COURSE DETAIL

FOOD AND SCIENCE
Country Japan
Host Institution Keio University
Program(s) Keio University
UCEAP Course Level Lower Division
UCEAP Subject Area(s) Physics
UCEAP Course Number 80
UCEAP Course Suffix
UCEAP Official Title FOOD AND SCIENCE
UCEAP Transcript Title FOOD AND SCIENCE
UCEAP Quarter Units 3.00
UCEAP Semester Units 2.00

Course Description

Until the recent past, science and food were a combination to be encountered mainly in the food industry. Today, things are changing and we are witnessing a great deal of emerging new scientific ideas about how we (humans) relate to food: neuroscientists trying to understand how our brain creates flavors; physicists attempting to manipulate textures; talented haute-cuisine chefs aiming at creating startling multi-sensorial experiences.

Despite the scientific complexities, cooking is a simple endeavor that can be carried out by anyone. You can open a recipe book, get the ingredients and follow the instructions: a method that is easy to follow, but certainly not the whole story towards culinary success.

Every time you follow a recipe and prepare your favorite food, you are, in effect, performing a scientific experiment. You put matter together, modify the initial structure (for example, texture, flavor, etc.) by means of physical and chemical processes, and evaluate (by eating) the result of the experiment, possibly trying to understand what modifications can improve the result. The "experiment" can be a success or a failure, but understanding the science can increase the chances of success. Viewed like this, the kitchen becomes a science laboratory and cooking an experimental science.

This course embarks on a study of food and science (physics in particular) that is both entertaining and useful. The course explores the new dimension that opens up when the two areas fuse and how this combination can be used to boost creativity as well as critical thinking.

Part 1 of the course (Spring semester) focuses on basic notions such as the properties of food molecules (proteins, fats, carbohydrates) and basic science processes. Part 2 of the course (Fall semester) focuses on more advanced application like gels, emulsions, foams, fermentation, and baking.

Language(s) of Instruction
English

Host Institution Course Number
N/A

Host Institution Course Title
SCIENCE AND COOKING 1: AN INTRODUCTION TO SOFT-MATTER AND FOOD PHYSICS

Host Institution Course Details
https://gslbs.keio.jp/pub-syllabus/detail?ttblyr=2023&entno=00392&lang=en

Host Institution Campus
Keio University

Host Institution Faculty

Host Institution Degree

Host Institution Department
General Education

Course Last Reviewed
2022-2023

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