

Food, Nutrition & Culinary Science

OVERVIEW



Have you ever wanted to experiment with classic dishes, such as *char kway teow* or *mutton biryani*, and give them a healthier makeover? Do the sensory characteristics of the humble chicken rice excite you? Are you intrigued by the health-promoting and disease-preventing compounds of the various products available in our supermarkets?

You can explore these issues and master the fundamental culinary and baking skills at the same time in this course! And, as you uncover the science behind our favourite dishes, you'll learn to develop new foods that an increasingly number of educated consumers all over the world are demanding for – healthy, safe, nutritious and delicious!

Your Journey

Year 1

Subjects such as Food Chemistry and Basic Nutrition & Food, will let you in on the science behind foods! You will also gain strong kitchen skills with subjects like Fundamental Culinary Techniques and Fundamental Baking Techniques.

Year 2

Continue improving your foundation in areas like product development and food safety. You will also learn how to plan diets to meet various nutritional needs, and discover how to use and apply various technologies for efficient mass food production.

Year 3

You are now ready to experience real-world work with an exciting internship and a challenging major project. You will further develop industry-specific knowledge and skills in areas such as food technology, applied nutrition or central kitchen technology.

ENTRY REQUIREMENTS

To be eligible for consideration for admission, applicants must obtain 26 points or better for the net ELR2B2 aggregate score (i.e. English Language, 2 relevant subjects and best 2 other subjects, including CCA Bonus Points) and meet the minimum entry requirements of this course. CCA cannot be used to meet the minimum entry requirements.

Minimum Entry Requirements

English Language (EL1)*	Grades 1-7
Mathematics (E or A)	Grades 1-6
One of the following Science subjects:	Grades 1-6
<ul style="list-style-type: none">• Biology• Biotechnology• Chemistry• Combined Science• Food & Nutrition• Physics/Engineering Science• Science (Chemistry, Biology)• Science (Physics, Biology)• Science (Physics, Chemistry)/Physical Science	
Any two other subjects, excluding CCA	

* *Sijil Pelajaran Malaysia (SPM)/ Unified Examination Chinese (UEC) holders must have a minimum of grade 6 for the relevant English Language subject (e.g. Bahasa Inggeris).*

Note:

No colour deficiency.

To ensure compliance on food and workplace safety, applicants with any medical conditions including physical disabilities should make a declaration and obtain pre-enrolment medical clearance.

Students are required to work in non-halal certified kitchens and facilities, as well as handle various ingredients such as meats (including pork and their by-products); emulsifiers and gelling agents of animal origin; as well as alcohol-based

products. Students may not necessarily consume these ingredients but will be required to evaluate and assess their physical/chemical properties.

Food, Nutrition & Culinary Science

COURSE STRUCTURE

TP Fundamentals (TPFun) Subjects

Subject code	Subject	Level	Credit Units
ACS1005	<p>Communication & Information Literacy</p> <p>In this subject, you will learn how to conduct research for relevant information and validate information sources. You will also learn to recognise and avoid plagiarism, and follow standard citation and referencing guidelines when presenting information. In the course of learning, you will be required to plan, prepare and present information appropriately in written and oral form. You will also be taught to consider the Message, Audience, Purpose and Strategy (MAPS) when writing and delivering oral presentations.</p>	1	2
ACS1006	<p>Workplace Communication</p> <p>In this subject, you will be taught how to conduct effective meetings while applying team communication strategies and the skills for documenting meeting notes. You will be required to write clear emails, using the appropriate format, language, tone and style for an audience. You will also be taught to communicate appropriately in and for an organisation when using various platforms. In all aspects, the principles of applying Message, Audience, Purpose and Strategy (MAPS) will be covered.</p>	1	2
ACS1007	<p>Persuasive Communication</p> <p>In this subject, you will be taught how to use persuasive language in written documents. You will be required to use information to your advantage to verbally communicate and convince an audience about your idea, product or service. Skills such as persuasive vocabulary, language features, graphical illustrations, tone and style would also be covered. The Message, Audience, Purpose and Strategy (MAPS) will also be applied when engaging in verbal and written communication.</p>	1	2
GCC1001	<p>Current Issues & Critical Thinking</p> <p>This subject presents you with a panoramic view of current local and global issues, which may have long term implications for Singapore. You will learn to apply critical thinking tools to examine current issues, support your views with relevant research and up-to-date data, articulate an informed opinion and mature as civic-minded individuals.</p>	1	2

AIN1001	<p>Innovation & Entrepreneurship</p> <p>The Innovation & Entrepreneurship subject is designed for learners from all disciplines to embrace innovation in either their specialised fields or beyond. You will first learn the Design Thinking framework, where you will develop problem statements and ideate solutions. Next, you will discover the tools for prototyping and innovation, such as 3D printing and laser cutting, at TP's Makerspace+ facility. Finally, you will acquire commercial awareness through the LEAN Startup framework of idea crystallisation, prototype building, customer testing and validation, refinement of business model canvas, and crowdfunding or crowdsourcing avenues.</p>	1	2
LEA1011	<p>Leadership: Essential Attributes & Practice 1</p> <p>LEAP 1, 2 and 3 are three fundamental subjects that seek to cultivate in you, the attitude, skills and knowledge for the development of your leadership competencies. This character-based leadership programme enables you to develop your life-skills through establishing personal core values, which will become the foundation for your leadership credibility and influence.</p>	1	1
LEA1012	<p>Leadership: Essential Attributes & Practice 2</p> <p>LEAP 1, 2 and 3 are three fundamental subjects that seek to cultivate in you, the attitude, skills and knowledge for the development of your leadership competencies. This character-based leadership programme enables you to develop your life-skills through establishing personal core values, which will become the foundation for your leadership credibility and influence.</p>	1	1
LEA1013	<p>Leadership: Essential Attributes & Practice 3</p> <p>LEAP 1, 2 and 3 are three fundamental subjects that seek to cultivate in you, the attitude, skills and knowledge for the development of your leadership competencies. This character-based leadership programme enables you to develop your life-skills through establishing personal core values, which will become the foundation for your leadership credibility and influence.</p>	1	1
LSW1002	<p>Sports & Wellness</p> <p>This subject will help you develop both the physical and technical skills in your chosen sports or fitness activities. Through a structured curriculum that facilitates group participation, practice sessions and mini competitions, you will learn to build lifelong skills such as resilience, leadership, communication and teamwork. Physical activity sessions will be supplemented by health-related topics to provide you with a holistic approach to healthy living.</p>	1	2
MCR1001	<p>Career Readiness 1</p> <p>This Career Readiness programme comprises three core subjects – Personal Management, Career Preparation and Career Management. It seeks to help you understand your career interests, values, personality and skills for career success. It also equips you with the necessary skills for seeking and securing jobs, and to develop professional work ethics.</p>	1	1

MCR1002	<p>Career Readiness 2</p> <p>This Career Readiness programme comprises three core subjects – Personal Management, Career Preparation and Career Management. It seeks to help you understand your career interests, values, personality and skills for career success. It also equips you with the necessary skills for seeking and securing jobs, and to develop professional work ethics.</p>	1	1
MCR1003	<p>Career Readiness 3</p> <p>This Career Readiness programme comprises three core subjects – Personal Management, Career Preparation and Career Management. It seeks to help you understand your career interests, values, personality and skills for career success. It also equips you with the necessary skills for seeking and securing jobs, and to develop professional work ethics.</p>	1	1
AGS1002	<p>Global Studies</p> <p>This subject provides essential skills and knowledge to prepare you for an overseas experience. You will examine the elements of culture and learn the key principles of cross-cultural communication. In addition, you will gain an appreciation and awareness of the political, economic, technological and social landscape to function effectively in a global environment.</p>	1	3
AGS1003	<p>Managing Diversity at Work*</p> <p>This subject explores the concepts of identity, diversity and inclusion at the workplace. It examines the relationship between identity and diversity, the benefits and challenges of diversity and the strategies that promote inclusion and inspire collaboration in a diverse workplace. Examples of the elements of diversity covered in this subject include nationality, generation, ethnicity and gender.</p>	1	3
AGS1004	<p>Global Citizenship & Community Development*</p> <p>Students will examine the meaning and responsibilities of being a Global Citizen, in order to contribute towards a more equitable and sustainable world. In addition, students will learn how sustainable solutions can support community development, and, execute and critique a community action plan that addresses the needs of a specific community/cause.</p>	1	3
AGS1005	<p>Expressions of Culture*</p> <p>This subject provides a platform for an understanding of culture and heritage through modes of expression. Students will be introduced to global and local cultures via everyday objects, places and human behaviour seen through time and space. Students will explore issues and challenges in culture and heritage sustainability in community, national and global contexts.</p>	1	3
TGL1001	<p>Guided Learning</p> <p>The subject introduces students to the concepts and process of self-directed learning in a chosen area of inquiry. The process focusses on four stages: planning, performing, monitoring and reflecting. Students get to plan their individual learning project, refine and execute the learning plan, as well as monitor and reflect on their learning progress and project. The learning will be captured and showcased through a curated portfolio. The self-directed learning project will broaden and/or deepen a student's knowledge and skills.</p>	1	3

ASI3031	<p>Student Internship Programme</p> <p>You will be attached to industries related to your course of study – companies in the food, healthcare or catering industries. You will be required to undertake various tasks and activities as discussed with, and agreed by the participating organisations. Besides training in technical knowledge and skills, emphasis is placed on training in desired professional conduct in areas such as communication (both oral and written), teamwork, problem-solving and self-management.</p>	3	16
---------	--	---	----

* Students must choose to take either one of these three subjects or TGL1001 Guided Learning.

Core Subjects

Subject code	Subject	Level	Credit Units
ACH1009	<p>Principles of Inorganic and Physical Chemistry 1</p> <p>This subject covers the basic theory and practical knowledge of inorganic and physical chemistry. Topics include fundamentals of chemistry, atomic structure and chemical bonding, stoichiometry and equilibria concepts of a chemical reaction.</p>	1	4
ANT1002	<p>Basic Nutrition and Food</p> <p>Topics covered in this subject include the roles and importance of macro- and micronutrients, energy balance, the nutritive value of food and recent advances in the field of nutrition. You will be provided with basic understanding and application of human nutrition, food and dietary practices in relation to health.</p>	1	4
ANT1004	<p>Basic Anatomy & Physiology</p> <p>This subject covers important organ systems and their functions such as the digestive, endocrine, circulatory, urinary and musculo-skeletal systems. Topics include enzymology, metabolism and transportation across the biological membrane.</p>	1	3
ABC1011	<p>Fundamental Culinary Techniques</p> <p>This subject covers knife skills, basic cooking techniques, operation of kitchen equipment, purchasing, receiving and storage of food. In addition, the fundamentals of ingredient application in various recipes and the scientific principles that underpin everyday cooking will be taught. Proper food hygiene practices and safety in the kitchen will be emphasised in the subject.</p>	1	4
AMB1004	<p>Basic Microbiology</p> <p>This subject investigates the important fundamentals of microbiology and its relevance to the food, biomedical and biotechnology industries. It covers the types of microorganisms, their cultivation and growth as well as their control.</p>	1	3
AFS1001	<p>Food Chemistry</p> <p>This subject covers the four major components in food, namely water, carbohydrates, fats and oils, and protein. You will investigate the chemical reactions, physical and functional properties of these components.</p>	1	5

ABC1012	<p>Fundamental Baking Techniques</p> <p>This subject covers the basic baking techniques required for producing various bakery products which include breads, pastries and cakes. Knowledge of bakery equipment operation as well as the scientific principles that are related to ingredient selection and the production process will be taught. Appropriate hygiene practices and safety in the bakery will also be emphasized.</p>	1	4
AMA1004	<p>Statistics for Applied Science</p> <p>This subject provides you with the basic statistical techniques that are essential for your course of study. Topics covered include basic probability and distributions, basic statistics, sampling distribution, hypothesis testing, analysis of variance and chi-square testing.</p>	1	3
AFS2007	<p>Food Additives</p> <p>This subject covers the main additives commonly used in food manufacture. These include emulsifiers, stabilisers and sweeteners. Food regulations on the use of additives will also be covered.</p>	2	4
ANT2011	<p>Nutrition Across The Life Span</p> <p>This subject covers the nutritional requirements of man during his life span. Topics covered include nutrition in pregnancy and lactation, nutrition for the growing years, adults and elderly.</p>	2	4
AFS2009	<p>Sensory Science</p> <p>This subject covers topics such as sensory evaluation and statistical analysis of food products, experimental design and rheology.</p>	2	4
AFS3008	<p>Product Development and Marketing</p> <p>This subject covers the fundamentals for developing new food products. You will develop food products that fulfil the legislation through the use of suitable ingredients, processing methods and techniques in food preservation. Principles of marketing and product commercialisation will also be covered.</p>	2	5
AFS2011	<p>Food Preservation</p> <p>This subject covers the causes of food spoilage, the use of hurdle technology and evaluation of shelf life. Appropriate food preservation methods and shelf life studies will be taught.</p>	2	4
AFS2012	<p>Food Safety Management</p> <p>This subject covers important and current food safety aspects of the industry, which include Hazard Analysis Critical Control Point (HACCP), current Good Manufacturing Practices (cGMP), genetically modified foods/ingredients, cold chain management and food safety quality management systems.</p>	2	4
AMP3016	<p>Major Project</p> <p>This subject provides a framework for you to solve practical and/ or technical problems, conduct research work and/or develop studies through a self-managed project. The scope of the subject includes project proposal, investigative studies, data analysis and interpretation of results, written report and presentation.</p>	3	8

Diploma Subjects - Elective Subjects

Subject code	Subject	Level	Credit Units
AFS2010	<p>Food Quality Assurance</p> <p>This subject is an integration of food microbiology, food quality control, sampling techniques and quality management system; ensuring quality and safety for compliance with food standards and legislation. Physical, chemical and microbiological testing skills will be taught.</p>	2	4
ANT2010	<p>Principles of Biochemistry and Physiology for Nutrition</p> <p>This subject focuses on basic biochemistry and human physiology concepts. The regulation of the integrative metabolic pathways involving glucose, lipid and protein, and their link to adenosine triphosphate (ATP) synthesis is covered in detail. Principles of enzymatic reactions, function and disorders of the immune system are covered as well.</p>	2	4
ABC2022	<p>Heritage Cuisine</p> <p>This subject covers the preparation, presentation and evaluation of local dishes from various ethnic groups in Singapore. The application of culinary skills in the preparation of stocks, soups, sauces, salads, fruits/vegetables, grains, eggs, poultry, red meat, and seafood will be included.</p>	2	4
ACH2004	<p>Principles of Instrumental Analysis</p> <p>This subject provides the basic knowledge of the principles and applications of some instruments commonly used in chemical industries.</p>	2	4
ANT2009	<p>Community Health and Nutrition</p> <p>This subject focuses on the main public health and nutrition concerns in various community groups, the risk factors involved and the importance of prevention. It covers the steps involved in the planning and delivery of a health and nutrition promotion program. The methods used to assess the health and nutrition status of a community and the appropriate intervention strategies and activities are also discussed.</p>	2	4
ABC2023	<p>Catering Technology</p> <p>This subject covers various technologies used to support the efficient production of foods that are safe and with consistent quality in manpower-lean production environments. Applications of various modern technologies in baking and cooking, food packaging, and shelf-life extension will be highlighted.</p>	2	4

Diploma Subjects - Elective Cluster Subjects

Subject code	Subject	Level	Credit Units
--------------	---------	-------	--------------

ANT3005	<p>Clinical Nutrition and Dietetic Practice</p> <p>This subject focuses on the medical nutrition therapy (MNT) of diet-related diseases. It covers the pathophysiology, causes, risk factors, diagnostic criteria and symptoms of obesity and diabetes as well as cardiovascular, renal and gastrointestinal diseases. Evidence-based dietary principles, integrated into the four step nutrition care process (NCP) is the approach used in formulating individualized nutrition care plans for the dietary management of the diseases above. Basic principles of nutrition support are also covered.</p>	3	5
ANT3004	<p>Practical Sports Nutrition</p> <p>This subject focuses on the importance of nutrition for optimal sports performance. It covers nutrition requirements pre-, during and post-exercise for various sports. The roles of macro- and micronutrients in sports performance and recovery will be explained. The efficacy and safety of popular dietary supplements and ergogenic aids available in the market will also be considered.</p>	3	4
AFS3010	<p>Food Processing Technology</p> <p>This subject covers the technology, processing conditions and equipment for selected foods that are produced commercially. Food categories include wheat products, dairy products, fruits and juices. Elements of food engineering, process control and novel processing methods are also introduced.</p>	3	5
AFS3009	<p>Food Packaging Technology</p> <p>This subject covers technology development in food packaging. Topics include plastics, metal, glass and paper packaging materials, packaging machineries used in the food industry, packaging techniques, printing methods, active and intelligent packaging.</p>	3	4
ABC3010	<p>Central Kitchen Operations</p> <p>This subject is designed to provide the necessary practical training in high-volume food production for central kitchens. Topics include quantity food production, event catering and food safety and workplace safety. Fundamental baking and culinary skills will be reinforced and new skills in using commercial equipment for scaled-up production will be taught. Menu items from different cuisines common to fast casual dining will also be covered.</p>	3	7
ABC3011	<p>Productivity Management</p> <p>This subject introduces students to essential concepts of productivity and how it might be used in central kitchen operations to improve performance and productivity. Topics covered include the factors that affect productivity improvement, approaches to productivity measurement and analysis, various practical techniques used in improving productivity as well as case studies.</p>	3	2

Graduation Requirements

Cumulative Grade Point Average	min 1.0
TP Fundamentals Subjects	40 credit units

Diploma Subjects - Core Subjects - Elective Subjects	63 credit units min 17 credit units
Total Credit Units Completed	min 120 credit units