



# FOOD SCIENCE AND TECHNOLOGY

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ATAR course

**Year 12 syllabus for teaching from 2027**

## **Acknowledgement of Country**

Kaya. The School Curriculum and Standards Authority (the Authority) acknowledges that our offices are on Whadjuk Noongar boodjar and that we deliver our services on the country of many traditional custodians and language groups throughout Western Australia. The Authority acknowledges the traditional custodians throughout Western Australia and their continuing connection to land, waters and community. We offer our respect to Elders past and present.

## **Important information**

As part of the Western Australian Certificate of Education (WACE) Refreshment, the School Curriculum and Standards Authority (the Authority) has revised the course rationale and aims, and updated the General Capabilities to create clearer connections with the syllabus content.

This syllabus is effective from 1 January 2027.

Users of this syllabus are responsible for checking its currency.

Syllabuses are formally reviewed by the Authority on a cyclical basis, typically every five years.

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## Rationale

The Food Science and Technology ATAR course further develops students' appreciation and understanding of ways that food is sourced, selected, prepared, shared and served. Students investigate and analyse societal influences, the concept of value-adding, reasons for the development of varieties of food commodities and the ways these contribute significantly to food choices. They consider and apply sensory, physical, chemical, social and ethical factors and functional properties of food to create food products, improve packaging and integrate old and new preservation methods to meet food needs.

Students examine food as a commodity. They observe and appreciate how innovations in science and technology are applied to food products, processes and packaging. Students apply the technology process to ideate issues, problem-solve through design and analyse processing systems to manipulate, improve and create innovative solutions. They examine influences on the supply of food for the world's population and analyse issues associated with food security, equity and sustainability. They understand that food security can be achieved through the supply of safe, secure and sustainable food products for all.

Students learn to adapt and incorporate evolving practices, processes, technologies and requirements of food science and the food industry, with a focus on practical skills and professional expectations. They investigate social and local community responsibilities, ethical practices, food trends, and new and emerging foods as they design and create meals for specified requirements. Students use an agile approach to apply processes to select food; manage production resources, time and systems; apply appropriate technologies; and provide efficient service. They consider the functional properties of a range of foods, considering the needs of individuals and communities and the ways producers adjust processes for improved performance.

Students in the course acquire, develop and apply practical skills for use in everyday life. These skills support a lifelong curiosity about nutrition; understanding of economic, social and ethical influences; application of safe food handling practices; and awareness of food security issues. They develop key skills in methods of inquiry, project management, collaboration, problem-solving, practical solutions, effective communication, strong leadership, selection and safe use of food-related technologies and the application of regulatory requirements.

The course equips students with knowledge and skills that prepare them for further education and careers as a food scientist/technologist, dietician, nutritionist, child health supervisor, public health officer or aged care manager, or in the fields of allied health, hospitality, marketing, food manufacturing and processing, food service and management. Through industry-relevant information and practical experiences, students become informed leaders and contributors to the health of the community and acquire knowledge and skills for the robust, creative and expanding food industry.

## Aims

The Food Science and Technology ATAR course aims to consolidate students':

- knowledge, skills and understanding of food science and food for health
- application of a range of technologies to support food production, processing systems and food services and transform food as a commodity
- appreciation of processes designed to examine the functional properties of food and how they are adapted, used and processed to meet identified needs, utilising appropriate technologies and food-related processing systems
- application of the technology process to develop and market food-related products, services or systems by
  - investigating and ideating issues, values, needs and opportunities
  - generating and designing ideas for, and preparing, production proposals
  - organising, implementing and adjusting production processes in food-related environments
  - producing food products, services and/or systems
  - evaluating intentions, plans and actions
- application of self-management, leadership, communication and research skills in food-related environments
- demonstration of operational protocols to work in safe food-related environments
- respect for interrelationships, beliefs, values and ethical considerations of consumers and producers
- capacity to consider the impact on food-related technologies, resource management and sustainable practices when developing and using current and future food-related technologies and industries.

## Organisation

This course is organised into a Year 11 syllabus and a Year 12 syllabus. The cognitive complexity of the syllabus content increases from Year 11 to Year 12.

### Structure of the syllabus

The Year 12 syllabus is divided into two units which are delivered as a pair. The notional time for the pair of units is 110 class contact hours.

#### Unit 3 – Food diversity and equity

This unit focuses on the relationships between food science and technology, food consumption patterns and issues of food diversity and equity in Australian society. Students investigate biotechnology and the process of genetic modification and determine the benefits and risks involved. They analyse factors that influence food selection, including advertising and marketing practices. Influences on the development and production of functional foods, food products, services and systems are examined.

Students investigate the principles of the Hazard Analysis Critical Control Point (HACCP) system to manage food safety, and the associated laws and regulatory codes to ensure food for sale is safe and suitable for human consumption. Using the technology process, students trial and adapt recipes and

processing techniques to devise and produce food products that demonstrate functional properties of food. Students evaluate and analyse processes and results, justifying choices and drawing conclusions. They make recommendations to adjust and improve processing techniques.

## **Unit 4 – The future of food**

In this unit, students explore how food production systems can provide a sustainable supply of food for current and future world populations. They examine technologies that create innovative food products and investigate influences on global food supply, unequal distribution of food resources and consequences of global food inequity. Influence of food innovation in the development of food products and the impact of food availability, selection, consumption and the nutritional value of food for specific demographic groups are investigated.

Students examine the role and responsibility of organisations that control foods imported into Australia and the advertising and marketing laws related to food and beverages. Using the technology process, students collect, interpret and analyse data to examine practices used to develop new food products. They trial and adapt recipes and processing techniques to develop a food product. Students evaluate, analyse, draw conclusions and make recommendations when assessing the features and suitability of new food products.

Each unit includes:

- a unit description – a short description of the focus of the unit
- unit content – the content to be taught and learned.

## **Organisation of content**

For each unit, the content is organised into:

- Nature of food
- Processing food
- Food in society.

### **Nature of food**

#### **Food as a commodity**

Environmental issues of water, land, chemical and energy use, and waste disposal impact sustainable practices in the production of food commodities. Innovative developments in value-adding, functional food, improved safety procedures and packaging increase the availability of food. Use of biotechnology in food systems has the potential to increase food production and provide a sustainable supply of food for current and future world populations. Genetic modification provides opportunities to improve yield, nutrition and sensory properties, resistance to environmental conditions and lower commodity prices for the consumer.

#### **Properties of food**

Foods are complex mixtures of substances composed of nutrients and chemical compounds. These mixtures and how they are combined and processed give foods their sensory, physical and chemical properties. The changes that occur during food preparation, processing and storage are described as the functional properties of foods, not all of which are desirable. The functional properties of foods determine the way foods are selected, stored, prepared and presented. Processing techniques,

ingredients and additives impact the properties of food and use in developing food products. Various filtration methods, high pressure processing, use of micro-encapsulation, nanotechnology and packaging technologies are applied to create innovative foods and products for consumers.

### **Nutrition**

Ensuring a balanced diet appropriate to individual needs and optimal health requires an understanding of food values, the food source, and the role of specific macronutrients and micronutrients in the body. Nutrition-related health conditions, such as the effect of under-consumption of nutrients on health, including anaemia, osteoporosis, malnutrition and constipation and the over-consumption of nutrients, including obesity, cardiovascular disease and Type 2 diabetes are explored. Food selection models, dietary guidelines and goal setting are used to achieve and evaluate nutritional health.

### **Processing food**

#### **Food products and processing systems**

The technology process is used to create food products, services and systems. The process involves investigating, devising, producing and evaluating the functional properties of food to develop a range of food products. Product proposals are used to guide the technology process and analyse the final outcome. Development of new, innovative food products is managed by organising, implementing and adjusting processes in response to constraints, challenges and feedback. A range of methods is used when testing, reporting, evaluating and analysing food products.

### **Food in society**

#### **Food issues**

Beliefs and values that relate to needs, wants, lifestyles, health and living standards underpin food issues of individuals and communities. Solutions to issues often trigger innovations and trends in foods and related industries. These, however, may have unforeseen ethical, environmental, economic, social and health consequences that in turn create new and different issues. Informed consumers understand concepts, such as planning, pricing, placement, packaging, distribution, sales and advertising when making decisions about product selection.

#### **Laws and regulatory codes**

Legal processes regulate the interaction between consumers and food-related enterprises. Industry and consumer associations work to influence policy, legislation and practices impacting systems that regulate food availability, safety and quality. Food handling and related risk management systems, advertising, labelling, processing and production practices, occupational safety and health requirements are regulated in Australia.

### **Representation of the General Capabilities**

The General Capabilities encompass the knowledge, skills, behaviours and dispositions that will support students to live and work successfully now and into the future. They are not assessed unless identified within the specified unit content. Teachers should find opportunities to incorporate the following General Capabilities into the teaching and learning program for the Food Science and Technology ATAR course.



## Critical and creative thinking

Students develop critical and creative thinking in the course through the application of the design process. They learn to identify and appreciate different perspectives and ideas, consider alternatives to process food and critically evaluate evidence to determine the best option in critical and creative ways. This process respects societal influences on food choices, such as lifestyle, peer group, advertising, marketing, culture and tradition. Students investigate ways to devise food products, modify and fortify foods by altering their nutrient content, adapt recipes for different lifestyles and apply preparation and processing techniques for time, resource and economic management. Factors that influence food choices encourage creative thinking and innovative solutions; these can include location, income, supply and demand pressures, environmental issues and ethical issues such as animal welfare, fair trade, resource use and country of origin. Students apply, adapt and reflect on the processes they use to put their ideas into action. They evaluate the design process and the new, innovative food products produced, and critically review selected procedures.

## Ethical understanding

Students develop ethical understanding as they explore ethical concepts related to food as a commodity and for nutritional wellbeing, food supply issues, and laws and regulations. They examine rights and responsibilities and ethical norms to treat food and food systems with respect. They acknowledge influences on the health of individuals and communities, including social and cultural traditions, beliefs and values, economic circumstance and lifestyle. Students develop an understanding of how reasoning can assist in making ethical judgements and recognise various perspectives to work and communicate with integrity, compassion and respect, to acknowledge diversity and reflect on ethical principles of food innovation and marketing. They develop informed understandings of different ethical frameworks and reflect on potential outcomes in relation to the handling of food products and the application of appropriate processing techniques and systems.

## Personal and social capability

To foster personal and social capability, students are encouraged to apply self-management strategies to set goals, regulate their emotions and build on their own strengths and abilities when working individually or in teams to complete complex food-related tasks. Students learn to work with time and resource constraints, make decisions through communication and management skills, instigate negotiation, review processes and enhance leadership. These skills encourage and promote personal and social resilience and encourage effective relationships. Students appreciate the variety of ways to demonstrate effective leadership, work collaboratively, apply project management skills and prompt reflective practices.

## Addressing the other General Capabilities

Although the following General Capabilities have not been identified as a focus in the Food Science and Technology ATAR Year 12 syllabus, teachers may find opportunities to incorporate them into the teaching and learning program.

- Digital literacy
- Intercultural understanding
- Literacy
- Numeracy

Such opportunities may occur through the application of different contexts, pedagogical practices and/or assessment strategies that relate to the syllabus as part of the teaching and learning program.

## Summary representation of the General Capabilities in the Food Science and Technology ATAR course

The unit content and assessment types for this course provide students with the opportunity to develop the General Capabilities summarised in the table below.

| Year    | Course                                            | Course type | General Capabilities |    |    |    |   |   |     |
|---------|---------------------------------------------------|-------------|----------------------|----|----|----|---|---|-----|
|         |                                                   |             | CCT                  | DL | EU | IU | L | N | PSC |
| Year 11 | Food Science and Technology (AEFST, A1FST, A2FST) | ATAR        | ✓                    |    | ✓  |    |   |   | ✓   |
| Year 12 | Food Science and Technology (ATFST)               | ATAR        | ✓                    |    | ✓  |    |   |   | ✓   |

### Key

CCT: Critical and creative thinking, DL: Digital literacy, EU: Ethical understanding, IU: Intercultural understanding, L: Literacy, N: Numeracy, PSC: Personal and social capability

## Representation of the Cross-curriculum Priorities

The cross-curriculum priorities address the contemporary issues that students face in a globalised world. Teachers may find opportunities to incorporate them into the teaching and learning program for the Food Science and Technology ATAR course. The Cross-curriculum Priorities are not assessed unless they are identified within the specified unit content.

## Aboriginal and Torres Strait Islander histories and cultures

This course provides an opportunity for students to learn about, and appreciate, Aboriginal and Torres Strait Islander histories and cultures through similarities and differences in food sources, preparation methods and environmental practices. Students may explore a range of practices and strategies used within different communities to manage, maintain and promote healthy lifestyles and wellbeing of all members and ensure the sustainability of food sources from one season to the next.

## **Asia and Australia's engagement with Asia**

This course provides an opportunity to learn about the uniqueness and diversity of social structures and systems, ethnic backgrounds, cultures and food choices in communities within the Asia region. An understanding of Asia underpins the capacity of Australian students to be active and informed citizens, working together to build harmonious local, regional and global communities. Students reflect on traditional, contemporary and emerging technological achievements in the supply, processing and development of varieties of fresh produce and influences on food choices, such as culture, traditions, lifestyle and ethical issues; all of which impact on Asia and Australia's engagement with Asia.

## **Sustainability**

This course provides an opportunity for students to learn how changes in Australian and global demographics, trends in life expectancy, the diversity and nature of society, technological advances and social, economic and environmental factors are related to sustainable development and supply of safe, fresh food. The sustainability priority provides insights into future generations and promotes sustainable farming and processing practices to meet the needs of the present population without compromising the ability of future generations to meet their food needs. Students evaluate the extent to which the process of supplying food embraces sustainability. They reflect on past and current farming and processing practices and assess new and emerging technologies from a sustainability perspective.

## Unit 3 – Food diversity and equity

### Unit description

This unit focuses on the relationships between food science and technology, food consumption patterns and issues of food diversity and equity in Australian society. Students investigate biotechnology and the process of genetic modification and determine the benefits and risks involved. They analyse factors that influence food selection, including marketing practices. Influences on the development and production of functional foods, food products, services or systems are examined.

Students investigate the principles of the Hazard Analysis Critical Control Point (HACCP) system to manage food safety and associated laws and regulatory codes to ensure food for sale is safe and suitable for human consumption. Using the technology process, students trial and adapt recipes and processing techniques to devise and produce food products that demonstrate functional properties of food. Students evaluate and analyse processes and results, justifying choices and drawing conclusions. They make recommendations to adjust and improve processing techniques.

### Unit content

An understanding of the Year 11 content is assumed knowledge for students in Year 12. It is recommended that students studying Unit 3 and Unit 4 have completed Unit 1 and Unit 2.

This unit includes the knowledge, understandings and skills described below. This is the examinable content.

### Nature of food

#### Food as a commodity

- environmental issues that impact sustainable production of food commodities
  - water use
  - land use
  - chemical use
  - energy use
  - waste disposal
- biotechnology in food systems
  - microorganisms
  - yeasts
  - genetic modification
- the process of genetic modification in food production
  - benefits of genetic modification
  - improved yield
  - improved nutrition
  - resistance to environmental conditions
  - improved sensory properties
  - lower commodity prices for the consumer
- risks of genetic modification
  - impact on health
  - impact on environment
  - antibiotic resistance

## Properties of food

- the effect of preservation processes on food
  - sensory properties
  - physical properties
  - chemical properties
- the function of natural food components in food processing
  - protein – albumin, gluten
  - carbohydrates – starch, sugar
  - lipids – fats, oils
- functional properties and how they determine the performance of food
  - dextrinisation
  - caramelisation
  - crystallisation
  - emulsification
  - gelatinisation
  - oxidation
  - denaturation
  - coagulation
  - leavening
  - aeration
  - rancidity

## Nutrition

- use of food selection models and the *Australian Dietary Guidelines* to evaluate the nutritional needs of population groups
  - anaemia
  - osteoporosis
  - malnutrition
  - obesity
  - cardiovascular disease
  - diabetes
- food sources and impact of macronutrient and water intake on health
  - protein – complete and incomplete
  - carbohydrates – starches, sugars, and fibre or cellulose
  - lipids – saturated fats and oils, and unsaturated fats and oils
- food sources and impact of micronutrient intake on health
  - fat-soluble vitamins – A, D, E and K
  - water-soluble vitamins – B2 (riboflavin), B9 (folate), B12 (cobalamin) and C (ascorbic acid)
  - minerals – calcium, iron, sodium and potassium
- influences on health and wellbeing
  - genetics – gender, race, family history
  - lifestyle – exercise, smoking, illicit drugs
  - diet

- the effect of the consumption of functional foods on health
  - digestive system
  - cardiovascular system
  - neural development
  - skeletal structure
  - blood sugar levels glycaemic index
- diet-related health conditions
  - food allergies – nuts, eggs, seafood
  - food intolerances – gluten, lactose

## Processing food

### Food products and processing systems

- how and why food processing techniques are used to control the performance of food
  - temperature – heat, cold
  - exposure to air
  - pH level
  - addition of chemicals – salt, sugar
  - removal of moisture
  - manipulation
- recipe adaptation
  - commodities
  - nutrition
  - processing techniques
  - portions
  - presentation or packaging
  - cost
- product proposal
  - consumer profile
  - product purpose
  - product specifications that include at least two functional properties
- the technology process to produce a food product with at least two functional properties that meet product proposal specification
  - investigate
  - devise
  - produce
  - evaluate
- analysis of food product
  - product's compliance with the proposal
  - product's sensory properties
  - effectiveness of the processing techniques selected
  - purpose of the functional properties selected
- analysis of the marketing mix used to promote a food product
  - product
  - price
  - place
  - promotion

## Food in society

### Food issues

- factors that influence food consumption patterns in Australia
  - social
  - economic
  - environmental
  - ethical
  - political
- the impact of commercially processed food on the consumer
  - food safety
  - food availability
  - extend shelf life
  - convenience
  - alter sensory properties
  - health
  - distribution and storage
  - price
- Australian Standard metric measurement
- mathematical concepts – data, graphs, tables, simple ratio, percentages
- marketing mix strategies and the influence on consumers
  - product
  - price
  - place
  - promotion
- consumer concerns related to food promotion
  - advertising directed at children
  - product placement in supermarkets

### Laws and regulatory codes

- *Australia New Zealand Food Standards Code* for food produced using gene technology
- apply the principles of the Hazard Analysis Critical Control Point (HACCP) management system to manage food safety
  - conduct a hazard analysis
  - identify critical control points
  - establish critical limits for each critical control point
  - establish critical control point monitoring requirements
  - establish corrective actions
  - verify procedures
  - establish record keeping procedures
- *Food Act 2008* (WA) and the role of state and local authorities to ensure food for sale is safe and suitable for human consumption
- *Work Health and Safety Act 2020* and the consequences of unsafe work environments and practices for employers and employees
  - economic
  - social

## Unit 4 – The future of food

### Unit description

In this unit, students explore how food production systems can provide a sustainable supply of food for current and future world populations. They examine technologies that create innovative food products and investigate influences on global food supply, unequal distribution of food resources and consequences of global food inequity. Influence of food innovation in the development of food products and the impact of food availability, selection, consumption and the nutritional value of food for specific demographic groups are investigated.

Students examine the role and responsibility of organisations that control foods imported into Australia and the advertising and marketing laws related to food and beverages. Using the technology process, students collect, interpret and analyse data to examine practices used to develop new food products. They trial and adapt recipes and processing techniques to develop a food product. Students evaluate, analyse, draw conclusions and make recommendations when assessing the features and suitability of new food products.

### Unit content

This unit builds on the content covered in Unit 3.

This unit includes the knowledge, understandings and skills described below. This is the examinable content.

#### Nature of food

##### Food as a commodity

- innovative developments that increase the availability of food
  - value-added food
  - functional food
  - genetically modified food
  - food safety procedures
  - packaging

##### Properties of food

- factors that impact on the properties of food
  - processing techniques
  - equipment and storage
  - environment
  - ingredients
  - additives – thickeners, anti-caking agents, humectants, colourings and flavourings, preservatives, and artificial sweeteners
- technologies used to develop new food products
  - ultrafiltration
  - micro-encapsulation
  - nanotechnology



- high pressure processing
- membrane technology
- packaging – aseptic, active, intelligent and Modified Atmosphere Packaging (MAP) (vacuum, gas, barrier specific)

## **Nutrition**

- purpose of the Nutrient Reference Values (NRV) and the Recommended Dietary Intakes (RDI)
- advantages and disadvantages of the consumption of micronutrient supplements
- role of phytochemicals in promoting health
  - phytoestrogens
  - antioxidants
  - probiotics
- modification of food to meet the nutritional needs of individuals with a diet-related health condition
  - food allergies
  - food intolerances
- digestion of macronutrients
  - digestive tract
  - associated organs of digestion
  - mechanical digestion
  - chemical digestion
- health conditions caused by the inability of the body to digest or absorb or metabolise nutrients
  - diabetes
  - coeliac
  - lactose intolerance

## **Processing food**

### **Food products and processing systems**

- product development using line extensions, 'me too' products and innovative products
- adaptations used to produce new products
  - commodities
  - processing techniques
  - presentation or packaging
  - equipment and technology
  - quantities
- devise a product proposal for a new food product
  - consumer profile
  - product purpose
  - product specifications
- the technology process to produce a new food product that responds to a consumer need
  - investigate
  - devise
  - produce
  - evaluate

- analysis of food product in relation to product proposal
  - features of the product and its suitability to the consumer group
  - quantitative method (survey)
  - qualitative method (sensory evaluation)
  - draw conclusions
  - make recommendations

## Food in society

### Food issues

- factors that influence the development of new food products
  - population growth
  - changing demographics
  - health
  - convenience
  - cost
  - technology
- influences on the global food supply
  - trade restrictions – embargos, tariffs, subsidies
  - government policies – free trade agreements, fair trade
  - ownership concentration within the food industry – multi-national companies
  - natural disasters and the potential loss of infrastructure
  - land ownership
- influences on the distribution of global food resources
  - production of biofuels
  - population growth and population distribution
  - food production and distribution
  - food prices
  - demand for meat and dairy
- consequences of global food inequity
  - under-nutrition
  - over-nutrition
  - political instability
- factors affecting the sustainability of food production in Australia
  - farming practices
  - climate change
  - water availability
  - land degradation

### Laws and regulatory codes

- *Australia New Zealand Food Standards Code* requirement for the use of additives in food and for product recall
- implications of the *Australian Association of National Advertisers (AANA) Code for Advertising and Marketing Communications to Children*, on advertising and marketing food and beverage products in Australia

## School-based assessment

The *Western Australian Certificate of Education (WACE) Manual* contains essential information on principles, policies and procedures for school-based assessment that needs to be read in conjunction with this syllabus.

Teachers design school-based assessment tasks to meet the needs of students. The table below provides details of the assessment types for the Food Science and Technology ATAR Year 12 syllabus and the weighting for each assessment type.

### Assessment table – Year 12

| Type of assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Weighting |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <p><b>Investigation</b></p> <p>Directed research in which students plan, conduct and communicate an investigation of an issue related to Food Science and Technology. They apply processes to food-related practices, use a variety of investigative approaches to individually and/or collaboratively collect and interpret primary sources and produce secondary sources. Processes include testing, analysing, evaluating and communicating findings. The investigation can be presented as a written report or a multimedia presentation.</p> <p>Other evidence can include: practical investigations, investigation plans, self or peer evaluations and/or journal reflections.</p>                                                                                                   | 25%       |
| <p><b>Production analysis</b></p> <p>A production project in which students explore ideas, design products and/or implement production processes.</p> <p>Students manage a range of production processes, evaluating and modifying them as necessary. This includes making products, prototypes or implementing processes and systems in response to a proposal and evaluating design ideas while managing a range of production processes.</p> <p>Evidence can include: analysis of survey results, design ideas, recipes, nutritional values, sensory properties, food products, production plans, production processes, and/or food systems; modifications used to manage quality control, product test results, evaluation tools (target market group) and/or journal reflections.</p> | 15%       |
| <p><b>Response</b></p> <p>Students respond to questions which can require them to refer to stimuli or prompts, such as production practices, case studies, scenarios and primary and secondary sources.</p> <p>Tasks can be conducted inside or outside class time. Students apply their understandings and skills to analyse, and/or interpret information, solve problems and/or answer questions. Formats can include short and extended written responses and/or oral presentations.</p> <p>Other evidence can include: situation analysis exercises, observation records and checklists, journal entries and/or self, peer or target group evaluations.</p>                                                                                                                           | 20%       |
| <p><b>Examination</b></p> <p>Typically conducted at the end of each semester and/or unit and reflecting the examination design brief for this syllabus.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 40%       |

Teachers are required to use the assessment table to develop an assessment outline for the pair of units.

The assessment outline must:

- include a set of assessment tasks
- include a general description of each task
- indicate the unit content to be assessed
- indicate a weighting for each task and each assessment type
- include the approximate timing of each task (for example, the week the task is conducted, or the issue and submission dates for an extended task).

In the assessment outline for the pair of units, each assessment type must be included at least once over the year/pair of units.

The set of assessment tasks must provide a representative sampling of the content for Unit 3 and Unit 4.

Assessment tasks not administered under test/controlled conditions require appropriate validation/authentication processes. For example, student performance for a production could be validated by a task (such as a structured essay, extended answer or analysis of the processes used in the production) which is completed in class after the final production process is completed.

## Grading

Schools report student achievement in terms of the following grades:

| Grade | Interpretation           |
|-------|--------------------------|
| A     | Excellent achievement    |
| B     | High achievement         |
| C     | Satisfactory achievement |
| D     | Limited achievement      |
| E     | Very low achievement     |

The teacher prepares a ranked list and assigns the student a grade for the pair of units. The grade is based on the student's overall performance as judged by reference to a set of pre-determined standards. These standards are defined by grade descriptions and annotated work samples. The grade descriptions for the Food Science and Technology ATAR Year 12 syllabus are provided in Appendix 1. They can also be accessed, together with annotated work samples, through the Guide to Grades link on the course page of the Authority website at [www.scsa.wa.edu.au](http://www.scsa.wa.edu.au).

To be assigned a grade, a student must have had the opportunity to complete the education program, including the assessment program (unless the school accepts that there are exceptional and justifiable circumstances).

Refer to the *WACE Manual* for further information about the use of a ranked list in the process of assigning grades.

## ATAR course examination

All students enrolled in the Food Science and Technology ATAR course Year 12 are required to sit the ATAR course examination. The examination is based on a representative sampling of the content for Unit 3 and Unit 4. Details of the ATAR course examination are prescribed in the examination design brief on the following page.

Refer to the *WACE Manual* for further information.

### Examination design brief – Year 12

#### Time allowed

Reading time before commencing work: ten minutes

Working time for paper: three hours

#### Permissible items

Standard items: pens (blue/black preferred), pencils (including coloured), sharpener, correction fluid/tape, eraser, ruler, highlighters

Special items: up to three calculators, which do not have the capacity to create or store programmes or text, are permitted in this ATAR course examination

| Section                                                                                                                                                      | Supporting information                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Section One</b><br><b>Multiple-choice</b><br>15% of the total examination<br>15 questions<br>Suggested working time: 15 minutes                           | Questions can require the candidate to respond to stimulus material. Stimulus material can include: text, diagrams, data, tables, graphs and/or photographs.                                                                                                                                                                              |
| <b>Section Two</b><br><b>Short answer</b><br>55% of the total examination<br>6–8 questions<br>Suggested working time: 95 minutes                             | Questions can be in parts or scaffolded and can require the candidate to respond to stimulus material. Stimulus material can include: text, diagrams, data, tables, graphs, media images and messages, photographs, case studies and/or scenarios.<br>The candidate can respond using short paragraphs, dot points, diagrams or tables.   |
| <b>Section Three</b><br><b>Extended answer</b><br>30% of the total examination<br>Two questions from a choice of three<br>Suggested working time: 70 minutes | Questions can require the candidate to respond to stimulus material. Stimulus material can include: text, data, diagrams, media images and messages, photographs, case studies and/or scenarios.<br>Questions can require the candidate to link theory with practice.<br>Questions can have parts, which can be of increasing complexity. |

## Appendix 1 – Grade descriptions Year 12

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|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A | <p><b>Investigation</b><br/>Effectively and accurately communicates ideas and issues, and justifies opinions. Presents relevant research in a detailed, comprehensive and logical format.<br/>Interprets, analyses, applies and accurately adapts appropriate food-related practices or food processing systems and organises research findings to develop relevant resources and make logical, informed decisions.<br/>Accurately interprets, records and evaluates reliable and relevant information from a wide variety of primary sources and practical investigations to produce appropriate secondary sources.</p> <p><b>Production analysis</b><br/>Assesses and analyses, in detail, quantitative and qualitative data to clarify and determine features of the proposed product. Draws conclusions and validates suitable recommendations. Extracts and examines relevant information, data and observations, and provides a detailed analysis of the impact of food processing techniques, features of product development and marketing strategies to explain a range of food-related practices.<br/>Provides an accurate, detailed and comprehensive analysis for the use and adaptation of a variety of food processing techniques to control the performance of food and explain the impact on the food produced in relation to the product proposal.</p> <p><b>Response</b><br/>Provides an accurate interpretation and detailed explanation of the interrelationship between food consumers, producers and marketers to clarify specific points of view and develop appropriate, informed solutions.<br/>Justifies, in detail, the correct and appropriate application of laws and regulatory codes for a variety of food environments, and provides valid explanations of ways to ensure safe food for consumers.<br/>Provides detailed, accurate and well-structured analysis of collated evidence to develop valid, coherent arguments, critically evaluate and compare various points of view for a range of diet-related health conditions, specific nutritional needs and a sustainable food supply; correctly applies concise course terminology.</p> |
| B | <p><b>Investigation</b><br/>Accurately communicates ideas and issues, and validates opinions. Presents research in a detailed and logical format.<br/>Applies and adapts appropriate food-related practices or food processing systems and gathers research findings to develop resources and make informed decisions.<br/>Interprets, records and evaluates relevant information from primary sources and practical investigations to produce secondary sources.</p> <p><b>Production analysis</b><br/>Assesses and analyses quantitative and qualitative data to explain features of the proposed product. Draws conclusions and makes suitable recommendations.<br/>Examines relevant information, data and observations, and provides an explanation for the impact of food processing techniques, features of product development and marketing strategies to discuss a range of food-related practices.<br/>Provides an accurate analysis for the use and adaptation of food processing techniques to control the performance of food and describe the impact on the food produced in relation to the product proposal.</p> <p><b>Response</b><br/>Provides an interpretation and explanation of the interrelationship between food consumers, producers and marketers to explain various points of view and develop informed solutions.<br/>Justifies the correct and appropriate application of laws and regulatory codes for food environments, and provides explanations of ways to ensure safe food for consumers.<br/>Provides accurate and structured analysis of evidence to develop valid arguments, evaluate and compare various points of view for diet-related health conditions, specific nutritional needs and a sustainable food supply; applies course terminology.</p>                                                                                                                                                                                                                                                                                                                                                                                |

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|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C | <p><b>Investigation</b></p> <p>Generally communicates ideas and issues, and presents some related research in an organised format.</p> <p>Applies some appropriate food-related practices or food processing systems and research findings to develop resources and make decisions.</p> <p>Records and generally evaluates relevant information from some primary sources to produce secondary sources.</p>                                                                                                                                                                                                                                        |
|   | <p><b>Production analysis</b></p> <p>Assesses, in general terms, quantitative and qualitative data to describe features of the proposed product. Draws broad conclusions and makes some recommendations.</p> <p>Examines some relevant information and provides a general description of the impact of food processing techniques, features of product development and marketing strategies to outline a range of food-related practices.</p> <p>Provides a general analysis for the use of food processing techniques to control the performance of food and outlines the influence on the food produced in relation to the product proposal.</p> |
|   | <p><b>Response</b></p> <p>Provides a general interpretation of the relationship between food consumers, producers and marketers to discuss some points of view and develop solutions.</p> <p>Justifies generally the application of laws and regulatory codes for some food environments, and provides broad descriptions of ways to ensure safe food for consumers.</p> <p>Provides a wide-ranging analysis of evidence to develop generalised arguments and considers some points of view for diet-related health conditions, overall nutritional needs, and a sustainable food supply; generally applies course terminology.</p>                |
| D | <p><b>Investigation</b></p> <p>Communicates in a simple manner, often with repetition of issues and ideas, and/or omits key concepts.</p> <p>Seldom applies appropriate food-related practices, food processing systems or research findings to develop simple resources or make decisions.</p> <p>States some information, which is often irrelevant, from primary sources to produce simplified secondary sources.</p>                                                                                                                                                                                                                           |
|   | <p><b>Production analysis</b></p> <p>Uses limited quantitative and qualitative data to state features of the proposed product and gives a personal preference.</p> <p>Examines limited information and provides a brief statement of the impact of food processing techniques, features of product development and/or marketing strategies with little or no connection to food-related practices.</p> <p>Provides a limited analysis of food processing techniques and states the influence on the food produced with little relation to the product proposal.</p>                                                                                |
|   | <p><b>Response</b></p> <p>Provides a brief statement with limited reference to the relationship between food consumers, producers and marketers to state an opinion and give a solution.</p> <p>Justifies, in simple ways, the application of laws and regulatory codes, and states ways to keep food safe.</p> <p>Provides a brief and limited analysis of evidence to state a personal point of view for diet-related health conditions, nutritional needs and a food supply; shows limited application of course terminology.</p>                                                                                                               |
| E | <p>Does not meet the requirements of a D grade and/or has completed insufficient assessment tasks to be assigned a higher grade.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

