**Introduction to course**

**SUSTAINABLE AGRICULTURE**

This is a post graduate level course and aims to acquaint students with comprehensive knowledge about management of agricultural resources on sustainable basis. It includes sustainable utilization of land and water resources and biodiversity. The course also focuses on the issues and strategies for crop improvement and livestock management.

**Objectives:**

* Understand the concept and significance of sustainable Agriculture
* understand the broad possibilities for improving sustainability on farms.
* Understand the principles of sustainability in Agriculture.
* Understand Crop management techniques for sustainability.
* Understand integrated nutrient and pest management
* Understand issues and strategies for sustainable agriculture
* Understand impact of sustainable agriculture on Climate change

**Theory**

1. Definition, concept and significance
2. Evolution of sustainable agriculture
3. Management practices for sustainable agriculture
4. Sustainable utilization of land water, resources and agro-biodiversity
5. Integrated nutrient management
6. Sustainable Weed management
7. Concept of integrated agriculture
8. Challenges in Pakistan’s Agriculture
9. Present scenario and future prospects
10. Analytical overview: issues and strategies for improvement of crop management, livestock management, fisheries
11. Cottage industry, national resource management and rural development
12. Institutions and policies: issues and options
13. Integrated farming systems to sustain farm productivity
14. Alternate and uses Agriculture
15. Climate change and carbon sequestration
16. Latest research methodologies related to the above topics.

***Recommended Books***

1. [Khan, I.A. and M.S. Khan. 2018. Developing Sustainable Agriculture in Pakistan](https://books.google.com.pk/books?id=lyJWDwAAQBAJ&dq=sustainable+Agriculture+2019&hl=en&sa=X&ved=0ahUKEwihuLaKo87jAhXSRMAKHbD2Al04ChDoAQhHMAc). CRC, USA

# Verma, D.K. 2019. Microbiology for Sustainable Agriculture, Soil Health, and Environmental Protection. Apple Academic Press.

***Suggested Books***

# Parray J.A. and N. Shameem. 2019. Sustainable Agriculture: Advances in Plant Metabolome and Microbiome. Elsevier Science.

# [Campanhola C. and S. Pandey.2018. Sustainable Food and Agriculture: An Integrated Approach. Elsevier Science.](https://books.google.com.pk/books?id=wOR8DwAAQBAJ&dq=sustainable+Agriculture+2019&hl=en&sa=X&ved=0ahUKEwirlq6HpM7jAhVIQMAKHdOpBckQ6AEIJTAA)