2.3.1. B.Sc. Foodomics

Need and Significance

Foodomics is an emerging discipline that integrates various "-omics&quottechnologies
(such as genomics, transcriptomics, proteomics, metabolomics, and lipidomic) to study food and nutrition.

- Holistic Understanding of Food - allows for a comprehensive and holistic analysis of food at the
- molecular level. It goes beyond traditional approaches by considering the entire molecular profile of food components.
- Nutritional Assessment - enables a detailed analysis of the nutritional composition of foods.
- This information is crucial for understanding the impact of different diets on human health and can aid in the development of personalized nutrition plans.
- Authentication and Traceability - allows for the authentication and traceability of food products.
- This is particularly important in addressing issues related to food fraud and ensuring the authenticity of high-value food items.
- Personalized Nutrition - plays a key role in the emerging field of personalized nutrition. By understanding the individual variations in responses to food at the molecular level, it becomes
- possible to tailor dietary recommendations to specific genetic, metabolic, and health characteristics of individuals
- Innovation in the Food Industry - The integration of omics technologies in the food industry fosters innovation. It opens up new avenues for the development of novel food products, ingredients, and technologies that can meet the evolving demands of consumers for healthier and more sustainable food options.

Career Opportunities

Foodomics offers a range of job prospects across various sectors due to its interdisciplinary nature and the increasing demand for expertise in molecular-level analysis of food.

Individuals with a background infodemics can explore diverse career paths in academia, research institutions, government agencies, and the food industry. Food Analyst/Chemist Nutritional Scientist Food Safety Specialist Product Development Scientist Consultant in Food and Nutrition Entrepreneur in Food Technology Clinical Dietitian/Nutritionist Community Nutritionist Sports Nutritionist Corporate Wellness.

Curriculum

SEMESTER – I

S.No	Course	Subject Title	Hrs/ Week	Credits
1	Language I	Tamil – I / other languages	5	3
2	Language II	English – I	5	3
3	Core – I	Biochemistry	5	5
4	Core Practical - I	Lab in Biochemistry	5	3
5	Generic Elective - I	Food Microbiology	4	4
6	Generic Elective Practical - I	Lab in Food Microbiology	4	3
7	Value Education	Human Health & Yoga	2	2
Total			**30**	**23**

SEMESTER – II

S.No	Course	Subject Title	Hrs/ Week	Credits
1	Language I	Tamil – II / other languages	5	3
2	Language II	English – II	5	3
3	Core – II	Human Physiology	5	5
4	Core Practical - II	Lab in Human Physiology	5	3
5	Generic Elective - II	Clinical Nutrition	4	4
6	Generic Practical Elective - II	Lab in Nutritional analysis in sports drink	4	3

7	Environmental Science	Environmental Studies	2	2
Total			**30**	**23**

SEMESTER – III

S.No	Course	Subject Title	Hrs/ Week	Credits
1	Core – III	Food Science	5	5
2	Core – IV	Human Nutrition	5	5
3	Core Practical - III	Lab in Food Science	6	3
4	Core Practical – IV	Lab in Human Nutrition	6	3
5	Discipline Specific Elective - I	Community Nutrition	4	4
6	Non-Major Elective – I	Health and Fitness	2	2
7	Micro project		2	2
Total			**30**	**24**

SEMESTER – IV

S.No	Course	Subject Title	Hrs/ Week	Credits
1	Core – V	Food Standards And Quality Control	5	5
2	Core – VI	Nutraceuticals and Nutrigenomics	5	5
3	Core Practical - V	Lab in Food Quality Control	6	3
4	Core Practical – VI	Lab in Nutrigenomics	5	3
5	Discipline Specific Elective – II	Food processing technology	4	4
6	Non-Major Elective – II	Sports and nutrition	2	2
7	Mini Project		3	3
Total			**30**	**25**

SEMESTER -V

S.No	Course	Subject Title	Hrs/ Week	Credits
1	Core – VII	Herbal and Ayurvedic Nutrition	5	5
2	Core – VIII	Nutrition and Metabolomics	5	5
3	Core Practical – VII	Lab in Food Service Management	6	3
4	Core Practical – VIII	Lab in Nutrition and Metabolomics	6	3
5	Discipline Specific Elective - III	Functional foods	4	4
6	Skill Enhancement Course– I	Precision nutrition	2	2
7	Internship (Summer Holidays – after II Sem)		-	2
	Extension Activity		2	2
Total			**30**	**26**

SEMESTER – VI

S.No	Course	Subject Title	Hrs/ Week	Credits
1	Core - IX	Foodomics	5	5
2	Discipline Specific Elective - IV	GMO, Regulatory Affairs and IPR	4	4
3	Skill Enhancement Course– II	Biostatistics	2	2
4	Online Course (Swayam Mooc)		-	3
5	Project		19	5
Total			**30**	**19**