Bachelor of Science
(BS) Program in
Agriculture Business and Marketing

(Effective from Fall 2024 as per UEP-2023)

Department of Agricultural Business and Marketing
Faculty of Agricultural Sciences and Technology
Bahauddin Zakariya University, Multan

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Chapter 1 : INTRODUCTION TO BS IN AGRICULTURE BUSINESS AND MARKETING PROGRAM

1.1 Course Description

The course in Agricultural Business and Marketing is designed for the student who plans to seek employment in, manage, or own a farm; or seek employment in an agribusiness field. Students will be involved in learning activities that generally prepare them to apply the economic and business principles involved in the organization, operation, and management of the farm, ranch, or agribusiness.

Typical instructional activities include hands-on experiences with applying modern economic and business principles involved in the organization, operation, and management of agricultural businesses including the production and marketing of agricultural products and services; applying computer application models; participating in personal and community leadership development activities; planning and implementing a relevant academic-industry transition experience.

This course is a component of the Agriculture, Food and Natural Resources Pathways in Horticulture, Agricultural Mechanics & Technology, and Plant & Animal Systems.

1.2 Mission Statement

Our vision is to be a driving force in the agriculture industry, fostering sustainable economic practices, empowering stakeholders, and fueling economic growth. We aspire to lead the way in transforming agriculture into a dynamic and resilient sector that enhances livelihoods, promotes environmental stewardship, and ensures food security for all.

1.3 Vision

To transform traditional agri-culture into modern agri-business by creating employment opportunities and contributing to poverty alleviation through agriculture value chain development.

1.4 Goal

To equip students with comprehensive knowledge and skills in agricultural business management and marketing. This includes understanding fundamental business principles, mastering marketing strategies tailored to the agricultural sector, managing supply chains efficiently, mitigating risks, promoting sustainability, fostering entrepreneurial thinking, and providing practical experiences to prepare students for successful careers in the agricultural industry. The strategic scope for advancing agricultural business and marketing from local to global focusing on the South Punjab region of Pakistan is shown in Figure 1.

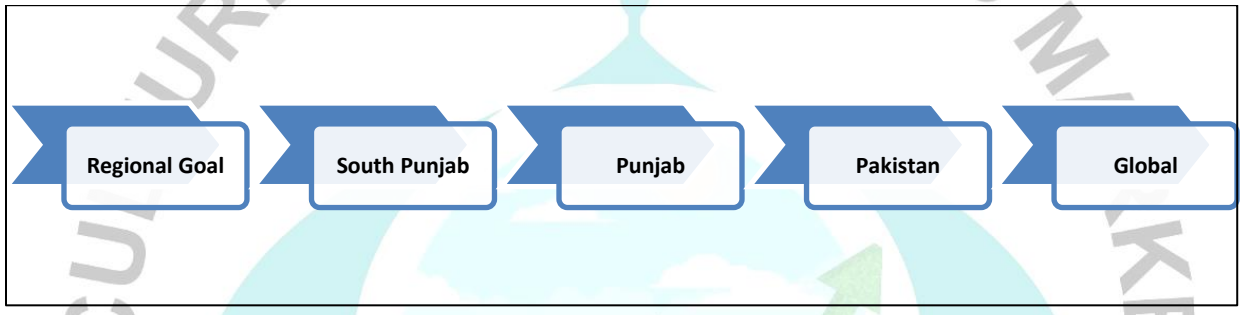

Figure 1: Advancing Agricultural Business & Marketing from Local to Global: A Focus on South Punjab, Pakistan

1.5 Learning Objectives

The BS Agriculture Business & Marketing degree program aims at equipping the students with the knowledge and skills required to analyze the agriculture business and marketing issues for transforming agriculture into agribusiness, and its development, consistent with the interest of all stakeholders. The specified objectives of the degree program are as follows:

- Understand the characteristics and trends of the agri-food market and the role played by the farmers, industrialists, and their representatives in the organizations
- Recognize the intersection of agribusiness with other areas of economic and social concern, such as economic development and new ways of production and business diversification (organic farming, biofuel, biogas, circular economy, etc.).
- Identify and manage the characteristics of the main agrifood businesses and develop effective managerial strategies
- Develop a comprehensive business plan for agri-food corporations

- Utilize the most advanced marketing techniques to promote businesses and organizations
- Manage the financial dimensions related to agricultural activities
- Understand and utilize project management techniques for agricultural businesses
- Manage the agri-food supply chain
- Learn about the start-up ecosystem related to agribusiness
- Master the use of new technologies within farmer or industrialist organizations and the most advanced production tools and channels
- Learn about the international organizations operating in the agribusiness sector and the international policies and support linked to this economic sector
- Meet farmers or food producers who changed their companies by taking new and radical approaches.

1.6 Program Objectives Assessment

Table 1.1 outlines the systematic evaluation of key program objectives for the BS in Agriculture Business and Marketing degree program, including how these objectives are measured when they are assessed, and the subsequent improvements identified and made.

Table 1.1: Program Objectives Assessment Framework for BS in Agriculture Business & Marketing

Objectives	How Measured	When measured	Improvements identified	Improvements made
To produce skilled and productive graduates who understand and provide solutions for the key challenges to agriculture, agribusiness, policymakers, and rural communities.	Research Projects, Assignments, presentations, data analysis skills, seminars, and exams.	Assignments, presentations, quizzes, etc. during the semester and through exams at the end of the semester	Regular sessions on data analysis training from experts outside of the university and easy access to computer labs.	A comprehensive session on R Programming was conducted last semester. Student Forum is established to discuss policy-related issues.
To prepare students with multidisciplinary learning experiences to develop careers in agriculture, agribusiness, and related fields.	Research Projects, presentations, and seminars	Presentations and quizzes etc. during the semester and through exams at the end of the semester	Pieces of training from experts outside of the university	Student Forum is established to discuss policy-related issues.
To provide professional training opportunities to students in the agribusiness industry through strong academia-industry partnership	Case studies and research projects	In the 8th semester, Students have projects and internship	Training of students in improving empirical skills to evaluate economics issues.	Guest speakers were called to deliver a lecture on the importance of Agri. Economics and Issues related.

1.7 Intended Program Learning Outcomes (PLOs)

PLO1	**Multidisciplinary learning**

- Students will have knowledge, and qualitative and quantitative skills in various fields of agriculture, agribusiness, agri. marketing, and economics & management to solve problems of agricultural sector and rural communities.

PLO2	**Critical thinking skills**

- An ability to optimally apply agribusiness analysis to agriculture sector problems in the real world. This will allow them to understand current events and evaluate potential policy proposals. Moreover, an appreciation shall be developed to evaluate the role played by assumptions in situations that reach various conclusions to a specific economic or policy problem.

PLO3	**Communication skills**

- An ability to communicate effectively in written, oral and graphical form about concrete questions and to prepare well-organized written arguments that clearly state assumptions/hypotheses supported by evidence.

PLO4	**Global perspective**

- Students will apply multidisciplinary knowledge and skills to make agricultural communities competitive in the dynamic global food markets.

PLO5	**Ethical responsibilities**

- Students will fulfill the civic responsibilities in terms of professionalism, social responsibilities and religious tolerance and demonstrate ethical practices in the agricultural industries and diverse local communities to become productive and active citizens.

Chapter 2 : STRUCTURE OF THE BS IN AGRICULTURE BUSINESS AND MARKETING PROGRAM

2.1 Duration of Degree

The duration of the BS Agriculture Business and Marketing Program will be a minimum of 4 years (8 semesters) and a maximum of 6 years (12 semesters). A semester will comprise of 16 to 18 weeks (16 weeks for course work and 2 weeks for examination).

2.2. Eligibility Criteria

FSc Pre-Medical / Pre-Engineering/ Pre-Agriculture; Intermediate with at least one subject of Economics/ Statistics /Mathematics; I.C.S. / D. Com /I. Com; Three years diploma in Agriculture or Associate Engineering and Minimum requirement for admission is not less than 50% marks

2.3 General Education Courses

BS in Agriculture Business and Marketing Degree program will comprise a mandatory set of 30 credit hours (Cr. Hrs.) for general education courses as prescribed in the Higher Education Commission's (HEC) Undergraduate Education Policy (UEP-2023). These courses will be covered in the first four semesters of the degree program. The list of all these courses is given in Table 2:

Table 2.1: List of General Education Courses in BS Agriculture Business and Marketing

Sr. No.	Course Title	Course Code	Credit Hours
1	Application of Information and Communication Technologies (ICT)	GE-101	3 (2-1)
2	Functional English	GE-102	3 (3-0)
3	Islamic Studies / Ethics (for non-Muslims)	GE-103	2 (2-0)
4	Science of Global Challenges (Natural Science)	GE-104	3 (2-1)
5	Civics and Community Engagement	GE-105	2 (2-0)
6	Expository Writing	GE-106	3 (3-0)
7	Ideology and Constitution of Pakistan	GE-107	2 (2-0)
8	Exploring Quantitative Skills	GE-108	3 (3-0)

	(Quantitative Reasoning I)		
9	Tools for Quantitative Reasoning (Quantitative Reasoning II)	GE-201	3 (3-0)
10	Ecology, Economy, and Society (Social Science)	GE-202	2 (2-0)
11	Introduction to Psychology (Arts and Humanities)	GE-203	2 (2-0)
12	Entrepreneurship	GE-204	2 (2-0)
		TOTAL CREDIT HOURS	**30 (28-2)**

2.4 Major Courses

The requirement to fulfill a single major is a minimum of 72 credit hours for an undergraduate or equivalent degree program. Therefore, the BS in Agriculture Business and Marketing Program will comprise 78 credit hours of major courses and the full list of these courses is given in Table 2.2.

Table 2.2: List of Major Courses in BS Agriculture Business and Marketing

Sr. No.	Course Title	Course Code	Credit Hours
1	Principles of Management	ABM-101	3 (3-0)
2	Microeconomics	ABM-102	3 (3-0)
4	Principles of Marketing	ABM-103	3 (3-0)
5	High-Value Agriculture and Sustainable Practices	ABM-201	3 (3-0)
6	Macroeconomics	ABM-202	3 (3-0)
7	Agricultural Marketing	ABM-203	3 (3-0)
8	Principles of Agricultural & Resource Economics	ABM-204	3 (3-0)
9	Agri-tech Innovation and Digital Transformation	ABM-205	3 (3-0)
10	Agricultural Finance	ABM-301	3 (3-0)
11	Agribusiness Management	ABM-302	3 (3-0)
12	Production Economics	ABM-303	3 (3-0)

13	Fundamentals of Accounting	ABM-304	3 (3-0)
14	Business Strategy and Policy	ABM-305	3 (3-0)
15	Consumer Behaviour	ABM-306	3 (3-0)
16	Supply Chain Management in Agriculture	ABM-307	3 (3-0)
17	Farm Planning and Budgeting	ABM-308	3 (3-0)
18	Advertising and Promotion	ABM-309	3 (3-0)
19	Human Resource Management in Agriculture	ABM-310	3 (3-0)
20	Food and Agricultural Policy	ABM-311	3 (3-0)
21	Livestock Business Management	ABM-312	3 (3-0)
22	Project Planning and Evaluation	ABM-401	3 (2-1)
23	Business Research Methods	ABM-402	3 (2-1)
24	Agribusiness Entrepreneurship	ABM-403	3 (3-0)
25	Pricing Analysis of Commodities	ABM-404	3 (3-0)
26	Sales Force Management	ABM-405	3 (3-0)
27	International Tarde and WTO	ABM-406	3 (3-0)
		TOTAL CREDIT HOURS	**78 (76-2)**

2.5 Interdisciplinary Courses

BS Agriculture Business and Marketing Degree program is diverse. Therefore, there is a dire need for disciplinary courses within the agricultural domain. As per UEP-2023, there should be a minimum of 12 credit hours of interdisciplinary / allied courses and BS Agriculture Business and Marketing will comprise 21 credit hours. The list of these interdisciplinary courses is given in Table 2.3.

Table 2.3: List of Interdisciplinary Courses in BS Agriculture Business and Marketing

Sr. No.	Course Title	Course Code	Credit Hours
1	Basic Agriculture	ID-101	3 (2-1)
2	Business Statistics	ID-102	3 (2-1)
3	Soil and Environment	ID-103	3 (2-1)

4	Introduction to Forestry and Watershed Management	ID-201	3 (2-1)
5	General Crop Production	ID-202	3 (2-1)
6	Food Processing and Preservation	ID-203	3 (2-1)
7	Fundamentals of Plant Protection	ID-204	3 (2-1)
TOTAL CREDIT HOURS			**21 (14-7)**

2.6 Field Experience

In the last semester of BS Agriculture Business and Marketing, all the students will be placed in different public or private sectors/industries related to their degree program to gain field experience of eight weeks. A faculty member will be assigned to each student, who will be responsible for student placement and mark the students out of 3 credit hours in collaboration with the field supervisor.

2.7 Capstone Project

All the students of BS Agriculture Business and Marketing will be assigned a faculty member (preferably in the last year of the degree), who will supervise the capstone project. It is a multifaceted body of work that serves as a culminating academic and intellectual experience for students. This will be a mandatory degree award requirement of 3 credit hours.

2.8 Quranic Studies

Each semester of BS Agriculture Business and Marketing will also comprise one (1) credit hour translation of the Holy Quran. It is mandatory / compulsory to pass this Quranic Studies course of one credit hour. However, the credit hours will not be added to the degree program.

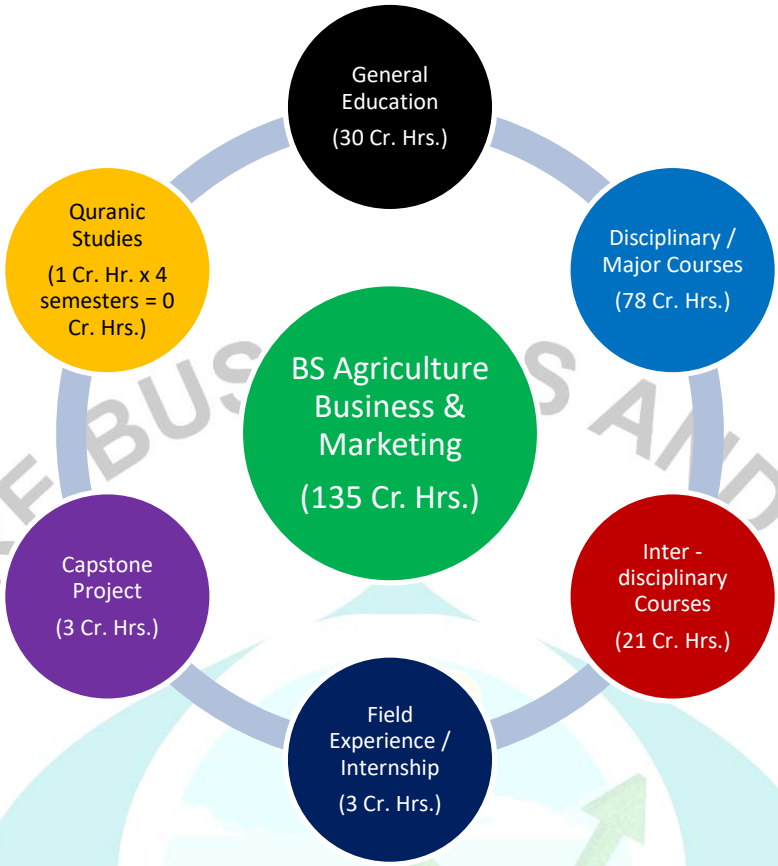

Figure 2: Graphical Representation of BS Agriculture Business and Marketing Program

2.7 Semester-wise Breakup of Course and Credit Hours

Course Code	Course Title	Credit Hours
1st Semester		
GE-101	Application of Information and Communication Technologies (ICT)	3 (2-1)
GE-102	Functional English	3 (3-0)
GE-103	Islamic Studies / Ethics (for non-Muslims)	2 (2-0)
ID-101	Basic Agriculture	3 (2-1)
GE-104	Science of Global challenges	3 (2-1)
GE-105	Civics and Community Engagement	2 (2-0)
ABM-101	Principles of Management	3 (3-0)
QS-101	Translation of the Holy Quran-I	1 (1-0) = 0
	Sub Total of Credit Hours	**19 (16-3)**

2nd Semester		
ABM-102	Microeconomics	3 (3-0)
GE-106	Expository Writing	3 (3-0)
GE-107	Ideology and Constitution of Pakistan	2 (2-0)
ID-102	Business Statistics	3 (2-1)
ID-103	Soil and Environment	3 (2-1)
GE-108	Exploring Quantitative Skills	3 (3-0)
ABM-103	Principles of Marketing	3 (3-0)
QS-102	Translation of the Holy Quran-II	1 (1-0) = 0
	Sub Total of Credit Hours	**20 (18-2)**
3rd Semester		
ABM-201	High-Value Agriculture and Sustainable Practices	3 (3-0)
ID-201	Introduction to Forestry and Watershed Management	3 (2-1)
ID-202	General Crop Production	3 (2-1)
ABM-202	Macroeconomics	3 (3-0)
GE-201	Tools for Quantitative Reasoning	3 (3-0)
ABM-203	Agricultural Marketing	3 (3-0)
GE-202	Ecology, Economy, and Society	2 (2-0)
QS-201	Translation of the Holy Quran-III	1 (1-0) = 0
	Sub Total of Credit Hours	**20 (18-2)**
4th Semester		
ABM-204	Principles of Agricultural & Resource Economics	3 (3-0)
ID-203	Food Processing and Preservation	3 (2-1)
GE-203	Introduction to Psychology	2 (2-0)
GE-204	Entrepreneurship	2 (2-0)
ID-204	Fundamentals of Plant Protection	3 (3-0)
ABM-205	Agri-tech Innovation and Digital Transformation	3 (2-1)
QS-202	Translation of the Holy Quran-IV	1 (1-0) = 0
	Sub Total of Credit Hours	**16 (14-2)**

5th Semester		
ABM-301	Agricultural Finance	3 (3-0)
ABM-302	Agribusiness Management	3 (3-0)
ABM-303	Production Economics	3 (3-0)
ABM-304	Fundamentals of Accounting	3 (3-0)
ABM-305	Business Strategy and Policy	3 (3-0)
ABM-306	Consumer Behavior	3 (3-0)
	Sub Total of Credit Hours	**18 (18-0)**
6th Semester		
ABM-307	Supply Chain Management in Agriculture	3 (3-0)
ABM-308	Farm Planning and Budgeting	3 (3-0)
ABM-309	Advertising and Promotion	3 (3-0)
ABM-310	Human Resource Management in Agriculture	3 (3-0)
ABM-311	Food and Agricultural Policy	3 (3-0)
ABM-312	Livestock Business Management	3 (3-0)
	Sub Total of Credit Hours	**18 (18-0)**
7th Semester		
ABM-401	Project Planning and Evaluation	3 (2-1)
ABM-402	Business Research Methods	3 (2-1)
ABM-403	Agribusiness Entrepreneurship	3 (3-0)
ABM-404	Pricing Analysis of Commodities	3 (3-0)
ABM-405	Sales Force Management	3 (3-0)
ABM-406	International Tarde and WTO	3 (3-0)
	Sub Total of Credit Hours	**18 (16-2)**
8th Semester		
ABM-411	Internship	3 (0-3)
ABM-412	Capstone Project	3 (0-3)
	Sub Total of Credit Hours	**6 (0-6)**
Grand Total of Credit Hours of Degree		**135 (118-17)**

Chapter 3 : COURSE CONTENTS OF BS AGRICULTURE BUSINESS AND MARKETING PROGRAM

GE-101	Application of Information and Communication Technologies (ICT)	3 (2-1)

Course Description:

The course introduces students to information and communication technologies and their application in the workplace. Objectives include basic understanding of computer software, hardware, and associated technologies. How computers can be used in the workplace, how communications systems can help boost productivity, and how the Internet technologies can influence the workplace. Students will get basic understanding of computer software, hardware, and associated technologies. They will also learn how computers are used in the workplace, how communications systems can help to boost productivity, and how the Internet technologies can influence the workplace.

Course Objective:

- Explain the basic concepts and components of information technology
- Familiarize yourself with different computer systems and their components.
- Describe the functioning and importance of storage devices.
- Understand the fundamentals of databases and their role in information management.
- Elaborate the fundamentals of databases and their role in information management.
- Analyze various physical transmission media used in networking.
- Use different types of websites and describe their purposes.
- Explore the benefits, challenges, and ethical considerations of conducting business online.

Student Learning Outcomes:

At the completion of this course students will be able to

- demonstrate proficiency in using various digital tools and platforms, including software applications, internet technologies, and basic programming languages, to effectively communicate and solve problems.
- apply critical thinking skills to analyze and solve complex problems using ICT resources, developing innovative solutions that leverage technology
- communicate and collaborate effectively using digital communication tools, understanding the principles of online etiquette, cybersecurity, and digital citizenship.
- gain hands-on experience and technical proficiency in using ICT for a range of applications, including data analysis, multimedia presentations, and project management, enhancing their technical skill set.
- understand the broader impact of ICT on society, including ethical considerations, privacy issues, and the role of ICT in promoting sustainable development and addressing global challenges

Relevant SDGs:

SDG 4: Quality Education; SDG 8: Decent Work and Economic Growth; SDG 9: Industry, Innovation, and Infrastructure

Course Outline:

Introduction, Overview of Information Technology; Hardware: Computer Systems & Components, Storage Devices; Software: Operating Systems, Programming and Application Software; Databases and Information Systems Networks; File Processing Versus Database Management Systems; Data Communication and Networks; Physical Transmission Media & Wireless Transmission Media; Applications of smart phone and usage; The Internet, Browsers and Search Engines; Websites and their types; Email Collaborative Computing and Social Networking; E-Commerce; IT Security and other issues; Cyber Laws and Ethics of using Social media; Use of Microsoft Office tools (Word, Power Point, Excel) or other similar tools depending on the operating system; Other IT tools/software specific to field of study of the students if any.

Suggested Readings:

- Vermaat, M. E., & Sebok, S. L. (2022). Discovering Computers 2022: Digital Technology, Data and Devices. (17th ed.).
- O'Leary, T. J., & O'Leary, L. I. (2021). Computing Essentials. (26th ed.). McGraw Hill Higher Education.
- Fuller, F., Floyd, B., & Larson, B. (2018). Computers: Understanding Technology.

GE-102	Functional English	3 (3-0)

Course Description:

The course aims at providing understanding of a writer's goal of writing (i.e. clear, organized and effective content and to use that understanding and awareness for academic reading and writing. The objectives of the course are to make the students acquire and master the grammatical academic writing skills. The course would enable the students to develop argumentative writing techniques. The students would be able to logically add specific details on the topics such as facts, examples and statistical or numerical values. The course will also provide insight to convey the knowledge and ideas in an objective and persuasive manner. Furthermore, the course will also enhance the students' understanding of ethical considerations in writing academic assignments and topics including citation, plagiarism, formatting and referencing the sources as well as the technical aspects involved in referencing.

Course Objective:

- Enhance the ability to effectively communicate in various social, academic, and professional contexts, focusing on speaking, listening, reading, and writing.
- Foster confidence in using English through active participation in discussions, presentations, and public speaking, while improving pronunciation and fluency
- Strengthen writing skills for different purposes, ensuring clarity, coherence, and proper use of grammar and vocabulary in written communication.
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- Strengthen writing skills for different purposes, ensuring clarity, coherence, and proper use of grammar and vocabulary in written communication.

Student Learning Outcomes:

At the completion of this course students will be able to:

- develop proficiency in basic English language skills, including reading, writing, speaking, and listening, to effectively communicate in everyday situations.
- improve vocabulary and expand the range of words and expressions used in spoken and written English.
- enhance grammatical accuracy and develop the ability to apply grammar rules in practical contexts.
- demonstrate proficiency in identifying essential information and omitting non-essential details in a précis.
- practice paraphrasing and rephrasing skills to convey the meaning of the original text accurately and concisely.
- learn to construct well-supported arguments by presenting claims, supporting evidence, and logical reasoning.

Relevant SDGs:

SDG 4: Quality Education; SDG 8: Decent Work and Economic Growth; SDG 10: Reduced Inequalities

Course Outline:

Developing Analytical Skills; Transitional devices (word, phrase and expressions); Development of ideas in writing; Reading Comprehension; Precis Writing; Developing argument; Sentence structure: Accuracy, variation, appropriateness, and conciseness; Appropriate use of active and passive voice; Organization and Structure of a Paragraph; Organization and structure of Essay; Types of Essays.

Suggested Readings:

- Bailey, S. (2011). Academic writing: A handbook for international students (3rd ed.). New York: Routledge.
- Eastwood, J. (2011). A Basic English grammar. Oxford: Oxford University Press.
- Swales, J. M., & Feak, C. B. (2012). Academic writing for graduate students: Essential tasks and skills (3rd ed.). Ann Arbor: The University of Michigan Press.
- 4. Swan, M. (2018). Practical English usage (8th ed.). Oxford: Oxford University Press.

GE-103	Islamic Studies	2 (2-0)

Course Description:

Islamic Studies engages in the study of Islam as a textual tradition inscribed in the fundamental sources of Islam, Qur'an and Hadith, history and particular cultural contexts. The area seeks to

provide, an introduction to and a specialization in Islam through a large variety of expressions (literary, poetic, social, and political) and through a variety of methods (literary criticism, hermeneutics, history, sociology, and anthropology). It offers opportunities to get fully introductory foundational bases of Islam in fields that include Qur'anic studies, Hadith and Seerah of Prophet Muhammad (PBUH), Islamic philosophy, and Islamic law, culture and theology through the textual study of Qur'an and Sunnah.

Course Objective:

- Gain a comprehensive understanding of the fundamental beliefs, practices, and teachings of Islam.
- Study the historical development and contributions of Islamic civilization to various fields.
- Develop skills in interpreting and analyzing key Islamic texts, including the Quran and Hadith
- Understand the ethical teachings and legal principles of Islam and their application in contemporary contexts.
- Foster an understanding of Islam's relationship with other religions, promoting tolerance and mutual respect

Student Learning Outcomes:

At the completion of this course students will be able to:

- make students understand the relevance and pragmatic significance of Islam.
- make learners comprehend true spirit of Islam with reference to modern world.
- generate a sense of Islamic principles as a code of living that guarantee the effective solutions to the
- current challenges of being.
- provide Basic information about Islamic Studies
- enhance understanding of the students regarding Islamic Civilization
- improve Students skill to perform prayers and other worships.
- enhance the skill of the students for understanding of issues related to faith and religious life.

Relevant SDGs:

SDG 4: Quality Education; SDG 16: Peace, Justice, and Strong Institutions; SDG 5: Gender Equality:

Course Outline:

Introduction to Qur'anic Studies: 1) Basic Concepts of Qur'an. 2) History of the Quran. 3) Uloom-ul-Quran.

مطالعہ قرآن (تعارف قرآن، منتخب آیات کا ترجمہ و تفسیر: سورۃ البقرہ آیات 1-5، 284-286؛ سورۃ الحجرات آیات 1-18؛ سورۃ الفرقان آیات 63-77؛ سورۃ المومنون آیات 1-11؛ سورۃ الاحزاب آیات 6، 21، 32-33؛ 40، 56-59؛ سورۃ الانعام آیات 151-153؛ سورۃ الصف آیات 1-14؛ الحشر آیات 18-20؛ آل عمران آیات 190-192؛ النحل آیات 12-14؛ لقمن آیت 20، حم السجدہ آیت 53)

Introduction to Sunnah: 1) Introduction of Hadith. 2) Legal Status of Hadith. 3) History of the compilation of Hadith. 4) Kinds of Hadith.

حدیث کا تعارف، حدیث کی دینی حیثیت، حفاظت و تدوین حدیث، حدیث کی اقسام

متن، حدیث: 1 درج ذیل موضوعات پر احادیث کا مطالعہ

1۔ اعمال کا اجر نیت پر منحصر ہے۔ 2۔ بہترین انسان قرآن کا طالب علم اور اس کا معلم ہے۔ 3۔ کتاب و سنت گمراہی سے بچنے کا ذریعہ ہیں 4۔ ارکان اسلام 5۔ اسلام، ایمان، احسان اور قیامت کی نشانیاں، 6۔ بچوں کی نماز کی تلقین 7۔ دین کا گہرا فہم اللہ کی خاص عنایت ہے 8۔ حصول علم، تلاوتِ قرآن اور عمل کی اہمیت و فضیلت، 9۔ روز محشر کا محاسبہ، 10۔ حقوق اللہ کے ساتھ ساتھ حقوق العباد کا لحاظ رکھنا بھی لازم ہے 11۔ حسن خلق کی عظمت اور فحش و بد گوئی کی مذمت 12۔ دنیا و آخرت کی بھلائی کی ضامن چار چیزیں، 13۔ ہلاک کر دینے والی سات چیزیں، 14۔ بے عمل مبلغ کا عبرت ناک انجام 15۔ ہر شخص نگران ہے اور ہر شخص مسئول

Sirah of the Prophet Muhammad ﷺ: 1) Importance of the Study of Sirah. 3) Character building method of the Prophet.

(سیرت النبی ﷺ(مطالعہ سیرت کی ضرورت و اہمیت، تعمیر، سیرت و شخصیت کا نبوی منہاج اور عملی نمونے، اقامت دین کا نبوی طریق کار، اقامتِ دین بعہدِ خلافت راشدہ، میثاق مدینہ، خطبہ حجۃ الوداع، اخلاقی تعلیمات، تشکیل اجتماعیت اور اسوہ حسنہ، قرآن مجید میں سیرت سرور عالم کا بیان، غزواتِ نبوی ﷺ کے مقاصد و حکمتیں)

Islamic Culture & Civilization: 1) Basic Concepts of Islamic Culture & Civilization. 2) Historical Development of Islamic Culture & Civilization. 3) Characteristics of Islamic Culture & Civilization. 4) Islamic Culture & Civilization and Contemporary Issues.

4. اسلامی تہذیب و تمدن (اسلامی تہذیب کا مفہوم، اسلامی کے عوامل و عناصر، اسلامی تہذیب کی خصوصیات،، اسلامی تہذیب، علمی، معاشرتی اور سماجی اثرات، تہذیبوں کے تصادم کے نظریے کا تنقیدی جائزہ، تہذیبی تصادم کے اثرات و نتائج، طبعی، حیاتیاتی اور معاشرتی علوم میں مسلمانوں کا کردار، نامور مسلمان سائنسدان)

Suggested Readings:

- Hameed Ullah Muhammad, Emergence of Islamll, IRI, Islamabad
- Hameed Ullah Muhammad, Muslim Conduct of State
- Hameed Ullah Muhammad, Introduction to Islam
- Ahmad Hasan, Principles of Islamic Jurisprudencell Islamic Research, Institute, International Islamic University, Islamabad (1993)
- Dr. Muhammad Zia-ul-Haq, Introduction to Al Sharia Al Islamiall Allama Iqbal Open University, Islamabad (2001)
- 6) Dr. Muhammad Shahbaz Manj, Teleeemat-e- Islam

GE-104	Science of Global challenges	3 (2-1)

Course Description:

Our world has seen a massive transformation in the past 200 years. The progress that we see around ourselves is largely owed to the advancement in Scientific knowledge that has enabled

us to harness Nature's resources in a multitude of ways. This progress, however, has come at a great cost, including a threat to our own existence. Through this course, we will discuss some of the core challenges mankind is facing, the scientific reasoning behind all these challenges and the actions that must be taken to create a future free of these problems. The three main areas we will focus on include Climate Change, The Energy Crisis and the survival of humanity in the wake of deadly viruses and infectious diseases.

Course Objective:

To develop the ability to critically analyze complex global challenges such as climate change, health crises, and resource scarcity, and formulate evidence-based strategies to address these issues effectively.

Student Learning Outcomes:

Through successful completion of this course, students will be able to:

- explain the scientific principles that help understand the key challenges we are facing today.
- describe natural systems modulating the Earth's climate, articulate causes and consequences of anthropogenic climate change, and discuss measures to curb global greenhouse gas emissions.
- differentiate between renewable and non-renewable systems.
- explain the working principles of various renewable systems and devices including solar photovoltaics, windmills, hydro power, geothermal and bio energy.
- explain the working principle of key biological ideas including viruses and diseases, evolution by natural and artificial selection.
- demonstrate an understanding of the deep connection between science, technology, and society

Relevant SDGs:

SDG 13: Climate Action; SDG 3: Good Health and Well-being; SDG 7: Affordable and Clean Energy

Course Outline:

Introduction to some key advancements we have made in the last 200 years and the associated challenges that are manifesting themselves in the form of Climate Crisis, the over reliance on fossil fuels and mass extinction of various species.

Intro and Framing; What's the greenhouse effect? Challenges and risks of climate change; Geologic History and Planetary Processes; Oceans: How do ocean currents regulate global climate; Atmosphere: How do large scale wind patterns affect global climate; Ecosystems: Climate constrain ecosystems and ecosystems impact global climate; Projections of future climate; Measuring anthropogenic climate change; What are GCMs? Carbon emission scenarios; Sustainability

Science of Energy: Forms of Energy, Energy Conversion; Sustainability of Energy Systems; Working of renewable devices. How do solar cells operate? Photoelectric effect, intro to semiconductors and band gaps, Wind energy, Windmills, Physics of a generator; Energy quantification - Energy needs, available resources, renewable vs non-renewable, challenges of current practices; Future of Energy; What are infectious disease; Types of infectious diseases;

History of Germs, Vaccines and Diseases; Evolution by Natural and Artificial Selection; Why are viruses crossing species barrier? Anti-biotic resistance; Human physiological limits Changing

Complex web of science, politics and social systems; Development of Science in certain areas, Role of Wars; Scientific Funding; Technological Progress and Ethical Constraints; Human experiences as Data

Nanotechnology and its future applications in Medicine, Food, Computational Systems, Energy; Biotechnology; Future of foods: Agricultural production, consumption and nutrition; Genetic Modification: CRISPR, Gene Therapy; Exobiology – Life and humans outside of Earth

Suggested Readings:

- Higher Education Commission (HEC) Islamabad. Model General Education courses. Expository Writing Resource Package. Retrieved from: https://www.hec.gov.pk/english/services/students/UEP/Pages/Model-General-Education-Courses.aspx

GE-105	Civics and Community Engagement	2 (2-0)

Course Description:

The Civics and Community Engagement course is designed to provide students with an understanding of the importance of civic participation, culture and cultural diversity, basic foundations of citizenship, group identities and the role of individuals in creating positive change within their communities. The course aims at developing students' knowledge, skills and attitudes necessary for active and responsible citizenship.

Course Objective:

- To understand the concepts of civic engagement, community development, and social responsibility.
- To understand rights and responsibilities of citizenship
- To understand cultural diversity in local and global context
- To analyze the significance of civic participation in promoting social justice, equity, and democracy.

Student Learning Outcomes:

After completing this course, students will be able to

- Examine the historical and contemporary examples of successful civic and community engagement initiatives.
- Identify and assess community needs, assets, and challenges to develop effective strategies for community improvement.
- Explore the ethical implications and dilemmas associated with civic and community engagement.
- Develop practical skills for effective community organizing, advocacy, and leadership.

- Foster intercultural competence and respect for diversity in community engagement efforts.
- Collaborate with community organizations, stakeholders, and fellow students to design and implement community-based projects.
- Reflect on personal growth and learning through self-assessment and critical analysis of community engagement experiences.

Relevant SDGs:

SDG 11: Sustainable Cities and Communities; SDG 16: Peace, Justice, and Strong Institutions; SDG 17: Partnerships for the Goals

Course Outline:

1. Introduction to Civics & Community Engagement. 1.1 Overview of the course: Civics & Community Engagement. 1.2 Definition and importance of civics.1.3 Key concepts in civics: citizenship, democracy, governance, and the rule of law. 1.4 Rights and responsibilities of citizens. 2. Citizenship and Community Engagement. 2.1 Introduction to Active Citizenship: Overview of the Ideas, Concepts, Philosophy and Skills. 2.2 Approaches and Methodology for Active Citizenship. 3. Identity, Culture, and Social Harmony. 3.1 Concept and Development of Identity, Group identities. 3.2 Components of Culture, Cultural pluralism, Multiculturalism, Cultural Ethnocentrism, Cultural relativism, Understanding cultural diversity, Globalization and Culture, Social Harmony. 3.3 Religious Diversity (Understanding and affirmation of similarities & differences). 3.4 Understanding Socio-Political Polarization. 3.5 Minorities, Social Inclusion, Affirmative actions. 4. Multi-cultural society and inter-cultural dialogue. 4.1 Inter-cultural dialogue (bridging the differences, promoting harmony). 4.2 Promoting intergroup contact/ Dialogue. 4.3 Significance of diversity and its impact. 4.4 Importance and domains of Inter-cultural dialogue. 5. Active Citizen: Locally Active, Globally Connected. 5.1 Importance of active citizenship at national and global level. 5.2 Understanding community. 5.3 Identification of resources (human, natural and others). 5.4 Utilization of resources for development (community participation). 5.5 Strategic planning, for development (community linkages and mobilization). 6. Human rights, constitutionalism and citizens' responsibilities. 6.1 Introduction to Human Rights. 6.2 Human rights in constitution of Pakistan. 6.3 Public duties and responsibilities. 6.4 Constitutionalism and democratic process. 7. Social Institutions, Social Groups, Formal Organizations and Bureaucracy. 7.1 Types of Groups, Group identities, Organizations. 7.2 Bureaucracy, Weber’s model of Bureaucracy. 7.3 Role of political parties, interest groups, and non-governmental organizations. 8. Civic Engagement Strategies. 8.1 Grassroots organizing and community mobilization. 8.2 Advocacy and lobbying for policy change. 8.3 Volunteerism and service-learning opportunities. 9. Social issues/Problems of Pakistan. 9.1 Overview of major social issues of Pakistani society. 10. Social Action Project

Suggested Readings:

- Kennedy. J. K., & Brunold, A. (2016). Regional context and Citizenship education in Asia and Europe. New Yourk: Routledge, Falmer.
- Henslin, James M. (2018). Essentials of Sociology: A Down to Earth Approach (13th ed.). New York: Pearson Education
- 3. Macionis, J. J., & Gerber, M.L. (2020). Sociology. New York: Pearson Education

GE-106	Expository Writing	3 (3-0)

Course Description:

This course includes themes and activities that develop 21st century skills, self-reflection, and active community engagement in order to preparing undergraduates to become successful writers and readers of English. The course helps students develop their fundamental language skills with a focus on writing, so that they can gain the confidence to communicate in oral and written English outside the classroom. The course is divided into five units and takes a PBL (Project-based Learning) approach. Unit themes target the development of 21st century skills and focus on self-reflection and active community engagement. The students engage in group, pair and individual activities and complete assignments, including reading and writing across various types and genres. The units in this course prepare students to take the next course.

Course Objective:

- Analyse basic communication skills and use them effectively in oral and written English.
- Understand the grammatical structure of various texts (at both the sentence and paragraph levels).
- Identify specific challenges or issues within the local community.
- Develop analytical and problem-solving skills to address various community specific challenges.
- Differentiate among various organizing principles used in writing.
- Develop an understanding of the characteristics of expository writing.
- Critically evaluate and review various types of texts and summarize them.
- Intellectually engage with different stages of the writing process, such as brainstorming, mind mapping, free writing, drafting and revision, etc.
- Develop skills as reflective and self-directed learners.

Student Learning Outcomes:

By the end of this unit, you should be able to:

- discuss language learning experiences in English.
- produce a short essay describing language learning and writing experiences.
- provide feedback to peers on the content of their writing.
- revise writing based on feedback from peers.
- develop strategies for improving focus and support of ideas in essay writing.
- collaborate with peers to write a well organized and concise list of guidelines that are grammatically parallel.
- demonstrate fluency in oral English in group discussions and presentations.
- present ideas to the whole class in a team presentation using English that is comprehensible and engaging.
- identify effective personal learning strategies & develop self-advocacy skills.
- engage in self-assessment, building self-reflective abilities.
- find and recognize trustworthy, reliable, well-vetted websites.
- critically review various documents (books, articles and reports).
- apply HOTS strategies for developing reading comprehension.

- appreciate critical reading and thinking as important to study skills.
- identify important reading techniques (skimming, scanning, SQW3R, annotating and previewing)
- complete reading comprehension-based activities given in standard tests (TOEFL and IELTS).

Relevant SDGs:

SDG 4: Quality Education; SDG 5: Gender Equality; SDG 10: Reduced Inequalities

Course Outline:

Unit 1: Self-Reflection: 1) How would you describe your experiences as a learner of English? 2) What kind of writing have you done in English? 3) What is your approach to writing an essay (in any language)? What steps do you go through as you plan and then write a paper?

Unit 2: Personalized Learning: 1) What techniques do you use to learn and practice English? 2) Which of these techniques are most successful? Why? 3) What advice would you give to a classmate on how to be a successful English language learner?

Unit 3: Critical Reading Skills: 1) What kinds of texts do you read in English? 2) What is your process for reading these? Do you start at the beginning and read all of it? Or do you read only parts? If so, what parts do you read? 3) What do you do when you can't understand everything you are reading? 4) Are you able to remember what you read? Explain. 5) Do you take notes or mark a text while reading? Explain.

Unit 4: Community Engagement: 1) In this unit, you'll be collecting information about a topic or concern that is important in your community? What kinds of issues are happening right now in your community? 2) What kinds of skills do you need to collect information in your community and then present that information to your classmates in groups? 3) What do you think will be interesting about this unit? What will be challenging? 4) What does "community" mean to you? How would you define your own "community?" 5) What are your strengths and weaknesses as a student that might help you or challenge you in this unit?

Unit 5: Letter to the Editor: 1) What is a letter to the editor? 2) What are the characteristics of this kind of writing? 3) What is the purpose of letters to the editor? 4) How can you write effective letters to the Editor? 5) How to develop a letter to the editor?

Suggested Readings:

- Higher Education Commission (HEC) Islamabad. Model General Education courses. Expository Writing Resource Package. Retrieved from: https://www.hec.gov.pk/english/services/students/UEP/Pages/Model-General-Education-Courses.aspx
- Baily, Stephan (2011) Academic Writing. A Handbook for International Students (3rd Ed) From Understanding Titles to Planning. Routledge. London. New York
- Oh, U. L. (May 26, 2020). Talking to kids about xenophobia. National Geographic. Retrieved from: https://www.nationalgeographic.com/family/2020/05/talking-to-kids-about-xenophobia-coronavirus/

GE-107	Ideology and Constitution of Pakistan	2 (2-0)

Course Description:

This course focuses on ideological background of Pakistan. The course is designed to give a comprehensive insight about the constitutional developments of Pakistan. Starting from the Government of India Act, 1935 till to date, all important events leading to constitutional developments in Pakistan will be the focus of course. Failure of the constitutional machinery and leading constitutional cases on the subject. Moreover, students will study the process of governance, national development, issues arising in the modern age and posing challenges to Pakistan. It will also cover the entire Constitution of Pakistan 1973. However, emphasis would be on the fundamental rights, the nature of federalism under the constitution, distribution of powers, the rights and various remedies, the supremacy of parliament and the independence of judiciary.

Course Objective:

To explore the historical, philosophical, and political underpinnings of Pakistan's national identity, its ideological foundations, and the principles embedded within its constitution. Through critical examination and analysis, students will develop a comprehensive understanding of how these factors have shaped Pakistan's socio-political landscape, enabling them to engage in informed discourse and analysis of contemporary issues within the country.

Student Learning Outcomes:

By the end of this unit, you should be able to:

- demonstrate a comprehensive understanding of the historical context and philosophical principles that underpin Pakistan's national ideology and its implications for governance and society.
- analyze the evolution of Pakistan's constitution, including its drafting process, key amendments, and the role of various stakeholders in shaping constitutional development.
- evaluate the interplay between ideology and constitutional provisions in shaping Pakistan's legal and political framework, with a focus on the protection of fundamental rights, governance structures, and the balance of powers.
- critically assess the impact of historical events, socio-cultural factors, and external influences on Pakistan's ideological narrative and constitutional evolution.
- apply theoretical concepts and analytical frameworks to contemporary issues and debates within Pakistan, demonstrating the ability to articulate reasoned opinions and propose constructive solutions grounded in an understanding of the country's ideology and constitutional framework.

Relevant SDGs:

SDG 16: Peace, Justice, and Strong Institutions; SDG 4: Quality Education; SDG 10: Reduced Inequalities

Course Outline:

1. Ideology of Pakistan: Ideological rationale with special reference to Sir Syed Ahmed Khan, Allama Muhammad Iqbal and Quaid-e-Azam Muhammad Ali Jinnah. Two Nation Theory and Factors leading to Muslim separatism.

2. Constitutional Developments: Salient Feature of the Government of India Act 1935. Salient Feature of Indian Independence Act 1947. Objectives Resolution. Salient Feature of the 1956 Constitution. Developments leading to the abrogation of the Constitution of 1956. Salient features of the 1962 Constitution. Causes of failure of the Constitution of 1962. Comparative study of significant features of the Constitution of 1956, 1962 and 1973.

3. Fundamental rights:

4. Principles of policy: Federation of Pakistan. President. Parliament. The Federal Government

5. Provinces: Governors. Provincial Assemblies. The Provincial Government

6. The Judicature: Supreme Court. High Courts. Federal Shariat Courts. Supreme Judicial Council. Administrative Courts and tribunals.

7. Islamic Provisions in Constitution

8. Significant Amendments of Constitution of Pakistan 1973

Suggested Readings:

- Constitutional and Political History of Pakistan by Hamid Khan
- Mahmood, Shaukat and Shaukat, Nadeem. Constitution of the Islamic Republic of Pakistan, 3rd re edn. Lahore: Legal Research Centre, 1996.
- Munir, Muhammad. Constitution of the Islamic Republic of Pakistan: Being a Commentary on the Constitution of Pakistan, 1973. Lahore, Law Pub., 1975.
- Rizvi, Syed Shabbar Raza. Constitutional Law of Pakistan: Text, Case Law and Analytical Commentary. 2nd re edn. Lahore: Vanguard, 2005.
- The Text of the Constitution of the Islamic Republic of Pakistan, 1973 (as amended).
- Fundamental Laws of Pakistan by A.K. Brohi

GE-108	Exploring Quantitative Skills	3 (3-0)

Course Description:

Since ancient times, numbers, quantification, and mathematics has played a central role in scientific and technological development. In the 21st century Quantitative Reasoning (QR) skills are essential for life as they help to better understand socio-economic, political, health, education, and many other issues an individual now faces in daily life. The skills acquired by taking this course will help the students to apply QR methods in their daily life and professional activities. This course will also change student's attitude about mathematics. It will not only polish their QR skills, but also enhance their abilities to apply these skills.

Course Objective:

- Students will be introduced to the above concepts, and they will be prepared to apply these concepts to analyse and interpret information in different walks of life.
- Students will get familiarized with the importance of quantitative reasoning skills in the modern age.
- This course will improve their ability to deal with scenarios involving numbers of related issues in a logical manner.

- It will provide students an opportunity to appreciate the intellectual beauty of quantitative reasoning skills.
- It will prepare students to apply the quantitative reasoning skills in solving quantitative problems which they will experience in their practical lives.

Student Learning Outcomes:

After completing this course successfully, students will be able to:

- create and develop quantitative reasoning skills and apply to daily life challenges involving social and economic issues.
- apply the learned principles of quantitative reasoning skills in other disciplines.
- acquire and use the quantitative reasoning skills in different disciplines.
- make decisions in a logical manner.
- apply geometrical models to solve real life problems.
- apply the quantitative reasoning skills in any real-world situation.

Relevant SDGs:

SDG 4: Quality Education; SDG 9: Industry, Innovation, and Infrastructure; SDG 11: Sustainable Cities and Communities

Course Outline:

What is quantitative reasoning?; Overview of history of mathematics and contributions of Muslim scholars; Different types of standard numbers and their role in practical life scenarios; Understanding relationship between parts and whole; Practical life scenarios involving parts & whole; Practical life scenarios involving units and rate; Unit analysis as a problem solving tool; Understanding our World through numbers; Dealing with very big and small numbers & their applications; Understanding uncertainty and its applications; Stock exchange and economy; Money management (profit, loss, discount, zakat, simple interest, compound interest and taxation); Money management in practical life scenarios like investments and federal budget; Practical scenarios involving expressions; Equating two expressions in one variable & using it to solve practical problems; Social and economic problems involving expressions; Introduce geometrical objects through architecture and landscape; Dealing with social and economic issues involving geometrical objects; Practical scenarios involving sets and Venn diagrams; Ven diagrams and their applications in different disciplines.

Suggested Readings:

- Bennett, J. & Briggs, W. (2015). Using and understanding mathematics (6th Edition). Pearson Education, Limited.
- Blitzer, R. (2014). Precalculus. (5th Edition). Pearson Education, Limited.
- Demana, F., Waits, B., Foley, D. & Kennedy, D. (2016). Precalculus. (7th Edition). Addison Wesley
- Aufmann, R., Lockwood, J., Nation, R. & Clegg, D. (2007). Mathematical thinking and reasoning. Brooks Cole.

GE-201	Tools for Quantitative Reasoning	3 (3-0)

Course Description:

This course is based on quantitative reasoning 1 course. It will enhance the quantitative reasoning skills learned in quantitative reasoning 1 course. Students will be introduced to more tools necessary for quantitative reasoning skills to live in the fast paced 21st century. Students will be introduced to importance of mathematical skills in different professional settings, social and natural sciences. These quantitative reasoning skills will help students to better participate in national and international issues like political and health issues. This course will prepare the students to apply quantitative reasoning tools more efficiently in their professional and daily life activities. This course will help them to better understand the information in form of numeric, graphs, tables, and functions.

Course Objective:

- Students will be introduced to the above listed concepts, and they will be prepared to apply these concepts to practical life scenarios.
- This course will enhance their ability to deal with scenarios involving quantitative reasoning skills in a logical manner which they can face in their practical lives.
- It will prepare students to deal with different forms of data occurring in professional, social and natural sciences.
- Students will be introduced to scenarios involving functions and probability in different disciplines.
- This course will prepare the students to apply the quantitative reasoning skills in other disciplines.
- This course will provide solid foundation for students to use the quantitative reasoning skills in solving practical life problems.

Student Learning Outcomes:

After completing this course successfully, students will be able to:

- strengthen their quantitative reasoning skills and apply to daily life problems.
- draw the inferences from the data given in numeric, graphs, tables and functions.
- strengthen their quantitative reasoning skills while making decisions.
- apply the concepts of functions in social and economic issues and formulate and solve the problems.
- understand the principles concepts of probability and its applications.
- demonstrate the application of the learned principles of quantitative reasoning skills in different professional activities, social and natural sciences.

Relevant SDGs:

SDG 4: Quality Education; SDG 9: Industry, Innovation, and Infrastructure; SDG 11: Sustainable Cities and Communities

Course Outline:

Investigating relationships between variables; Exploring tools to find relationship between variables; Resources and population growth; Dealing with Economical, environmental and social issues; Graphical and analytical approaches to solve a problem; Applications of graphical & analytical approaches in social & economic problems; Understanding inequalities around us; Dealing with practical problems involving inequalities in different disciplines; Golden ratio in sculptures; Comparison of statements and their use in social and economic problems; Number patterns and their applications; Survival in the modern World; Propositions and truth values; Applications of logic; Exploring and summarizing data, misleading graphs; Finding a representative value in a data; Measure and spread of a data, measuring degree of relationship among variables; Counting the odds.

Suggested Readings:

- Bennett, J. & Briggs, W. (2015). Using and understanding mathematics (6th Edition). Pearson Education, Limited.
- Blitzer, R. (2014). Precalculus. (5th Edition). Pearson Education, Limited.
- Demana, F., Waits, B., Foley, D. & Kennedy, D. (2016). Precalculus. (7th Edition). Addison Wesley
- Aufmann, R., Lockwood, J., Nation, R. & Clegg, D. (2007). Mathematical thinking and reasoning. Brooks Cole.

GE-202	Ecology, Economy, and Society	2 (2-0)

Course Description:

This course will introduce students with the subject matter of social science, its scope, nature and ways of looking at social phenomenon. It will make the participants acquaintance with the foundations of ecosystem and modern society, state, law, knowledge and selfhood. While retaining a focus on Pakistani state and society, students will encounter theoretical concepts and methods from numerous social science disciplines, including sociology, politics, economics anthropology and psychology and make them learn to think theoretically by drawing on examples and case studies from our own social context. Students will be introduced to the works of prominent social theorists from both western and non-western contexts. Instruction will include the use of written texts, audio-visual aids and field visits.

Course Objective:

To explore the interconnectedness of ecological systems, economic activities, and societal structures, with the aim of fostering a comprehensive understanding of how human actions impact the environment and influence social dynamics, and to develop critical thinking skills for addressing sustainability challenges at the intersection of ecology, economy, and society.

Student Learning Outcomes:

After the successful completion of the course, the participants will be able to:

- introduce student with the nature of human social behaviour and foundations of human group life
- analyse the reciprocal relationship between individuals and society.
- make student aware with the nature of societies existing in modern world

- introduce students with the works of prominent theories explain human group behaviour
- introduce students with various dimensions of social inequalities with reference to gender, race, ethnicity and religion
- make them aware about the understanding of various themes pertains to social science in local context
- help them recognize the difference between objective identification of empirical facts, and subjective formulation of opinionated arguments

Relevant SDGs:

SDG 15: Life on Land; SDG 12: Responsible Consumption and Production; SDG 10: Reduced Inequalities

Course Outline:

Introduction to Social Sciences. Social world, Human Social behaviour, Foundations of society. Evolution of Social sciences. Philosophy of Science. Scope and nature of social sciences. Modernity and social sciences. Branches of social science: Sociology, Anthropology, Political Science, Economics

Society and Community, Historical evolution of Society. Types of Societies. Foraging society, Horticultural society, Pastoralist society. Agrarian societies, Industrial society, Post-industrial society

Interconnections and Interdependencies of Ecology, Economy and Society. Overview of ecological systems and principles. Introduction to economic theories and concepts. Exploring the interactions between ecology, economy, and society. Case studies highlighting the impacts of human activities on ecosystems and communities. Discussion on the concept of sustainability and its relevance to ecological, economic, and social systems.

Environmental Impact of Economic and Social Dimensions. Examination of different economic systems (capitalism, socialism, etc.) and their ecological footprints. Analysis of the relationship between economic growth, resource consumption, and environmental degradation. Introduction to concepts such as externalities, sustainable development, and ecological economics. Discussion on how societal values, norms, and behaviours influence environmental attitudes and actions. Exploration of environmental justice issues, including disparities in environmental burdens and benefits. Case studies illustrating the social impacts of environmental degradation and climate change

Towards Sustainable Futures. Overview of environmental policies and regulations at local, national, and global levels. Analysis of the role of governments, NGOs, and international organizations in addressing environmental challenges. Discussion on the importance of stakeholder engagement and participatory approaches in environmental decision-making. Examination of innovative solutions and initiatives for promoting sustainability across sectors. Exploration of the role of technology, education, and public awareness in fostering sustainable development. Reflection on personal and collective actions for building a more sustainable future.

Suggested Readings:

- Giddens, A. (2018). Sociology (11th ed.). UK: Polity Press.
- Henslin, J. M. (2018). Essentials of Sociology: A Down-to-Earth Approach. (18th Edition) Pearson Publisher.

- Macionis, J. J. (2016). Sociology (16th ed.). New Jersey: Prentice-Hall.
- Qadeer, M. (2006) Pakistan - Social and Cultural Transformation in a Muslim Nation.
- Jalal, A. (ed.) (1995) 'The colonial legacy in India and Pakistan', in Democracy and Authoritarianism in South Asia: A Comparative and Historical Perspective. Cambridge: Cambridge University Press (Contemporary South Asia)
- Zaidi, S. A. (2015) Issues in Pakistan's Economy: A Political Economy Perspective. Oxford University Press. Chapter 26
- Akhtar, A. S. (2017) The Politics of Common Sense: State, Society and Culture in Pakistan. Cambridge: Cambridge University Press.
- Smelser, N.J. and Swedburg, R., The Handbook of Economic Sociology, Chapter 1 'Introducing Economic Sociology', Princeton University Press, Princeton.

GE-203	Introduction to Psychology	2 (2-0)

Course Description:

Psychology both draws from and contributes to cognitive science and the learning sciences. Educational psychology has seen rapid growth and development as a profession in the last twenty years. Educational psychology has been built upon theories of operant conditioning, functionalism, structuralism, constructivism, humanistic psychology, Gestalt psychology, and information processing. Teaching and learning in which individuals had to think about individual differences, assessment, development, the nature of a subject being taught, problem solving, and transfer of learning was the beginning to the field of educational psychology. The course is designed to make students aware of how to bridge the gap between theory and practice. In other words, how they can use various concepts of educational psychology to improve their learning and teaching skills. It provides the study of learners and learning contexts both within and beyond traditional classrooms and evaluates ways in which factors such as age, culture, gender, and physical and social environments influence human learning. The course is intended to improve the reading, writing and communication skills of students.

Course Objective:

To develop a foundational understanding of the key theories, concepts, and methodologies within psychology, enabling students to critically analyse behaviour, mental processes, and the biological underpinnings of human cognition and emotion.

Student Learning Outcomes:

After the successful completion of the course, the participants will be able to:

- understand the need for and importance of psychology in education
- comprehend the scope, methodology and usefulness of educational psychology in effective teaching
- develop an insight into various concepts and theories of educational psychology pertaining to motivation, intelligence, personality, classroom management effective teaching and their educational implications
- develop skills to understand and identify the individual and cultural differences among the students to improve their teaching by adopting appropriate strategies

- adopt the measures to enhance the creative potentials of themselves as well as of their students

Relevant SDGs:

SDG 3: Good Health and Well-being; SDG 4: Quality Education; SDG 5: Gender Equality

Course Outline:

1. Introduction. 1.1. Meaning and nature of psychology. 1.2. Meaning and nature of educational psychology. 1.3. Educational psychology: Some basic problems to solve simultaneously. 1.4. Scope and utility of the study of educational psychology: Teachers, teaching & educational psychology. 1.5. Methods of educational psychology Conclusion: Teachers, teaching and learners; learning, and educational psychology

2. Teaching learning process. 2.1. Learning Process. 2.2. Understanding the Learner, Characteristics of Learner, Laws of learning. 2.3. Skill learning; stages and conditions. 2.4. Concept learning. 2.5. Problem solving, discovery and creativity, conditions and steps.

3. Human growth and Development. 3.1. Physical growth and development. 3.2. Cognitive growth and development, Cognitive theories. 3.3. Social and moral development, social Learning theory. 3.4. Morality: early theories. 3.5. Emotional development

4. Theories of Learning. 4.1. Associative theories. 4.1.1. Associationism. 4.1.2. Conditioning. 4.1.3. Extinction and recovery. 4.1.4. connectionism. 4.2. Cognitive theories. 4.2.1. Gestalt Psychology. 4.2.2. Learning by insight

5. Motivation: Theory and Practice. 5.1. Concept of motivation. 5.2. Types of motivation. 5.3. Functions of motivation. 5.4. Theories of motivation. 5.5. Strategies for motivation

6. Educational psychology in contemporary classrooms. 6.1. The contemporary ecology of classroom. 6.2. ICT in Learning and Teaching. 6.3. ICT transforming learning. 6.4. ICT transforming pedagogy. 6.5. Transforming Inclusive Education.

7. Mental Health. 7.1. Concept and nature. 7.2. Symptoms and causes of maladjustments. 7.3. Adjustments mechanisms. 7.4. Mental health in schools. 7.5. Mental health of the teacher. 7.6. Mental hygiene at home.

8. Teaching for Learning (i.e. Effective Teaching). 8.1. Planning for effective teaching. 8.2. Teaching large & small groups effectively. 8.3. Characteristics of effective teachers. 8.4. Matching methods to goals.

9. Culture and Diversity. 9.1. Today's diverse classroom and Learning needs. 9.2. Economic and social class differences. 9.3. Ethnicity and race in teaching and learning. 9.4. Difference of gender. 9.5. Multicultural education. 9.6. Language diversity

Suggested Readings:

- Santrock, J. W. (2018). Educational Psychology. Boston: McGraw –Hill.
- Sprinthall, N.A., and Sprinthall, R.C., and Oja, S.N. (2014). Educational psychology: A Developmental approach. New York: McGraw Hill Inc.
- Iqbal, M. Z., & Shahid, S. M. (2016). Educational Psychology & Guidance. Islamabad: AIOU.
- Rashid, M. (comp.) (2016). Allied Material of Educational Guidance and Counseling. Islamabad: AIOU.

- Dash, B.N., Dash, N., and Rath, M.P. (2012). A textbook of Educational Psychology. New Delhi: Dominant Publishers and Distributors.

GE-204	Entrepreneurship	2 (2-0)

Course Description:

This course addresses the unique entrepreneurial experience of conceiving, evaluating, creating, managing, and potentially selling a business idea. The goal is to provide a solid background with practical application of important concepts applicable to the entrepreneurial environment. Entrepreneurial discussions regarding the key business areas of finance, accounting, marketing and management include the creative aspects of entrepreneurship. The course relies on classroom discussion, participation, the creation of a feasibility plan, and building a business plan to develop a comprehensive strategy for launching and managing a new venture.

Course Objective:

To develop the foundational knowledge and skills necessary to conceive, plan, and launch their own ventures or innovate within existing organizations. Through a combination of theoretical learning and practical application, students will learn how to identify opportunities, assess market viability, and develop effective business plans. By the end of the course, students will have acquired the entrepreneurial mindset and toolkit needed to pursue their entrepreneurial aspirations

Student Learning Outcomes:

At the completion of this course students will be able to:

- enhance the 'entrepreneurial intentions' of the students by improving their natural willingness to start a business.
- understand the process of entrepreneurship and learn the ways to manage it by working individually in the class and in the form of groups outside the class to conduct field assignments.
- educate the students about the practical underpinnings of the entrepreneurship with the aid of practical assignments and idea pitching.

Relevant SDGs:

S DG 8: Decent Work and Economic Growth; SDG 9: Industry, Innovation, and Infrastructure; SDG 10: Reduced Inequalities

Course Outline:

1. Background: What is an Organization, Organizational Resources, Management Functions, Kinds of Managers, Mintzberg's Managerial Roles. 2. Forms of Business Ownership: The Sole proprietorship, Partnership, Joint Stock Company 3. Entrepreneurship: The World of the Entrepreneur, what is an entrepreneur? The Benefits of Entrepreneurship, The Potential Drawbacks of Entrepreneurship, Behind the Boom: Feeding the Entrepreneurial Fire. 4. The Challenges of Entrepreneurship: The Cultural Diversity in Entrepreneurship, The Power of "Small" Business, Putting Failure into Perspective, The Ten Deadly Mistakes of

Entrepreneurship, How to Avoid the Pitfalls, Idea Discussions & Selection of student Projects, Islamic Ethics of Entrepreneurship. 5. Inside the Entrepreneurial Mind: From Ideas to Reality: Creativity, Innovation, and Entrepreneurship, Creativity – Essential to Survival, Creative Thinking, Barriers to Creativity, How to Enhance Creativity, The Creative Process, Techniques for Improving the Creative Process, Protecting Your Ideas, Idea Discussions & Selection of student Projects. 6. Products and technology, identification opportunities. 7. Designing a Competitive Business Model and Building a Solid Strategic Plan: Building a strategic plan, building a Competitive Advantage, The Strategic Management Process, formulate strategic options and select the appropriate strategies, Discussion about execution of Students' Project. 8. Conducting a Feasibility Analysis and Crafting a Winning Business Plan: Conducting a Feasibility Analysis, Industry and market feasibility, Porter's five forces model, financial feasibility analysis. Why Develop a Business Plan, The Elements of a Business Plan, What Lenders and Investors Look for in a Business Plan, Making the Business Plan Presentation. 9. Building a Powerful Marketing Plan: Building a Guerrilla Marketing Plan, Pinpointing the Target Market, Determining Customer Needs and Wants Through Market Research. Plotting a Guerrilla Marketing Strategy: How to Build a Competitive Edge, Feed Back & Suggestions on Student Project, Islamic Ethics for Entrepreneurial Marketing 10. E-Commerce and the Entrepreneur: Factors to Consider before Launching into E-Commerce, Ten Myths of E-Commerce, Strategies for E-Success, designing a Killer Web Site, Tracking Web Results, Ensuring Web Privacy and Security, Feed Back & Suggestions on Student Project. 11. Pricing Strategies: Three Potent Forces: Image, Competition, and Value, Pricing Strategies and Tactics, Pricing Strategies and Methods for Retailers, The Impact of Credit on Pricing 12. Attracting Venture Capitalist: Projected Financial Statements, Basic Financial Statements, Ratio Analysis, Interpreting Business Ratios, Breakeven Analysis, Feed Back &Suggestions on Student Project, 13. Idea Pitching: Formal presentation, 5-minutes pitch, funding negotiation and launching.

Suggested Readings:

- Scarborough, N. M. (2011). Essentials of entrepreneurship and small business management. Publishing as Prentice Hall, One Lake Street, Upper Saddle River, New Jersey 07458.
- Burstiner, I. (1989). Small business handbook. Prentice Hall Press.

ABM-101	Principles of Management	3 (3-0)

Course Description:

This course will teach different managerial skills which will enable our students to become more effective and enhance their knowledge and understanding of the functions in an organization. In tandem, the course will explore how issues such as organization structure, technology, innovation, ethics, corporate responsibility, and globalization influence managerial decision making.

Course Objective:

- To provide an essential understanding of the basic theories relevant to the management in and of organizations to business and non-business students.

- To understand the management functions of planning, organizing, leading and controlling in detail.

Student Learning Outcomes:

- To understand the process of managerial decision making.
- To introduce key contemporary concepts in business including ethics, corporate social responsibility, entrepreneurship and globalization.
- To introduce the similarities and differences in managing private sector and public sector organizations.

Relevant SDGs:

SDG 8 (Decent Work and Economic Growth); SDG 4 (Quality Education); SDG 9 (Industry, Innovation, and Infrastructure)

Course Outline:

Introduction to Management & Organization, Management History, Organization culture and environment, managing in a global environment, Social Responsibility and Managerial Ethics, Managers as decision makers, Foundations of planning, Organization Structure and Design, managing human resource, Managing Change and Innovation, Managers and Communication, Motivating Employees, Managers as Leaders, Introduction to controlling and Managing Entrepreneurial Ventures.

Suggested Readings:

- Management, 10th Edition by Stephen P. Robbins, Mary Coulter & Neharika Vohra

ABM-102	MICROECONOMICS	3 (3-0)

Objective:

By the end of the course, students will be able to understand introductory microeconomic theory, solve basic microeconomic problems, and use these techniques to think about a number of basic policy questions relevant to the operation of the economy. More specifically, this course aims:

- To develop an understanding of introductory microeconomic theory and its relevance to the real word
- To sharpen the problem-solving tactics required to solve basic microeconomic problems
- To give a broader implications of microeconomics principles and their applications
- To train the students to work with others as a part of team to solve problems

Learning Outcomes: After completing this course, students should have developed a range of skills enabling them to understand economic concepts and use those concepts to analyze specific questions. By the end of this course, students should be able to:

1. **UNDERSTAND** consumer and firm behavior
2. **APPLY** graphical analysis for a variety of economic situations.
3. **CALCULATE** and **INTERPRET** elasticity's

4. **DEFINE** and **DERIVE** short-run and long-run production costs
5. **EXPLAIN** various market structures

Relevant SDGs:

- No Poverty
- Zero hunger
- Good Health and Well-being
- Quality Education
- Gender Equality

Course Outline:

1. Introduction

- The Economic Problem
- Economic Decision Makers
- The Circular Flow Model
- Distinction Between Microeconomics and Macroeconomics
- The Market System

2. Demand & Supply:

- Demand, Demand Function, Demand Curve, Engel Curve, Changes in Demand, Law of Demand, Shift in Demand, Factors Affecting Demand, Consumer Surplus
- Supply, Supply Function, Supply Curve, Changes in Supply, Factors Affecting Supply, Law of Supply, Producer Surplus
- Equilibrium of Demand and Supply, Market Equilibrium, Price Controls, Taxes and Subsidies

3. Elasticity of Demand & Supply:

- Price Elasticity of Demand & Supply
- Point Elasticity of Demand & Supply
- Arc Elasticity of demand & Supply
- Income Elasticity of Demand & Supply
- Cross Elasticity of demand & Supply

4. Consumer Behavior:

- Utility Analysis (Cardinal Approach), Marginal Utility
- Law of Diminishing Marginal Utility and Law of Equi-Marginal Utility, Consumer Equilibrium
- Ordinal Approach of Consumer Behavior, Indifference Curves, Features of Indifference Curves, Budget Line, Consumer Equilibrium, Comparison between two approaches

5. The Theory of production & Theory of Cost:

- Cost of Production, Short Period and Long Period Analysis
- Economies of Scale, Elasticity of Cost, Graphical Representation of Long Run Cost
- Production, Factors of Production, Production Function, Short Period Production Relations, Total, Average and Marginal Product, Elasticity of Production
- Laws of Returns to Scale
- Duality Between Production and Cost of Production

6. Market Structure:

- Basics of Perfect Competition, Monopoly, Monopolistic Competition and Oligopoly
- Different Possibilities of Short Run firm Equilibrium under Perfect Competition

- Profit Maximization in Short-run and long-run under Perfect Competition
- Supply Curve of Perfectly Competitive Firm under Short and Long Run
- Short run and long run Equilibrium under Monopoly

Suggested Readings:

a. Michael J. Swann, William A. McEachern Microeconomics: A Contemporary Introduction, 3rd edition (or latest available)
b. Mankiw N. Gregory, Principles of Microeconomics 7 th edition (or latest available).
c. Campbell R. McConnell, Stanley L. Brue, Principles of Economics, 17th edition (or latest available).
d. Paul A. Samuelson, William D. Nordhaus, Economics, Latest Edition

ABM-103	Principles of Marketing	3 (3-0)

Course Description:

Principles of Marketing" introduces fundamental concepts essential for understanding the dynamics of modern marketing. From market segmentation to consumer behaviour, this course delves into strategic approaches and practical applications, equipping students with the skills to navigate the ever-evolving landscape of business and marketing. Through case studies and real-world examples, students gain insights into effective marketing strategies and develop critical thinking abilities crucial for success in the field.

Course Objective:

- Develop marketing strategy and the elements of marketing analysis: customer analysis, company analysis and competitor analysis.
- Distinguish the elements of the marketing mix (product, pricing, promotion, and distribution strategies).

Student Learning Outcomes:

- Analyse problems and make decisions through leverage strategic marketing analysis and make informed tactical marketing mix decisions with the help of comprehensive framework to evaluate marketing decisions and to create successful marketing initiatives.
- Apply their knowledge of the marketing industry while increasing their awareness of the strategic and tactical decisions behind today's top performing brands.

Relevant SDGs:

SDG 8 (Decent Work and Economic Growth); SDG 12 (Responsible Consumption and Production); SDG 13 (Climate Action)

Course Outline:

Marketing; Creating and capturing customer value, Marketing Strategy to build customer relationship with company, Marketing mix, Analysing the Marketing environment, Customer-driven market strategy (segmentation, Targeting and positioning), Product, service and brands, creating customer value, New Product development, Pricing and customer retention, Pricing

strategies in marketing, Marketing Channels; Delivering Customer Value, Retailing and whole selling, Communicating Customer Value, Advertising and Public Relations, Direct and Online Marketing: Building Direct Customer Relationships, Sustainable Marketing and Social Responsibility and Ethics.

Suggested Readings:

- Principles of Marketing, Kotler/Armstrong – Pearson Education Inc.
- Principles of Marketing: A Southeast Asian Perspective, Kotler/Armstrong/Haque-Prentice Hall Inc. Latest Ed.

ABM-201	High-Value Agriculture and Sustainable Practices	3 (3-0)

Course Description:

It delves into advanced methodologies and technologies for cultivating high-value crops while prioritizing sustainability. Through interdisciplinary study, students explore cutting-edge practices in precision agriculture, resource management, and market analysis, equipping them to address the complex challenges of modern agriculture sustainably. This course empowers future leaders in agriculture to optimize productivity, profitability, and environmental stewardship in an ever-evolving industry landscape.

Course Objective:

To equip graduate students with the knowledge, skills, and strategies necessary to cultivate high-value crops while integrating sustainable practices throughout the agricultural value chain. Through theoretical study, practical application, and interdisciplinary exploration, students will develop the expertise to optimize yields, minimize environmental impact, and enhance economic viability in agricultural production systems.

Student Learning Outcomes:

After completion of this course the students will be able to

- analyze and apply advanced techniques and technologies for cultivating high-value crops, including crop selection, planting methods, irrigation strategies, and pest management, while considering factors such as climate variability and soil health.
- evaluate, implement, and adapt sustainable practices within agricultural systems, encompassing concepts such as water conservation, soil fertility management, integrated pest management, and renewable energy utilization, with a focus on reducing environmental impact and promoting long-term viability.
- assess market dynamics, consumer preferences, and emerging trends in high-value agricultural products, enabling them to develop strategic marketing plans, make informed business decisions, and capitalize on opportunities for value-added production and market differentiation.

Relevant SDGs:

SDG 2: Zero Hunger; SDG 12: Responsible Consumption and Production; SDG 13: Climate Action

Course Outline:

Introduction to High-Value Agriculture: Definition and significance of high-value crops. Market trends and demand for high-value agricultural products. Case studies of successful high-value agricultural enterprises.

Sustainable Crop Production Techniques: Precision agriculture: GIS, GPS, and remote sensing applications. Integrated crop management practices. Organic and regenerative agriculture principles

Water Management and Irrigation Strategies: Efficient irrigation techniques: drip irrigation, sprinkler systems. Water conservation practices. Rainwater harvesting and wastewater reuse

Soil Health and Fertility Management: Soil conservation practices. Soil testing and nutrient management. Cover cropping and crop rotation techniques

Pest and Disease Management: Integrated pest management (IPM) strategies. Biological control methods. Disease-resistant crop varieties

Climate-Resilient Agriculture: Adaptation strategies to climate variability. Climate-smart agricultural practices. Carbon farming and greenhouse gas mitigation techniques

Value-Added Production and Marketing: Value chain analysis and value-added products. Market research and consumer preferences. Developing marketing strategies for high-value crops.

Sustainable Farming Systems: Agroforestry and intercropping systems. Livestock integration and diversified farming practices. Sustainable energy solutions for agriculture

Policy and Regulations: Government policies and incentives for sustainable agriculture. Environmental regulations and compliance. Certification programs for organic and sustainable agriculture.

Field Visits and Practical Applications: On-farm demonstrations and case studies. Visits to high-value crop production facilities. Hands-on exercises in crop management and sustainable practices

Suggested Readings:

- High-Value Agriculture in Developing Economies" by Peter Hazell and Atiq ur Rahman
- Sustainable Agriculture" by John Mason
- Sustainable Horticulture: Today and Tomorrow" by Raymond P. Poincelot
- Agroecology: The Ecology of Sustainable Food Systems" by Stephen R. Gliessman
- Relevant Reports from the Food and Agriculture Organization (FAO) and International Fund for Agricultural Development (IFAD)

ABM-202	Agricultural Marketing	3 (3-0)

Objective: After completing the course, students will be able to:

- Understand the significance of marketing in today's scenario on a broader level and in particular of agricultural marketing.
- Identify and critically discuss the key concepts, theories and models of basic agricultural marketing and relate it with agricultural marketing mix.

- Understand and appreciate that how the marketing creates consumer insight and turn this into the creation of agricultural commodities marketing opportunities and markets in today's unsustainable and changing environment.

Learning Outcomes: Upon completing a course in agricultural marketing at the Bachelor of Science (BS) level, students can expect to achieve several key learning outcomes. These outcomes typically include:

1. Understanding of Agricultural Markets and Systems,
2. Marketing Principles and Strategies
3. Market Research and Analysis,
4. Policy and Regulatory Understanding
5. Practical Marketing Skills,
6. Sustainability and Ethics
7. Communication and Negotiation,
8. Problem-Solving and Critical Thinking
9. Technological Proficiency,
10. Entrepreneurial Skills

Relevant SDGs:

- Decent Work and Economic Growth,
- Zero Hunger
- No Poverty
- Industry, Innovation, and Infrastructure
- Responsible Consumption and Production
- Partnerships for the Goals

Course Outline:

Concepts and definitions of market; Marketing, Agricultural Marketing; Classification and scope of markets; Role of agricultural marketing in economic development; Factors responsible for neglect of agricultural marketing; Stages of development; The functional approach; The institutional approach; The commodity approach; The behavioral system approach; Market structure approach; Market conduct approach; Market performance approach; Marketable and marketed surplus; Market channels; Market integration; Post-harvest handling of agri commodities; Agri marketing system; Grading; Packaging; Financing; Marketing pools; Cooperatives; Marketing boards; Market efficiency; Indicators of market efficiency; Standardization and grading; Marketing information; Market legislation; Market committees; Management of wholesale markets; Support prices; Agricultural marketing problems.

Suggested Readings:

1. Cannon, T. 2009. Basic Marketing Principles and Practices. 12th Ed. Wiley and Sons, New York, NY, USA.
2. Kohls, R.L. and J.N. Uhl. 2005. Marketing of Agricultural Products. 9th Ed. Max Well Publisher, Macmillan, New York, NY, USA.
3. Kotler, P. and G. Armstrong. 2008. Principle of Marketing. 12th Ed. Prentice-Hall International, Inc., New York, NY, USA.
4. Mohy-ud-Din, Q. and H. Badar. 2011. Agricultural Marketing. 2nd Ed. A-One Publishers, Al-Fazal Market, Urdu Bazar, Lahore, Pakistan.

5. Vercammen, J. 2011. Agricultural Marketing: Structural Models for Price Analysis. 1st Ed. Routledge Publishers, London, UK.

ABM-203	Principles of Agricultural & Resource Economics	3 (3-0)

Objective: After completing the course, students will be able to:

Understanding Economic Principles: Introduce students to the fundamental economic principles and how they apply to agriculture and natural resources.

Economic Decision-Making: Equip students with the tools to analyze and make informed economic decisions within the agricultural and resource sectors.

Resource Allocation: Explore the principles of resource allocation and their implications for agricultural production and sustainability.

Market Structures: Examine the various market structures and their effects on agricultural production and resource use.

Policy Analysis: Provide insights into agricultural and resource policies and their economic impacts.

Learning outcomes: Upon successful completion of the course "Principles of Agricultural & Resource Economics," students will be able to:

- Understand Economic Principles,
- Analyze Production Economics
- Evaluate Resource Economics
- Understand Market Dynamics
- Apply Farm Management Techniques
- Analyze Agricultural Policies
- Understand Environmental Economics
- Global Agricultural Economics Perspective
- Develop Analytical and Critical Thinking Skills
- Communicate Effectively

Relevant SDGs:

SDG 1: No Poverty

SDG 2: Zero Hunger

SDG 8: Decent Work and Economic Growth

SDG 12: Responsible Consumption and Production

SDG 13: Climate Action

SDG 15: Life on Land

SDG 17: Partnerships for the Goals

Course Contents

1 Introduction to the economics of agriculture

Economics is important and interesting. What is economics, and what is it about? Scarcity. The economic organization of society. A model of an economy. Trends in the agricultural economy. Absolute and relative prices.

2 The economics of production

The production function. Length of time: immediate run, short run, and long run. Physical production relationships. The Law of Diminishing Marginal Returns. The three stages of production.

3 The costs of production

Profits. Opportunity costs. Costs and output. Cost curve example: Vermont dairy farmer. Where do cost curves come from? Constant, decreasing, and increasing cost curves. (Student's assignment: calculation of Cost of Production of any major crop).

4 Profit maximization

Perfect competition. The profit-maximizing level of input. The profit-maximizing level of output. Profits and losses, break even, and shutdown points

5 Optimal input selection

The relationship between inputs. Isoquants. Relative prices. Isoquant types. Optimal input decisions. Optimal responses to price changes

6 Optimal output selection

The Production Possibilities Frontier (PPF). The Marginal Rate of Product Substitution (MRPS). The iso-revenue line. The optimal output combination. Price changes and the optimal output combination. Review of profit-maximization rules

7 Consumer choices

Rational behaviour. Utility. The Law of Diminishing Marginal Utility. Indifference curves. The marginal rate of substitution (MRS). The budget constraint. Consumer equilibrium.

8 Supply and demand

Supply. The elasticity of supply. Change in supply; change in quantity supplied. Determinants of supply. Demand

The elasticity of demand. Change in demand; change in quantity demanded. Determinants of demand

9 Markets

What is a market? Market equilibrium. Comparative statics. Price policies. Mathematical models (optional)

Suggested Readings:

- Principles of Agricultural Economics" by Andrew Barkley and Paul W. Barkley Third Edition published by Routledge on February 12, 2020

ABM-205	Agri-tech Innovation and Digital Transformation	3 (2-1)

Course Description:

It explores cutting-edge technologies and strategies reshaping the agricultural landscape. This course equips students with the knowledge and skills to leverage digital tools, such AI and

precision agriculture, for optimizing productivity, sustainability, and resilience in farming practices. Through interdisciplinary study and practical applications, students will learn to navigate the evolving intersection of agriculture, technology, and innovation.

Course Objective:

To familiarize students with the latest advancements in agricultural technology and digital solutions, empowering them to harness these tools effectively to address challenges and capitalize on opportunities within the agricultural sector. Through theoretical study, hands-on exploration, and case studies, students will develop the expertise to integrate agri-tech innovations seamlessly into farming practices, leading to enhanced productivity, sustainability, and competitiveness in a rapidly evolving global agricultural landscape.

Student Learning Outcomes:

Students will be able to

- demonstrate proficiency in utilizing a range of agricultural technologies, including but not limited to Internet of Things (IoT), Artificial Intelligence (AI), precision agriculture tools, and drones, to optimize various aspects of farm management, such as crop monitoring, irrigation management, and pest control.
- develop the ability to critically analyze agricultural data collected through digital tools and technologies, interpret trends and patterns, and make data-driven decisions to improve farm productivity, resource efficiency, and sustainability.
- cultivate innovative thinking and adaptability in applying agri-tech solutions to address emerging challenges and opportunities in agriculture. Through project-based learning and case studies, students will develop the capacity to identify, evaluate, and implement novel agri-tech solutions tailored to specific farming contexts and needs.

Relevant SDGs:

SDG 2: Zero Hunger; SDG 9: Industry, Innovation, and Infrastructure; SDG 13: Climate Action

Course Outline:

1. Advanced Precision Agriculture Techniques:

Remote sensing technologies for crop monitoring and yield prediction

Variable rate application systems for precise nutrient and pesticide management

Advanced GPS-guided machinery and autonomous farming systems

2. Data Analytics and Decision Support Systems:

Data collection, integration, & analysis using farm management software & platforms

Data-driven decision-making for optimizing planting schedules, irrigation timing, and crop rotations

Implementation of decision support systems for risk management and predictive analytics

3. Smart Farming and IoT Integration:

Integration of IoT sensors for real-time monitoring of soil moisture, temperature, and crop health

Development of IoT-enabled smart devices for farm automation, such as irrigation controllers and drone technology

Cloud-based data storage and communication systems for seamless connectivity and data sharing on the farm

4. Emerging Technologies in Agriculture:

Application of Artificial Intelligence (AI) and machine learning algorithms for crop disease detection and yield forecasting

Blockchain technology for supply chain traceability and transparency in food production

Biotechnology innovations, such as gene editing and precision breeding techniques, for crop improvement

5. Digital Transformation in Agribusiness**:

E-commerce platforms and digital marketing strategies for agricultural product promotion and sales

Supply chain optimization using digital tools, including inventory management systems and logistics software

Adoption of precision agriculture and agri-tech innovations by agribusiness stakeholders, including farmers, agribusinesses, and policymakers

6. Ethical and Regulatory Considerations**:

Ethical considerations in the use of agricultural data and technology, including data privacy and ownership rights

Regulatory frameworks governing the use of agri-tech innovations, such as data protection laws and agricultural policies

Strategies for ensuring equitable access to agri-tech solutions and addressing digital divide issues in rural communities.

Suggested Readings:

- Digital Agriculture: Concepts and Applications" Editors: André D. Wolf, Bruno H. M. J. S. Pinto, and João E. M. Baeta Publisher: CRC Press

ABM-301	Agricultural Finance	3 (3-0)

Objective: After the completing the course, students will be able to understand:

- Make effective financial decisions.
- Understanding the key concepts of agricultural finance that enables to analyze situations, evaluate related risks, implement actions, and exercise control more effectively.
- Interpret financial information, budgeting, investment and finance decisions, and valuation under conditions of incomplete knowledge by using financial tools, risk and uncertainty are central emphasis of the subject

Learning outcomes: By achieving these learning outcomes, students will be equipped to make informed financial decisions, manage risk, and optimize financial performance in agricultural businesses, preparing them for careers in agribusiness management, agricultural banking, and related fields.:

1. Understand the fundamental concepts and principles of agricultural finance.
2. Analyze financial statements and ratios to assess the financial health and performance of agricultural businesses.
3. Develop financial plans and budgets for agricultural enterprises.
4. Evaluate creditworthiness and assess risk in agricultural lending.
5. Identify and manage risk in agricultural production and marketing using various financial instruments.
6. Understand agricultural insurance products and their applications.
7. Develop investment strategies for agricultural assets and portfolios.
8. Apply financial marketing concepts to agricultural products and services.
9. Utilize decision-making tools and techniques to optimize agricultural financial management.
10. Critically analyze agricultural policies and regulations and their impact on agricultural finance.
11. Develop problem-solving skills to address financial challenges in agricultural businesses.
12. Communicate effectively on agricultural finance topics through written and oral presentations.

Relevant SDGs:

SDG 1: No Poverty

SDG 2: Zero Hunger

SDG 8: Decent Work and Economic Growth

SDG 15: Life on Land

SDG 17: Partnerships for the Goals

Course Contents

Agriculture Finance is a crucial course in a BS-Agribusiness degree, focusing on the financial aspects of agricultural businesses. Here's a course content outline:

1. Introduction to Agricultural Finance, Overview of agricultural finance, - Importance of finance in agribusiness, - Types of agricultural financing
2. Financial Management in Agribusiness, - Financial statement analysis (balance sheet, income statement, cash flow), - Financial ratios and performance metrics, - Budgeting and financial planning.
3. Agricultural Credit and Lending: types of agricultural credit (short-term, long-term, collateralized, non-collateralized), - Credit evaluation and risk assessment, - Agricultural lending institutions and programs.
4. Agricultural Insurance and Risk Management: Types of agricultural insurance (crop, livestock, life, property), - Risk management strategies (diversification, hedging, forward contracts)
5. Agricultural Investments and Portfolio Management: Investment opportunities in agriculture (farmland, commodities, stocks), Portfolio management and diversification, A
6. Agricultural Marketing and Price Risk Management: Agricultural marketing channels and strategies, - Price risk management (hedging, futures, options),
7. Farm Financial Management and Decision-Making: - Farm financial analysis and planning, Decision-making tools (break-even analysis, cost-benefit analysis)
8. Real-world examples of agricultural finance in practice

9. Group discussions and presentations

Suggested Readings:

- Graham, W. O. & G. Christie 2007 Financial management for Agribusiness, Landlinks Press.
- Brigham, E F. and J. F. Houston 2003. Fundamentals of Financial Management, Thomson Learning 12th Edition.
- Ralph, W. B. & R. C. Thompson 2000. Fundamentals of Agribusiness Finance, Wiley-Blackwell Publishers.

ABM-302	Agribusiness Management	3 (3-0)

Course Description:

Agribusiness Management provides a focused examination of the strategic and operational aspects essential for effective management within the agricultural sector. Students explore topics such as agricultural economics, supply chain optimization, marketing strategies, and sustainability practices. Through practical applications and case studies, participants gain insights into the dynamic challenges and opportunities inherent in agribusiness management, preparing them for leadership roles in this vital industry.

Course Objective:

- To develop some understanding of concepts, principles and issues in business management.
- Identify issues related to agricultural marketing and value chain management
- Comprehend applied agribusiness within the scope of agro-based industries

Student Learning Outcomes:

- Analyze the economic, environmental, and social factors influencing agribusiness operations, demonstrating an understanding of sustainable practices and ethical considerations.
- Develop strategic plans for agribusiness enterprises, integrating market research, financial analysis, and risk management strategies to optimize operational performance and foster growth.
- Communicate effectively with diverse stakeholders in the agribusiness industry, utilizing written, verbal, and visual communication skills to convey complex ideas, negotiate agreements, and build collaborative relationships.

Relevant SDGs:

SDG 2: Zero Hunger; SDG 8: Decent Work and Economic Growth; SDG 12: Responsible Consumption and Production

Course Outline:

Basic concept relating to agribusiness: scope, importance of agribusiness, agribusiness versus business; Agribusiness Management: planning, organizing, leading and controlling; Different forms of agribusiness organization; Scope and objectives of Agribusiness Management; Functions of management; Forms of business organizations; Role of Government in

Agribusiness management; Understanding the concept of agricultural markets and marketing; Supply chain management Production sector, Processing sector; Services sector; Changing dimension of Agribusiness; Principles of agribusiness value chain management; Product flow from farm to market; Information flow; Value flow and; Approaches to agricultural marketing system (institutional approach, commodity approach, value chain approach).

Suggested Readings:

- Downey, W.D. & Enieson, S.P. Agribusiness Management, Singapore, McGraw Hill.
- Akridge, J.T., F.L. Barnard, F.J. Dooley and J.C. Foltz. Agribusiness Management. 4th Ed. Routledge Publishers, London, UK.
- Barnard, F. L, J. T. Akridge, F.J. Dooley and J. C. Foltz. 2012 Agribusiness Management by, McGraw-Hill.

ABM-303	Production Economics	3 (3-0)

Course Description:

It explores the efficient allocation of resources in manufacturing processes, analysing factors like input-output relationships, cost minimization, and profit maximization. Students delve into optimization techniques, decision-making models, and supply chain dynamics to understand how firms can enhance productivity and competitiveness. The course integrates economic principles with practical applications, preparing learners to navigate real-world production challenges.

Course Objective:

To impart a deep understanding of production economics principles and methodologies, empowering students to optimize production processes and enhance organizational efficiency in real-world contexts.

Student Learning Outcomes:

- After completing the course, students will be able to understand the theoretical core of production economics.

Relevant SDGs:

SDG 8: Decent Work and Economic Growth; SDG 9: Industry, Innovation, and Infrastructure; SDG 12: Responsible Consumption and Production

Course Outline:

Definition and scope of agricultural production economics; Assumptions of static and dynamic production economics, production relationships, i.e. factor-product relationships, factor-factor relationship and product-product relationships; economic decision making under various production relationships; costs of production, returns to scale, technological change, resource allocation.

Suggested Readings:

- Debertin, D.L 1986. Agricultural Production Economics. McMillan Publishing Company, New York.
- Beatie, B. R. Taylor, C. R., and Myles, W.J. 2009. The Economics of Production. Krieger Publishing Company, New York.

ABM-304	Fundamentals of Accounting	3 (3-0)

Course Description:

This course provides a comprehensive introduction to basic accounting principles, techniques, and terminology essential for financial decision-making. Students will learn to prepare, analyse, and interpret financial statements, gaining proficiency in bookkeeping, financial reporting, and understanding the role of accounting in business management.

Course Objective:

To equip students with foundational knowledge of accounting principles and practices, enabling them to understand, interpret, and utilize financial information for effective decision-making in various organizational contexts.

Student Learning Outcomes:

After the completing the course, students will be able to:

- Understand the basic principles and concepts as they relate to practical accounting problems.
- Demonstrate an understanding of the concepts of accrual accounting.
- Analyse a business transaction into its debit and credit elements.

Relevant SDGs:

SDG 8: Decent Work and Economic Growth; SDG 12: Responsible Consumption and Production; SDG 4: Quality Education

Course Outline:

Introduction; Basic Financial Statement; The Accounting Cycle; Capturing Economic Events; Accounting Cycle; Accruals and Deferrals; The Accounting Cycle; Reporting Financial Results; Accounting for Merchandising Activities; Financial Assets and Article Presentation; Accounting Concepts; Generally Accepted Accounting Principles (GAAP); Professional judgment and ethical conduct; The consistency principle; The disclosure principle; Materiality principle and setting new accounting standards; International accounting standards overview; Accounting for merchandize business; Classified balance sheet; Simple and multiple Income statement; Design of accounting system; The company information needs; Basic functions of accounting system; Special journals; Controlling accounts and subsidiary ledger accounts; Data base systems and internal control; Accounts receivable; Notes receivable; Inventories and cost of goods sold; Ending inventory cost computation methods; Liabilities: definite and estimated liabilities; Loss contingencies and payrolls; Measuring cash flows: statement of cash flows and classification of cash flows, preparation of cash flow statements.

Suggested Readings:

- Wild, J.J., K.D. Larson, B. Chiappetta. 2007. Fundamental Accounting Principles. McGraw-Hill/Irwin, New York, NY. USA.
- Bettner, W.H. 2011. Financial and Managerial Accounting. 13thMcGraw-Hill, New York, NY. USA.
- Kaluza, J. 2008. Accounting: A Systems Approach. 8th Ed. McGraw-Hills Inc., New York, NY. USA.
- Ghani, M. A. 2006. Principles of Accounting. Pak Imperial Book Depot, Lahore, Pakistan.
- Meighs & Meighs. 2006. Accounting: The Basis of Business Decisions. 11th Ed. McGraw-Hill, New York, NY. USA.

ABM-305	Business Strategy and Policy	3 (3-0)

Course Description:

Business Strategy and Policy examines the formulation and implementation of strategic initiatives within organizations. Students analyze case studies and develop frameworks to address complex business challenges, fostering critical thinking and decision-making skills. Emphasis is placed on aligning business strategies with organizational goals, competitive dynamics, and external environments to drive sustainable growth and competitive advantage

Course Objective:

- Analyse the vision, mission, and core beliefs and values of a company, and relate it with their goals, objectives, and strategies.
- Assess the dynamics of the external environment including the macroeconomic and industry competitiveness using important theoretical frameworks.

Student Learning Outcomes:

The students will be able to:

- Evaluate the resources, capabilities, and core competencies of a given firm with respect to its strategic objectives.
- Understand the economic value added (EVA) analysis of a products and services offered by a given firm in relation to competitors
- Appraise the strategic architecture of the firm (differentiation, low-cost leadership, integration) by analysing competitive positioning and value offering to market segments.
- Assess the innovation potential in the corporate environment in terms of products, processes, and technologies used.
- Assess the corporate strategy in terms of its initiatives of vertical integration and diversification.
- Analyse the structure and culture of a firm using key concepts and frameworks.

Relevant SDGs:

SDG 8: Decent Work and Economic Growth; SDG 9: Industry, Innovation, and Infrastructure; SDG 17: Partnerships for the Goals

Course Outline:

Basics of Strategy and Strategic Management, what is Strategy and Why is it Important? Strategic Leadership: Managing the Strategy Process, External Analysis: Industry Structure, Competitive Forces, and Strategic Groups, Internal Analysis: Resources, Capabilities, and Core Competencies, Assessing Competitive Advantage, Business Strategy: Differentiation, Cost Leadership, and Integration, Business Strategy: Innovation and Entrepreneurship, Corporate Strategy: Vertical Integration and Diversification, Corporate Strategy: Mergers and Acquisitions, Strategic Alliances, Global Strategy: Competing Around the World, Organizational Design: Structure, Culture, and Control, Corporate Governance and Business Ethics

Suggested Readings:

- Strategic Management, by Frank T. Rothaermel (3rd Edition)
- Strategic Management: Creating Competitive Advantage: by Dess, Lumpkin, Taylor, 2nd Edition (DLT)
- Strategic Management: Concepts and Cases: by Fred R. David, 13th Edition

ABM-306	Consumer Behaviour	3 (3-0)

Objective: After the completing the course, students will be able to understand:
After studying this course, the students will be able to:

- Understand contemporary consumer behaviour.
- Analyse critically the task of marketing under contemporary conditions from a behavioural perspective.
- Examine the major functions that comprise the marketing task and their interactions with consumer behaviour.

Learning outcomes: By achieving these learning outcomes, students will be able to:
- Develop effective marketing strategies for agricultural products and services
- Understand consumer needs and preferences
- Analyze consumer data to inform business decisions
- Communicate effectively with consumers

Stay competitive in the agribusiness industry Analyze how consumer motivation, learning, and perception affect behavior.

1. Identify cultural and subcultural influences on consumer behavior.
2. Apply marketing mix strategies to influence consumer behavior.
3. Develop effective marketing strategies for agricultural products and services.
4. Conduct consumer research and analyze data to inform business decisions.
5. Critically evaluate the impact of consumer behavior on agribusiness marketing strategies.
6. Develop persuasive communication messages for agricultural products and services.
7. Understand the role of consumer behavior in shaping agribusiness opportunities and challenges.
8. Apply consumer behavior concepts to real-world agribusiness scenarios.

Relevant SDGs:

- SDG 8: Decent Work and Economic Growth
- SDG 12: Responsible Consumption and Production
- SDG 4: Quality Education
- SDG 10: Reduced Inequalities
- SDG 16: Peace, Justice and Strong
- SDG 17: Partnerships for the Goals

Course Contents:

1. Introduction to Consumer Behavior: - Definition and scope of consumer behavior, Importance of understanding consumer behavior in agribusiness,
2. Consumer Decision-Making Process, Problem recognition and information search, valuation of alternatives and purchase decision, post-purchase behavior and evaluation,
3. Consumer Motivation and Learning- Motivation theories (Maslow, Herzberg), Learning theories (classical conditioning, operant conditioning)
4. Consumer Perception and Attitudes: Perception process and factors influencing it, - Attitude formation and change.
5. Consumer Behavior and Culture : Cultural influences on consumer behavior, Subcultural and cross-cultural differences,
6. Consumer Behavior and Marketing Mix: Product, price, promotion, and place strategies How marketing mix affects consumer behavior,
7. Consumer Behavior in Agribusiness Understanding agricultural product consumers Consumer behavior in food markets.
8. Consumer Research and Analysis: Research methods for understanding consumer behavior Data analysis and interpretation techniques

Suggested Readings:

- Leon G. S., L.G.D. Bednall, A. O'Cass, A. Paladino, S. Ward and L. Kanuk. 2012. Consumer Behavior. Pearson Publishers, London, UK.
- Plessis, P.J., G.G. Rouseau and L. Ehiers. 2011. Buyer Behavior: Understanding Consumer Psychology and Marketing. 4th Ed. Oxford University Press, London, UK.
- Michael, R.S. 2010. Consumer Behavior. 9th Ed. Prentice Hall International Inc., New York, NY, USA.
- Leon, G.S. and L. Kanuk. 2008. Consumer Behavior. Pearson Education, New Delhi, India.
- Wright, R. 2006. Consumer Behavior. Cengage Learning Custom. Solutions, Boston, MA, USA

ABM-307	Supply Chain Management in Agriculture	3 (3-0)

Course Description:

The course delves into the intricate dynamics of agricultural supply chains, exploring topics such as sourcing, logistics, and distribution. Students gain insights into optimizing production, reducing waste, and enhancing sustainability within agricultural systems, preparing them to navigate the complexities of global food networks.

Course Objective:

To equip students with a deep understanding of agricultural supply chain management principles and strategies, empowering them to enhance efficiency, sustainability, and resilience within food systems, thereby contributing to global food security and economic development.

Student Learning Outcomes:

After the completing the course, students will be able to:

- Study issues across various spectrums of business and government's role in the agribusiness supply chain domain.
- Provide a clear, well-structured treatment provides a logical approach to key activities of agribusiness supply chain management.
- Develop best practices for making key marketing decisions and designing efficient and effective supply chains that meet global challenges.
- Use a mix of project, famous cases & articles on agri-supply chain management that span a wide range of issues and industries, the course would enable the participants to sharpen managerial decision-making skills.

Relevant SDGs:

SDG 2: Zero Hunger; SDG 12: Responsible Consumption and Production; SDG 13: Climate Action

Course Outline:

Agribusiness: Nature, Complexity, and Importance of Supply Chain, Role of Supply Chain Drivers for Success of Agribusiness , Agri Inputs: Production Centre to Farm Gate , Agri Farm Output: Farm Gate to Market Supply Chain Network, Agribusiness: Processors Supply Chain Challenges, Retailing of Agricultural Goods both Processed and Farm Fresh, Perishables and Challenges in Managing the Supply Chains, Role of Infrastructure for Managing Agri Supply Chains, Supply Chain Risk Mitigation Strategies in Agribusiness.

Suggested Readings:

- Chandrasekaran, N. and G. Raghuram 2014. Agribusiness Supply Chain Management, CRC Press.

ABM-308	Farm Planning and Budgeting	3 (3-0)

Objective: By achieving these objectives, students will be equipped with the comprehensive knowledge and practical skills necessary to manage and operate a farm business efficiently and sustainably.

- Understanding Farm Management Principles:
- Farm Planning Techniques:
- Financial Management and Budgeting
- Cost-Benefit Analysis:
- Resource Management:
- Marketing and Sales:
- Technology and Innovation:
- Decision-Making and Problem-Solving:

Learning outcomes: By achieving these learning outcomes, students will be well-prepared to manage farm businesses efficiently, make informed financial decisions, and contribute to the sustainability and profitability of the agricultural sector**.**
Demonstrate an understanding of key farm management principles and their practical application in farm operations.
Analyze and assess various factors influencing farm productivity and profitability.
Create detailed and realistic farm plans incorporating cropping schedules, livestock management strategies, and resource allocation.
Use planning tools and software effectively to simulate and optimize farm operations.
repare and interpret financial statements, including balance sheets and income statements, specific to agricultural businesses.
Develop and manage comprehensive budgets for farm operations, covering operational, capital, and cash flow aspects. Plan and manage farm resources, including land, labor, capital, and technology, to maximize efficiency and sustainability.
Apply modern technologies and innovations, such as precision agriculture and data analytics, to improve farm management practice.
Demonstrate critical thinking and problem-solving skills in addressing challenges and opportunities in farm management.
Use case studies and practical examples to develop strategic solutions for farm planning and budgeting issues

Relevant SDGs:

- SDG 1: No Poverty
- SDG 2: Zero Hunger
- SDG 8: Decent Work and Economic Growth
- SDG 12: Responsible Consumption and Production
- SDG 13: Climate Action
- SDG 15: Life on Land

Course Contents:
1. Introduction to Farm Planning and Budgeting: Overview of farm management and its importance, Objectives and scope of farm planning, Key concepts in budgeting and financial planning
2. Farm Management Principles: Principles of effective farm management, Decision-making processes in farm management
3. Farm Business Planning Farm management models and frameworks, Components of a farm business plan, developing a strategic farm plan, Setting short-term and long-term goals
4. Crop and Livestock Planning: Crop planning and rotation schedules, Livestock management planning, Integrating crop and livestock enterprises
5. Financial Statements and Analysis: Understanding balance sheets, income statements, and cash flow statements, financial ratios, and performance metrics, Analyzing farm financial health
6. Budgeting Techniques: Types of budgets: operational, capital, and cash flow budgets
Preparing and managing budgets, Monitoring, and adjusting budgets
7. Cost-Benefit Analysis: Conducting cost-benefit analysis for farm activities
Evaluating the economic viability of projects, Risk assessment and management
8. Marketing and Sales Planning: Market research and analysis, Developing marketing plans for farm products, Pricing strategies and sales channels
9. Agricultural Policies and Legal Considerations: Overview of agricultural policies and regulations, Impact of government programs and subsidies on farm operations
Legal issues in farm management
10. Technology and Innovation in Agriculture: Role of technology in modern farming Precision agriculture and data analytics, Adopting and integrating new technologies

Suggested Readings:

- Whole Farm Planning: Ecological Imperatives, Personal Values, and Economics" by Elizabeth Henderson and Karl North
- he Organic Farmer's Business Handbook: A Complete Guide to Managing Finances, Crops, and Staff - and Making a Profit" by Richard Wiswall

ABM-309	Advertising and Promotion	3 (3-0)

Course Description:

This course delves into the dynamic and multifaceted world of advertising and promotion, exploring the theories, strategies, and practices essential for effective communication in today's competitive marketplace. Through a blend of theoretical concepts and practical applications, students will gain a comprehensive understanding of the principles underlying advertising and promotion campaigns across various media platforms.

Course Objective:

To provide students with a comprehensive understanding of advertising and promotion principles, strategies, and practices, enabling them to develop effective campaigns across various media platforms and analyze their impact in the marketplace.

Student Learning Outcomes:

Equip students to provide:

- A thorough understanding of the theoretical principles and concepts of promotional strategy.
- Appreciating the growth of advertising mediums particularly from traditional to digital.
- Demonstration of the utilization and importance of the tools of strategic promotional management in various business scenarios.
- Demonstration of various practical tools of promotional and advertising management through case studies and theoretical literature.

Relevant SDGs:

SDG 12: Responsible Consumption and Production: SDG 12: Responsible Consumption and Production: SDG 17: Partnerships for the Goals

Course Outline:

Introduction and History of Advertisement Management, Crafting Marketing Strategy within the context of Business Strategy, The importance of Promotion within 4Ps; Tools of Promotion, Promotion and Company Vision, Mission and Brand Outlook, Promotion and Consumer Behaviour and Market Segmentation, Promotion and Brand Positioning in relevance to competition, Promotion and the creation of Message, Promotion in terms of business environment, Promotion and utilization of Media; Structure of media advertisement and agencies, Digitization and the enhancement and application of mediums for advertisement, Promotion and budget management; Promotion and the calculation of advertisement ROI, Solving Business Problems through advertisements, Finalizing the Advertising Brief and its various elements, Brand Management through Promotion, Fine tuning overall promotional strategy using all 6Ms.

Suggested Readings:

- Integrated Advertising, Promotion, And Marketing Communications, Kennet Clow,6th Edition, Pearson

ABM-310	Human Resource Management in Agriculture	3 (3-0)

Course Description:

Human Resource Management explores the strategic management of an organization's workforce, encompassing recruitment, training, development, and retention. Students learn to align HR practices with organizational objectives to enhance employee productivity, satisfaction, and organizational performance. Emphasis is placed on addressing contemporary HR challenges and fostering a positive workplace culture conducive to growth and innovation.

Course Objective:

- Develop understanding of various HRM functional capabilities required to plan, select, develop, and motivate workers.
- Develop an understanding of the impact of changing social, economic, technological and organizational environment on HR processes and practice.
- Prepare students to evaluate and apply theories of social science disciplines to workplace issues with the help of case study method.
- Develop students' ability to analyze and critically evaluate HR policies and practices and problems with the help of recent cases written by top institutes of the world.

Student Learning Outcomes:

- Students will demonstrate a comprehensive understanding of fundamental HR concepts, including recruitment, selection, training, performance management, and employee relations, enabling them to analyze and apply these concepts in real-world organizational contexts.
- Students will develop the ability to conduct strategic HR planning by assessing organizational needs, forecasting future workforce requirements, and designing HR strategies aligned with organizational goals, thereby contributing to the achievement of business objectives and sustainable growth.
- Students will acquire practical skills in implementing effective HR practices, such as talent acquisition, compensation management, employee development, and diversity and inclusion initiatives, fostering a positive work environment, enhancing employee engagement, and maximizing organizational performance.

Relevant SDGs:

SDG 8: Decent Work and Economic Growth; SDG 5: Gender Equality; SDG 10: Reduced Inequalities

Course Outline:

Basic Understanding of HRM, Strategic HRM, Job Analysis, Job Description and Ad preparation. Recruitment process, Personnel Planning, Employee Testing, Referral Letters and background checking exercise, How to conduct interviews, Role play for conducting interviews, Designing the training, Development of the employees, Performance Management, Goal Setting, Performance Appraisal, Career Development and management, strategic pay plans, pay for performance, financial and non financial incentive, agency theory, managing family businesses

Suggested Readings:

- Dessler/Griffiths/Lloyd-Walker, Gary Dessler, Fundamentals of Human Resource Management
- Human Resource Management by R. Wayne Mondy, Judy Bandy Mondy

ABM-311	Food and Agricultural Policy	3 (3-0)

Course Description:

The course explores the development, implementation, and impact of policies shaping food and agricultural systems. Students analyze regulatory frameworks, economic incentives, and social considerations to understand how policies influence production, distribution, and sustainability in the food sector.

Course Objective:

To equip students with a comprehensive understanding of food and agricultural policies, enabling them to evaluate their efficacy, advocate for informed policy decisions, and address challenges related to food security, sustainability, and equity.

Student Learning Outcomes:

After completion of the course the students will be able to:

- Analyze and critique existing food and agricultural policies, evaluating their socio-economic and environmental impacts on local, national, and global food systems.
- Apply theoretical frameworks and empirical evidence to formulate effective policy recommendations aimed at addressing challenges such as food insecurity, sustainable agriculture, and equitable access to nutritious food.
- Demonstrate an understanding of the political, economic, and cultural factors influencing the development and implementation of food and agricultural policies across different regions and contexts.
- Communicate effectively, both orally and in writing, about complex policy issues related to food and agriculture, engaging with diverse stakeholders and advocating for evidence-based policy solutions.

Relevant SDGs:

SDG 2: Zero Hunger; SDG 12: Responsible Consumption and Production; SDG 15: Life on Land

Course Outline:

Dimensions of food security; trends in global food production; Food and Agricultural policies and their objectives; Impact of Policy; macroeconomic policies and Agriculture; Frameworks for assessing policy distortions and its implications, Modelling of agriculture sector: Economic models of policy analysis for the examination of the impact of commodity, farm input, international trade and economic policies on Agriculture and the whole economy. Multi-market models for the analysis of equity, efficiency, self-sufficiency and balance of payment effects of Agriculture Policy. Trends towards trade liberalization and programs of policy reforms and their impact of trade performance of the —Agriculture Sector, household ‘s welfare and food security. Analysis of Agricultural Policies and programs under trade liberalization in developing countries. Adjustment of agriculture sector of a developing country under trade liberalization.

Suggested Readings:

- Schiff, M. and Valdes, A. The Political Economy of Agricultural Pricing Policy. Vol. 4. A synthesis of the Economics in Developing Countries. Published for World Bank. The John Hiftand University Press, Baltimore and London. 1991.
- Goldman R.H., Gradzins, C. and Mann, C. Agricultural Policy Analysis, A Training Manual, Harvard Institute for International Development, USA. 1990.
- FAO. Agricultural Policy: a Training Manual, Produced for FAO by the Harvard Institute for International Development. 1990.

ABM-312	Livestock Business Management	3 (2-1)

Objective: After studying this subject, students will be able to understand:

- Develop basic knowledge on dairy business as livelihood enterprise.
- Analyze livestock marketing management and its trends in Pakistan.
- Comprehend basic aspects of livestock sector as business entity.

Learning outcomes:

- Foundational Knowledge of Agribusiness and Livestock Management:
- Understand the principles of agribusiness and their application to the livestock sector.
- Economic and Market Analysis:
- Business and Financial Acumen:
- Technical and Operational Skills:
- Apply best practices in the management of livestock operation.
- Utilize modern technologies and innovations in livestock production,
- Strategic Planning and Management:
- Develop strategic plans for livestock businesses, incorporating market research, SWOT analysis, and risk management.
- Implement effective management practices to enhance productivity and profitability in livestock operations.

Relevant SDGs:

1. SDG 2: Zero Hunger
2. SDG 12: Responsible Consumption and Production
3. SDG 13: Climate Action
4. SDG 15: Life on Land

5. SDG 8: Decent Work and Economic Growth.
6. SDG 5: Gender
7. SDG 10: Reduced Inequalities

Course Contents:

Theory

An overview of livestock industry; Livestock as livelihood; Breeds of small ruminant; Equine and camel; Farming systems; Ecological zones of Pakistan; Introduction to rangelands; Grazing management systems; Draught animals of Pakistan and their contribution to national economy; Draught power versus mechanization; Gender role in livestock production; Establishing a profitable modern livestock enterprise; Planning business to meet future trends; Record keeping for business analysis; Manure handling and biogas production; Marketing channels of livestock and their products; Role of information technology in efficient management of livestock enterprises; Supply chain and value addition of livestock products; Problems of livestock sector and their possible solutions; Role and development of dairy Industry; Present scenario of dairy industry and its future prospects; Basic terminologies: dairy breeds of cattle and buffalo (indigenous and exotic); Livestock population and their products; Housing of dairy animals; Management of dairy animals at various phases of life; Milking methods; Reproductive management of dairy animals; Feeds and feeding management; Fodder preservation; Effect of climate on production and reproduction; Health and prophylaxis; Converting small holders to market oriented; Gender role in dairy production; Transportation of dairy animals; Welfare of animals; record keeping; Assessment of performance; Diary business financial opportunities.

Practical:

Identification of dairy breeds; Various managerial practices at dairy farms; Diary housing plans; Milking techniques; Clean milk production; Milk quality analyses; Ration formulation; Heat detection; Computerized farm records keeping and analysis; Fodder preservation techniques; Feasibilities to establish dairy farms; Visit to dairy farms; Various management practices at livestock farms :exercises to prepare feasibility to establish beef, sheep/goat and camel farms; Computerized farm records keeping and analysis; Role of ICTs in animal management; Comparative studies for small and commercial enterprises; Animal units and stocking rates; Determining, Carrying capacity; Forage production; Recreational sports (horse riding, tent pegging);Visit of farms and livestock industry.

Suggested Readings:

- Kohl, R.L. and J.N. Uhl. 2005. Marketing of Agricultural Products. 9th Ed. Prentice Hall of India Private Limited, New Delhi, India.
- Malcolm, B. and J. Makehame. 2006. Farming Game: Agricultural Management and Marketing. Cambridge University Press, London, UK.
- Mundy, P. 2010. Adding Value to Livestock Diversity. FAO Animal Production and Health, FAO, Rome, Italy.
- Norwood, F.B. and J.L. Lusk. 2007. Agricultural Marketing and Price Analysis. Prentice Hall Publishers, New Delhi, India.
- Vercammen, J. 2011. Agricultural Marketing: Structural Models for Price Analysis. 1st Ed. Routledge Publishers, London, UK.

ABM-401	Project Planning and Evaluation	3 (2-1)

Course Description:

Project Planning and Evaluation delves into the systematic processes of designing, implementing, and assessing projects across various sectors. Students learn to develop

comprehensive project plans, employ evaluation methodologies, and refine strategies to ensure successful project outcomes in diverse organizational contexts.

Course Objective:

To equip students with the knowledge and skills needed to effectively plan, implement, and evaluate projects, enabling them to address complex challenges, achieve objectives, and deliver measurable impact in their respective fields."

Student Learning Outcomes:

- Develop comprehensive project plans by integrating stakeholder needs, setting clear objectives, defining project scope, and establishing realistic timelines and budgets.
- Apply evaluation methodologies such as qualitative and quantitative assessments, stakeholder feedback, and impact analysis to monitor project progress, identify potential risks, and make informed adjustments to ensure project success.
- Communicate effectively through written reports, presentations, and stakeholder engagements to articulate project goals, achievements, and lessons learned, fostering accountability, transparency, and organizational learning.

Relevant SDGs:

SDG 9: Industry, Innovation, and Infrastructure; SDG 3: Good Health and Well-being; SDG 4: Quality Education

Course Outline:

Introduction, Economic and ethical foundations of public and private investment. Techniques of project planning in Agriculture. Characteristics of Agriculture Development projects. Project identification, preparation and appraisal. Identification of costs, and benefits and their pricing. Financial and Economic Analysis, Measures of comparing costs and benefits and their application, Monitoring and evaluation, SWOT analysis. CPM Techniques/ Project Evaluation and Review Techniques, Management and implementation problems of Agriculture Development Projects. Costs recovery and sustainability. Social, economic and environmental impact of projects. Equity and Efficiency consideration of agriculture Projects. Impact Assessment of NGOs- Case studies.

Suggested Readings:

- Gittinger, J. Price. Economic Analysis of Agricultural Project, Johns Hopkins University Press. 1993.
- ADB. Guidelines for the Economic Analysis of Projects. Asian Development Bank. 1997.
- FAO. Guidelines for Design of Agricultural Investment Projects. FAO Investment Centre, Technical Paper 7, 1996.
- Sinden, J.A. and D.J. Thampalillai. Introduction to Benefit-Cost Analysis Longmans, Melbourne. 1995.
- Perkins, Frances. Practical Benefit -Cost Analysis; Basic Concepts and Applications. Macmillan, Melbourne. 1994.

- Pakistan, Government of. Manual for Project Planning. Planning and Development Division, Islamabad.
- FARMOD. Manual for Economic and Financial Analysis. World Bank, Washington DC, 1998.
- Aslam, Muhammad. Development Planning in Pakistan (Revised Edition). Allied Book Centre, Urdu Bazzar Lahore. 2002.

ABM-402	Business Research Methods	3 (2-1)

Course Description:

Agribusiness Management explores strategic planning, financial analysis, and sustainable practices in agricultural enterprises, equipping students with skills vital for effective leadership. Through practical applications, students learn to navigate complex challenges and opportunities in the agribusiness sector, fostering innovation and economic growth while promoting sustainability.

Course Objective:

- Identifying the problems areas and formulating the research questions
- Understating different forms of research studies

Student Learning Outcomes:

- Learning the overall research framework and enhancing the basic skill set
- Applying theoretical knowledge to real life scenarios
- Data management and use of technology in research process
- Interpretation and inferences from the data

Relevant SDGs:

SDG 2: Zero Hunger; SDG 8: Decent Work and Economic Growth; SDG 12: Responsible Consumption and Production

Course Outline:

Introduction to Research, Types of Research, Scientific Approach and alternative approaches to research, Defining and Redefining the problem, The critical literature review, Theoretical framework and hypothesis Development, Elements of research design, Interviews, Data Collection Methods, Primary data collection methods, interviews, type of interview, conduct interviews, conduct focus group discussion, Observation, Administering questionnaires, Measurement of variable, scaling, reliability and validity, Types of scale Goodness of measure, reflective v/s formative measurement, Sampling, Quantitative Data Analysis, Introduction to Data analysis Software SPSS, Quantitative data analysis hypothesis testing, Type I and Type II error, Interpretation of Results, Qualitative Research, Research Report, Referencing.

Suggested Readings:

- Sekaran,U. Research Methods For Business: A Skill Building Approach, 7th edition. John Wiley & Sons, Inc., 2016.

- Cooper,D.R. & Schindler, P.S. Business Research Methods, 11th edition, McGraw-Hill

ABM-403	Agribusiness Entrepreneurship	3 (3-0)

Course Description:

Agribusiness Entrepreneurship offers a comprehensive exploration into the dynamic intersection of agriculture, business, and innovation. This course delves into the unique challenges and opportunities within the agricultural sector, providing students with a holistic understanding of the principles and practices essential for entrepreneurial success. Through a blend of theoretical concepts, case studies, and practical exercises, students will learn to identify market opportunities, develop business models, and navigate the complexities of agribusiness value chains. Topics covered include agricultural economics, supply chain management, sustainable agriculture practices, financial management, marketing strategies, and risk assessment. Emphasizing hands-on learning and real-world application, this course empowers students to become innovative leaders and change-makers in the global agribusiness landscape.

Course Objective:

To equip students with the knowledge, skills, and mindset necessary to develop and manage successful agribusiness ventures, fostering innovation, sustainability, and economic growth within the agricultural sector

Student Learning Outcomes:

The students will be able to:

- Understand the concepts of agri-entrepreneurship and capable to identify entrepreneurial characteristics and behaviour.
- Explore the factors influencing agri-entrepreneurship in agriculture in Pakistan
- Analyse the skills that are necessary for initiating new business ventures.

Relevant SDGs:

SDG 2: Zero Hunger; SDG 8: Decent Work and Economic Growth; SDG 12: Responsible Consumption and Production

Course Outline:

Concepts of entrepreneurship; Characteristics and types of entrepreneurs; Entrepreneurial approach; Entrepreneurial opportunities; Innovations and environment in business sector; Creativity and business ideas; Converting business ideas into business opportunities; Business plan; Feasibility and concepts of planning; Production plan; Marketing plan; Organizational plan; Financial plan and legal issues in business; Sources of capital; Entrepreneurial ventures; Corporate entrepreneurship; Need for entrepreneurship in agribusiness sector; Avenues of agricultural entrepreneurship in public and private sector; Entrepreneurship development and strategies for agriculture; Educational and social entrepreneurship in agriculture; Entrepreneurship in crop sector: horticulture sector, livestock sector, dairy sector, forestry, fisheries sector; Entrepreneurship in agro-based industries; Input markets; Output markets; Agribusiness centres for promoting agricultural entrepreneurship.

Suggested Readings:

- Alsos, G.A., S. Cater, E. Ljunggren and F. Welter. 2011. The Handbook of Research on Entrepreneurship in Agriculture and Rural Development. Edward Elgar Publisher, Cheltenham, London, UK.
- FAO. 2013. Entrepreneurship in Farming (Farm Management Extension Guide). Food and Agriculture Organization of the United Nations, Rome, Italy.
- Schmithusen. F., B. Kaiser, A. Schmidhauser, S. Mellinghoff, K. Perchthaler and A.W. Kammerhofer. 2013. Entrepreneurship and Management in Forestry and Wood Processing: Principles of Business Economics and Management Processes. Routledge Publication, London, UK.
- Sharma, M.C., R. Tiwari and J.P. Sharma. 2010. Entrepreneurship in Livestock and Agriculture. CBS Publishers and Distributors Pvt. Ltd., New Delhi, India

ABM-404	Pricing Analysis of Commodities	3 (3-0)

Objective:
After studying this course, the students will be able to:

- Understand the price determination and movements over time in agriculture sector.
- Estimate market margins and marketing costs in different market structures.
- Examine government intervention in pricing policies of farm products.

Learning outcomes: By achieving these learning outcomes, students will be able to analyse and interpret commodity prices, make informed pricing decisions, and develop effective pricing strategies to optimize profitability and sustainability in agribusiness.

- Understand the fundamental concepts of pricing and price analysis in agribusiness.
- Analyse the factors affecting commodity prices, including supply and demand, seasonality, and market trends.
- Apply economic models and tools to analyse and forecast commodity prices.
- Evaluate the impact of government policies, trade agreements, and market interventions on commodity prices.
- Develop skills in data analysis and interpretation to identify patterns and trends in commodity prices.
- Understand the role of futures markets and hedging strategies in managing price risk.
- Apply pricing strategies and tactics to optimize profitability in agribusiness firms.
- Develop critical thinking and problem-solving skills to address complex pricing issues in agribusiness.
- Communicate effectively to stakeholders about pricing decisions and market analysis.
- Understand the ethical and sustainable implications of pricing decisions in agribusiness.

Relevant SDGs:
1. SDG 2: Zero Hunger
2. SDG 12: Responsible Consumption and Production
3. SDG 8: Decent Work and Economic Growth

4. SDG 10: Reduced Inequalities
5. SDG 13: Climate Action
6. SDG 15: Life on Land

Course Contents:

Price determination and price discovery; Correction for inflation; Use of index numbers; Simple linear regression and estimation of trend; Price movements over time; Measuring cycles; Use of trends in measuring cycles; Use of moving average in measuring cycles; Seasonality of prices, measuring seasonality through simple average approach and moving average approach; Spatial price movements; Price movements associated with quality; Supply demand relationships; Estimation of demand and supply through multiple graphic correlation and regression analysis; Market margins and marketing costs; Market structures; Pure competition; Monopoly and monopsony; Oligopoly and oligopsony; Future markets; Product quotas and their implications; Price relationships on commodity futures markets; Functions of commodity futures markets; Government intervention in pricing farm products and their implications; Price support programme in Pakistan and its repercussions.

Suggested Readings:

- Vercammen, J. 2011. Agricultural Marketing: Structural Models for Price Analysis. 1st Ed. Routledge Publishers, London, UK.
- Norwood, F.B. and J.L. Lusk. 2007. Agricultural Marketing and Price Analysis. Prentice Hall Publishers, New Delhi, India.
- Tomek, W., G.K.L. Robinson. 2003. Agricultural Product Prices. Cornell University Press, Ithaca, NY, USA.
- Goodwin, J.W. 1994. Agricultural Price Analysis and Forecasting. John Wiley and Sons, New York, NY, USA.
- Niaz, M. S. 1995. Pricing of Farm Produce in Pakistan: Objective, Practices and Experiences. Print Associates International, Islamabad, Pakistan.

ABM-405	Sales Force Management	3 (3-0)

Course Description:

Sales Force Management" provides a comprehensive understanding of the strategies and techniques required to lead and optimize sales teams effectively. Through a blend of theory and practical application, students learn to develop sales plans, motivate teams, and enhance performance. This course equips individuals with the skills necessary to navigate the dynamic landscape of sales management and drive sustainable business growth.

Course Objective:

Main objective of this course is to empower students to learn the dynamics of market in effective manner and to implement in their daily routine tasks. This course reflects a true insight of a practical world where negotiation is an art of game.

Student Learning Outcomes:

It provides a sound knowledge of trade tactics and by acquiring them one can accomplish his/her goals. This subject covers a structure of a sales-oriented organization where strategic thinking, analysis, forecasting, designing numbers, implementation, growth, retention and control are the Key factors.

Relevant SDGs:

SDG 8 (Decent Work and Economic Growth); SDG 9 (Industry, Innovation, and Infrastructure); SDG 17 (Partnerships for the Goals)

Course Outline:

Brief discussion on marketing, sales & sales force, Hierarchy Structure of a sales department, Function of sales department, Recruitment and selection of Sales Personnel, Key Role of Sales Personnel, Organization expectations from Sales Personnel, Customer Life cycle, Importance of Customer Contact Management, Our attitude towards customer (4/20 rule), Identification of target customers, Potential Analysis of a Customer (Identifying the buying behavior, Focus on driving articles of the business, their percentage in the total volume, set Short term and Long term objectives for the customer), Performance grid of sales personnel's, MENTOR Technique, Setting of Qualitative & Quantitative Objectives, Eight Steps of Customer call, Market Visit technique, Techniques for devising a route plan, Resource Planning, Resource Allocation, Daily Visit Report, Meeting the customer, Identifying the potential, Turnover Analysis, Use SIMAC approach to convince the customer, Business Proposal, Making a Quotation, Forecasting Techniques, Making a Sales target of an areas, Setting KPIS, Achieving a Sales target, Business Plan/ Sales Plan, Target Market, Market Potential, Target customers, Market Share, Macro Factors, Micro factors, Issues Analysis, Setting the Objectives, Hiring of sales Force, Setting the sales targets, P & L, ROI, Next Five years growth, Controls, Implementation, Review of the whole business plan.

Suggested Readings:

- Sales Management – Eighth edition by Richard R. Still, Edward W.Cundiff and Norman A.P.

ID-101	Basic Agriculture	3 (2-1)

Course Description:

Basic Agriculture introduces fundamental concepts and practices in agricultural science and management. Students explore topics such as crop cultivation, soil management, and pest control, gaining foundational knowledge essential for sustainable farming practices.

Course Objective:

To provide students with a comprehensive understanding of basic agricultural principles and techniques, enabling them to apply sustainable farming practices and contribute to food security and environmental conservation.

Student Learning Outcomes:

After studying this course, the students will be able to:

- understand the basics of agriculture
- Know the principles of crop production,
- Identify the problems of Pakistan agriculture.

Relevant SDGs:

SDG 2: Zero Hunger; SDG 13: Climate Action; SDG 15: Life on Land,

Course Outline:

Theory

Agriculture-history; importance; branches and allied disciplines; Climate of Pakistan; its major characteristics, impact on crop production; Land resources and their utilization in Pakistan; Problems of Pakistan agriculture and different measures to enhance the productivity of agriculture inputs; Principles of crop production: tillage, its objectives and types, use of quality seed, seed multiplication and distribution systems, crop nutrition, manures and fertilizers, their classification; Composition: sources and methods of application, green manuring; Irrigation management: irrigation methods, water use efficiency; Plant protection: crop rotations, principles, types; Harvesting and storage of farm produce.

Practical

Measurement of land: conventional and metric system; Identification and use of hand tools and implements; Recording weather data and information about data recording instruments; Identification of various soil types; Determination of soil moisture contents: saturation percentage, field capacity and wilting point; Demonstration and use of tillage implements; Seed identification and purity analysis; Identification of organic and inorganic fertilizers and manures; Calculation of nutrient cum fertilizer unit value; Demonstration and layout of various irrigation methods; Major pests of field crops: their identification, demonstration of their control methods; Visits to grain stores and University Farms.

Suggested Readings:

- Abbas, M. A. 2012. General Agriculture. Emporium Urdu Bazar, Lahore, Pakistan.
- Cheema, Z.A. and M. Farooq. 2007. Agriculture in Pakistan. Allied Book Centre, Urdu Bazar Lahore, Pakistan.
- Khalil, I.A and A. Jan. 2010. Cropping Technology. National Book Foundation, Islamabad, Pakistan.
- Khan, S.R.A. 2001. Crop Management in Pakistan with Focus on Soil and Water. Directorate of Agricultural Information, Punjab, Lahore., Pakistan.
- Qureshi, M.A., M.A. Zia and M.S. Qureshi. 2006. Pakistan Agriculture Management and Development. A-One Publisher, Urdu Bazar, Lahore, Pakistan.

ID-102	Business Statistics	3 (2-1)

Course Description:

Business Statistics offers an essential foundation in quantitative analysis for managerial decision-making. Students explore statistical concepts, methods, and applications in business contexts, equipping them with the skills to interpret data, make informed decisions, and optimize business processes.

Course Objective:

To provide students with a solid understanding of statistical techniques applicable to business scenarios, enabling them to analyze data effectively, derive insights, and support strategic decision-making within organizations.

Student Learning Outcomes:

After the completing the course, students will be able to.

- Apply Statistics in various areas of Business and Social Sciences.
- Understand the language of statistics to collect, organize, analyse and obtain information from data for informed decisions.
- Orientation to business-related topics in applied statistics.

Relevant SDGs:

SDG 8: Decent Work and Economic Growth; SDG 4: Quality Education; SDG 9: Industry, Innovation, and Infrastructure

Course Outline:

Theory

What are Statistics; Tabular and Graphical Representation of Data; Describing Data using Numerical Measures; Introduction to Probability; Discrete Probability; Distribution; Continuous Probability Distribution; Sampling Distribution; The semi-interquartile; The mean or average deviation; The variance and standard deviation; Skewness; Kurtosis; Continuous random; Marginal probability functions; Software touch.

Practical

Introduction to statistical software tools: using software such as Excel, SPSS, Stata, or R for data analysis.

Hands-on sessions: applying statistical methods learned in class using software for data analysis and visualization.

Data entry; data editing; graphs; data analysis in Excel, SPSS or Stata

Suggested Readings:

- Choudhry, M. 2000. Introduction to Statistical Theory. Ilmi Kutab Khana, Urdu Bazar, Lahore, Pakistan.
- Johnson, R.A. 2005. Statistics: Principles and Methods. 5th Ed. Wiley, New York, NY, USA.
- Muhammad, F. 2015. Statistical Methods and Data Analysis. Kitab Markaz, Bhawana Bazar, Faisalabad, Pakistan.
- Sullivan, M. 2006. Statistics: Informed Decisions Using Data. 2nd Ed. Prentice-Hall, Upper Saddle River, NJ, USA.

ID-103	Soil and Environment	3 (2-1)

Course Description:

Soil and Environment delves into the intricate relationship between soil health and environmental sustainability. Students explore soil properties, conservation practices, and their impact on ecosystems, agriculture, and global environmental challenges.

Course Objective:

The course aims to deepen students' understanding of soil science and its role in environmental processes, equipping them with knowledge and skills to address soil degradation, promote conservation, and mitigate environmental impacts.

Student Learning Outcomes:

After studying this course, students will be able to:

- Understand the formation and development of soil in relation to environment
- Comprehend the soil properties for sustainable crop production
- Analyse the problems of Pakistan cropping system

Relevant SDGs:

SDG 15: Life on Land; SDG 13: Climate Action

Course Outline:

Theory

Introduction; Disciplines of Soil Science; Soil formation and development: factors and processes; Soil Orders found in Pakistan and land use pattern; Physical and chemical properties of soil; Soil Resources of Pakistan and factors affecting soil productivity; Soil organic matter and environmental factors; Essential plant nutrients and their sources; Soil textural classes and nutrient behaviour; Soil Problems: Salt-affected and waterlogged soils; Bio-saline agriculture for crop production on degraded soils; Environmental impact of agricultural, industrial and municipal wastes; Role of microbes to convert wastes into value added compost; Integrated soil fertility management for value added crop production; Conservation of soil, water and environment.

Practical

Soil sampling; Water sampling; Determination of soil saturation percentage; Measurement of soil pH and its effect on nutrient availability; Determination of electrical conductivity (EC); Calculation of total soluble salts (TSS) in irrigation water, Soil textural analysis: (Feel method); Identification and composition of commercial fertilizer.

Suggested Readings:

- Ahmad, N. and M. Rashid. 2003. Fertilizers and Their Use in Pakistan: An Extension Guide. Planning Commission, NFDC, Islamabad, Pakistan.
- Ashman, M. andG.Puri.2013. Essential Soil Science: A Clear and Concise Introduction to Soil Science. Wiley-Blackwell, Trenton, NJ, USA.
- Brady, N.C. and R.R. Weil. 2010. The Nature and Properties of Soils. 13th Ed., Prentice-Hall, Inc., Upper Saddle River, Trenton, NJ, USA.
- Gupta, P.K. 2006. Soil, Plant, Water and Fertilizer Analysis. Agrobios Publishers, New Delhi, India.

- Russell, E.J. 2013. The Fertility of the Soil. 1st Ed. Cambridge University Press, London, UK.

ID-201	Introduction to Forestry and Watershed Management	3 (2-1)

Course Description:

This course introduces students to the principles of forestry, watershed management, and their environmental and economic significance. It explores forest ecosystems, their role in biodiversity conservation, and the fundamentals of sustainable watershed management. Students will understand how forests and watersheds contribute to water regulation, soil preservation, climate resilience, and community development, particularly in agricultural contexts.

Course Objective:

To provide foundational knowledge and practical understanding of forestry and watershed management, emphasizing their role in environmental conservation, sustainable agriculture, and climate resilience.

Student Learning Outcomes:

By the end of this course, students will be able to:

- Explain the fundamental concepts of forestry and watershed management.
- Assess the environmental and economic benefits of sustainable forestry and watershed practices.
- Identify the challenges and opportunities in managing forest resources and watersheds in agricultural areas.
- Apply basic principles of watershed management to address soil erosion, water conservation, and forest restoration.
- Discuss the role of forests and watersheds in climate adaptation and resilience, especially in rural and agricultural communities.

Relevant SDGs:

SDG 6: Clean Water and Sanitation; SDG 13: Climate Action; SDG 15: Life on Land

Course Outline:

Introduction to Forestry and its Importance: Definition and types of forests, Importance of forests in ecological balance and biodiversity, Role of forests in supporting agricultural landscapes

Basic Principles of Watershed Management: Watershed definition and types, Watershed functions and hydrological cycle, Importance of watersheds in soil and water conservation

Forest Ecosystem Services: Biodiversity support and habitat protection. Forests' role in water regulation, soil conservation, and flood control. Carbon sequestration and climate regulation.

Watershed Degradation and Restoration: Causes of watershed degradation (deforestation, agriculture, pollution). Soil erosion and its impact on water resources. Techniques for watershed restoration and management

Sustainable Forest Management: Concepts and principles of sustainable forestry. Forest management practices, agroforestry, reforestation, afforestation. Forest policies and regulatory frameworks.

Watershed Management in Agriculture: Link between watershed health and agricultural productivity. Managing agricultural runoff and conserving water. Case studies of integrated watershed and agricultural management.

Forestry and Watershed Management Policies: Global, national, and local policies in forestry and watershed management. Pakistan's forestry and watershed management framework. Role of communities and NGOs in sustainable forest and watershed practices.

Emerging Issues and Future Trends: Climate change impacts on forests and watersheds. Technological advancements in forestry and watershed management. Future directions in policy and sustainable practices

Suggested Readings:

- Introduction to Forestry and Natural Resources by Donald L. Grebner, Peter Bettinger, and Jacek P. Siry
- Watershed Management: Guidelines and Principles by Gopal B. Bhagat
- Forestry Principles and Applications by T. Eugene Avery and Harold E. Burkhart
- Sustainable Watershed Management by J.A. Rapp and Thomas P. Bacon
- Relevant publications from the Food and Agriculture Organization (FAO) and Pakistan's Ministry of Climate Change

ID-202	General Crop Production	3 (2-1)

Course Description:

This course provides an overview of crop production principles, focusing on the essential practices and methods for effective crop management in Pakistan. Students will learn about the different stages of crop production, soil preparation, water management, pest control, and harvesting techniques. Emphasis will be placed on sustainable agricultural practices that optimize yield and support environmental conservation within Pakistan's agricultural sector.

Course Objective:

To equip students with foundational knowledge and skills in crop production techniques essential for efficient and sustainable agricultural practices in Pakistan.

Student Learning Outcomes:

By the end of this course, students will be able to:

- Describe key concepts and stages in crop production, from soil preparation to post-harvest management.

- Assess various agronomic practices for different crops, considering Pakistan's climate and soil conditions.
- Identify and implement sustainable practices in crop production that minimize environmental impact.
- Evaluate pest and disease management strategies for improving crop health and yield.
- Apply knowledge of irrigation and water conservation techniques suitable for Pakistani agriculture.

Relevant SDGs:

SDG 2: Zero Hunger; SDG 12: Responsible Consumption and Production; SDG 13: Climate Action

Course Outline:

Introduction to Crop Production in Pakistan: Importance of crop production in Pakistan's economy. Major crops of Pakistan: Wheat, rice, cotton, sugarcane, maize, and oilseeds. Challenges in crop production specific to Pakistan (e.g., water scarcity, soil degradation)

Soil Preparation and Fertility Management: Soil types in Pakistan and their suitability for various crops. Soil preparation techniques: tillage, plowing, and levelling. Soil fertility management: use of organic and inorganic fertilizers.

Seed Selection and Sowing Methods: Seed quality and its importance in crop yield. Seed treatments and germination practices. Sowing methods: broadcasting, drilling, and transplanting.

Water Management and Irrigation Practices: Importance of irrigation in Pakistan's agriculture. Types of irrigation methods: surface, sprinkler, and drip. Efficient water management practices for conservation (furrow, bed-and-furrow)

Crop Nutrition and Fertilizer Application: Nutrient requirements of major crops. Types of fertilizers and their application techniques. Timing and frequency of fertilizer application for optimal growth.

Weed and Pest Management: Identification of common weeds and pests in Pakistan. Integrated pest management (IPM) practices. Use of biological, chemical, and cultural control methods

Crop Diseases and their Management: Major crop diseases in Pakistan and their impact on yield. Disease identification and control strategies. Safe use of fungicides and other disease management tools

Harvesting and Post-Harvest Management: Harvesting techniques and timing for maximum yield. Post-harvest handling, storage, and transportation. Reducing post-harvest losses and ensuring crop quality

Sustainable Crop Production Practices: Conservation tillage and crop rotation. Organic farming and agroecological approaches. Climate-resilient practices for sustainable agriculture in Pakistan

Future Trends in Crop Production: Technological advancements in crop production (precision agriculture, remote sensing). Policy and governmental support for sustainable agriculture in Pakistan. Adapting to climate change and emerging challenges in crop production

Suggested Readings:

- Principles of Field Crop Production by John H. Martin and Warren H. Leonard
- Crop Production and Management by Kalyani Sharma and Vinay Sharma
- Agronomy and Crop Production in Pakistan by M.A. Khan
- Soil and Crop Management for Sustainable Agriculture in Pakistan by Dr. A. Latif
- Relevant reports from Pakistan Agricultural Research Council (PARC) and the Ministry of National Food Security & Research, Pakistan.

ID-203	Food Processing and Preservation	3 (2-1)

Course Description:

This course introduces students to the fundamental principles and techniques of food processing and preservation, focusing on methods to enhance food safety, extend shelf life, and reduce food waste. The course covers both traditional and modern preservation techniques, as well as the economic importance of food processing in Pakistan's agricultural industry. Students will gain insights into local and international food standards and explore innovative solutions for value-added food production.

Course Objective:

To provide students with comprehensive knowledge and practical skills in food processing and preservation, emphasizing sustainable practices and food quality improvement in Pakistan's agribusiness sector.

Student Learning Outcomes:

By the end of this course, students will be able to:

- Explain key principles and methods of food processing and preservation.
- Identify various preservation techniques suitable for different food products.
- Assess the impact of processing and preservation on food quality, safety, and nutritional value.
- Implement safe and efficient food processing methods aligned with industry standards.
- Understand the economic and societal benefits of food processing in reducing waste and enhancing food security.

Relevant SDGs:

SDG 2: Zero Hunger; SDG 3: Good Health and Well-Being; SDG 12: Responsible Consumption and Production

Course Outline:

Introduction to Food Processing and Preservation: Importance of food processing in Pakistan's agricultural economy. Overview of food preservation techniques and their historical context. The role of food processing in enhancing food security and reducing waste

Food Spoilage and its Causes: Types of food spoilage (microbial, enzymatic, chemical, and physical). Factors affecting food stability and shelf life. Methods to prevent and control food spoilage

Methods of Food Preservation: Traditional preservation methods: drying, salting, fermenting, and smoking. Modern preservation techniques: canning, freezing, irradiation, and pasteurization. Selection of suitable preservation techniques for various food types in Pakistan

Thermal Processing of Foods: Principles of heat treatment (pasteurization, sterilization, blanching). Effects of thermal processing on food quality and nutritional value. Industrial applications and equipment used in thermal processing.

Non-Thermal Food Processing Techniques: Cold processing methods: refrigeration, freezing, and modified atmosphere packaging. Emerging technologies: high-pressure processing (HPP), pulsed electric fields (PEF). Advantages and limitations of non-thermal processing methods.

Food Additives and Preservatives: Types of food additives and their functional roles (e.g., antioxidants, emulsifiers). Safety regulations and permissible limits for food additives. Risks and benefits of using additives in food preservation

Packaging and its Role in Food Preservation: Types of food packaging materials and their properties. Role of packaging in extending shelf life and maintaining food quality. Sustainable packaging solutions and reducing environmental impact

Food Quality and Safety Standards: Food safety regulations and standards (HACCP, ISO, FSMS). Food processing safety practices and hygiene requirements. Pakistan's food regulatory authorities and compliance requirements

Value-Added Food Processing: Concept and importance of value addition in agriculture. Techniques for producing value-added products (e.g., jams, juices, dried fruits). Market demand and economic benefits of value-added products in Pakistan

Innovations and Future Trends in Food Processing: Technological advancements in food processing (automation, AI, IoT). Trends in consumer preferences for natural, organic, and minimally processed foods. Potential for growth in Pakistan's food processing industry

Suggested Readings:

- Food Processing and Preservation by G. Subbulakshmi and Shobha A. Udipi
- Principles of Food Preservation by Norman Potter and Joseph H. Hotchkiss
- Food Processing Technology: Principles and Practice by P.J. Fellows
- Food Safety and Standards in Developing Countries by P. N. Lakshman
- Publications from the Pakistan Standards and Quality Control Authority (PSQCA) and the Ministry of National Food Security & Research, Pakistan.

ID-204	Fundamentals of Plant Protection	3 (3-0)

Course Description:

Fundamentals of Plant Protection introduces key principles and practices in safeguarding crops from pests, diseases, and weeds. Students explore integrated pest management strategies, pesticide application techniques, and sustainable approaches to ensure crop health and yield optimization.

Course Objective:

The course aims to equip students with a comprehensive understanding of plant protection principles and techniques, enabling them to effectively identify, prevent, and manage threats to crop health while promoting sustainable agricultural practices.

Student Learning Outcomes:

After studying this course, students will be able to:

- Comprehend basic terminologies related to plant protection and entomology
- Identify the insect pests and their control measures
- Apply different chemicals for the control of insect/pests

Relevant SDGs:

SDG 2: Zero Hunger; SDG 15: Life on Land; SDG 12: Responsible Consumption and Production

Course Outline:

Theory:

Economic threshold and injury levels; Principles of insect pest control; Control methods (natural/applied control, cultural, mechanical, physical, biological, legislative, reproductive and chemical); Integrated pest management. Importance of herbicides in crop production; Nomenclature; Classification; Formulations of herbicides; Herbicides for different crops and application equipment; Hazards; Toxicity, Storage; Transportation and disposal; Legislation and registration (Pesticide Control Act); Pesticides companies in Pakistan; Different groups of pathocides and methods of their application; Assessment of the efficiency of the pathocides; Development, formulation and evaluation of pathocides; Vertebrate pests (birds, mammals and reptiles): their biology, control measures; Potential insectivorous birds and their role in biological control of insect pests and rodents.

Practical:

Collection and identification of pests of agricultural importance and their damage; Demonstration of control measures. Identification of economically important weeds; Demonstration of herbicide application; Evaluation of herbicides in the field; Preparation and application of pathocides; Spray, seed-dressing and soil fumigant equipment and their working knowledge; Phytopathometery: identification of different vertebrate pests, their management in the field and storage.

Suggested Readings:

- Atwal, A.S. 2010. Agricultural Pests of South-east Asia and their Management. 5th Ed. Kalyani Publishers, Ludhiana. India
- Khan, M.A. 2012. Laboratory Manual for Chemotherapy of Plant Diseases. Department of Plant Pathology, University of Agriculture, Faisalabad, Pakistan.
- Pedigo, L.P. 2002. Entomology and Pest Management. 4th Ed. Prentice Hall, Upper Saddle River, NJ, USA.
- Prasad, D. 2007. Sustainable Pest Management. Daya Publishing House, Deva Ram Park, Tri Nagar, New Delhi, India.
- Ross, M.A. and C.A. Lembi. 2009. Applied Weed Science: Including the Ecology and Management of Invasive Plants. 3rd Ed. Prentice Hall, Upper Saddle River, NJ, USA.

ABM-411	Internship	3 (0-3)

Course Description:

To enable the students to execute a project report and providing them an opportunity for exposure to public or private organizations engaged in agribusiness and Agri Marketing.

Outline:

- Every student will be adjusted in any public or private organization engaged in agribusiness and marketing by their respective supervisor.
- It will be the responsibility of both (supervisor and supervisee) to complete the internship and submit the evaluation report.
- The students will be assigned an external supervisor at their workplace
- The external supervisor will evaluate the student's performance at its workplace based on the following:
  - Attendance and punctuality (20 marks)

    Take into account the employee's attendance record, punctuality, and adherence to company policies regarding work hours and time management.
  - Behaviour and attitude (20 marks)

    Assess the employee's professionalism, interpersonal skills, and overall attitude towards work, colleagues, and customers
  - Job knowledge and skills (20 marks)

    Evaluate the employee's proficiency in performing job-related tasks, as well as their level of expertise and competence in relevant areas,
  - Communication and teamwork (20 marks)

    Assess the employee's ability to communicate effectively with colleagues, clients, and stakeholders, as well as their contribution to team projects and collaboration efforts.
  - Quality and quantity of work (20 marks)

    Assess the accuracy, thoroughness, and effectiveness of the employee's work output. This can include the quality of products, services, reports, or any other deliverables. And measure the amount of work completed within a given time frame, taking into account productivity levels and workload expectations

ABM-412	Capstone Project	3 (0-3)

Course Description:

Thesis or dissertation is the partial fulfilment of the degree. A dissertation or thesis is a long piece of academic writing based on original research, submitted as part of a doctoral, master's, or bachelor's degree. A thesis is usually associated with master's degrees, although these terms can be interchangeable. The theory-oriented approach to the final thesis in higher

education is still dominant at the Master as well as Bachelor level. However, that at the Bachelor level a practice-oriented approach would be more appropriate. Bachelor's project report (Capstone Project) is claimed to be a bridge between education and the job market. The essential objective of the project is to contribute to theory building within a specific field of study through scientific research and thus it is predominantly theoretical in nature. The idea is that a qualified student teacher has to be capable of conducting scientific research on a modest scale. This approach aims to prepare students for the 'real world'. A dissertation or thesis is likely to be the longest and most difficult piece of work a student has ever completed. It can, however, also be a very rewarding piece of work since, unlike essays and other assignments. The student is able to pick a topic of special interest and work on their own initiative.

Project Outline:

- Students are allocated supervisors
- Research topic for project report is discussed in research committee
- Research committee also finalized the evaluators
- After finalization of project report, students work under the supervisor
- On completion project report is submitted after the approval of supervisor
- After evaluation of project report form evaluator, viva is conducted.

Suggested Readings:

- Halyna M., Kornuta, R., & Germaine, W. (2019). A concise guide to writing a thesis or dissertation: educational research and beyond, London: Routledge. https://doi.org/10.4324/9780429056888
- Masanja, N. M. (2019). Practical Handbook to Dissertation and Thesis Writing. Retrieved from https://uomustansiriyah.edu.iq/media/lectures/6/6_2020_03_03-08_53_23_AM.pdf
- Bell, D. J., Foster, S. L., & John D. C. (2019). Dissertations and Theses from Start to Finish: Psychology and Related Fields. (3rd Ed.). Retrieved from https://www.apa.org/pubs/books/4316188