FST- 341 Functional Foods and Neutraceuticals 3(3-0)

Educational Objectives

The objectives of this course are to provide students with an overview of the field of functional foods, nutraceuticals and natural health products. The course enables students to understand the functional food concept as related to ingredient efficacy and safety. In addition, it familiarizes students with: examples of bioactive ingredient-disease relationships and the importance of clinical study support; regulatory aspects of functional foods; and requirements for standards of evidence of efficacy for health claims; and market determinants of the functional food industry.

Course Outcomes

Upon completing this course, the student will be able to:

- describe components of nutraceutical and functional foods
- evaluate the standards of evidence required for efficacy and safety assessment of nutraceutical and functional foods
- evaluate and compare the regulatory and efficacy-claim controls in North America, Europe and Asia
- explain the regulatory framework required in North America for substantiated health claims work effectively as a group member on a specific problem related to functional foods and nutraceutical products
- present ideas and concepts on issues of functional foods and nutraceuticals, both verbally and in written form, to a larger audience

Course Contents:

Functional foods and nutraceuticals: past, present, future and health claims; functional foods and their impact on nutrition and health obesity, diabetes, cardiovascular diseases, hypertension and cancer; Functional ingredients and bioactive molecules: Isoflavones, lycopene, polyphenols, dietary fiber, omega-3 & -6 fatty acids, conjugated linoleic acid, antioxidants, prebiotic and probiotic; Functional foods from different food groups: cereals, dairy, meat, fruits and vegetables; Regulatory systems governing the production and distribution of functional food - national and international; Standard and regulations of various agencies: FDA, EC, FAO/WHO, Health Canada; Guidelines for the assessment of functional foods; Marketing and regulatory issues; Conventional and emerging food processing

technologies for functional food production; Toxicological and safety aspects of functional foods; Asian functional foods; Functional foods in international market and growth in Pakistan.

Recommended Books:

1. FAO (Food and Agriculture Organization of the United Nations). 2007. Report on Functional Foods. Food and Agriculture Organization of the United Nations, Rome, Italy.
2. Dilip Ghosh, Debasis Bagchi, 2014, Tetsuya Konishi, Clinical aspects of functional foods and nutraceuticals, CRC Press
3. Bagchi, Debasis; Preuss, Harry G.; Swaroop, Anand, 2016, Nutraceutical and functional foods in human health and disease prevention, CRC Press LLC
4. Ravishankar Rai V., Jamuna A. Bai, 2014, Beneficial microbes in fermented and functional foods, CRC Press
5. Chen, Hongda; Sabliov, Cristina; Yada, Rickey Yoshio, 2015, Nanotechnology and functional foods, John Wiley and Sons