

## POST 16 SUBJECT OVERVIEW

**Name of Subject** - WJEC Level 3 Applied Diploma in Food Science and Nutrition

**Which Examination Specification is Studied for this Course?**

601/4552/3 WJEC Level 3 Applied Diploma

**Why should I study this course? -**

An understanding of food science and nutrition is relevant to many industries and job roles. Care providers and nutritionists in hospitals use this knowledge, as do sports coaches and fitness instructors. Hotels and restaurants, food manufacturers and government agencies also use this understanding to develop menus, food products and policies that support healthy eating initiatives. Many employment opportunities within the field of food science and nutrition are available to graduates. This is an Applied General qualification. This means it is designed primarily to support learners progressing to university. It has been designed to offer exciting, interesting experiences that focus learning for 16 - 19 year old learners through applied learning, i.e. through the acquisition of knowledge and understanding in purposeful, work-related contexts, linked to the food production industry.

**Who is suitable to study this course?**

Food Science and Nutrition is a multidisciplinary subject that ties many other areas of learning together in particular sciences including chemistry and biology, Sports Science, Nutrition along with practical food courses such as Food Preparation and Nutrition, Food Technology and Hospitality and Catering. Students who typically study an A Level in Food Science and Nutrition will have good practical skills and have the confidence and knowledge to devise and produce creative meal ideas for various differing briefs and dietary needs. Together with other relevant qualifications at Level 3, such as AS and A levels in Biology, Chemistry, Sociology and Maths and/or Level 3 qualifications in Hospitality or Science, you will gain the required knowledge to be able to use the qualification to support entry to higher education courses such as:

- BSc Food and Nutrition
- BSc Human Nutrition
- BSc (Hons) Public Health Nutrition
- BSc (Hons) Food Science and Technology

### **What GCSE Qualifications Support the Study of this Course?**

A GCSE in Food Preparation and Nutrition or a similar course would be beneficial but not essential. GCSE's in Hospitality and Catering, Home Economics, Biology, Physical Education, Humanities and Design and Technology would aid progression however, if you are a hardworking and motivated student with an interest in food science and nutrition we would consider your place on the course.

### **What are the Qualification Requirements for this Course?**

At least a level 5 Mathematics, English and Science is essential with a level 5 or higher in GCSE Food Preparation and Nutrition or equivalent is desirable.

**How is the Course Delivered?** - The WJEC Level 3 Diploma in Food Science and Nutrition is assessed using a combination of internal and external assessment.

You will complete three units: two mandatory and one optional.

The first mandatory unit will enable you to demonstrate an understanding of the science of food safety, nutrition and nutritional needs in a wide range of contexts, and through on-going practical sessions, to gain practical skills to produce quality food items to meet the needs of individuals.

The second mandatory unit will allow you to develop your understanding of the science of food safety and hygiene; essential knowledge for anyone involved in food production in the home or wishing to work in the food industry. Again, practical sessions will support the gaining of theoretical knowledge and ensure learning is a tactile experience.

Finally studying one of the two optional units will allow you the opportunity to study subjects of particular interest or relevance to you, building on previous learning and experiences.

In grid below outline what units / content is taught when across the two year course

<b>Subject Overview</b>		
<b>Half Term</b>	<b>Year 12</b>	<b>Year 13</b>
<b>Autumn 1</b>	<p><b>Content / Theory:</b>            AC 1.1, 1.2, 1.3 &amp; 1.4 - Micro Organisms, Food Safety Legislation, HACCP, Food Premises, Responsibilities of Food Handlers Important Temperatures, Protective Clothing, Training            AC2.2 - Classification of Nutrients            Sources of and functions of Macro Nutrients            Sources of and functions of Micro Nutrients,            Sources of Minerals, Functions of Minerals, Functions of Nutrients in growth and development            Functions of Nutrients in Energy Production            Functions of Nutrients in Regulating Metabolism            AC3.2 - Unsatisfactory Nutritional Intake            AC3.3 - Obesity, CVD, Diabetes, Dental Disease, Cancer, Digestive Disorders, Rickets, Osteoporosis Anaemia, Skin Disorders</p>	<p><b>Content / Theory:</b>            AC1.1- How food properties can be changed Theoretical and practical understanding of Denaturation and Gelatinisation            AC1.1- How food properties can be changed Theoretical and practical understanding of Caramelisation, Emulsification, Sols-gels-Meringue, Honeycomb            AC1.2- Variables that affect physical properties of food Theoretical and practical understanding of Temperature- Freezing and Heating            Chemical Reactions- Baking Soda, Acids to marinade            Manipulation (Stirring, Beating, Whisking)            Detailed explanation of planned investigations            Conduct Experiments,            Experiment 1</p>

<p><b>Autumn 2</b></p>	<p><b>Content / Theory:</b>  AC2.3 - Effects of Processing on Nutrients  Effects of Cooking Methods on Nutrients  Effects on Nutrients from Food Preservation Methods  Effects on Nutrients from Food Packaging and Storage  Antioxidants  AC2.3 -Fortification of Foods  AC3.4 - Cholesterol Lowering Products  Food Environments  AC3.3 - Nutritional Needs of Specific Groups Calculating  Nutritional Needs and Life Stages  AC 3.1 - Activity Levels  Sports Nutrition  AC 3.3 - Medical Conditions and Culture  AC 3.3 - Analysis of Diets  Eating Patterns, Dietary Guidelines, Fitness for Purpose,  Sustainable Diets  Dish selection for Practical Assessment  Timeplan production for Practical Assessment  Analysis of all 3 coursework tasks- Students to  choose one and gather background research  towards chosen task</p>	<p><b>Content / Theory:</b>  Experiment 2  Experiment 3  Experiment 4  Experiment 5  Justified solution- Linking back to success criteria  Coursework Completion</p>
<p><b>Spring I</b></p>	<p><b>Content / Theory:</b>  Dish selection for menu (3 courses with accompaniments)  AC3.3 - Introduction and Response email typed up  AC 3.3 - Analysis of target audience, nutritional needs  AC 3.4 - Assess how different situations affect nutritional needs  AC 4.2 &amp; 2.1- How the menu meets the needs of specific groups</p>	<p><b>Content / Theory:</b>  AC1.1- Micro-organisms Bacteria, Fungi (Mould &amp; Yeast) and Viruses  AC1.2- Conditions for Growth Temperature, PH, Oxygen, Water,  Nutrients and links to different environments  AC1.3 How Micro-organisms affect food quality Bacteria, Fungi and  Viruses</p>

	<p>AC 2.1 - Explanation of how nutrients are structured</p> <p>AC 2.2 - Classifying nutrients</p> <p>AC 2.2, 3.1 &amp; 3.2 - Description of nutrient sources, function and unsatisfactory intake</p> <p>AC 4.1 - Nutritional Analysis of Dishes and evaluation for suitability</p> <p>AC 2.3 - Assess the impact of food production methods on nutritional value of dishes</p>	<p>Appearance, Texture, Smell, Aroma, Taste, Non-visible effects, Nutritional content</p> <p>AC1.4 Food Preservation Freezing, Jamming, Pickling, drying, salting, additives</p> <p>AC2.1 Intolerances Lactose, Coeliac/Wheat, Chemicals</p> <p>AC2.2 Allergies Eggs, Milk, Soya, wheat, peanuts, crustaceans, nuts, fish. Immunological response and physiological causes</p> <p>FSA Online Food Allergy Training</p>
<b>Spring 2</b>	<p><b>Content / Theory:</b></p> <p>AC1.4, 5.2 Timeplan for Dishes</p> <p>AC1.1, 1.2, 1.3 Explanation how individuals can take responsibility for food safety, keep themselves clean and hygienic and areas clean and hygienic</p> <p>Preparation for Interview</p> <p>Preparing responses to interview questions</p> <p>Interview and Practical Exam</p> <p>Coursework Completion for Interview and AC 5.2, AC 6.1-6.7 - Practical Exam</p>	<p><b>Content / Theory:</b></p> <p>AC2.3 Food Poisoning</p> <p>Food borne and food poisoning illnesses, onset time, duration, vehicles, sources, high and low risk food, metal/plant and fish food poisoning</p> <p>AC2.4 Symptoms Visible and Non-Visible symptoms</p> <p>AC3.1 Environments</p> <p>AC3.1 Practical</p> <p>AC3.2 Risk Likelihood of hazard, potential of hazard to harm, differentiate between hazard and risk</p> <p>AC3.3 Control Measures</p> <p>Understand the risks posed and how to minimise these with control measures</p> <p>AC3.4 To present a case for action and use of evidence to support proposal</p> <p>Practice Exam</p> <p>8 hours timed assessment, exam conditions, use previous past paper</p>
<b>Summer I</b>	<b>Content / Theory:</b>	<b>Content / Theory:</b>

	Exam Skills- Section 3 of the Exam Part a Part b Part c Health, Hygiene and Safety Revision Functions of Nutrients, Vitamins and Minerals Revision Unsatisfactory Nutritional Intake Revision Nutritional Needs of Specific Groups Revision Chemical Structures	Exam Preparation, Revision, Organisation of Notes, completion of Unit 2 exam. Unit 2 released on May 1st, students will have 8 timed hours to complete the assessment independently and in exam conditions.
<b>Summer 2</b>	Exam preparation	

### How is the Course Assessed?

**External assessment** 90 minute examination plus 15 minutes reading time

**Section A** short answer questions

**Section B** extended answer questions

**Section C** relates to a case study

*Examination is available in **June** every year and candidates can resit once*

### Unit 1 - Meeting Nutritional Needs of Specific Groups (Mandatory)

#### Aim and purpose

The purpose of this unit is for learners to develop an understanding of the nutritional needs of specific target groups and plan and cook complex dishes to meet their nutritional needs.

**LO1** understand the importance of food safety

**LO2** understand properties of nutrients

**LO3** understand the relationship between nutrients and the human body

**LO4** be able to plan nutritional requirements

**LO5** be able to plan production of complex dishes

**LO6** be able to cook complex dishes

## **Unit 2 - Ensuring Food is safe to Eat (Mandatory)**

### **Aim and purpose**

Learners will develop an understanding of hazards and risks in relation to the storage, preparation and cooking of food in different environments and the control measures needed to minimise these risks. From this understanding, learners will be able to recommend the control measures that need to be in place, in different environments, to ensure that food is safe to eat.

**LO1** understand how micro-organisms affect food safety

**LO2** understand how food can cause ill health

**LO3** understand how food safety is managed in different situations

## **Unit 3 - Experimenting to Solve Food Production Problems (Optional)**

### **Aim and purpose**

The aim of this unit is for learners to use their understanding of the properties of food in order to plan and carry out experiments. The results of the experiments would be used to propose options to solve food production problems.

Learners have to

- (i) Identify the issues that need to be addressed
- (ii) Investigate food production problems and review internal laboratory reports
- (iii) Carry out experimental work to investigate the problems
- (iv) Process the data from the experiments and justify findings

## **Unit 4 - Current Issues in Food Science and Nutrition (Optional)**

### **Aim and purpose**

Through this unit, you will develop the skills needed to plan, carry out and present a research project on current issues linked to issues related to food science and nutrition. This could be from the perspective of a consumer, food manufacturer, caterer and/or policy-making perspective.

Learners have to

- (i) Plan research into a current issue affecting consumer food choice
- (ii) Investigate current consumer food choice issues

**What is our Recommended Subject Reading list to Support your Study?**

The Science of Cooking	Dr Stuart Farrimond
How Food Works	DK publication
Essential Food Hygiene	Dr RJ Donaldson RSPH
The Science of Food	Marty Hopson
WJEC Level 3 Certificate in Food Science and Nutrition	Anita Tull
Food and Nutrition	Anita Tull
Food and Nutrition	Diedrie Madden



Cooking Explained	Barbara Hammond
Advanced Practical Cookery	Ceserani
The Science of Nutrition	Rhiannon Lambert

