CvSU Vision

The premier university in historic Cavite recognized for excellence in the development of globally competitive and morally upright individuals.

Republic of the Philippines
CAVITE STATE UNIVERSITY NAIC
(Formerly CAVITE COLLEGE OF FISHERIES)
Bucana Malaki, Naic, Cavite
www.cvsu-naic.edu.ph

CvSU Mission

Cavite State University shall provide excellent, equitable and relevant educational opportunities in the arts, science and technology through quality instruction and relevant research and development activities.

It shall produce professional, skilled and morally upright individuals for global competitiveness.

TEACHER EDUCATION DEPARTMENT
Bachelor of Secondary Education 1-English

COURSE SYLLABUS
1st Semester, AY 2021-2022

Course Code	GNED 03	**Course Title**	MATHEMATICS IN THE MODERN WORLD	**Type**	Lecture	**Credit Units**	3
Course Description	This course deals with nature of mathematics, appreciation of its practical, intellectual, and aesthetic dimensions, and application of mathematical tools in daily life. The course begins with an introduction to the nature of mathematics as an exploration of patterns (in nature and the environment) and as an application of inductive and deductive reasoning. By exploring these topics, students are encouraged to go beyond the typical understanding of mathematics as merely a set of formulas but as a source of aesthetics in patterns of nature, for example, and a rich language in itself (and of science) governed by logic and reasoning. The course then proceeds to survey ways in which mathematics provides a tool for understanding and dealing with various aspects of present-day living, such as managing personal finances, making social choices, appreciating geometric designs, understanding codes, used in data transmission and security, and dividing limited resources fairly. These aspects will provide opportunities for actually doing mathematics in a broad range of exercises that bring out the various dimensions of mathematics as a way of knowing, and test the students' understanding and capacity.						
Pre-requisites	None		**Course Schedule**	3 hours/week			
Core Values	Students are expected to live by and stand for the following University tenets:						

	TRUTH is demonstrated by the student's objectivity and honesty during examinations, class activities and in the development of projects. **EXCELLENCE** is exhibited by the students' self-confidence, punctuality, diligence and commitment in the assigned tasks, class performance and other course requirements. **SERVICE** is manifested by the students' respect, rapport, fairness and cooperation in dealing with their peers and members of the community. In addition, they should exhibit love and respect for nature and support for the cause of humanity.
Goals of the College/ **Campus**	Cavite State University Naic shall endeavor to achieve the following goals: 1. To produce technically competent and scientifically oriented graduates who are imbued with strong entrepreneurial spirit; possess strong social consciousness; and guided by positive values and high ethical standards; 2. To conduct relevant research and development activities along fisheries, education, business, information technology, arts and sciences that would contribute to sustainable development in its service areas; 3. Implement effective training and outreach programs that emphasize self-help, critical thinking and life-long learning; 4. Manage fishery and other enterprise projects to promote economically viable and environment-friendly approaches and techniques; and 5. Establish strong linkage with non-governmental organizations, other government entities and the basic sector for realization of common goals.
Objectives of the Department	The Teacher Education Department shall endeavor to: 1. provide relevant and quality course offering in the graduate and undergraduate levels to improve student performance; 2. conduct relevant researches in the different areas in education to enrich the learning process; 3. conduct relevant community services to disseminate information and technologies to target clienteles to improve their well-being; 4. publish research journals and other related publications to disseminate relevant information; 5. produce instructional materials to improve student performance; and 6. deliver a gender-fair and gender sensitive instructions to students aligned with the university goals and objectives.
Program Educational Objectives (based on the program CMO)	
The minimum standards for Bachelor of Secondary Education degree program are expressed in the following sets of learning outcomes: 1. articulate the rootedness of education in philosophical, socio-cultural, historical, psychological, and political contexts; 2. demonstrate mastery of the subject matter/discipline; 3. facilitate learning using a wide range of teaching methodologies and delivery modes appropriate to specific learners and their environments; 4. develop innovative curricula, instructional plans, teaching approaches, and resources for diverse learners;	

5. apply skills in the development and utilization of ICT to promote quality, relevant and sustainable educational practices;
6. demonstrate a variety of thinking skills in planning, monitoring, assessing and reporting learning processes and outcomes;
7. practice professional and ethical teaching standards sensitive to the local, national, and global realities; and
8. pursue lifelong learning for personal and professional growth through varied experiential and field-based opportunities.

Student Outcomes and Relationship to Program Educational Objectives

Program/Student Outcomes		Program Educational Objectives (based on the program CMO)							
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Bachelor of Secondary Education Major in English:									
a.	possess broad knowledge of language and literature for effective learning;	✓	✓	✓	✓	✓	✓	✓	✓
b.	use English as a global language in a multilingual context as it applies to the teaching of language and literature;	✓	✓	✓	✓	✓	✓	✓	✓
c.	acquire extensive reading background in language, literature, and allied fields;	✓	✓	✓	✓	✓	✓	✓	✓
d.	demonstrate proficiency in oral and written communication;	✓	✓	✓	✓	✓	✓	✓	✓
e.	shows competence in employing innovative language and literature teaching approaches, methodologies, and strategies;	✓	✓	✓	✓	✓	✓	✓	✓
f.	use technology in facilitating language learning and teaching;	✓	✓	✓	✓	✓	✓	✓	✓
g.	inspire students and colleagues to lead relevant and transformative changes to improve learning and teaching language and literature; and	✓	✓	✓	✓	✓	✓	✓	✓
h.	display skills and abilities to be a reflective and research-oriented language and literature teacher.	✓	✓	✓	✓	✓	✓	✓	✓

Course Outcomes and Relationship to Student Outcomes

Program Outcomes Addressed by the Course After completing this course, the students must be able to:	**Program/Student Outcomes Code**							
	a	**b**	**c**	**d**	**e**	**f**	**g**	**h**
1. Discuss and argue about the nature of mathematics, what it is, how it is expressed, represented and used.	D	D	E	D	E	E	E	D
2. Use different types of reasoning to justify statements and arguments made about mathematics and mathematical concepts.	D	D	E	D	E	D	E	D
3. Discuss the language and symbols of mathematics.	E	D	E	D	E	E	E	D
4. Use a variety of statistical tools to process and manage numerical data.	E	D	E	D	E	E	E	D
5. Analyze codes and coding schemes used for identification, privacy, and security purposes.	E	D	E	D	D	E	D	D
6. Use mathematics in other areas such as finance, voting, health and medicine, business, environment, arts and design, and recreation.	E	D	D	D	D	E	D	D
7. Appreciate the nature and uses of mathematics in everyday life.	D	D	D	D	D	E	D	D
8. Affirm honesty and integrity in the application of mathematics to various human	D	D	D	D	D	D	D	D

endeavors.									
*Level : I-Introductory E- Enabling D-Demonstrative									
COURSE COVERAGE									
Week No.	**Intended Learning Outcomes (ILO)**	**Topic**	**Teaching and Learning Activities (TLA)**	**Mode of Delivery**	**Resources Needed**	**Outcomes-based Assessment (OBA)**	**Due Date of Submission of Output**		
1	After the completion of the chapter, students will be able to: 1. State the CvSU Mission, Vision, College Goals and Program Objectives; 2. Interpret the CvSU Mission, Vision, College Goals and Program Objectives; 3. State RA 7877 (An act Declaring Sexual Harassment unlawful in the Employment, Education or Training Environment, and for Other purposes)	**I. Orientation** 1. CvSU Vision, Mission, College Goals and Program Objectives 2. RA 7877 (An act Declaring Sexual Harassment unlawful in the Employment, Education or Training Environment, and for Other purposes)	Presentation Online discussion via zoom **Survey:** Requiring all students to answer the survey on their connectivity or internet connection. Video presentation: "Cavite State University At A Glance" by Cavite State University Main Campus https://www.youtube.com/watch?v=_4bQ1Z9gUuA&t=49s&fbclid=IwAR2rK0kn8U-OptE95z826STF6JhTN8DQkH8vdgMS-LkbCmuCvkPjSsyXW94	Synchronous and asynchronous learning Social Media Account (Facebook, Messenger) Google Classroom	Student Handbook Printed Materials/ power point presentation for RA 7877 Course Syllabus	Oral recitation on the CvSU Vision, Mission, College Goals and Program Objectives	End of Week 1		

			Reflection Activity: Students will write a reflection on his/her expectation of the subject not less than 100 words.				
2-3	After the completion of the chapter, students will be able to: 1. Identify patterns in nature and regularities in the world 2. Articulate the importance of mathematics in one's life 3. Argue about the nature of mathematics, what it is, how it is expressed, represented and used 4. Express appreciation for mathematics as a human endeavor	**PART 1 - THE NATURE OF MATHEMATICS** **I. Mathematics in our World** 1. Patterns and Numbers in Nature and the World 2. The Fibonacci Sequence 3. Patterns and Regularities in the World as Organized by Mathematics 4. Phenomena in the World as Predicted by Mathematics 5. Nature and Occurrences in the World as Controlled by Nature 6. Applications of Mathematics in the World	- Explore the beauty of nature by identifying the flower and the number of its petals which are terms found on the Fibonacci Sequence. - Appreciate the use of golden ratio by measuring certain parts of human body. - Identifying terms for a given sequence. - Watch an animation of Nature By Numbers – https://vimeo.com/9953368	Synchronous and asynchronous learning Social Media Account (Facebook, Messenger) Google Classroom	Reference books and on-line materials	Short Essay Synthesis Paper Multimedia Output	End of Week 3
4-6	After the completion	**II. Mathematical**	Collaborative	Synchronous	Reference books	Seatwork	End of

	of the chapter, students will be able to: 1. Discuss the language symbols, and conventions of mathematics 2. Explain the nature of mathematics as a language 3. Perform operations on mathematical expressions correctly 4. Acknowledge that mathematics is a useful language	**Language and Symbols** 1. Characteristics of Mathematical Language 2. Mathematical Expression and Sentences 3. Convention in the Mathematical Language 4. Four Basic Concepts: Sets, Functions, Relations, Binary Operations 5. Elementary Logic 6. Formality	Works: -Discuss the characteristics of the language of mathematics and give example to supplement your explanation. - Represent statements correctly using appropriate symbols. - Present five latest news/ issue/ trends in our countries that are quantified statements together with its negation.	and asynchronous learning Social Media Account (Facebook, Messenger) Google Classroom	and on-line materials	Assignment Collaborative Works: Online presentation on the five latest news/ issue/ trends in our countries that are quantified statements together with its negation.	Week 6
7-8	After the completion of the chapter, students will be able to: 1. Use different types of reasoning to justify statements and arguments made about mathematics and mathematical	**III. Problem Solving and Reasoning** 1. Inductive and Deductive Reasoning 2. Intuition, Proof and Certainty 3. Polya's Four Steps in Problem Solving 4. Problem Solving Strategies 5. Mathematical Problems Involving Patterns 6. Recreational	- Differentiate inductive reasoning and deductive reasoning - Show examples of inductive and deductive reasoning - Generalize	Synchronous and asynchronous learning Social Media Account (Facebook, Messenger) Google Classroom Quizizz	Reference books and on-line materials	Problem Set Quiz on Proving using Deductive or Inductive Reasoning using Quizizz app	End of Week 8

	concepts 2. Write clear and logical proofs 3. Solve problems involving patterns and recreational problems following Polya's four steps 4. Organize one's method and approaches for proving and solving problems	Problems Using Mathematics	mathematical concepts using examples				
9	**MIDTERM EXAMINATION**						
10-13	After the completion of the chapter, students will be able to: 1. Use a variety of statistical tools to process and manage numerical data 2. Use the methods of linear regression and correlations to predict the value of a variable given certain conditions 3. Advocate the use of statistical data in making important decisions	**PART 2 – MATHEMATICS AS A TOOL** **IV. Data Management** 1. Gathering, Organizing, Representing, and Interpreting Data 2. Measures of Central Tendency 3. Measures of Dispersion 4. Measures of Relative Position 5. Probability and Normal Distribution 6. Linear Regression and Correlation	- Classify different kinds of data according to type and level of measurement - Integrate the measures of central tendency and dispersion in everyday life - Differentiate normal distributions and non-normal distributions - Identify independent and dependent variables - Determine the relationship	Synchronous and asynchronous learning Social Media Account (Facebook, Messenger) Google Classroom Quizizz	Reference books and on-line materials available thru campus E-Library	Seatwork Quiz Assignment Group Work using Google docs: Collect statistical data from family members and classmates then determine the methods of data collection used.	End of Week 13

			between independent and dependent variables				
14-17	After the completion of the chapter, students will be able to: 1. Use mathematical concepts and tools in other areas such as in finance, voting, logic, business, networks and systems 2. Support the use of mathematics in various aspects and endeavors in life 3. Recognize the difference between propositions and mere sentences	**V. Modern World Math** 1. The Mathematics of Graphs 1.1. Fundamentals of Graph Theory 1.2. Euler's Formula 1.3. Graph Coloring 2. Logic 1.1. Proposition	- Identify key terms used in Graph Theory - Construct graphs according to given characteristics - State five propositions regarding global warming.	Synchronous and asynchronous learning Social Media Account (Facebook, Messenger) Google Classroom	Reference books and on-line materials	Peer activity Problem Set Essay	End of Week 17
18	**FINAL EXAMINATION**						
COURSE REQUIREMENTS							
Lecture Requirements: 1. Mid-Term Examination 2. Final Examination_____ 3. Quizzes/Seat works/Recitations 4. Video presentation 5. Fact Sheet 6. Class Reporting/Reaction Paper							

7. Assignments
8. Class or Group Project (Term Paper/Project Design/Case Study/Feasibility Study/Culminating Activity/Portfolio)
9. Class Attendance (face-to-face mode)

GRADING SYSTEM

Examinations (Long, Mid-term, and Final Exams)	60%
Portfolio (Projects, Quizzes, Seat works, Assignments, and other requirements)	30%
Class Participation	10%
Total	100%

STANDARD TRANSMUTATION TABLE FOR ALL COURSES

96.7 – 100.0	1.00
93.4 – 96.6	1.25
90.1 - 93.30	1.50
86.7 – 90.0	1.75
83.4 – 86.6	2.00
80.1 – 83.3	2.25
76.7 – 80.0	2.50
73.4 – 76.6	2.75
70.00 – 73.3	3.00
50.0-69.9	4.00
Below 50	5.00
INC	Passed the course but lack some requirements.
Dropped	If unexcused absence is at least **20%** of the **Total Class Hours**.
	Total Class Hours/Semester: (3 unit Lec – 54 hrs; 2 unit Lec – 36 hrs) (1 unit Lab – 54 hrs; 2 units Lab – 108 hrs; 3 units Lab – 162 hrs)

CLASS POLICIES

A. Attendance

Students are not allowed to have 20% or more unexcused absences of the total face to face class hours; otherwise, they will be graded as “DROPPED”.

B. Classroom Decorum

During face to face mode

Students are required to:

1. wear identification cards at all times;
2. wear face mask at all times
3. observe physical/social distancing at all times
4. clean the classroom before and after classes;
5. avoid unnecessary noise that might disturb other classes;
6. practice good manners and right conduct at all times;
7. practice gender sensitivity and awareness inside the classroom; and
8. come to class on time.

During distance mode

Students are required to:

1. sign an honor system pledge;
2. avoid giving or receiving unauthorized aid of any kind on their examinations, papers, projects and assignments,
3. observe proper netiquette during on-line activities, and
4. submit take home assignments on time.

C. Examination/ Evaluation

1. Quizzes may be announced or unannounced.
2. Mid-term and Final Examinations are scheduled.
3. Cheating is strictly prohibited. A student who is caught cheating will be given a score of ”0” for the first offense. For the second offense, the student will be automatically given a failing grade in the subject.
4. Students who will miss a mid-term or final examination, a laboratory exercise or a class project may be excused and allowed to take a special exam, conduct a laboratory exercise or pass a class project for any of the following reasons:
    a. participation in a University/College-approved field trip or activity;
    b. due to illness or death in the family; and
    c. due to *force majeure* or natural calamities.

REFERENCES & SUPPLEMENTARY READINGS

References:

A. Required Textbook/Workbook

Cordial, R. et al. (2018). *Mathematics in the Modern World*. Panday-Lahi Publishing House, Inc.

B. Reference Books

Aufmann, R., Lockwood, J., Nation, R., Clegg, D., Susanna, and Abad, E. P. (20180). *Mathematics in the Modern World: Philippine Edition*. Rex Bookstore, Inc, Manila, Philippines.

Jamison, R. E. (2000). *Learning the anguage of mathematics. Language and Learning across the Disciplines*, 4(1), 45-54. Retrieved from https://wac.colostate.edu/

Manlulu, E. A. and Hipolito, L.M. M. (2019). *A Course Module for Mathematics in the Modern World, First Edition*. Rex Bookstore, Inc, Manila, Philippines.
Nocon, F. P., Torrecampo, J.T., Balacua, Ma. M.P. and Daguia, W.B. (Reprint, 2011). *General Statistics: Made Simple for Filipinos*. National Book Store, Mandaluyong City, Philippines.

C. Electronic References

https://www.youtube.com/watch?v=64643Op6WJo
https://listverse.com/2013/04/21/10-beautiful-examples-of-symmetry-in-nature/
http://wgarysmith.com/
https://vimeo.com/9953368
https://www.invisionapp.com/inside-design/golden-ratio-designers/
http://mathworld.wolfram.com/Set.html
https://www.youtube.com/watch?v=Lyi0e1yOu7g
https://www.khanacademy.org/math/algebra-home/alg-functions/alg-combining-functions/v/sum-of-functions?utm_account=Grant&utm_campaignname=Grant_Math_Dynamic&gclid=CjwKCAjwqNnqBRATEiwAkHm2BFLE8Y8zfUdMSy6TjIEE6a3WTdnbOmtybQY95otSRH74DNqKjIWtWhoCjUoQAvD_BwE
https://www.youtube.com/watch?v=JzCPff7eQ2w
https://www.youtube.com/watch?v=h8EYEJ32oQ8
https://www.khanacademy.org/math/on-seventh-grade-math/on-data-management-probability/on-data-management/e/reading_stem_and_leaf_plots?modal=1
https://www.khanacademy.org/math/algebra-home/alg-functions
https://learn.saylor.org/mod/page/view.php?id=11808
https://www.mathsisfun.com/sets/sets-introduction.html

REVISION HISTORY

Revision Number	Date of Revision	Date of Implementation	Highlights of Revision
1	July 2020	September 2020	Format, Additional References
2	August 2021	September 2021	Format, Flexible Learning Mode

Prepared by:	Evaluated by:	Recommending Approval:	Approved:
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Date: _____	Date: _____	Date: _____	Date: _____