



BSc (Hons) in Nutrition and Health Science

**Your Future
Your Choices**



Programme Schedule

Year 1

Semester 1

Creativity, Innovation, Teamwork (CA)
 Biological Chemistry 1 (CA)
 Laboratory Operations (CA)
 Biomolecules & Cells (CA)
 Maths for Biological Sciences (CA)
 Human Anatomy & Physiology (CA)

Semester 2

Microbes, Enzymes & Energy (CA)
 Biological Chemistry 2 (T)
 Science of Food & Health (CA)
 Heat & Light (CA)
 Biostatistics & Probability (T)
 Intro to Biotechnology/Free Choice (CA)(E)

Year 2

Semester 1

Structural Biochemistry (CA)
 Immunoanalysis (T)
 Microbial Diversity (CA)
 Human Nutrition (CA)
 Mammalian Biotechnology (T)
 Computational Biology/Free Choice (CA)(E)

Semester 2

Intro to Quality Systems (CA)
 Bioanalytical Techniques (T)
 Nutritional Analysis (T)
 Metabolic Biochemistry (CA)
 Bacteriology (CA)
 Animal & Crop Science/Culinary Nutrition (CA)(E)

Year 3

Semester 1

Food & Healthcare Chemistry (T)
 Food & Healthcare Microbiology (CA)
 Molecular Biology (CA)
 Nutrition & Health (CA)
 Nutrition Communication (CA)
 Food Processing / Free Choice (T) (E)

Semester 2

Biosciences Placement (CA)
 Microbial Biotechnology (CA)
 Food Toxicology (CA)
 Food Quality Management (CA)

Year 4

Semester 1

Biosciences Literature Review (CA)
 Food Regulation & Compliance (CA)
 Advanced Food Processing (T)
 Nutritional Epidemiology (T)
 Bioinformatics & Biotechniques (CA)
 Performance Nutrition/Free Choice (T) (E)

Semester 2

Project- implementation phase (CA)
 Functional Foods & Health (CA)
 Clinical Nutrition (T)
 Food Innovation (CA)
 Contemporary Nutrition (T)

- 2 (CA) - continuous assessment module
 (T) - terminal examination
 (E) - elective module

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As an NHS graduate what are the career options for me?



The Nutrition and Health Science programme is designed to meet the need for technically competent analysts and managers in the food, nutrition, and health industries. The programme equips graduates with a range of skills including:

- Laboratory skills
- Data handling and problem solving
- Communication
- Information Technology

A graduate of this programme will have the knowledge to establish a career in any sector of the Food, Nutraceutical or Healthcare industries with employment opportunities in the areas of **production, new product development, food safety and regulation, management and quality assurance, nutrition communication** and **public health nutrition**. There are also career opportunities in **dietetics, education, and research**, and graduates of this programme can pursue postgraduate studies in these areas.



Who could be my potential employers?



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Who are graduates of this programme?



Ann Woodcock

Registered Dietitian

Hairmyres Hospital, NHS Lanarkshire, Scotland

2013

I have always been fascinated by the role of nutrition in health and this is what initially attracted me to the Nutrition and Health Science course at CIT. First and second year gave me a foundation in general science subjects, and in third year I did my work placement in ALS Life Sciences, Clonmel.

This involved analytical testing of food, dairy samples, and water. My work placement was an excellent opportunity to gain good laboratory experience, as well as acquire new skills, and I learned a lot about the operations of a commercial lab. Work experience significantly increased my chance of employment after graduation. In fourth year I completed a Literature review on 'The effects of a protein supplemented diet on muscle activity in elite athletes' and this was the foundation for my final year research project 'The development, optimisation and validation of an ELISA (enzyme-linked immunosorbent assay) for creating kinase, a clinical biomarker of muscle metabolism'.

Following my graduation I worked as a laboratory analyst with ALS for a year. I enjoyed lab work but I knew it wasn't something I wanted to do forever. I wanted to work more with people and because of my interest in nutrition and health I decided to pursue a career in Dietetics. In 2014 I started an MSc in Dietetics in Queen Margaret University, Edinburgh. Dietetics is the study of how food and nutrition affects human health. This course involved nutrition-based modules, a work placement, and a dissertation. I graduated in 2016 and I am now a registered Dietitian. I love my job, it's very rewarding. I work in the acute setting in a busy hospital in Scotland. I assess, diagnose, and treat dietary and nutritional problems. I provide dietary advice to patients in various disease states and conditions both on the wards and in an outpatient clinic.

My advice to students would be to take every opportunity that comes their way, work hard and don't be afraid to try something new.



Emma Walshe
Product Development Specialist, Nestlé
2014

After my Leaving Certificate, I got the opportunity to work in the Teagasc Research Centre, Moorepark for a few months and this experience gave me great exposure to science and lab work. This led to my decision to apply for the Nutrition and Health Science degree programme in CIT.

In the third year of the programme, I completed my work placement with the Nestlé Development Centre (previously Wyeth Nutritionals Ireland). This placement involved functional analysis support to help characterise finished products and dairy ingredients used in infant formula, as well as conducting trials. This placement helped me develop a wide array of analytical skills and gave me invaluable industry exposure. Returning to college I completed my degree and my final year research project involved using a Multiplex PCR system for the detection of pathogenic bacteria. As I wanted to continue to build my knowledge in the area of dairy I selected raw milk as the substrate of interest for the project. The project involved both microbiology and molecular biology techniques. During fourth year, I was accepted onto the Dairygold Graduate Programme as an R&D graduate. I spent 6 months there until a position came up as a Research Officer with Nestlé Development Centre, based in Fermoy, Co. Cork. This job involved food science, trial management, and early innovation. Based in the Askeaton plant, Limerick, I am now a permanent employee as a Product Development Specialist which primarily focuses on the development of Infant Formula, Follow on Formulas, Growing-Up Milks, and Maternal Milks. The nature of this work involves idea generation, feasibility studies, recipe writing, trial management, laboratory work, and project management. As I am involved in new product development the role requires innovation and thus is always changing. Working with Nestlé, the largest food company in the world, provides me with the opportunity to travel to different Nestlé centres all over the world. I also get to work with diverse, cross-functional project teams, providing access to experts in the relevant fields.

My advice for students is to make the most of your placement experience and if there is a company or particular area you are interested in - do all you can to try and secure it. The experience you gain on placement could help you gain future employment and help direct your career path.

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Kyle Crowley

**Sports Product Development, The Protein Works, UK
2015**

If you had asked me when I was in my second year in Nutrition and Health Science “What will you be when you finish college?” I probably wouldn’t have an answer for you. Not only was I unsure about what I wanted, but I was unsure about what opportunities were available for me with my degree. Now, having previously worked with the likes of Munster Rugby and Blackburn Rovers as a performance nutritionist, and currently employed as a sports product developer, my opinion has completely changed.

My journey to where I am now began in third year in CIT, where I was given the opportunity to shadow the junior nutritionist at Munster Rugby for work placement. Here, I came in contact with the head nutritionist of Munster Rugby who encouraged me to consider doing a Masters in Sport Nutrition following my degree. I finished my Nutrition and Health Science degree with First Class Honours, having completed my dissertation and final year research project looking at the effects of various heat treatment methods on canned fish. Following this, I worked in CIT where I was involved in a research project that focused on the development of a novel health food product. In September 2017, I completed a MSc in Sports Nutrition at Liverpool John Moores University. My experience in Liverpool was an unforgettable one. Completing an internship at Blackburn Rovers, whilst working with professional boxers and MMA (Mixed Martial Arts) fighters is something that I couldn’t have dreamt of in early college life. Now, I have combined my experiences and am working as a sports product developer with a UK-based company, with a goal to provide innovative foods and supplements to the sports nutrition market.

Given my own experiences, my advice would be to choose your work placement wisely as it could shape your career, self-source if there is something specific you want to do. Also, avail of every opportunity that presents itself. This way, you’ll have more options to choose from, and hopefully find yourself doing something you enjoy!



Ken Graham

**PhD Student, Department of Biological Sciences, CIT
2015**

My love for science (biology in particular) developed during my time as a Leaving Certificate student. Also, being an avid gym goer, nutrition and its role in health and well-being is of great interest to me. As such, I decided to put the Bachelor of Science (Hons) in Nutrition and Health Science as number 1 on my CAO application and thankfully I was selected for the course.

In addition to interesting modules, the Nutrition and Health Science degree programme boasts many appealing opportunities, particularly the work placement in third year. I did my work placement in Teagasc Food Research Centre in Fermoy. The experience I gained and the lab techniques I learned during my time in Teagasc were invaluable. Work placement was where I really got a feel for what it was like to work in a lab on a day to day basis. As well as lab and data handling skills it also helps you develop and learn other skill-sets such as organisation skills, communication skills and time-management, all of which help you to generate good quality scientific data. These skills also carry through into fourth year and help in the completion of the final year research project. I returned to Teagasc to complete my project, under the supervision of the scientific researcher that supervised me on my work placement. For the project you are required to research a specific topic, design and organise your experiments, critically analyse and interpret your work, and compile your project thesis in the format of a scientific paper. I graduated with first-class honours in 2015 and having developed a good working relationship with my supervisors in CIT and Teagasc we extended the research concepts of my project into a postgraduate research proposal. I was awarded a RÍSAM scholarship and began my PhD in CIT, in collaboration with Teagasc, in September 2015. The support and facilities in Teagasc have been vital to the continued success of my research work.

Looking back now, I realise the importance of making a good first impression, having a professional approach to all situations and learning from those with experience. Combine this with hard work and everything will work out in the end!

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Meg Sisk
QC Analyst, Abbvie
2015

I originally decided to do the Nutrition and Health Science degree programme as biology was my favourite subject in school and I always had an interest in science. The programme included a lot of practical work and CIT offered a personal teaching environment

In third year I completed my work placement in Silver Pail Dairy, Fermoy, Co. Cork and remained there for an additional 3 months as a temporary employee. I worked primarily in the microbiology lab in Silver Pail and gained excellent laboratory experience, as well as a better understanding of how the food industry works. For me, completing placement allowed me to appreciate how my college modules related to the workplace and it helped me understand how I could translate what I learned in college to an industry setting. My final year research project focused on 'The Bioactivity and Bioaccessibility of antioxidants in commercial fruit drinks'. The project was a great opportunity to experience the concept of doing research, and further develop problem solving and communication skills. It also significantly contributed towards my overall final grade.

Having completed my degree I began working in PepsiCo, Little Island, Cork, as a Quality Control analyst in the raw materials lab. Analysing and releasing raw materials in the lab was one of my main responsibilities – I used techniques such as pipetting, chromatography, distillation and titrations, all of which I was exposed to in college. During my time at PepsiCo I had the opportunity to be involved in other activities and projects, for example, I was a member of the Food Safety Team, the Internal Audit team, and I participated in the Internal Sensory panel. I worked on a number of projects during my time in PepsiCo, including 6S, and worked with cross-functional teams on investigations/problem solving issues. Whilst I enjoyed my time at PepsiCo I wanted to gain some new experiences so I looked for opportunities in the pharmaceutical industry. In November 2017 I started as a QC Analyst in a pharmaceutical company, Abbvie. The transition from the food industry to the pharmaceutical industry has definitely been an experience, and brings with it new challenges. However, the knowledge I have gained in my career path from CIT to Silver Pail and PepsiCo is still relevant and applicable to my new role.



Megan Byrne

**MSc Student in Brewing and Distilling, Edinburgh
2016**

I chose to do the Nutrition and Health Science degree programme in CIT because I have always had a great interest in food and health and felt that I wanted to have a career in this area.

In third year I completed my work placement module with Irish Distillers Pernod-Ricard (Midleton, Co. Cork) and following the mandatory placement time-frame I was kept on as a temporary employee by the company for an additional 2 months. Working with this company I got great practical experience in the area of microbiology and also learned the importance of quality control and quality assurance. My communication skills also developed and I got to experience what it was like to work in a large company. I carried out my final year research project with Irish Distillers and think that this opportunity was largely due to having a positive attitude and working hard during my time in work placement. My project was titled 'Recovery of mould from West Coast Cooler' and the work focused on determining how long moulds could survive in low alcoholic beverage environments. The experience that I gained during my time in industry has really benefited me, and has been crucial for my career development.

I graduated with first class honours and was offered a job with Pernod-Ricard Winemakers in the Napa Valley, California. Here I was involved in all aspects of winemaking and analysing wine samples. This gave me great insight into the wine industry. I was then offered a position with Pernod-Ricard Winemakers in New Zealand as a cellar-hand, where I was involved in the fermentation processes and largely responsible for inoculations (turning the juice into wine). I then applied to the Heriot-Watt University in Edinburgh to do a postgraduate and I am now studying for an MSc in Brewing and Distilling.

Since starting my studies in CIT my career goals have changed. However, I have used all my experiences to help direct my career path and help me get to where I am now. I have learned that hard work, persistence and eagerness are key traits for employers. Your degree gives you a platform to start from and from there the opportunities are endless, as long as you take responsibility and apply yourself. It is also important to look for help if you need it. Remember this is your future, pursue your goals. I also believe that what's for you, won't pass you.

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Jessica Eivers

PhD Student, Bioactive Ingredients & New Product Development, CIT 2016

I have always had an interest in the nutritional aspect of food and originally thought I would pursue a career in dietetics. However, after starting the Nutrition and Health Science degree programme, I ended up enjoying other areas such as microbiology and functional foods.

I completed my third year work placement with Dairygold Co-Operative Ltd., where I worked as a Quality Analyst in the microbiology laboratory. Here I was trained in techniques used to analyse different food products and ingredients, and identified the importance of quality and safety systems such as Hazard Analysis and Critical Control Points (HAACP). Once I was trained, I worked independently most of the time, which helped increase confidence in my own ability, and this also helped develop my time management and organisation skills.

My final year research project focused on 'The prevalence of Staphylococci in ready-to-eat foods'. This involved a literature review and a laboratory implementation phase that involved a lot of lab work, including microbiology and molecular techniques. In my final year I applied for postgraduate research positions, as well as jobs in different food companies. In 2016 I was awarded an Employment-based Irish Research Council for Science, Engineering and Technology (IRCSET) Scholarship, and started a project that is a collaboration between CIT and Kerry Group Ltd. The research focuses on the bioactive compounds in different fruits and vegetables, with particular interest on investigating their synergistic effects. A major aim of the project is to develop a novel fruit and vegetable market-ready product for young adults. The lab work involves developing and optimising bioassays (chemical, microbiological and cell culture-based) to screen for different bioactivities that are associated with different health benefits.

My advice to students would be to give the degree programme a chance. In first year it is very broad but as the years advance the topics become more specific. My work placement helped me develop my lab skills and also gave me confidence when applying for jobs. It is also important to try and take in as much as you can over the four years and ask lots of questions in order to make sure you understand what you are doing. Overall, make sure you enjoy what you are doing and what you are learning, because nothing is more rewarding than doing what you love.



Aimee Plante

PhD Student, Functional Foods for Older Adults, CIT
2016

I chose to study Nutrition and Health Science as I have always had an interest in the role of nutrition in health and well-being. I also thought that as a graduate of the programme there would potentially be a range of career options open to me in areas of food science, R&D, production, dietetics, and quality. The degree programme helps develop good laboratory and data handling skills.

In third year, I did my work placement in the Bon Secours Hospital, Cork. I spent time in both the Catering and the Dietetics departments, where I engaged with dietitians and chefs, monitoring the patient meals for their nutritional content with an aim to maximise patient health and recovery. I had the opportunity to shadow a dietician in a clinical setting and learn about their role and the duties they perform. Work placement is of huge importance and has many advantages; it provides students with valuable work experience and helps develop essential skills in a specific area. It gives students the opportunity to implement the knowledge and skills they have learned in college and importantly helps develop communication skills. It can also be an opportunity to make valuable industry contacts that may help establish future careers. In my final year, I carried out my research project in the Centre for Research in Advanced Therapeutic Engineering (CREATE) in Cork Institute of Technology. This project was largely microbiology-based and involved isolating and characterising *Listeria* species from the environment. The implementation phase of the project gave me the opportunity to learn more about food safety and how pathogens enter the food chain. I also discovered that I enjoyed research and became interested in pursuing a postgraduate qualification. After completing my course, I was awarded a RÍSAM scholarship by Cork Institute of Technology. I am currently a second year PhD candidate based in the Department of Biological Sciences. My research is in the area of nutrition and health, and focuses on investigating functional foods for older adults to promote healthy ageing. It involves a range of techniques including biochemical and cell-based bioassays, as well as data handling and statistical analysis.

My advice for students would be to attend all lectures, put effort into labs and reports, and most importantly study as you go! It is important not to let a significant amount of work build up. Just remember, hard work pays off!

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Julie Scanlon

Research Assistant and Data Manager, Atlantia
2017

Before I started my degree in CIT, I had a career in outdoor education and from this I was acutely aware of the link between diet and optimal health. My interest in science and technology drove my need to understand this link and I decided that a degree in STEM would help to future-proof my career.

A family friend works as a senior scientist in the food industry and told me that CIT graduates were highly valued in industry due to their practical laboratory experience and so I applied for the BSc (Hons) in Nutrition and Health Science programme. By third year of this course I knew I loved working in the lab but I wanted to find out if I enjoyed other aspects of the Food and Health industry, so I completed my work placement with Nutritics, Swords, Co. Dublin. This company developed nutrition analysis software, which I used in some of the nutrition modules in college. Working with Nutritics gave me a comprehensive knowledge of how the IT sector, technology, and dietary information can be combined. It was here that I discovered my interest in data analysis and further developed my data handling skills. In addition, the experience helped me develop my communication skills and I experienced what it was like to work as part of a cross-functional team. I also gained experience with different IT systems and software.

After graduating, I began employment as a Research Assistant and Data Manager with Atlantia, a clinical food trials company in Cork. My job allows me to combine my interest in food and health with my lab skills and my technology experience. My current project involves helping the company to make sure that their processes comply with incoming data protection regulations.

My advice to students is to try and have as much enthusiasm for the subjects you don't like as you do for the ones you love. The topics/information that you are now learning may not seem relevant or important but as you progress and start to direct and develop your career the basic knowledge and skills serve as the foundations for your chosen field.



How can I take control of my career?

A range of professions are open to graduates but career development is a student's own responsibility. To maximise the college experience, students should start career planning in Year 1.



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How can the CIT career services help me plan for the future?

Year 1

- Graduate information sessions
- Mentorship programme

Year 2

- CV workshops and clinics
- Mentorship programme
- Employer sessions and CIT open day (information gathering)
- Placement interview techniques & employability skills

Year 3

- Work placement interview preparation & practice
- Employer information sessions
- Career planning
- Mentorship programme

Year 4

- Graduate interview preparation & job hunting techniques
- Mentorship programme
- Graduate recruitment processes
- Postgraduate opportunities
- Career planning

<http://www.mycit.ie/careers>

<http://www.mycit.ie/sciences>



Your Future Your Choices

Department of Biological Sciences
Cork Institute of Technology
<http://biologicalsciences.cit.ie>

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