FAQ for NTU’s Food Science and Technology (FST) Programme

Q1: What is Food Science and Technology (FST)?
A: Food Science and Technology (FST) is a field of study which draws from diverse scientific disciplines such as chemistry, microbiology and chemical engineering in an effort to better understand the food production, processing, and storage processes. Experts in this field will study and research the chemical, physical and microbiological makeup of food products and to ultimately improve the quality of such products for the public. As such, safer, more nutritious food products with innovative packaging can be developed.

Q2: What is the main reason to set up FST programme at NTU?
A: To contribute to Singapore government’s effort in enhancing Food Security. Food security is an urgent national priority by many governments around the world. Singapore’s vulnerability is compounded by our high dependency on imported food and our limited land and sea space for food production. Technological innovations, from modern farming to reducing food wastage by improved processing, are needed for our current food industry so as to ensure Singapore’s access to safe and nutritious food at affordable prices. NTU is best positioned for technology innovations based on its long standing R&D credentials in Science and Engineering. Considering the diverse aspects of food security, an interdisciplinary learning approach has been adopted in NTU’s FST Programme.

Q3: What are the unique distinctions of NTU’s FST programme?
A: NTU’s FST Programme is a Joint 2nd Major programme with Wageningen University and Research (WUR) from the Netherlands. WUR has been ranked among the top 2 by QS in the area of Agriculture, and it’s Food Science and Technology programme has been considered one of the best and most innovative in the world.

The Joint 2nd Major programme in FST has been forged based on the shared vision from both Universities for enhanced Food Security. It was launched in 2014 and offered to a selective group of students from four NTU degree programmes (Biology, Chemistry, Bioengineering and Chemical Engineering).

From 2017 onwards, the Joint 2nd Major programme in FST will be offered under the prestigious Nanyang Scholarship programme.

NTU is the only university outside of Europe that WUR is offering FST degree programme through strategic partnership.

FST students go through unique learning experience from WUR in particular the laboratory sessions, which are specifically designed to develop students’ abilities in independent learning, problem solving and critical thinking. FST students also have exclusive overseas immersion to WUR, as well as priority internship selection in food MNCs and local SMEs.

In addition, FST students will have food industry mentorship opportunity, food industry visits and lecture series by food industry leaders.
Q4: Information on Wageningen University and Research (WUR)?

A: Wageningen University's FST programme has been in place for over 50 years. It is highly regarded as one of the best and most innovative food science and technology programmes in Europe and the world. Wageningen University also offers high-level courses and research in all areas of food science; ranging from advanced technical fields such as process engineering or chemistry, to fields with a more economic or sociological focus such as marketing and gastronomy. Despite its small size, The Netherlands is the world’s second largest exporter of agricultural products, after the USA, and the food sector accounts for more than 10 per cent of the Dutch national GDP. Many graduates from WUR FST programme are now in leadership positions in Dutch and international food MNCs. Unilever and Friesland Campina, two of the top Dutch food MNCs, have their global R&D centers located in WUR.

Q5: What is NTU’s 2nd Major programme in FST?

A: It is a prestigious 2nd Major program for undergraduates building upon four NTU’s existing degree programmes in Bioengineering (School of Chemical and Biomedical Engineering), Chemical and Biomolecular Engineering (School of Chemical and Biomedical Engineering), Biological Sciences (School of Biological Sciences), and Chemistry and Biological Chemistry (School of Physical and Mathematical Sciences).

Upon graduation, students will be awarded a joint certificate from NTU-WUR for their 2nd Major in FST. From 2017 onwards, the Joint 2nd Major programme in FST will be offered under the prestigious Nanyang Scholarship. Scholarships will be awarded to qualified students and will cover their entire four years in their respective 1st degree programme.

Q6: What will I be learning and doing in the 2nd Major programme in FST?

A: NTU FST students will be taught a number of the most highly regarded FST courses from WUR itself. This includes, but not limiting to, Food Microbiology, Food Chemistry, Food Physics, Food Process Engineering and Quality Systems Operation. These WUR core courses and laboratory classes will be taught personally by WUR's professors, thus students will get to interact personally with them.

There will also be a unique 2-week study trip to WUR. One week will be spent completing the Food Physics laboratory class in WUR. The other week will be industrial visit to various food companies and industries in The Netherlands.

Furthermore, FST office will also provide internships opportunities for FST students with established food companies such as Nestle, Danone, F&N, Coca-Cola, Friesland Campina among others.
Q7: What are the job prospects for having a 2nd Major degree in FST?
A: This programme is expected to supply talents to Singapore’s transforming food industry and strengthen our national food security. According to the Ministry of Trade and Industry, the food industry alone employs 127,000 workers, accounting for about 4.4% of Singapore’s total employment. The food industry also contributes approximately 1.6% to Singapore's gross domestic product based on government figures from the Singapore Department of Statistics 2011 Economic Survey Series and the Singapore Economic Development Board Census of Manufacturing 2011.

Practically, the typical jobs for FST graduates may include: Food Manufacturing Engineer, Nutrition Scientist, Food Research Scientist/Engineer, Packaging Scientist, Flavor Chemist, Food Analytical Chemist, Food Process Engineer, Food Technical Manager, Food Regulatory Specialist, Food Microbiologist, Product Development R&D, Project Management, Food Safety Specialist, Supply Chain Distributor, Market Research Analyst, Sales and Marketing, Food Quality Assurance/Quality Control among others.

Q8: What are the advantages of taking FST as a 2nd Major?
A: By infusing the prestigious FST courses from WUR into the existing degree programmes in NTU (SCBE, SBS and SPMS), NTU FST students will have strong foundations in FST. They will have better understanding of the current practices and future challenges in food industry. The interdisciplinary training of NTU FST students from their different 1st Major will enhance their skillsets leading to wider employability.

Students from CBE will be more attuned to the food manufacturing process, where engineering techniques and insights will be used to scale up the manufacturing process and/or optimize manufacturing conditions. Employing engineering technique, students from BIE will also be more attuned to the effects food may have on the biological systems, be it medicinal, nutritional or complimentary. Students from SBS, would be more familiar with food microbiology, how to enhance food at the cellular level. They would be more adapted at areas of food nutrition, food digestion and food safety. CBC students on the other hand, would be more proficient in dealing with the chemistry during food packaging and various other post-manufacturing processes.

For students who are interested in further studies, they may consider enrolling into the Joint NTU-WUR graduate programme (MSc and PhD) in FST.

Q9: What are the entry requirements to the FST 2nd major programme?
A: Students from the degree programmes in Bioengineering (School of Chemical and Biomedical Engineering), Chemical and Biomolecular Engineering (School of Chemical and Biomedical Engineering), Biological Sciences (School of Biological Sciences), and Chemistry and Biological Chemistry (School of Physical and Mathematical Sciences) may apply.

Subject Requirements for Singapore-Cambridge GCE ‘A’ Level

Bioengineering (SCBE)
- H2 Level pass in Mathematics and Chemistry
- H1 Level/‘O’ Level pass in Physics/equivalent
Chemical and Biomolecular Engineering (SCBE)

- H2 Level pass in Mathematics and Chemistry
- H1 Level/’O’ Level pass in Physics/equivalent

Biological Sciences (SBS)

- H1 Level pass in Mathematics and
- H2 Level pass in Chemistry and
- H2 Level pass in Physics/Biology

Chemistry and Biological Chemistry (SPMS)

- H2 Level pass in Chemistry and
- H2 Level pass in Mathematics/Physics

OR

Diploma in Food or Related Fields

Q10: When can I apply to the 2nd Major programme in FST?
A: Students may apply to the 2nd Major programme in FST directly before they are enrolled in NTU. Scholarship application would be available at this stage as well.

Q11: Will there be a limited number of admissions to the 2nd Major programme in FST each year?
A: Yes, each year we will be limiting the number of new admissions into the programme to 30 students.

Q12: Will there be an admission selection process?
A: Yes, Director of FST Programme will be on the Nanyang Scholarship interview panel during each registration period. Admissions to the programme will be based on the interviews and on the academic results of the students.

Q13: How will my original course structure be affected after taking the 2nd Major programme in FST?
A: In general, FST students will need to complete 5 FST core courses from WUR and 5 FST electives from NTU. This will amount up to 33AUs. However, FST students will be exempted from 15AUs from their original GER-PE and UE categories.

For a more detailed breakdown of the course structure for the individual schools, please refer to the link below:

http://www.ntu.edu.sg/fst/ProspectiveStudent/FoodTechnologyprogramme/Pages/CourseStructure.aspx
Q14: How will the FST courses be conducted?
A: The FST core courses will be taught by WUR’s professors personally. It will be mainly be based on online learning. Course materials will be uploaded online every week for the students to access and study. Each week, there will be a Live Question Hour for each of the core courses. During this Live Question Hour, students will get to interact personally with the WUR’s instructors via video conferencing facilities.

Laboratory classes for the FST core courses will be conducted after the normal NTU examination periods (May/June and Nov/Dec). It will span from 1 week to 2 weeks and will be conducted personally by the WUR’s instructors.

Q15: Are there any differences in the grading systems for courses taught by WUR?
A: Yes, unlike normal NTU’s grading system. Most of the FST core courses taught by WUR will have an overall passing grade of 55/100. Some of them also require students to have a minimum grade for each of the individual components of the course. On average, NTU FST students have performed extremely well for the same course content compared with their Dutch counterparts.

Q16: Will the 2nd Major programme in FST affect my ability to do an oversea exchange for a semester?
A: FST courses are planned around a 2 years period but may be extended to 3 years. In other words, as long as you constantly clear your FST courses from Year 2 onwards, you should be able to clear all FST contents by the end of Year 3.

For students who wish to do an oversea exchange, it is advisable to do so Y3/S1. FST courses they would have missed as a result of this exchange will then be pushed to their Year 4 for them to complete.

Q17: What is the FST Student Society?
A: FST Student Society is a student body that is run by FST students and supported by the FST office. It is a fun and dynamic group of food lovers, scientists, and technologists wishing to pass on knowledge to anyone willing to learn. They aim to provide more exposure for fellow NTU undergraduates to FST, and to enhance their learning experience, making it an enjoyable journey. This society acts as a platform for all FST students to get to know each other and they often organize food science related events.

Q18: Where can I get more information?
A: Website: http://www.ntu.edu.sg/fst/Pages/index.aspx
Telephone: (65) 6790 6741/ (65) 6908 1959

For enquiries pertaining to undergraduate programme
Email: fst@ntu.edu.sg

For enquiries pertaining to postgraduate programme
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