



The science of cooking

Start date 12 January 2020

End date 12 January 2020

Venue Madingley Hall Madingley
Cambridge
CB23 8AQ

Tutor Dr Stuart Farrimond

Course code 1920NDX019

Director of ISP and LL+

Sarah Ormrod

**For further information on this course,
please contact the Lifelong Learning
team**

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To book

See: www.ice.cam.ac.uk or telephone 01223
746262

Tutor biography

Specializing in food science, Dr Stuart Farrimond is a science and health writer, presenter, and communicator. He makes regular appearances on TV, radio, and at public events. Dr Stu is the regular food scientist for BBC 2's Inside the Factory.

He is a trained medical doctor and teacher, and his writing appears in the national and international press, including New Scientist, BBC Focus, The Independent, and The Washington Post. He presents a weekly radio science show, and his widely publicized food research has addressed a broad range of topics. He is the author of two award-winning books The Science of Cooking and The Science of Spice, both of which have been international best-sellers.

Course programme

09:30	Terrace bar open for pre-course tea/coffee
10:00 – 11:15	Session 1: The truths and myths of flavour and taste
11:15	Coffee
11:45 – 13:00	Session 2: The Magical Maillard Reaction
13:00	Lunch
14:00 – 15:15	Session 3: Make-your-own spice blend and flavour pairing principles
15:15	Tea
15:45 – 17:00	Session 4: Hands-on experiment: how to make your home cooking taste restaurant quality
17:00	Day-school ends

Course syllabus

Aims:

The course will explain the fundamental concepts behind cooking science to equip attendees with an appreciation and understanding of some of the science that takes place when we cook and eat. The day will give food-lovers and cooks practical knowledge and skills so that they can better use ingredients for crafting sublime tasting dishes.

Content:

Content will cover the overarching principles of how we taste and appreciate food, with explanation of how this understanding can be applied to enhance any dining experience. Learners will be taught the relevant anatomy of the tongue and mouth, the basic tastes, and the concept of flavour compound. Learners will taste and describe different food samples which exemplify basic principles of flavour and mouth sensations, and will be given opportunity to discuss how this knowledge might inform their home cooking.

Pivotal to most aspects of cookery, the Maillard reaction will be explained and demonstrated by the tutor using nuts/seeds on a hot plate (or nut alternative if necessary). Attendees will smell, taste and describe what happens to food when it is browned at a specific temperature. The science of flavour pairing will be taught with relevance to the Maillard reaction. With special reference to spice blending, learners will be taught the principles of spice blending and will be able to roast, grind and blend their own spice blend, which they can tailor to their palate. Their spice blend can be taken away to use at home. All the principles will be brought together in final session of the course, where attendees can experience how the basic components of fat, salt and sugar can be manipulated to create restaurant quality food.

Presentation of the course:

Teaching on whiteboard, images on PowerPoint presentation, class discussion, taste testing, spice blending, spice roasting on a hot plate (by attendees and presenter) and sauce making (by attendees and presenter). Based on space and equipment availability, learners will first observe the tutor cooking with the hot plate and then take it in turns in small groups to use hot plates/blenders.

As a result of the course, within the constraints of the time available, students should be able to:

- Learners will be able to explain the differences between aroma and taste, and how all our senses blend together to create the illusion of flavour coming from the tongue. Learners will understand how fat content influences and enhances flavour perception; and learners will be able to describe how they can manipulate sight, sound and surroundings to make their food taste better.
- Learners will be able to describe and explain the Maillard reaction and discuss the role it plays in the everyday food; and learners will have the confidence to harness its flavour-enhancing effects in their home cooking.
- Learners will be able to describe the basic principles of 'flavour pairing' science and have experience in toasting, grinding and blending spices, with an appreciation of the importance of each step. Learners will be able to differentiate spices, herbs and seasonings, be able to describe what a flavour compound is and where they come from. Learners will be able to list common spices and describe some common mistakes made when buying, storing and cooking with spices.

- Learners will be familiar with the concept of 'hedonic breakpoint' and appreciate the interplay of fat, salt and sugar in food's flavour. Learners will have gained some experience in bringing together the scientific principles covered in the day to be create a high-quality sauce base for a meal.

Reading and resources list

Listed below are texts that might be of interest should you wish to supplement your learning on the course. Any essential reading is marked with an asterisk *

Author	Title	Publisher and date
Dr Stuart Farrimond	The Science of Cooking: Every Question Answered to Perfect your Cooking	DK Books, 2017
Dr Stuart Farrimond	The Science of Spice: Understand Flavour Connections and Revolutionize your Cooking	DK Books, 2018
Peter Barham (2013)	<i>Science of cooking</i> , A fantastic reference for those wishing to delve deeper into both the history of scientific underpinning of ingredients and cooking techniques.	[S.I.]: Springer.
Howard Hillman (2003)	<i>The new kitchen science: a guide to knowing the hows and whys for fun and success in the kitchen</i> ,	Boston: Houghton Mifflin.
Jeff Potter (2010)	<i>Cooking for Geeks: Real Science, Great Hacks, and Good Food</i> ,	O'Reilly Media, Inc.
J. Kenji López-Alt (2015)	<i>The Food Lab: Better Home Cooking Through Science</i> ,	W. W. Norton Company
Nathan Myhrvold (2011)	<i>Modernist cuisine: the art and science of cooking</i> This is a beautiful, fantastic six-volume text for anyone wanting to learn and dig into both high end cuisine and appreciate the science behind standard cooking techniques	Bellevue, Wash.: Cooking Lab

Website addresses

Additional information

Venue

Details of how to find Madingley Hall can be found on our website:
<http://www.ice.cam.ac.uk/who-we-are/how-to-find-the-institute>

Refreshments

Tea and coffee and lunch will be provided. If you have any specific dietary requirements or allergies and have not already advised us, please inform our Admissions Team on ice.admissions@ice.cam.ac.uk or +44 (0)1223 746262.

Note Students of the Institute of Continuing Education are entitled to 20% discount on books published by Cambridge University Press (CUP) which are purchased at the Press bookshop, 1 Trinity Street, Cambridge (Mon-Sat 9am – 5:30pm, Sun 11am – 5pm). A letter or email confirming acceptance on to a current Institute course should be taken as evidence of enrolment.

Information correct as of: 23 December 2019