Sheffield Hallam University

MODULE DESCRIPTOR

TITLE	Food Biotechnology
SI MODULE CODE	19-5F04-00S
CREDITS	10
LEVEL	5
JACS CODE	D633
SUBJECT GROUP	Food
DEPARTMENT	Service Sector Management
MODULE LEADER	Einir Williams

MODULE STUDY HOURS (based on 10 hours per credit)*			
Scheduled Learning and Teaching Activities	**Placement (if applicable)**	**Independent Guided Study**	**Total Number of Study Hours**
18		**82**	**100**

MODULE AIM

- To provide students with an understanding of the effect of processing on the production of traditional fermented foods and food ingredients
- To investigate the benefits and controversy of genetically Modified Foods

MODULE LEARNING OUTCOMES

By engaging successfully with this module a student will be able to

1. Outline the processes for the production of traditional fermented foods
2. Explain the effect of processing change on the quality of fermented foods
3. Define the principles of GM Technology as applied in food production
4. Review the benefits and disadvantages of GM technology
5. Report upon experimental findings

INDICATIVE CONTENT

- The principles of food fermentations and the use of starter cultures
- The effect of process change in the production of : Lactic acid fermentations-cheese, yogurt, sauerkraut, salami type sausage
- Alcoholic fermentations- brewing, wines, spirits
- oriental foods-soya sauce, miso, tempeh
- The production of food Ingredients- vinegar, citric acid, vitamins, amino acids
- The production of cell biomass as a foodstuff e.g. mycoprotein
- The bioconversion of raw materials by applying enzyme technology e.g. High fructose corn syrup
- The principles of GM technology in the production of GM foods, ingredients and enzymes debate on the benefits, risks, ethics and concerns of GM food on society and the environment

LEARNING, TEACHING AND ASSESSMENT - STRATEGY AND METHODS

Students will be supported in their learning, to achieve the above outcomes, in the following ways

Key principles on food fermentations and GM technology will be delivered through a lecture program. Further understanding of the effect of changing processing conditions on the quality of fermented food will be developed with the practical production of selected foods (eg cheese, yogurt, tempeh, beer) using the

facilities in the food processing hall. The controversy surrounding GM foods will be discussed and debated in seminars after a review of key media footage and web links. In order to provide more in depth knowledge and understanding, further reading during non-contact time will be encouraged by setting up web links and video on demand.

ASSESSMENT TASK INFORMATION

Task No.*	Short Description of Task	SI Code EX/CW/PR	Task Weighting %	Word Count or Exam Duration**	In-module retrieval available
1	A portfolio comprising of two sections: Food Biotechnology Report on Genetic Modified Foods Short answer questions on fermented food processing	CW	100	2500 words	N

The coursework task is a comprises of two main sections, the report on genetic modified foods is worth 75% and the short answer questions on changes in quality during fermented food manufacture worth 25% of the module marks. The allocated word count for each assignment reflect this proportion of the marks awarded.

FEEDBACK

Students will receive feedback on their performance in the following ways

Individual written feedback on the coursework portfolio will be made available within 3 weeks of the hand-in date.

LEARNING RESOURCES FOR THIS MODULE (INCLUDING READING LISTS)

Recommended Texts
Adams, M.R. and Moss, M.O. (2007) **Food Microbiology**. 3rd Edition The Royal Society of Chemistry, Cambridge
Bailey B & Lappe m (2002) **Engineering the Farm: the social and ethical aspects of agricultural biotechnology** Island
Bainbridge et al (1999) **Genetically Modified foods: A practical guide for Business**. Chadwick House Group Ltd
Food and Drink Federation (2004) **Food for our Future Food : Genetic modification & Food**
Goldammer, T (2000) The Brewers' Handbook: The Complete Book To Brewing Beer. Apex publishers http://www.beer-brewing.com/
Horlick-Jones et al (2007) **The GM debate: risk, politics and public engagement** Routledge
Hornsey I S (1999) **Brewing** Royal Soc. Chemistry Cambridge
Johnson-Green, P (2002**) Introduction to Food Biotechnology** CRC press
Madden D.(1995) **Food Biotechnology: An Introduction**. ILSI Press http://europe.ilsi.org/publications/pubslist.cfm?publicationid=214
Ruse M & Castle D(2002) Genetically Modified Foods: debating biotechnology Prometheus books
Waites MJ; Morgan N; Rocky JS and Higton G (2001) **Industrial Microbiology: An Introduction** Blackwell Science
Periodicals – The following journals are indicative only – you will find that the library subscribes to a wide range of journals, with many available online.
•Nutrition and Food Science (Emerald)

•Modus
•British Food Journal (Emerald)
•Chemistry and Industry
•The Food Magazine
•Food Science & Technology

Internet sources – the resources included below provide you with an indication of the wealth of information available online relating to service, operations and quality management. As you discover additional useful resources, please email the teaching team and we will continue to develop a valuable resource together.

The Advisory Committee on Novel Foods and Processes (ACNFP) Annual Reports.
http://www.acnfp.gov.uk/

Agbioworld online newsletter http://www.agbioworld.org/about/index.html

Food Standards Agency **GM Food** http://www.food.gov.uk/policy-advice/gm/

Goff, D **Dairy Science & Technology,** University of Guelph
http://www.foodsci.uoguelph.ca/dairyedu/home.html

GMO compass http://www.gmo-compass.org/eng/news/stories/

Health & Safety Executive Genetically Modified Organisms http://www.hse.gov.uk/biosafety/gmo/index.htm

IFST (2008) Genetic Modification and Food.
http://www.ifst.org/science_technology_resources/for_food_professionals/information_statements/

International service for the Acquisition of Agri-biotech applications http://www.isaaa.org/

King, David (Chairman of review panel)(2003) **UK GM Science review- first report**
HM Government www.gmsciencedebate.org.uk/

Madden D.(1995) **Food Biotechnology: An Introduction**. ILSI Press
http://europe.ilsi.org/publications/pubslist.cfm?publicationid=214

Mullan, W M A (2001) Dairy Science & Food Technology http://www.dairyscience.info/index.asp

The Royal Society (2002) **Genetically modified plants for food use and human health- an update**
London http://royalsociety.org/page.asp?id=1220

Whitman D.(2000) Genetically Modified Foods; Harmful or helpful. Cambridge Scientific Abstracts
http://www.csa.com/discoveryguides/gmfood/overview.php

WHO **Biotechnology (GMFoods) and nanotechnology** http://www.who.int/foodsafety/biotech/en/

The National centre for Biotechnology Education at: http://www.ncbe.reading.ac.uk/ncbe/gmfood/menu.html

SECTION 2 MODULE INFORMATION FOR STAFF ONLY

MODULE DELIVERY AND ASSESSMENT MANAGEMENT INFORMATION

MODULE STATUS - INDICATE IF ANY CHANGES BEING MADE

NEW MODULE	N
EXISTING MODULE - NO CHANGE	N
Title Change	N
Level Change	N
Credit Change	N
Assessment Pattern Change	Y
Change to Delivery Pattern	N
Date the changes (or new module) will be implemented	**01/2014**

MODULE DELIVERY PATTERN - *Give details of the start and end dates for each module. If the course has more than one intake, for example, September and January, please give details of the module start and end dates for each intake.*

	Module Begins	**Module Ends**
Course Intake 1	21/1/2014	26/06/2014
Course Intake 2	DD/MM/YYYY	DD/MM/YYYY
Course Intake 3	DD/MM/YYYY	DD/MM/YYYY

Is timetabled contact time required for this module?	Y

Are any staff teaching on this module non-SHU employees?	N
If yes, please give details of the employer institution(s) below	
What proportion of the module is taught by these non-SHU staff, expressed as a percentage?	

MODULE ASSESSMENT INFORMATION

Indicate how the module will be marked	
***Overall PERCENTAGE Mark of 40%**	Y
***Overall PASS / FAIL Grade**	N

**Choose one only – module cannot include both percentage mark and pass/fail graded tasks*

SUB-TASKS

Will any sub-tasks (activities) be used as part of the assessment strategy for this module?	N

FINAL TASK

According to the Assessment Information shown in the Module Descriptor, which task will be the LAST TASK to be taken or handed-in? (Give task number as shown in the Assessment Information Grid in Section 1 of the Descriptor)	Task No. 1

NON-STANDARD ASSESSMENT PATTERNS

MARK 'X' IN BOX IF MODULE ASSESSMENT PATTERN IS NON STANDARD, eg MODEL B, ALL TASKS MUST BE PASSED AT 40%. **NB: Non-standard assessment patterns are subject to faculty agreement and approval by Registry Services - see guidance. notes.**	