**Sample Course Outline**

Food Science and Technology

ATAR Year 11

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# Sample course outline

# Food Science and Technology – ATAR Year 11

## Unit 1 — Food science

| **Week** | **Syllabus content** |
| --- | --- |
| 1–2 | **Food as a commodity**   * primary and secondary processes used to convert raw commodities into safe, quality food products * effect of seasonal conditions on the quality, supply and price of food commodities   **Laws and regulatory codes**   * objectives of the *Food Act 2008* (WA) * purpose of the *Occupational Safety and Health Act 1984* |
| 3–4 | **Nutrition**   * food sources and role of macronutrients and water in the body * protein – complete and incomplete * carbohydrates – starches, sugars, and fibre or cellulose * lipids – saturated fats and oils, and unsaturated fats and oils * food sources and role of micronutrients in the body * fat-soluble vitamins – A and D * water-soluble vitamins – B1 (thiamine), B2 (riboflavin), B3 (niacin) and C * minerals – calcium, iron and sodium   **Task 1: Test – Food commodities and nutrients** |
| 5–7 | **Properties of food**   * influence of sensory properties on the selection, use and consumption of raw and processed food * appearance * texture * aroma * flavour * sound * influence of physical properties on the selection, use and consumption of raw and processed food * size * shape * colour * volume * viscosity * elasticity * functional properties that determine the performance of food * dextrinisation * caramelisation * crystallisation * emulsification * gelatinisation * oxidation * denaturation * coagulation * leavening * aeration * rancidity |
| 8–10 | **Food products and processing systems**   * investigate wet processing techniques and dry processing techniques * suitable food commodities * effect on nutrition * heat transfer * sensory properties * cost * the technology process to produce a food product that demonstrates a wet processing technique and a dry processing technique based on a product proposal * investigate * devise * produce * evaluate * evaluate the food product * product’s compliance with the proposal * product’s sensory properties * selection of processing techniques * selection of equipment and resources * time requirements   **Task 2: Processing techniques** |
| 11–12 | **Food issues**   * societal influences on food choices * lifestyle * culture and traditions * peer group   **Nutrition**   * effects of under-consumption of nutrients on health * anaemia * osteoporosis * malnutrition * constipation * effects of over-consumption of nutrients on health * obesity * cardiovascular disease * Type 2 diabetes   **Food products and processing systems**   * devise food products * interpret and adapt recipes * devise food orders * develop and trial recipes * devise production plans * apply preparation and processing techniques * cost recipes   **Task 3: Nutrition and health** |
| 13–14 | **Food as a commodity**   * reasons for the development and use of varieties of food commodities * alter sensory and physical properties * alter nutritional content * improve yield * new technologies in food processing * line extensions * profit |
|  | **Food issues**   * societal influences on food choices * media * advertising * marketing * economic influences on food choices * competition in the marketplace * product availability * consumer resources * use of celebrities, media practices (including music, body image, colour, fonts and graphics) and food styling techniques to market food products |
| 15 | **Laws and regulatory codes**   * role of *Food Standards Australia New Zealand* (FSANZ) * Australia *New Zealand Food Standards Code* for food labelling requirements * nutrition information panel * percentage labelling * name or description of the food * food recall information * information for allergy sufferers * date marking * ingredients list * country of origin * barcode * weights and measures * use and storage information * mandatory warnings and information * genetically modified content * legibility * categories of food exempt from food labelling laws |
| 16 | **Task 4: Semester 1 examination** |

# Sample course outline

# Food Science and Technology – ATAR Year 11

## Unit 2 — The undercover story

| **Week** | **Syllabus content** |
| --- | --- |
| 1–2 | **Food as a commodity**   * the food supply chain * production * processing * packaging * storage * distribution of food commodities * the concept of value-adding to food * changes to nutritional content * additional processing of food * presentation and service * packaging * define and classify functional foods * natural functional foods * processed functional foods – modified, fortified   **Nutrition**   * modification and fortification of foods by altering nutrient content   **Laws and regulatory codes**   * *Australia New Zealand Food Standards Code* labelling requirement for health claims and for mandatory fortification of food   **Task 5: Adding value to food commodities** |
| 3–4 | **Nutrition**   * dietary planning * *Healthy Eating Pyramid (Nutrition Australia May 2015)* * *Australian Guide to Healthy Eating* * *Australian Dietary Guidelines* * nutritional needs of demographic groups, such as adolescents and adults * influences on the nutritional wellbeing of individuals * lifestyle * cultural traditions * beliefs and values * economic circumstances * location * media |
| 5–6 | **Food products and processing systems**   * food processing techniques used to control the performance of food * application of heat * application of cold * exposure to air * addition of acid * addition of alkali * manipulation |
| 7 | **Properties of food**   * causes of food spoilage and contamination * environmental factors, such as oxygen, light, heat, water, infestation * enzymatic activity on food * microbial contamination of food, such as mould, yeast, bacteria |
| 8–9 | **Properties of food**   * reasons for preserving food * extend shelf life * preserve nutritional value * out of season availability * palatability * convenience * economics * reduce waste * principles of food preservation * control of temperature, such as pasteurisation, ultra-high temperature treatment, freezing, and canning or bottling * anaerobic breakdown of organic substances or nutrients, such as fermentation * addition of chemicals, such as salt, sugar, acid and artificial preservative * removal of moisture through dehydration and evaporation * removal of oxygen through vacuum packing   **Task 6: Test – Food spoilage and contamination, and food preservation** |
| 10–11 | **Food products and processing systems**   * the technology process to produce a preserved food product based on a product proposal * investigate * devise * produce * evaluate * analysis of the preserved food product * product’s compliance with the proposal * product’s use in another food product * product’s sensory properties * selection of processing techniques * selection of equipment and resources * time requirements   **Task 6: Gift basket** |
| 12–13 | **Food issues**   * influence of lifestyle choices, market demands and the impact of new technologies in developing innovative food products * factors that influence food choices * location * income * supply and demand * environmental issues * advertising and marketing * ethical issues, such as animal welfare, fair trade, resource use, country of origin * sponsorship, tokens and free gifts, and supersizing techniques used to market food products   **Task 8: Who chooses the food?** |
| 14–15 | **Food products and processing systems**   * devise food products * interpret and adapt recipes * devise food orders * develop, produce and evaluate prototypes * devise production plans * apply preparation and processing techniques * cost recipes   **Laws and regulatory codes**   * principles of the HACCP system * 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 * regulation of food safety in Australia * national authorities * state authorities * local authorities * *Occupational Safety and Health Act 1984* and rights and responsibilities of employers and employees in food environments |
| 16 | **Task 9: Semester 2 examination** |