

Course Detail

Master of Science Program in Nutraceuticals and Functional Foods (International Program)

Course Title:	Master of Science Program in Nutraceuticals and Functional Foods (International Program)
Master Degree:	Master of Science (Nutraceuticals and Functional Foods)
Academic Institution:	Departments of Pharmacy, Faculty of Pharmacy, Mahidol University
Duration:	2 years (August 2022 – May 2024)

Background and Rational:

Nutraceuticals and Functional Foods are the group of products which gain increasing popularity every year. There was a report on the growth of global market for Functional Foods at 6% between 2011-2015. Kasikorn Research Center reported on August 24, 2015 that the value of the market of Functional Foods in Thailand was 161,000 million THB and continues to grow at 6% per year. The market of Functional Foods shares approximately 60% of health food market. For nutraceuticals, or generally assigned to dietary supplements, the value of the global market was 122,080 million USD in 2015. The major target customer is adult around 55.5%. The value continues to grow at 7.4% per year. The same trend is occurred worldwide including Thailand. The industries related to Nutraceuticals and Functional Foods are important for the countries which have rich sources of herbal plants. At present, many countries around the world are facing the health problems from the growing number of aging societies. These population are one of the groups of customers looking for the health products especially nutraceuticals and functional foods in order to maintain good health or lower the risk of chronic diseases. Thus, it is a great opportunity for all-level of entrepreneurs in these industries. However, there was an urgent need for personnel with knowledge in Nutraceuticals and Functional Foods products in order to fill the positions in production, analysis, importing, exporting or quality controlling of the products. And since herbs with potentials were available in Thailand, with the expertise in herbs, foods, and modern drugs, Faculty of Pharmacy should be a good institute to research and produce Nutraceuticals or Functional Foods products with supported evidence in relevant activities and analyses.

The program was submitted for approval, as a new graduate program in 2012, and was approved in principle by the Mahidol University Board on July 18, 2012. And the first semester started on Semester I, Academic Year 2013. Since then, the program has been creating the successful graduates to fulfil the positions in production, analysis, importing, exporting or quality controlling of the products in the related industries. The philosophy of the program is to create the graduate in Nutraceuticals and Functional Foods who has quality, morality, ethics, and knowledge concerning research, development, and delivery academic information of Nutraceuticals and Functional Foods.

Objectives:

After completion their study, students will have characteristics which comply with Thailand Quality Framework standard as follows:

1. Possess moral, ethics and professional ethics, including ethics for human research and research code of conduct
2. Possess knowledge that is relevant to Nutraceuticals and Functional Foods
3. Possess cognitive skills in searching, analyzing, synthesizing relevant information and effectively conducting research relevant to Nutraceuticals and Functional Foods
4. Possess social responsibility, interpersonal and interactive skills, express opinions, possess creative ideas and time-management skills
5. Possess appropriate communication skill and informative technology utilization for various groups in both academic and professional sectors along with ability to use information technology to analyze and present research data effectively at international level

Expected Learning Outcomes

On successful completion of the program students will be able to:

1. Understand and describe principles and theories regarding Nutraceuticals and Functional Foods.
2. Able to apply and update the knowledge in the field of Nutraceuticals and Functional Foods.
3. Develop, analyze, and solve problems and make decision systematically. Conclude the principle and synthesize the content of Nutraceuticals and Functional Foods.
4. Understand and select methods in the processing, analyzing and searching information of Nutraceuticals and Functional Foods.
5. Design experiments/ research work, discuss and conclude the results, create new knowledge or new product in Nutraceuticals and Functional Foods.
6. Be responsible to his/her assigned work, also those as a group. Co-operate with others as a team, show different creative opinion. Organize and manage the time efficiently. Develop his/her potential and colleagues, share knowledge and experience.
7. Use new technology to search information, collect, analyze, and interpret data, using scientific principles or tools correctly and appropriately. Communicate, transfer, and present the results both in the form of scientific article, lecture, and discussion correctly at the international level.
8. Refer to sources of information, carry out the production of Nutraceuticals and Functional Foods honestly and fairly. Obey and follow the rules and regulations of MU.

Course Synopsis & Methodology:

Study plan:

Year	Semester 1	Semester 2
1	PYFC 602 Functional Foods I 3(3-0-6) PYFC 603 Bioactive compounds 3(3-0-6) PYID 685 Research Methodology in Pharmacy I 2(2-0-4) PYFC 607 Biological, Pharmacological, Epidemiological, and Clinical Studies 3(2-3-5) Elective course 0-4 credits Total credit 11-15 credits	PYFC 601 Nutraceuticals I 3(3-0-6) PYFC 605 Product Development of Nutraceuticals and Functional Foods 3(2-3-5) PYFC 676 Seminar in Nutraceuticals and Functional Foods I 1(1-0-2) Elective course 2-6 credits Total credit 9-13 credits

2	PYID 698 Research M.Sc. Thesis	6(0-18-0)	PYID 698 Research M.Sc. Thesis	6(0-18-0)
	Total credit	6 credits	Total credit	6 credits
Thesis examination				

Course Content/Study Topic:

Program Structure

Credit Requirements

Credit requirements of the program were set according to the Ministry of Education Announcement titled "Standard Criteria for Graduate Studies 2005," with specified plan 2 curriculum.

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|--------------------------------|-------------------|
| 1. Required Courses | 18 credits |
| 2. Elective Courses (at least) | 6 credits |
| 3. Thesis | 12 credits |
| Total not less than | 36 credits |

Required Courses

<u>Course ID</u>	<u>Course Name</u>	<u>Credit(s)</u>
PYFC 601	Nutraceuticals I	3 (3-0-6)
PYFC 602	Functional Foods I	3 (3-0-6)
PYFC 603	Bioactive Compounds	3 (3-0-6)
PYFC 605	Product Development of Nutraceuticals and Functional Foods	3 (2-3-5)
PYFC 607	Biological, Pharmacological, Epidemiological, and Clinical Studies	3 (2-3-5)
PYFC 676	Seminar in Nutraceuticals and Functional Foods I	1 (1-0-2)
PYID 685	Research Methodology in Pharmacy I	2 (2-0-4)

Elective Courses

Elective courses can be any graduate-level courses offered within Mahidol University or other universities with approval from the program director, major advisor, or program administrative committee. Listed below are examples of elective courses offered by the Faculty of Pharmacy, Mahidol University.

<u>Course ID</u>	<u>Course Name</u>	<u>Credit(s)</u>
GRID 603	Biostatistics	3 (3-0-6)
PYFC 604	Food Chemistry	2 (2-0-4)
PYFC 606	Sensory Evaluation Methods	2 (1-3-3)
PYFC 608	Nutraceuticals II	2 (2-0-4)
PYFC 609	Functional Foods II	2 (2-0-4)
PYFC 610	Quality Assurance in the Industries of Nutraceuticals and Functional Foods	2 (1-3-3)
PYFC 611	Processing of Functional Foods	2 (1-3-3)
PYFC 612	Packaging for Nutraceuticals and Functional Foods	2 (2-0-4)
PYFC 615	Marketing Principles of Nutraceuticals and Functional Foods	2 (2-0-4)
PYFC 617	Special Problems in Nutraceuticals and Functional Foods	2 (0-6-2)

Thesis

<u>Course ID</u>	<u>Course Name</u>	<u>Credit(s)</u>
PYFC 698	Thesis	12 (0-36-0)

Applicants Qualifications:

1. Degree holding and cumulative GPA Graduated with Bachelor Degrees in Science or related fields from programs accredited by the Office of Higher Education Commission (OHEC) with GPA of at least 2.50
2. Have an English proficiency test score as the requirement of Faculty of Graduate Studies
3. Other exceptions will be considered by the Program Director and the Dean of Faculty of Graduate Studies, Mahidol University.

Document Required:

1. Application form
2. Transcript
3. Certificate of English of proficiency
4. Statement of purpose

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***The application procedure will complete when TICA has received the hard copy of the application form and other related documents through the Royal Thai Embassy/Permanent Mission of Thailand to the United Nations/Royal Thai Consulate – General accredited to eligible countries/territories.