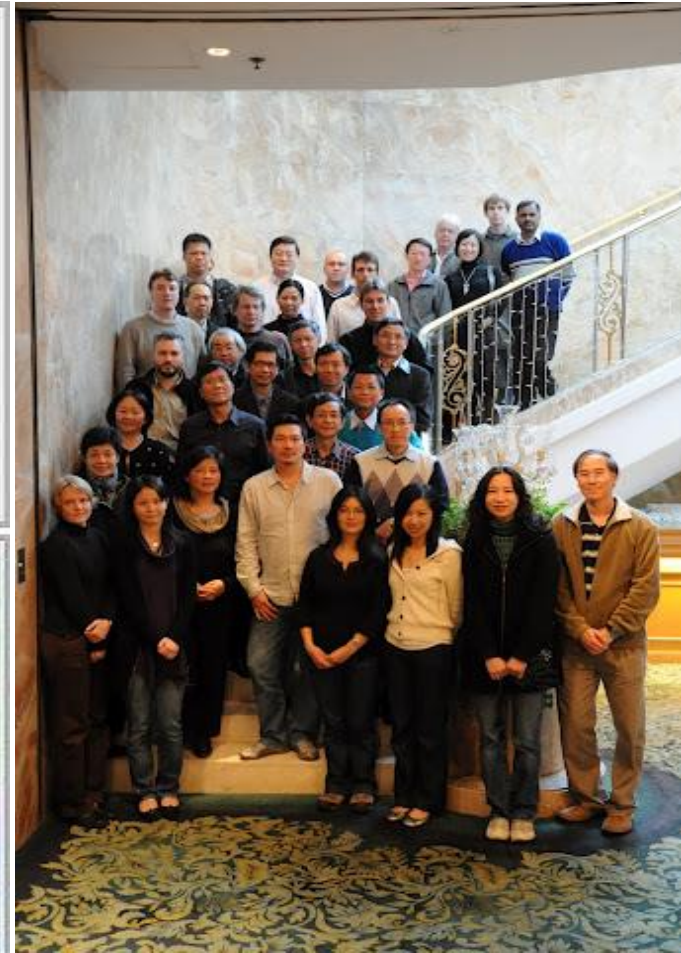
- ~60% professoriate staff from outside Hong Kong & China
- Highest no. of non-local RPg students amongst local universities
 - > 10,000 international students (*UGs, TPgs & RPgs*)
- Academic links with > 400 universities abroad



SCHOOL OF
BIOLOGICAL SCIENCES
 THE UNIVERSITY OF HONG KONG



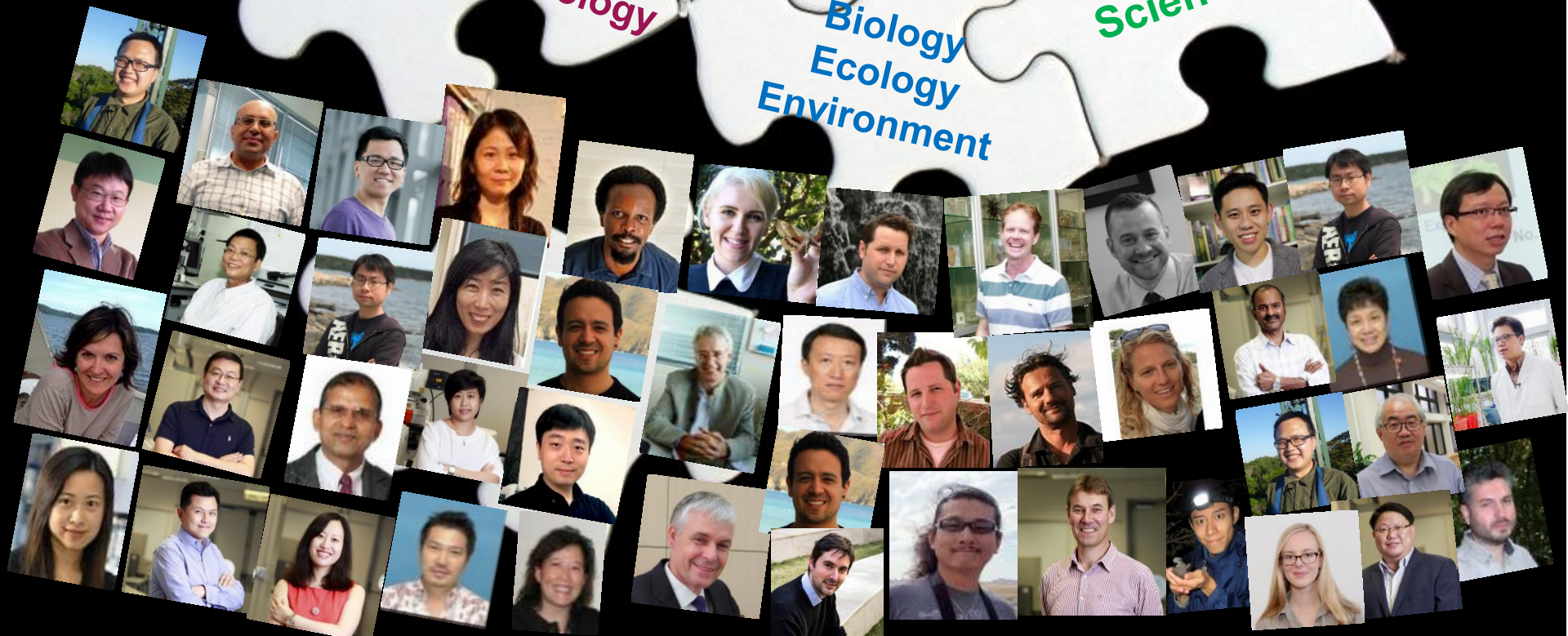
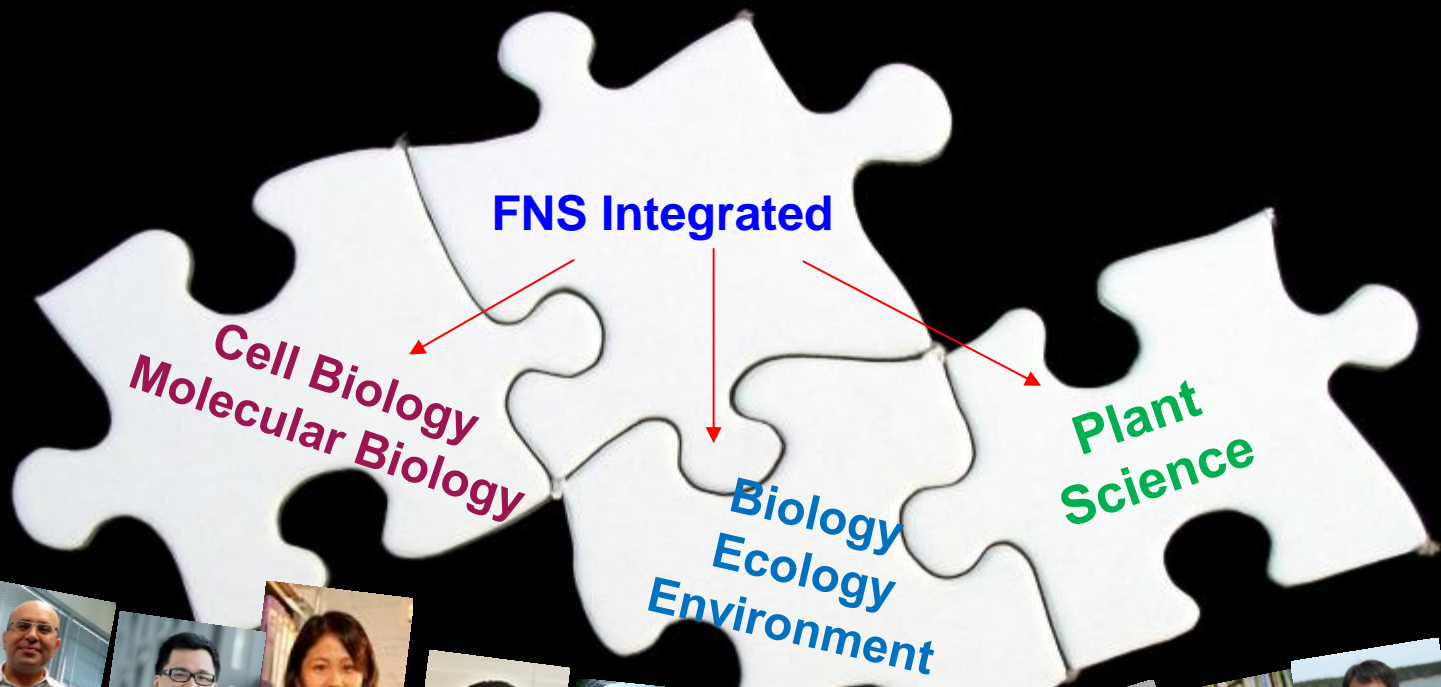
- *Our School:*
 - 40+ academic staffs
 - Asia, Australia, China, Canada, UK, Europe, USA
 - 10+ post-doctoral fellows
 - 40+ research students
 - 30 technical and administrative staff
- <http://www.biosch.hku.hk>



SBS Staff of multi-national

The Kadoorie Building





Teaching

Undergraduate Programmes
Major/Minor



Biological Sciences



Ecology and Biodiversity



Molecular Biology & Biotechnology



Food and Nutritional Science

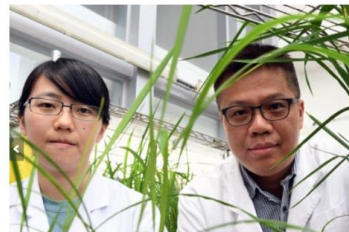


Since 1991 First Food & Nutrition Programme Established in Hong Kong



Increasing efficiency of cereal straw for biofuel production

May 04th 2017



HKU researchers generate tomatoes with enhanced antioxidant properties by genetic engineering

Nov 09th 2017



Microwave food is indeed healthy to overturn the idea of causing carcinogenic

By Lily Ng
Nov 23rd 2018



HKU nutrition scientist releases first report on Salt Content in Common Packaged Food Categories in Hong Kong and new food app to help Hongkongers make healthier food choices

Apr 19th 2018



10 JAN 2019

Connection of children to nature brings less distress, hyperactivity and behavioural problems – now measurable with a novel scale developed by HKU scientist

City lifestyle has been criticised for being an important reason for children being disconnected from nature. This has led to an unhealthy lifestyle in regards to active play and eating habits. Even worse, many young...



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



Dr. C.B. Chan



Dr. Hani El-Nezami



Dr. Olivier Habimana



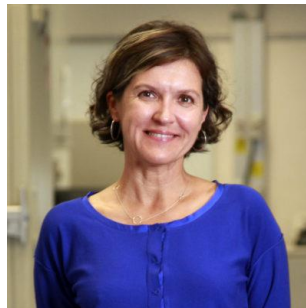
Dr. Jetty Lee



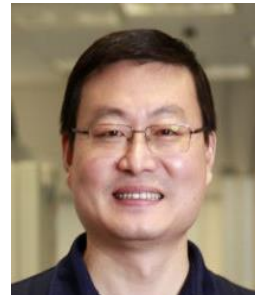
Dr. Jimmy Louie



Prof. Nagendra Shah



Dr. Tanja Sobko



Dr. Mingfu Wang

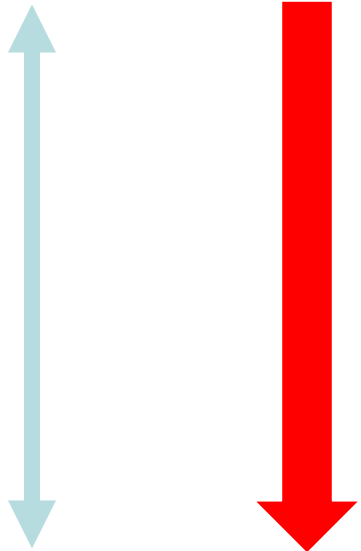


Dr. Lu Zhang

Food Science



Security
Sustainability



Nutritional Science



THE EMOTIONAL GUIDE TO YOUR HEALTHY DIET

VERY HAPPY

- FACT: A HEALTHY BODY CONTAINS 37% WATER
- I AM NOT AFRAID OF VEGETABLES
- I KNOW WHERE MY MEAT/PROTEIN COMES FROM TODAY. I HAD MY 7-GRAIN TOAST
- I DRINK AT LEAST 6 GLASSES OF WATER EVERY DAY

NOT HAPPY

- I KNOW THAT FRENCH FRIES ARE NOT MY VEGETABLES
- MYSTERY MEAT
- WHAT CARBS?
- YEA, I DRINK LOTS OF SODA

HEALTH PROMOTION AND CHRONIC DISEASE PREVENTION

Risk factors for many chronic diseases can begin early in life. But evidence shows that healthy dietary and lifestyle changes may prevent disease progression and premature death.

CHRONIC CONDITIONS RELATED TO DIET

- 1. HEART DISEASE & STROKE**
 HEART DISEASE: LEADING CAUSE OF DEATH IN THE U.S.
 STROKE: 1 IN 18 DEATHS IN THE U.S.
- 2. OBESITY**
 1 IN 3 ADULTS IN THE U.S. IS OBESSE
 14% OF 4-11 YEAR OLDS ARE OBESSE
- 3. CANCER**
 CAUSES MORE LIVES THAN HEART DISEASE
 RISK FACTORS: OBESITY, POOR DIET & PHYSICAL INACTIVITY
- 4. OSTEOPOROSIS**
 AS THE U.S. AGE POPULATION INCREASES, MORE PEOPLE ARE AT RISK
- 5. DIABETES**
 10% INCLUDING U.S. ADULTS DIAGNOSED WITH TYPE 2 DIABETES IN 2008
 10% OF TYPE 2 DIABETES CASES ARE METABOLIC SYNDROME

60
MIN/ DAY
FOR KIDS

150
MIN/ WEEK
FOR ADULTS

OPTIMAL HEALTH
 Includes physical activity and an overall healthy diet. Recommended nutrition patterns are strongly emphasized to provide nutrition education and opportunities that promote a healthy change.

Food and Nutritional Science Disciplines





Public Health & Nutrition

***Molecular Medicine**

Human Physiology

***Public Health Genetics**

Nutrition & Sports Performance

Nutrigenomics

Functional Foods

Diet & Disease

Nutrition & Life Cycle

Nutritional Biochemistry

***Sustainable Development**

***Environmental GIS**

***Sample Survey**

***Environmental Policy**

***Global Development**

Food, Environment & Health

Introduction to Food Science

Food Chemistry

Food Microbiology

Toxicology

Food Waste Management

Food Hygiene & Quality Control

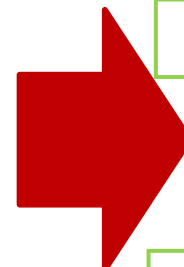
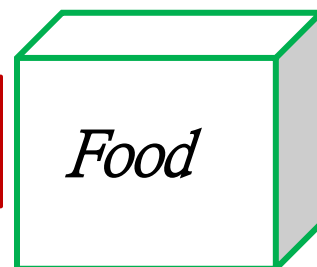
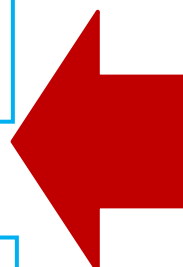
Food & Nutrient Analysis

Food Technology

Food Commodities

Food Product Development & Evaluation

*** New**



Food & Nutritional Science Lab

The Kadoorie Biological Sciences Building

FNS Teaching Laboratory (1/F)
Kitchen & Nutrition Room (5/F)
Analytical Laboratory (5/F)



Courses to Major in FNS (General)

- Science foundation courses (Level 1)
- 6 x Disciplinary courses (Level 1 & 2)
e.g. Introduction to Food & Nutrition, Food Chemistry
- 2 x Disciplinary Electives (Level 1 & 2)
e.g. General Chemistry, Sustainable Development
- 2 x Disciplinary Core Courses Level 3)
e.g. Food Microbiology, Nutritional Biochemistry
- 3 x Disciplinary electives (Level 3 & 4)
e.g. Food Technology, Public Health Genetics, Environmental Policy
- 1 x Capstone learning
e.g. Internship, Directed Studies

Specialized FNS (New): Nutrition & Public Health

(students who wish to pursue in (PgD) Masters in Nutrition & Dietetics should consider this option)

- Science foundation courses (Level 1)
- 6 x Disciplinary courses (Level 1 & 2)
e.g. Introduction to Food & Nutrition, Food Chemistry

- 2 x Disciplinary
Must take CHM2442 Fundamentals of Organic Chemistry

- 2 x Disciplinary
Food Microbiology

- 3 x Disciplinary
Must take BIO2442 Fundamentals of Molecular Medicine
Should take BIO2442 Fundamentals of Molecular Medicine

- 1 x Capstone
Should consider

NOT REFLECTED IN TRANSCRIPT
On completion, you will receive a Letter of Certificate issued by School of Biological Sciences stating that you have specialized in Nutrition & Public Health

Note: Apart from this, you should also consider the following courses: MS1001 Human Biology; BIOL3401 Molecular Biology; Also should consider BIOL3209 Food & Nutrient Analysis; BIOL3603 Diet & Disease; BIOL4201 Public Health Nutrition; STAT3617 Sample survey methods

Specialized FNS (New): Food Security (*Interdisciplinary*)

- Science foundation courses (Level 1)
- 6 x Disciplinary courses (Level 1 & 2)
e.g. Introduction to Food & Nutrition, Food Chemistry

- 2 x Disciplinary
Must take GEOG3202 Global Development

- 2 x Disciplinary
Food Microbiology

- 3 x Disciplinary
*2 Course must include
Food waste management
Health Nutrition
Should consider*

GEOG3202 Environmental GIS

- 1 x Capstone learning
e.g. Internship, Directed Studies

**NOT REFLECTED IN
TRANSCRIPT**
***On completion, you will
receive a Letter of
Certificate issued by School
of Biological Sciences
stating that you have
specialized in Food Security***

2020 Global

*e.g. BIOL3216
s, BIOL4201 Public*

Courses to Minor in FNS

- 2 x Disciplinary courses: Introductory (Level 1 & 2)
- 4 x Disciplinary electives: Advanced (Level 3 & 4)
 - Course selection different from Major

FNS Capstone

- Project (Final year and directed studies)
- Internship (hospital, food companies, NGO)
- Food Product Development & Evaluation



Job Opportunities with FNS Degree



Healthcare



Industry



International
Organization for
Standardization

Safety



Agriculture



Environment



Retail



food4me.org

Personalised Nutrition

Jobs (Past Graduates)



The Government of the Hong Kong Special Administrative Region



HOSPITAL AUTHORITY

Jobs

- Manufacturing
- Marketing
- QA/QC
- R&D
- Marketing & Retailing
- Food Services (e.g. hotels, restaurants, catering)
- Logistics
- Procurement
- Nutritionists
- Health Inspectors
- Clinical Trial Unit
- Hospital Laboratory Technicians
- Research Laboratory

Dairy
Farm



Food and Health Bureau

The Government of the Hong Kong Special Administrative Region



HKU
Med

LKS Faculty of Medicine

Clinical Trials Centre

香港大學臨床試驗中心



醫院管理局

HOSPITAL
AUTHORITY

Students Plan their 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

Disciplinary electives

- General chemistry
- Fundamentals of organic chemistry

Advanced Disciplinary electives

- Food microbiology
- Nutritional biochemistry

Advanced disciplinary electives

- Principles of toxicology
- Food hygiene and quality control
- Food technology
- Food waste management

Capstone

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

- **Quality control/quality assurance**
- **Hygiene inspector**
- **Food safety**
- **HACCP auditor license**



Students Plan their 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

Disciplinary electives

- General chemistry
- Fundamentals of organic chemistry

Advanced Disciplinary electives

- Food microbiology
- Nutritional biochemistry

Advanced disciplinary electives

- Principles of toxicology
- Functional foods
- Food technology
- Food & nutrient analysis
- Sample survey methods

Capstone

- Food product development and evaluation

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



Students Plan their 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

Disciplinary electives

- Sustainable development
- Global development

Advanced Disciplinary electives

- Food microbiology
- Nutritional biochemistry

Advanced disciplinary electives

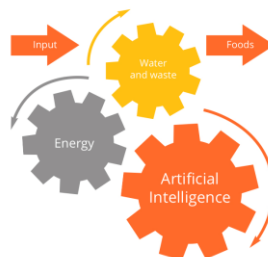
- Public health nutrition
- Environmental GIS
- Food, environment & health
- Environmental policy
- Food waste management
- Food hygiene and quality control
- Sample survey methods
- Plant & food biotechnology
- Food technology

Capstone

- Internship e.g. NGO (Feeding HK), Kadoorie farm, Cambodia



- **NGO, United Nations (International Specialist in food & nutrition),**
- **AFCD**
- **Indoor agriculture**
- **Food auditor, compliance**



Students Plan their 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

Disciplinary electives

- *General chemistry**
- *Fundamentals of organic chemistry**

Advanced Disciplinary electives

- Food Microbiology
- Nutritional Biochemistry

Advanced disciplinary electives

- Nutrition and the life cycle
- Human physiology
- Molecular medicine
- Diet & Disease
- Public Health & Nutrition

Additional courses (not in the curriculum)

- 1 x Molecular Biology related courses (BIOL3401 Molecular Biology)
- 1 x Human Physiology course (BIOL3503 Endocrinology: Human Physiology II)
- 1 x Level 1/2 Biology course (BMS1001 Human Biology)*

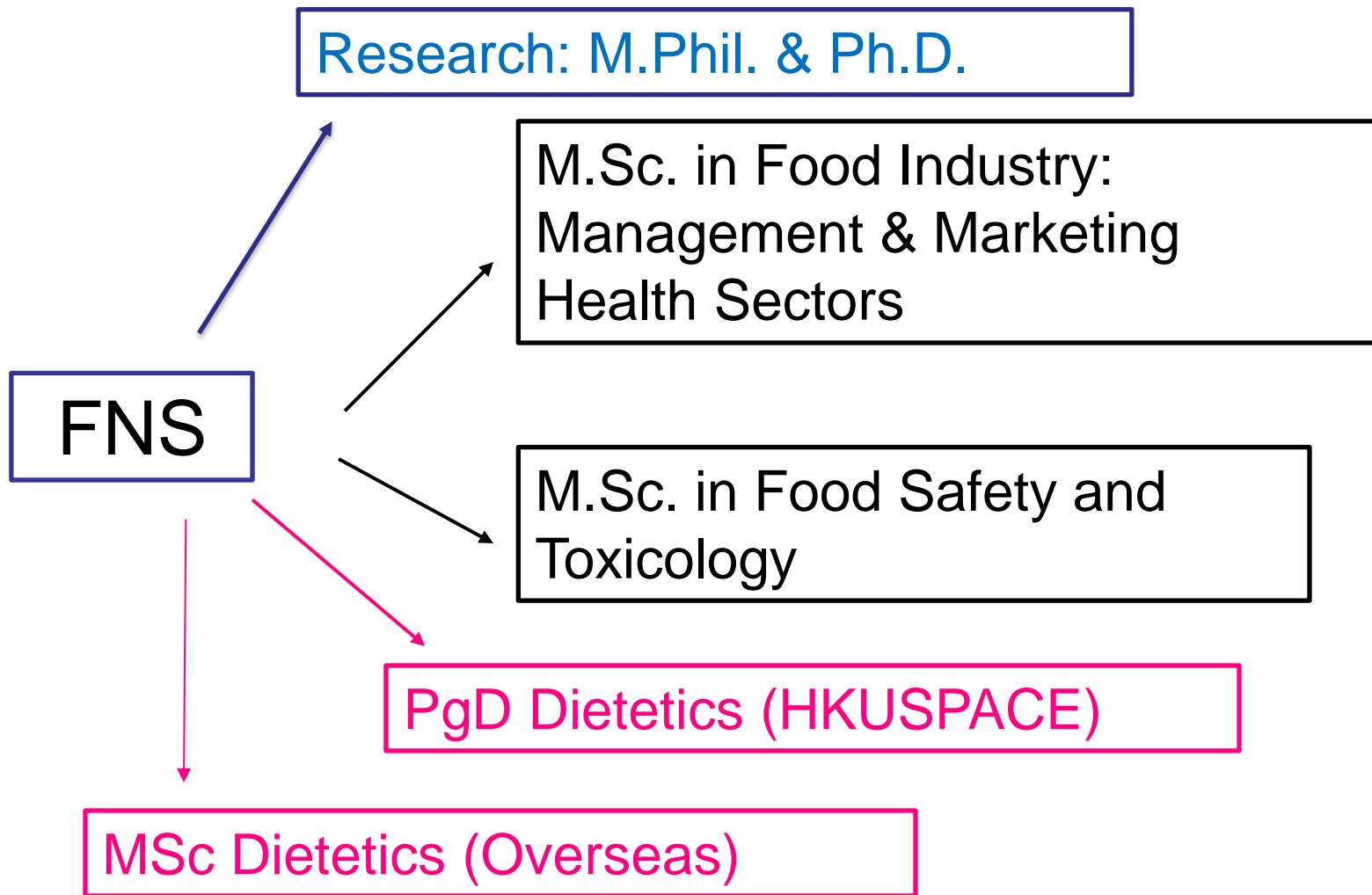
Capstone

- Final Year Project
- Food and nutritional science internship e.g. public health, community nutrition, health company, hospital authority, NGO

Application (July-September)



***Must complete in Year 1 & 2**



FNS + M.Sc.

Disciplinary core courses

- From molecules to cells
- Introduction to food and nutrition
- Principles of food chemistry
- Biostatistics
- Biological sciences laboratory course
- Principles of biochemistry

Disciplinary electives

- General chemistry
- Fundamentals of organic chemistry

Advanced Disciplinary electives

- Food Microbiology
- Nutritional Biochemistry

Advanced disciplinary (choose to select) electives

- Principles of toxicology
- Functional foods
- Nutrition and life cycle
- Food technology
- Food commodities
- Plant and food biotechnology
- Food waste management
- Food hygiene and quality control
- Diet and disease
- Public health nutrition
- Molecular medicine
- Public health genetics
- Sample survey methods

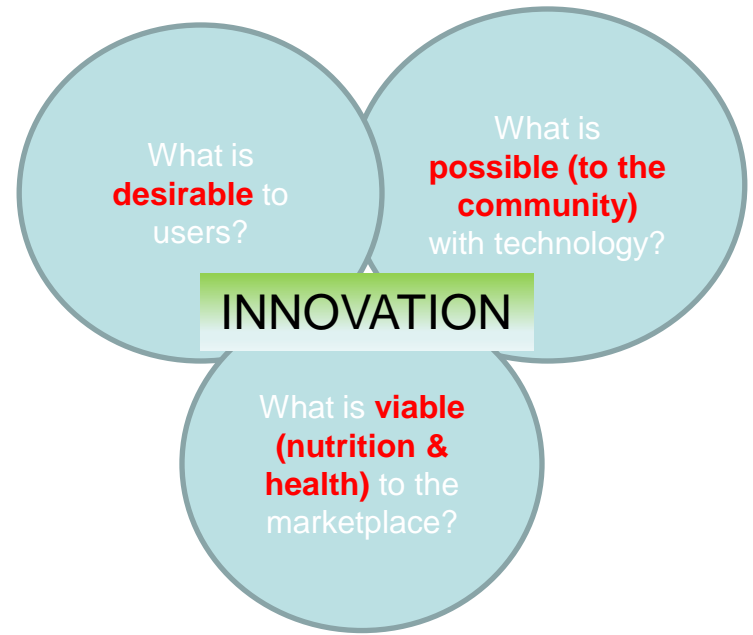
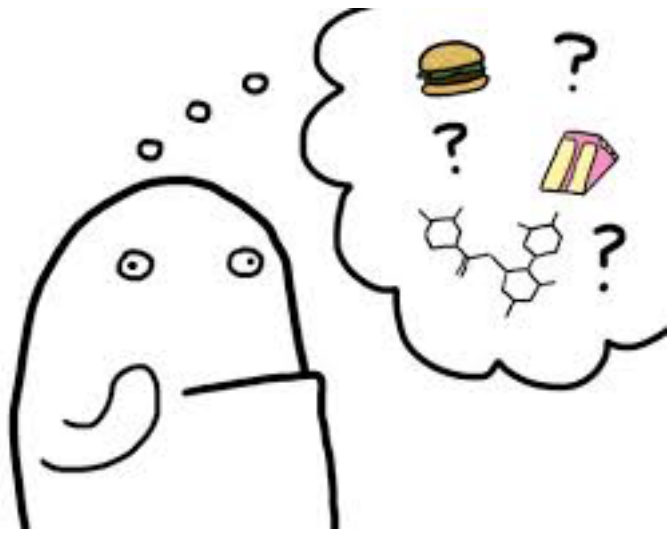
Capstone

- Food product development and evaluation
- Projects



+ 1 year
(direct intake)

M.Sc. in Food Safety and Toxicology



Encourage Undergraduates to research: Innovation & Entrepreneurship



Clean label product examples



FNS & Innovative Products



- **Focus** on food for health and discovery of bioactive food components.

Nutrition Labeling, Dietetics and Public Health.

Novel Foods, Natural Products, Chinese Medicated Diet and Functional Food development for Health Product in Hong Kong.



FNS & Cell Biology, Molecular Biology, Endocrinology



Food Science

Food and Virology

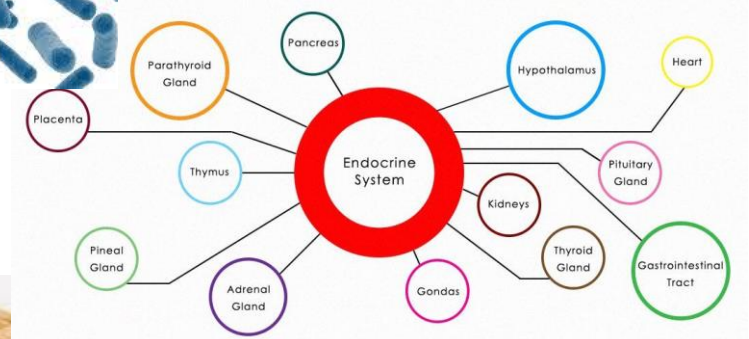
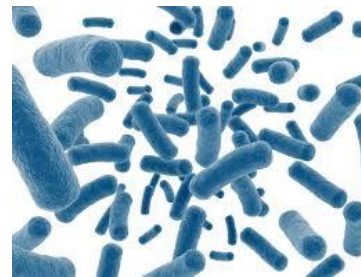
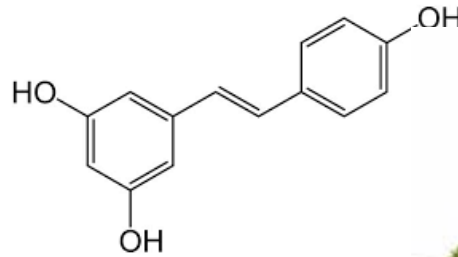
Food and Nutrition Toxicology

Nutrogenomics

Nutrition and Public Health

Chinese herbal Medicine

Novel Food and Bioactive food components



FNS & Health

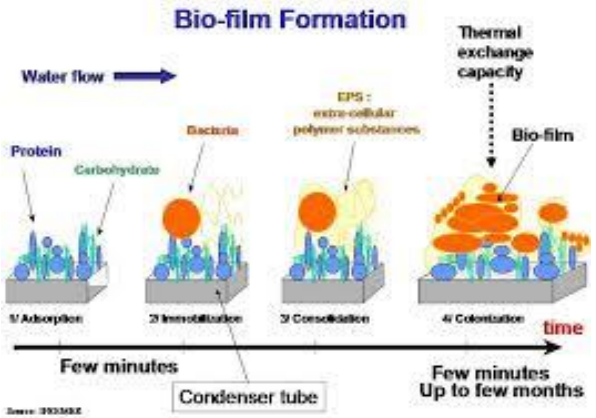
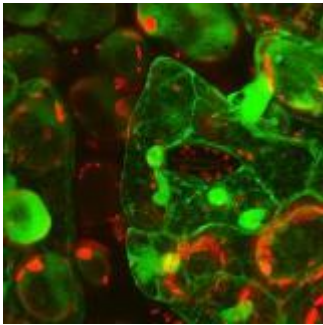


Food Contaminants, Prebiotics, Probiotics, Dairy products, Dietary habits, Functional Food, Fats, Chinese medicine



FNS & Biological Environment

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



Facilities



Pasteuriser



Texture Analyser

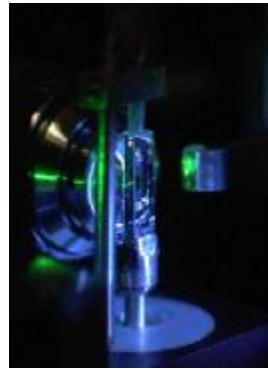


*Microcalorimeter,
GE Micro iTC 200*

LC-(QToF)MS/MS



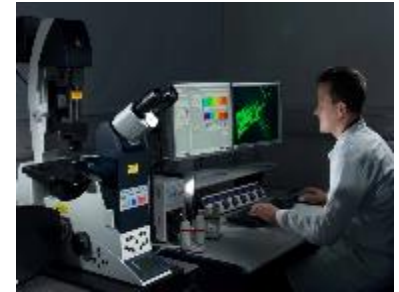
ICP-OES/ICP-MS



Flow cytometer



GC-MS



*Confocal
microscope*



Real-Time PCR



*Atomic Absorption
Spectrometer*



HPLC



Genetic Analyzer

Facilities

Human Nutrition Laboratory



Swire Marine Institute (SWIMS)



Animal House



Biological Science Museum



Facilities

Large Scale Aquarium



Plant Growth Chamber



Fresh Water Aquarium



Tissue Culture Room



Green House



SBS have undergraduates from local and international cities

Undergraduates' Life at SBS



Student-Teacher
Interaction



Innovation



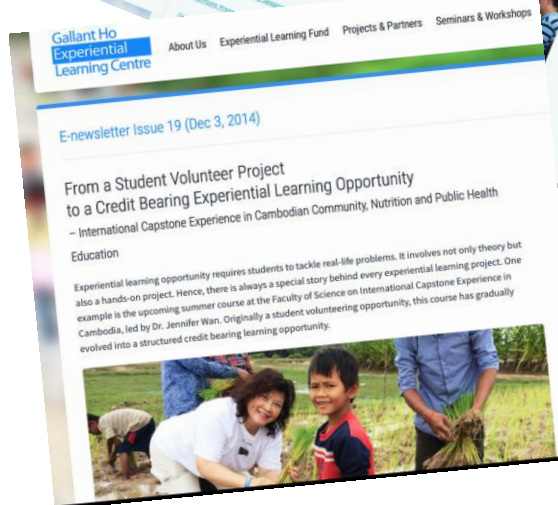
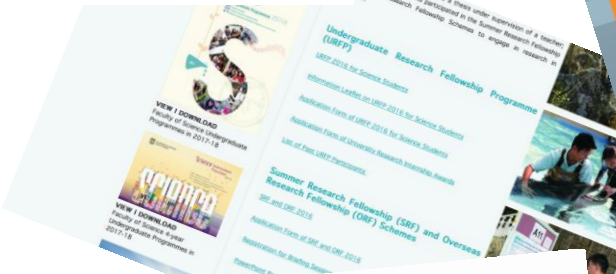
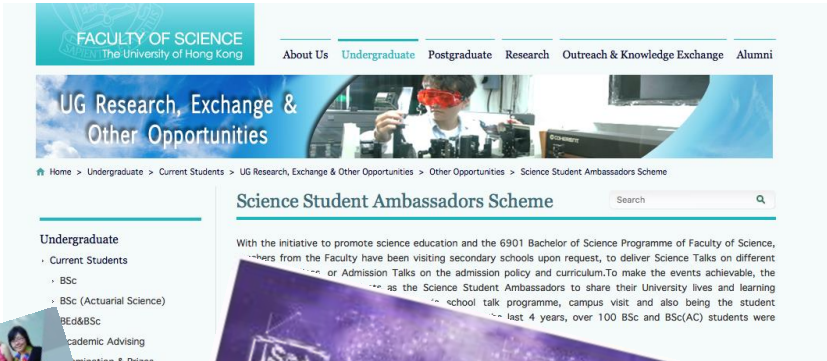
Experiential Learning



Undergraduates of FNS Students



>400 closed group members since 2015 (current and former students)



HKU Information Day for Undergraduate Admissions
Oct 29, 2016 09:00-18:00



- Thank You -

