Course Title: Research Projects and Scientific Writing
Course Code: FT-404
Resource Person:
Department: Food Science and Technology

School of Food and Agricultural Sciences (SFAS) Vision
SFAS endeavors to be a premier center of excellence, offering innovative, high-quality education and professional programs aimed at achieving academic and research excellence, enriching the lives of individuals and making a difference in the world of academia and industry, and to develop a society of professionals, who can contribute towards the betterment of their respective communities.

SFAS Mission
SFAS Mission SFAS provides an intellectually rich, collaborative, research-focused and dedicated learning environment for students, faculty, and staff, while serving the community at various levels. SFAS at UMT has been established with the aim to integrate recent advances in food sciences/technology and agricultural innovations.

Program Learning Objectives (PLO's)

Students graduating with BS Food Science and Technology shall be able to:

1. *Explain the basic principles of food sciences, and its multidisciplinary scope.*
2. *Explain the physical, chemical and biological properties of food and their effects on food safety, and sensory and nutritional quality.*
3. *Apply analytical techniques to characterize composition, and to identify physical, chemical and biological changes in foods.*
4. *Explain the effects of food processing, engineering, preservation, packaging, and storage on food safety and quality.*
5. *Identify the importance of food laws and regulations in ensuring safety and quality of the processed/manufactured foods.*
6. *Conduct applied research and use statistical tools in experimental design and data analysis.*
7. *Apply acquired knowledge to real world situations in food systems, components, production, and processes.*
8. *Apply critical thinking to professional problems.*
9. *Communicate effectively in both oral and written forms.*
10. *Develop organizational, teamwork, and leadership skills.*
11. *Demonstrate professional skills and thoughts of ethical, social integrity, and respect for diversity.*
12. *Demonstrate preparedness for continued reflective practice, and lifelong learning relevant to careers in food sciences.*

Course Objectives (CLO's)

After the completion of this course, a student will be able to:

1. *Explain and apply research terms, research process, principles, activities, skills, ethics and challenges associated with the research process*
2. *Describe quantitative, qualitative and mixed method approaches to scientific research*
3. *Apply the writing skills for preparing a well-articulated and logically structured academic text, oral presentation skills of a well-expressed and convincing argument.*

Learning Objectives

Sr. #	Course Learning Objectives	Link with Program Learning Objectives
1.	Explain and apply research terms, research process, principles, activities, skills, ethics and challenges associated with the research process	Conduct applied research and use statistical tools in experimental design and data analysis.
2.	Describe quantitative, qualitative and mixed method approaches to scientific research.	Conduct applied research and use statistical tools in experimental design and data analysis.
3.	Apply the writing skills for preparing a well-articulated and logically structured academic text, oral presentation skills of a well-expressed and convincing argument.	Apply critical thinking to professional problems. Communicate effectively in both oral and written forms. Develop organizational, teamwork, and leadership skills. Demonstrate professional skills and thoughts of ethical, social integrity, and respect for diversity.

Course Learning Outcomes

After successful completion of the course work, students have the skills to:

1. *Comprehend the* research process, principles, activities, skills, ethics and challenges associated with the research process.
2. *Describe the* quantitative, qualitative and mixed method approaches to scientific research.
3. Apply the writing skills and preparing a well-articulated and logically structured academic text, oral presentation skills of a well-expressed and convincing argument.

Teaching Methodology

Interactive classes:

1. *Use media to increase student engagement and improve learning outcomes.*
2. *Try adding metaphors to help students remember details.*
3. *Give students a real-world context with extra projects to reinforce skills.*
4. *Provide practical practice within your lessons. Making it relatable will do wonders.*

Case-based teaching:

Class Participation

Positive, healthy and constructive class participation will be monitored for each class. Particular emphasis will be given to participants during the presentation sessions. How the question is asked or answered will also be noted. Your behaviour, as business executives in the class will contribute to the class participation marks.

Word of Advice

Assignments/ projects are very demanding and time-consuming. Since you might be exposed to the real corporate environment, the ensuing reality checks could be demoralizing and frustrating. So, you must learn to handle intragroup conflicts and any clash of interests. Unless you start working on the assignments/ projects right away from the very first day you are likely to miss the deadlines.

Participant Responsibilities:

Students should be responsible enough to practice whatever they have learned during class sessions. They should also implement it to other subjects as well. They are expected to come prepared in the class.

Class activities:

Presentations

After careful analysis, resource person will constitute the groups to achieve balanced heterogeneity among groups, for group assignments/projects and will have the final decision in this regard. Every member of the group is expected to be able to handle all aspects of the assignments. Groups are not allowed to choose presenters for various parts of the presentations; instead, resource person will nominate them. Individuals will be judged for their understanding of the topic through question handling. Q/A section of the presentations will way heavily for grading of assignments/ projects.

Class Discussions:

During class, each student will work in a team on discussion questions. Teams will be assigned questions, allowed ten minutes for Internet research, and permitted five minutes to present their results. Points are earned by active participation with your team.

Applied Projects:
This is a practical-based course. Regular attendance is the best predictor of success. Students will perform different practices with detailed instructions, teacher demonstrations, and video tutorials.

STUDENTS ARE REQUIRED TO READ AND UNDERSTAND ALL ITEMS OUTLINED IN THE PARTICIPANT HANDBOOK

Class Policy:

Be on Time

You need to be at class at the assigned time. After minutes past the assigned time, you will be marked absent.

Mobile phone Policy

TURN OFF YOUR MOBILE PHONE! It is unprofessional to be texting or otherwise.

Email Policy

READ YOUR EMAILS! You are responsible if you miss a deadline because you did not read your email. Participants should regularly check their university email accounts regularly and respond accordingly.

Class Attendance Policy

A minimum of 80% attendance is required for a participant to be eligible to sit in the final examination. Being sick and going to weddings are absences and will not be counted as present. You have the opportunity to use 6 absences out of 30 classes. Participants with less than 80% of attendance in a course will be given a grade 'F' (Fail) and will not be allowed to take end-term exams. International students who will be leaving for visas during semester should not use any days off except for visa trips. Otherwise, they could reach short attendance.

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Withdraw Policy

Students may withdraw from a course till the end of the 12th week of the semester. Consequently, grade W will be awarded to the student which shall have no impact on the calculation of the GPA of the student. A student withdrawing after the 12th week shall be automatically awarded an "F" grade which shall count in the GPA.

Moodle

UMT –LMS (Moodle) is an Open-Source Course Management System (CMS), also known as a Learning Management System (LMS). Participants should regularly visit the course website on MOODLE Course Management system and fully benefit from its capabilities. If you are facing any problem using Moodle, visit http://oit.umt.edu.pk/moodle. For further query send your queries to moodle@umt.edu.pk .

Harassment Policy

Sexual or any other harassment is prohibited and is constituted as punishable offense. Sexual or any other harassment of any participant will not be tolerated. All actions categorized as sexual or any other harassment when done physically or verbally would also be considered as sexual harassment when done using electronic media such as computers, mobiles, internet, emails etc.

Use of Unfair Means/Honesty Policy

Any participant found using unfair means or assisting another participant during a class test/quiz, assignments or examination would be liable to disciplinary action.

Plagiarism Policy

All students are required to attach a "Turn in" report on every assignment, big or small. Any student who attempts to bypass "Turn tin" will receive an "F" grade which will count towards the CGPA. The participants submit the plagiarism report to the resource person with every assignment, report, project, thesis, etc. If a student attempts to cheat "Turn tin", he/she will receive a second "F" that will count towards the CGPA. There are special rules on plagiarism for final reports etc. all outlined in your handbook.

Communication of Results

The results of quizzes, midterms, and assignments are communicated to the participants during the semester and answer books are returned to them. It is the responsibility of the course instructor to keep the participants informed about his/her progress during the semester. The course instructor will inform a participant at least one week before the final examination related to his or her performance in the course.

Course Outline

Course code: FT-404 **Course title**: Research Projects and Scientific Writing

Program	BS Food Science and Technology
Credit Hours	3 (3-0)
Duration	16 Weeks
Prerequisites (If any)	Research Projects and Scientific Writing
Resource Person Name and Email	
Counseling Timing & Room #	3 hours per week (STD 502)
Contact no.	-
Web Links	-

Director Programme Signature_____

Date_____

Dean's signature_____

Date_____

Grade Evaluation Criteria

Following is the criteria for the distribution of marks to evaluate final grade in a semester.

Marks Evaluation	Marks in percentage
Class Presentation	10%
Quizzes	10%
Assignments	10%
Class Project	10%
Mid-Term	20%
Final exam	40%
Total	**100%**

Recommended Text Books:

1. G. J. Privitera, (2018). Research Methods for Education. Sage Publications, Inc. (ISBN: 978-1-5063-0332-1).
2. C.R. Kothari, (2004). Research Methodology: Methods and techniques (2nd ed.). New Age International (P) Ltd., Publishers. (ISBN (13): 978-81-224-2488-1).
3. Tuckman, B. W. & Harper, B. E. (2012). Conducting educational research (6th ed.). Lanham, MD: Rowan & Littlefield Publishers. (ISBN: 978-1-4422-0964-0).
4. Rubin, Allen & Babbie, Earl (2009). Essential Research Methods for Social Work, Cengage Learning Inc., USA.

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No	Topics to be covered in the course	Learning Objective of this topic	Expected Outcomes from Students	Teaching Method	Assessment Criteria	Deadlines and Homework
1	Introduction to need of research and research process, and importance of research	To define the research To explain the need and importance of research To familiar with the processes involved in conducting the research	Improve understanding of the research and research process	Lecture slides Short assignment	Class Participation	Within a Week
2	Selection of research approach, strategies and ethical considerations	To classify the variations in the research approach To explain the strategies and ethical considerations in research process	Improve understanding of research approaches and strategies	Lecture slides Case study	Class Participation	Within a Week
3	Research problem, research question, hypothesis and research objectives	To learn the identification of the research problem To demonstrate different hypothesis and research objectives	Improve the understanding of research problem and formulation of research question and hypothesis	Lecture	Class participation	Within a Week
4	Introduction to research methods, quantitative research designs and methods, analysis and interpretation of data	To describe the research methods and research designs for quantitative research To learn the analysis and interpretation of the research data	Improve the understanding of the research methods and quantitative research	Lecture Literature review	Quiz Class participation	Within a Week
5	Introduction to qualitative research design and methods and analysis and interpretation of the data.	To describe the research methods and research designs for qualitative research To learn the analysis and	Students understanding will be improved by understanding the	Lecture Literature review Video tutorial	Quiz Case study	Within a Week

		interpretation of the research data	qualitative research designs and methods			
6	Introduction to mixed research designs and methods, analysis and interpretation of mixed data.	To describe the research designs for different type of research To understand the analysis and interpretation of the data for various research types	Improve the understanding regarding the different types of the research designs and methods	Lecture Practical	Case study Class participation	Within a Week
7	Guest Lecture 1	TBD				Within a Week
8	**Revision & Mid Exams**					
9	Presentation styles, format and types of scientific presentations	To familiar with the process of presentation preparation To understand the different presentation styles and formats	Improve the understanding regarding the presentation preparation for the scientific research	Lecture Class discussions	Class projects Quiz	Within a Week
10	Collection and management of the data collection from different sources	To identify the data collection methods To understand the management of the collected data from different sources	Improve the understanding regarding the collection and management of the research data	Lecture Quiz Surprise test	Class projects Quiz	Within a Week
11	Writing research proposal, synopsis and thesis	To familiar with the process of drafting a research proposal To understand the process of writing synopsis and thesis	Improve the understanding regarding the process of research proposal writing	Lecture Assignment	Class projects	Within a Week

12	Writing scientific paper and reports.	To understand about the writing of the scientific paper and reports	To improve the understanding regarding writing the scientific paper and reports	Lecture Slides Class discussions Class project	Class projects	Within a Week
13	Guest Lecture 11	**To be Decided**				Within a Week
14	Referencing style and formats	To describe the different referencing styles for the collected data Understand the formats for writing the references	To improve the understanding regarding different referencing styles and formats	Lecture	Whiteboard test Quiz	Within a Week
15	Integrity in scientific publications and project presentation	To understand the integrity and responsibility in conducting the scientific research To familiarize with the ethical considerations of the research projects and publications	To enhance the understanding of the integrity and ethical considerations in research projects	Class participation Class projects Q/A session	Class presentation Viva	Within a Week
16	Final Examination	Application of all the concepts learned		On campus examination	Paper	Within a Week
	Result Display					

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