COURSE SYLLABUS IN ITP 222: QUANTITATIVE METHODS

Course Title: ITP 222: Quantitative Methods	**Instructor:** NICKO A. MAGNAYE
Prerequisite: ITP 121 – Discrete Mathematics	**Class Schedule:**
Credit Units: 3	**Consultation Hours:**
Number of Hours: 3 hours/week	**Term:** Second Semester 2023-2024

COLLEGE OF COMPUTER STUDIES VMGO

Vision

The College of Computer Studies is a center of excellence in computer studies and a dependable and reliable choice in producing competent, responsible, skilled, and morally upright individuals that conform to the scientific, technological, and professional demands and requirements of the business, industries, and communities.

Mission

The College of Computer Studies is committed to provide accessible, responsive, efficient, and quality pedagogy in computer studies that promotes holistic development of the students imbued with the core values – resilience, integrity, commitment and excellence. Moreover, the College prepares the students to be creative, innovative, and globally competitive individuals equipped with the skills, virtues, and academic development in information technology education programs and related disciplines.

BSIT Program Goal

Generally, the goal of the Bachelor of Science in Information Technology program is to produce graduates who are globally competitive in the field of information technology and are equipped with proper values, skills, and attitudes of true professionals.

BSIT Program Objectives

Specifically, the program has the following objectives:

1. Provide practical knowledge and skills in the operation, installation, management, and administration of information technology system;
2. Promote lifelong learning and the competencies learned leads to the development of the full potential of the students;
3. Produce competent, responsive, and IT-skilled graduates capable of conducting advanced studies and research in the field of information technology; and
4. Build a capacity of personal, social values, and self-reliance in the service areas of information technology education.

CORE VALUES

Resilience, Integrity, Commitment and Excellence

PROGRAM OUTCOMES:

1. Apply knowledge of computing science, and mathematics appropriate to the discipline.
2. Understand best practices and standards and their applications.
3. Analyze complex problems, and identify and define the computing requirements appropriate to its solution.
4. Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems.
5. Design, implement, and evaluate computer- based systems, processes, components, or programs to meet desired needs and requirements under various constraints.
6. Integrate IT-based solutions in the user environment effectively.
7. Apply knowledge through the use of current techniques, skills, tools and practices necessary for the IT profession.
8. Function effectively as a member or leader of a development team recognizing the different roles within a team to accomplish a common goal.
9. Assist in the creation of an effective IT project plan.
10. Communicate effectively with the computing community and with society at large about complex computing activities through logical writing, presentations, and clear instructions.
11. Analyze the local and global impact of computing information technology on individuals, organizations and society.
12. Understand professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology.
13. Recognize the need for an engage in planning self-learning and improving performance as a foundation for continuing professional development.

14. Applies the principle and concepts of entrepreneurial management in IT business.
15. Shares ideas, concepts, and principles and skills relevant to the computing industry

COURSE DESCRIPTION:

The course introduces the quantitative methodologies in analyzing the real-life problems in the field of Information Technology computing. It covers techniques of quantitative model formulation and evaluation, using relevant computer software, to solve practical business problems, critical skills of data analysis and interpretation for decision making. The course also provides an overview of modeling and simulation research techniques designed to support the development of skills related to machine learning, pattern classification and dynamic systems modeling approaches. Specifically, it focusses on Combinatorial mathematics, functions; fundamentals of differentiation and integration; study of elementary probability theory, discrete and continuous distributions, research problems, measured data, statistical methods, statistical description and data analysis.

COURSE OUTCOMES:

At the end of the semester, the students must have:

1. Understood the concepts, advantages and disadvantages of the different types of research.
2. Gained how to make an effective and efficient researches.
3. Prepared effective and professional research project.
4. Understands and develops his/her critical thinking to solve the solution for complex computing problems.

LINK TO PROGRAM OUTCOMES:

Course Outcomes:	**Course Outcomes:**	**PROGRAM OUTCOMES**														
	After completing this course, the students must have:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
	CO1.Understood the concepts, advantages and disadvantages of the different types of research.	**I**						**I**			**E**		**E**		**D**	**D**
	CO2. Gained how to make an effective and efficient researches.	**I**				**I**	**E**	**E**			**E**			**E**	**D**	
	CO3. Prepared effective and professional research project.	**I**		**I**		**E**	**E**	**E**						**E**	**D**	**D**
	CO4. Understands and develops his/her critical thinking to solve the solution for complex computing problems	**I**		**I**		**E**	**E**	**E**		**E**	**D**	**D**		**E**	**D**	**D**

COURSE OUTLINE:

Week	Course Outcomes	Topics	Teaching/ Learning Activities	Assessment
Week 1 (1 hour)	At the end of the semester, the students must have: 1. explained the VMGO and core values of the institution	**MinSU VMGO** 1. VMGO 2. Core Values 3. Academic policies 4. Course Syllabi	Discussion of VMGO and Core Values	Pictographic Presentation

Week	Course Outcomes	Topics	Teaching/ Learning Activities	Assessment
	2. exemplified the VMGO and core values 3. applied the core values 4. reflected on the value of institution's academic policies internalized the VMGO, core values of the college as well as the academic policies		The students will be given Situational Analysis related to VMGO Memorization and deep understanding of the VMGO in class	Graded Recitation
Week 1-3 (8 hours)	At the end of the topic, the students are expected to: **CL01** • defined basic terminologies in this course as well as the meaning and importance of research • gained the advantages and disadvantages of research • Describe characteristics, strengths, weakness and kinds of quantitative research • Illustrate the importance of quantitative research across fields • Differentiate the kinds of variables and their uses	**Chapter 1** **Nature of Inquiry and Research** • Quantitative Research • Characteristics of Quantitative Research • Strengths of Quantitative Research • Weaknesses of Quantitative Research • Kinds of Quantitative Research • Importance of Quantitative Research • Variables • Types of Variables	Discussion Demonstration Lecture using LED TV/ LCD Projector, Laptop, whiteboard and pen Group/Individual Activity Research Work	Quizzes Oral Recitation Seatwork/ Activity Presentation of Output Checking of Written Output
Week 4 - 6 (9 hours)	At the end of the topic, the students are expected to: **CL02** • Locate the different sources of problems of research topics. • Enumerate criteria in selecting a research topic • Design and present a good title for a research topic • Demonstrate skills in identifying, selecting or formulating a problem • Present written statement of the problem • Describe the background of research • State relevant research questions • Indicate scope and delimitation of the study • Cite benefits and beneficiaries of the study	**Chapter 2** **Identifying and Starting the Problem** • Research as the Art of Inquiry, Revisited • Research Topic • Sources of Research Topics or Problems • Selecting the Research Topic • Selected Guidelines in the Formulation of a Research Title • Characteristics of a Good Title • Background of the Study • Statement of the Problem • Scope and Delimitation of the Study • Significance of the Study	Discussion Demonstration Lecture using LED TV/ LCD Projector, Laptop, whiteboard and pen Group/Individual Activity Research Work	Quizzes Oral Recitation Seatwork/ Activity Presentation of Output Checking of Written Output
Week 7 -8 (6 hours)	At the end of the topic, the students are expected to: **CL03** • Select Relevant Literature	**Chapter Three: Learning from Other Studies and Reviewing the Literature** • The Importance of Related Theories and Concepts	Discussion Demonstration Lecture using LED TV/ LCD Projector,	Quizzes Oral Recitation Seatwork/ Activity

Week	Course Outcomes	Topics	Teaching/ Learning Activities	Assessment
	• Cite related Literature using Standard Style (APA, MLA and IEEE) • Synthesize information from relevant literature • Follow ethical standards in writing related literature • Illustrates and explain conceptual framework • Define terms in the study • List research hypotheses • Presents written review of related literature and conceptual framework	• Purposes of the Review of Related Literature and Studies • What, Where and How to Find Information • Types of Literature Reviews • Functions of Review of Literature and Studies • Characteristic of the Materials Cited • Citation Style Guide • Research Ethics • Basic Principle of Ethical Practice • Plagiarism • Twenty-five Ethical Guidelines (Roig, 2002) • Protecting the Intellectual Property in the Philippines	Laptop, whiteboard and pen Group/Individual Activity Research Work Case Studies	Presentation of Output Checking of Written Output
Week 8-9 (3 hours)	The students must have: Presented and defended the research project and the documentation.	**PRE-ORAL DEFENSE**	Research Project Presentation and Defense	**Rubric**
MIDTERM EXAMINATION - WEEK 9 ***(1 hour)***				
Week 10- 11 (6 hours)	At the end of the topic, the students are expected to: **CL04** • Choose appropriate quantitative research design • Describe sampling procedure • Construct an instrument and establishes its validity and reliability • Plan data collection • Plan data analysis using statistics and hypotheses testing • Present written research methodology • Implement design principles to produce research work.	**Chapter Four: Understanding Data and ways to Systematically Collect Data** • Descriptive Research Designs • General Considerations in Descriptive Research • Experimental Research Designs • Historical Research Designs • Sampling Techniques • Instrumentation • Quantitative Data Collection Methods • Quantitative Analysis • The Writing of Methodology	Discussion Demonstration Lecture using LED TV/ LCD Projector, Laptop, whiteboard and pen Group/Individual Activity Research Work Case Studies	Quizzes Oral Recitation Seatwork/ Activity Presentation of Output Checking of Written Output
Week 12-14 (9 hours)	At the end of the topic, the students are expected to: **CL05** • Collect data using appropriate instruments • Present and interpret data in tabular and graphical forms • Use statistical techniques to analyze data – study of differences and relationships limited for bivariate analysis.	**Chapter Five: Finding Results Through Data Collection** • Data Collection Procedure • Strategies for Collecting Data • Sample Research Questionnaires • Methods of Data Processing	Discussion Demonstration Lecture using LED TV/ LCD Projector, Laptop, whiteboard and pen Group/Individual Activity	Quizzes Oral Recitation Seatwork/ Activity Presentation of Output

Week	Course Outcomes	Topics	Teaching/ Learning Activities	Assessment
		• Steps in Data Processing • Scope and Purpose of Data Analysis • Key Components of a data analysis plan • Data Interpretation • Stage of Analysis and Interpretation of findings • Sample Results and Discussion • Basic Statistical Tool	Research Work Case Studies	Checking of Written Output
Week 15 - 17 (9 hours)	At the end of the topic, the students are expected to: **CL06** • Draw conclusions from research findings • Formulate recommendations • Present written research report • Finalize and present best design • Present research output.	**Chapter Six: Reporting and Sharing of Research Outputs Drawing Conclusion** • Formulating the Recommendation of the Study • Finalizing the Research Draft/Report • Revising and Editing Research Draft and Preparing the Final Research paper • Key Components of a Final Research Paper or Article • Guidelines for Best Oral/Podium Research Presentation • Preparing for the Oral Presentation of the Research Report • Sample PowerPoint Presentation	Discussion Demonstration Lecture using LED TV/ LCD Projector, Laptop, whiteboard and pen Group/Individual Activity Research work Case Studies	Quizzes Oral Recitation Seatwork/ Activity Presentation of Output Checking of Written Output
Week 17-18 (3 hours)	The students must have: 1. Presented and defended the research project and the documentation.	**FINAL DEFENSE**	Research Project Presentation and Defense	
FINAL EXAMINATION - WEEK 18 ***(1 hour)***				

COURSE POLICIES:

1. Students are expected to comply with all the requirements of the course.
2. A student will be dropped from the class if his or her absences exceeded 20% of the total class hours.
3. Student shall abide the instructor/professor's policy on the submission of learning outputs based on the metrics and deadlines given.
4. Submission of requirements, activities and written outputs should only be made on or before the deadline.
5. Academic dishonesty like cheating in any examination, plagiarism and the like will be penalized as stipulated in the MinSCAT Student Handbook.
6. Always visit our Facebook Group Chat and Google Classroom for Course announcements and updates. Active participation individually or in group is expected.

COURSE REQUIREMENTS

- Major Exams
- Quizzes/Exercises
- Oral and Written Output
- Research Projects
- Class Attendance
- Class Participation
- Suggested Research Work/Assigned Reports
- Compilation of research Work
- Project Manuscript -Chapters 1 to 5

GRADING SYSTEM:

Written Output (Assignment, Quizzes etc)	30%
Performance Tasks (Research Paper, Porfolio, Laboratory Exercises, Project, Attendance etc.)	40%
Major Examination (Midterm & Final)	30%
Total	**100%**

Final Grade = (Midterm Grade + Tentative FG) /2

LEARNING RESOURCES

Textbooks

Moore, D. S., McCabe, G. P., Alwan, L. C., Craig, B. A., & Duckworth, W. M. (2016). The practice of statistics for business and economics. WH Freeman.
Bowerman, B. L., O'Connell, R. T., Murphree, E. (2011). Business statistics in practice. New York: McGraw-Hill/Irwin.
Myatt, G. J., & Johnson, W. P. (2007). Making sense of data (Vol. 3). Wiley.
Statistics for the Behavioral Sciences, 10e by Gravetter
Business Statistics in Practice, 8e by Bowerman
Statistics for Business & Economics, 13e by Anderson
A Worktext in Writing in the Discipline: enhancing basic research by Maria Teresa Antonio
How to Design and Evaluate Research in Education by Jack R. Fraenkel and Norman E. Wallen
Writing your thesis by Oliver, Paul
Becoming an Academic Writer: 50 exercises for paced, productive, and powerful writing by Patricia Goodson
Business Communication in the Corporate World by Emelita S. Custodio
Technical writing for publication in journals and for presentation: simple procedures and practical tips in developing a thesis or research report for a refereed journal and for oral or poster presentation by Bautista, Ofelia K.
Statistics: basic concepts and applications by Roland S. Zorilla
A Simple Guide to SPSS: for version 17.0 by Lee A. Kirkpatrick
Basic of Probability and Statistics: a step-by-step approach by Winston S. Sirug

Prepared by:

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