DEPARTMENT OF AGRONOMY
Faculty of Agricultural Sciences
University of the Punjab, Lahore

Course Outline

Programme	B.Sc. (Hons.) Agriculture (Agronomy)	**Course Code**	FST-307	**Credit Hours**	3 (3-0)
Course Title	**FUNDAMENTALS OF FOOD SYSTEMS (Interdisciplinary)**				

Course Introduction

To familiarize the students with basics of food systems

Learning Outcomes

After completion of this course, students shall be able to:

1. Define and explain the dimensions and determinants of food security.
2. Gain insights into historical overview, components and significance of sustainable food systems.
3. Evaluate impact of climate change, gender and youth mainstreaming on food, nutrition, and health
4. Understand Pakistan Food System Dashboard (PFSD) and its utilization for data acquisition

	Course Content	**Assignments/Readings**
Week 1	**Unit-I** 1 Food security 1.1 Definition, dimensions and determinants of food security	• Sustainable Food systems. Building a new paradigm, Earthscan from Routledge. Marsden, T., & Morley, A. (2014). • Internet Source
Week 2	**Unit-I** 1.2 National and global food security trends 1.3 Nutritional outcomes of food security	• Future Food Systems - Exploring Global Production, Processing, Distribution and Consumption (1st edition), Yada, R.Y., Acker, R.V., Scanlon, M., Gray, D. 2024. Academic Press.

		• Internet Source
Week 3	**Unit-I** 1.4 Food security and human rights 1.5 Youth and gender mainstreaming	• Future Food Systems - Exploring Global Production, Processing, Distribution and Consumption (1st edition), Yada, R.Y., Acker, R.V., Scanlon, M., Gray, D. 2024. Academic Press. • Internet Source
Week 4	**Unit-I** 1.6 Regional challenges and disparities.	• **"Food Security and Nutrition".** Academic Press, Galanakis, C. M. (Ed.). (2020). • Internet Source
Week 5		• **"Food Security and Nutrition".** Academic Press, Galanakis, C. M. (Ed.). (2020). • Internet Source
	Unit-II 2 Food systems: Overview, definition, 2.1 Components and stakeholders of the food system	
Week 6	**Unit-II** 2.2 Historical perspectives, pathways of food systems transformation	**Sustainable Food systems**. *Building a new paradigm, Earthscan from Routledge*. Marsden, T., & Morley, A. (2014). Internet Source
Week 7	**Unit-II** 2.3 Drivers of food systems: Basics of socioeconomic, technological, innovation and policy drivers.	"The State of Food Security and Nutrition in the World 2023": Urbanization, agrifood systems transformation and healthy diets across the rural–

		urban continuum (Vol. 2023). Food & Agriculture Org. Internet Source
Week 8	**Unit-III** 3 Sustainable food systems: definition, significance, components i.e., environment, innovation, technologies, policies etc. 3.1 Conventional and sustainable food production practices	**"Food Security and Nutrition".** Academic Press, Galanakis, C. M. (Ed.). (2020). Internet Source
Week 9	**MID TERM EXAM**	
Week 10	**Unit-III** 3.2 Foods of plants and animal origin, overview of food value chain – production, processing and distribution chain, food losses and waste.	**"Food Security and Nutrition".** Academic Press, Galanakis, C. M. (Ed.). (2020).
Week 11	**Unit-III** 3.3 Food consumption: National and global dietary, nutrition and health trends, food consumption behaviors, economic aspects of food consumption.	**"Food Security and Nutrition".** Academic Press, Galanakis, C. M. (Ed.). (2020). Internet Source
Week 12	**Unit-III** 3.4 Challenges and issues in food systems: ethics, equity and food access, climate change.	**"Food Security and Nutrition".** Academic Press, Galanakis, C. M. (Ed.). (2020). Internet Source
Week 13	**Unit-IV** 4 Climate change	**Sustainable Food systems**. *Building a new*

	4.1 Basics of climate change	*paradigm, Earthscan from Routledge*. Marsden, T., & Morley, A. (2014). Internet Source
Week 14	**Unit-IV** 4.2 Impact of climate change on food, nutrition and health 4.3 Adaptation and mitigation strategies.	**Sustainable Food systems**. *Building a new paradigm, Earthscan from Routledge*. Marsden, T., & Morley, A. (2014). Internet Source
Week 15	**Unit-V** 5 Food system dashboards 5.1 Introduction and importance	**Sustainable Food systems**. *Building a new paradigm, Earthscan from Routledge*. Marsden, T., & Morley, A. (2014). Internet Source
Week 16	**Unit-V** 5.2 Components of food system dashboard and databases 5.3 Global and national food system dashboard, type of data, data sources and indicators	**Sustainable Food systems**. *Building a new paradigm, Earthscan from Routledge*. Marsden, T., & Morley, A. (2014).
Week 17	**Unit-V** 5.4 User interface elements: menus, filters, and introduction to data visualization tools, hands-on practice with visualization software.	**Sustainable Food systems**. *Building a new paradigm, Earthscan from Routledge*. Marsden, T., & Morley, A. (2014).
Week 18	**FINAL EXAM**	
Textbooks and Reading Material		

Recommended Books

1. **"Food Security and Nutrition".** Academic Press, Galanakis, C. M. (Ed.). (2020).
2. **Sustainable Food systems**. *Building a new paradigm, Earthscan from Routledge*. Marsden, T., & Morley, A. (2014).
3. Future Food Systems - Exploring Global Production, Processing, Distribution and Consumption (1st edition), Yada, R.Y., Acker, R.V., Scanlon, M., Gray, D. 2024. Academic Press.
4. **"The State of Food Security and Nutrition in the World 2023"***: Urbanization, agrifood systems transformation and healthy diets across the rural–urban continuum* (Vol. 2023). Food & Agriculture Org.
5. **Pakistan Food System Dashboard**. Available at:
6. **"Pakistan Food Systems Transformation Pathway, National Pathways for Food Systems Transformation in Pakistan"** (A Strategic National Pathway Document), Ministry of National Food Security and Research (MNFSR)
7. **"Food Systems in an Unequal World:** Pesticides, Vegetables, and Agrarian Capitalism in Costa Rica" by Ryan E. Galt
8. **"Food Systems for Sustainable Development: Responding to the Environmental and Resource Challenges"** by Ruerd Ruben, Jeroen Candel, and Albert P. J. Mol
9. **"The Global Food System: Issues and Solutions"** edited by William D. Schanbacher
10. **"Data Visualization: A Handbook for Data Driven Design"** by Andy Kirk
11. **"Achieving Food Security in Asia: Pragmatic Policies and Strategies"** edited by Jelle Bruinsma (2017)
12. **"Sustainable Food Systems in Southeast Asia"** by Gerhard van den Top and Wolfram H. Dressler (2021)
13. **"Transforming Food Systems for a Rising India"** by Prabhu Pingali, Anaka Aiyar, Mathew Abraham, and Andaleeb Rahman (2019)
14. **"The Global Food System: Issues and Solutions"** edited by William D. Schanbacher (2020)
15. **"Food Security and Nutrition in Pakistan: Strategic Review"** by World Food Programme and Sustainable Development Policy Institute (SDPI) (2017)

"Agriculture and the Rural Economy in Pakistan: Issues, Outlooks, and Policy Priorities" edited by David J. Spielman, Sohail J. Malik, Paul Dorosh, and Nuzhat Ahmad (2016)

2.3. Journal Articles/ Reports

Note:

3. It is preferable to use latest available editions of books. Mention the publisher & year of publication.
4. The References/ bibliography may be in accordance with the typing manual of the concerned faculty/subject. Preferably follow APA 7th Edition publication manual.

Teaching Learning Strategies

1. Lectures
2. Reports

3. Class discussion

Assignments: Types and Number with Calendar

7. Determination of heat units of different crops
8. Impact of Climate Change On Crop physiology
9. Global warming; effect on crop yield
10. Determination of growth yield parameter
11. Impact of Climate Warming and management on Rice Phenology
12. Agriculture contribution in Green House emission in Pakistan

Assessment

Sr. No.	Elements	Weightage	Details
4.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
5.	Formative Assessment	25%	Continuous assessment includes: Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes etc.
6.	Final Assessment	40%	Written Examination at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.