The Science of Gastronomy
Online course offered by HKUST on HKMOOC

About this course

This course introduces a number of basic scientific principles underpinning the methodology of cooking, food preparation and the enjoyment of food. All topics covered have a strong basis in biology, chemistry, and physics application. Among others, they include the consumption of cooked food, the physiological and evolutionary implication of the senses, geographic and cultural influences on food, and the rationale behind food preparation. We will also discuss issues such as coupling of senses to improve sense stimulation; altering flavor by chemical means; and modification of the coloration to improve the appearance of dishes. Following the video demonstrations of the scientific principles of cooking, you will learn to recognize the key ingredients and their combinations for preparing good healthy food.

At the end of this course, you will be able to:

• Appreciate the scientific basis of various recipes
• Develop your own recipes by integrating some of the scientific principles into new dishes
• Recognize the influence of the material world on human perception from the different senses
• Appreciate the art of integrating science into cooking and dining.

Important Note: This course is not designed for people with special dietary needs such as vegetarian, diabetic, and gluten-free diets. If you feel uncomfortable with any part of the assignments or activities of this course, you can substitute some of the ingredients or ask friends and family members to help with the tasting of your assignments. Alternatively, you may skip that specific assignment provided that you have fulfilled all other qualifying requirement to pass the course.
Instructors

Prof. King L. Chow
Professor
Division of Life Science
HKUST

Prof. Lam Lung Yeung
Associate Professor
Department of Chemistry
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Syllabus

Week 1:
Orientation, Module 1 and Module 2
This week, we will focus on “Energy Transfer” and “Hunger and Satiety”. Before you start with the content for these modules, please watch the Course Overview, review the Grading Scheme, and read the Important Note on special dietary needs.

Week 2:
Module 3 and Module 4
This week, we will talk about how flavor and aroma of food affects our perception of taste of food

Week 3:
Module 5 and Module 6
This week, we will talk about how color and texture of food affects our perception of taste of food.
Week 4:

*Module 7 and Module 8*
This week, we will look at how fruits and vegetables can enhance the quality in cooking and to learn about the properties of meat.

Week 5:

*Module 8 (continued) and Module 9*
This week, we will continue our focus on the preparation and cooking of meat and learn about the elements that affect the preparation of sauces.

Week 6:

*Module 9 (continued) and Module 10*
This week, we will continue our focus on the preparation of sauces and finish up the course with the last topic on dessert. After completing all the content, it's time to test your understanding on the entire course. Take the final exam and complete the post-course survey. Your valuable feedback will certainly help us improve future iterations of the course.

Length: 6 weeks
Effort: 3-4 hours per week
Language: English