Wharton County Junior College

Administrative - Master Syllabus
COVER SHEET

***Purpose**: It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of Wharton County Junior College, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction.*

Course Title – Fundamentals of Mathematics I

Course Prefix and Number – MATH 1350

Department - MATH **Division** – Math and Science

Course Type: (check one)
- ☐ Academic General Education Course (from ACGM – but not in WCJC Core)
- ☒ Academic WCJC Core Course
- ☐ WECM course (This course is a Special Topics or Unique Needs Course: Y☐ or N☐)

Semester Credit Hours #: Lecture Hours #: Lab/other Hours # 3**:3:0**

Equated Pay hours for course - 3

List Lab/ Other Hours
Lab Hours 0
Clinical Hours 0
Practicum Hours 0
Other (list) 0

Course Catalog Description – Concepts of sets, functions, numeration systems, number theory, and properties of the natural numbers, integers, rational, and real number systems with an emphasis on problem solving and critical thinking.

Prerequisite – College Algebra or the equivalent.

Type: ACAD

Prepared by Dale Neaderhouser ***Date*** 8-24-13

Reviewed by department head Dale Neaderhouser ***Date*** 8-24-13

Accuracy verified by Division Chair Kevin Dees ***Date*** 8-24-13

Approved by Dean or Vice President of Instruction *gghunt* ***Date*** 8-24-13

II. Topical Outline –Major areas of coverage

A. Pattern recognition and problem solving.
B. Problem solving using Algebra.
C. Set theory: one to one, union, Venn Diagrams, and intersection.
D. Functions and graphs.
E. Introduction to logic and reasoning.
F. Numeration systems.
G. Modeling of addition and subtraction.
H. Modeling of multiplication and addition.
I. Prime numbers, factors, and multiples of numbers.
J. Greatest common divisor and least common multiples of counting numbers.
K. Integers and integer arithmetic
L. Fraction modeling and arithmetic.
M. Decimals and fraction modeling.
N. Decimal and fraction operations.
O. Ratios, proportions and percentages.
P. Scientific notation.
Q. Irrational and real numbers.

II. Course Learning Outcomes

Learning Outcomes **Upon successful completion of this course, students will:**	**Assessment Methods**
1. Be able to do fundamental operations on numeric expressions such as simplify, add, subtract, multiply, divide, or factor: 1) expressions with both integer and rational numbers 2) understand the modeling process of the numbering systems 2. Be able to solve algebra and logic problems. 3. Be able to do basic graphing techniques such as listed in the topical outline of major areas of coverage 4. Be able to do basic operations of set theory 5. Understand, model and use integers, fractions, percentages, irrational, and scientific notation. 6. Be able to use basic deductive reasoning.	1. Hour exam and final. 2. Hour exam and final. 3. Hour exam and final. 4. Hour exam and final. 5. Hour exam and final. 6. Hour exam and final. Outcomes assessed by: Hour exams Final Short Answer Discussion Board

III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.

A Problem Solving Approach to Mathematics for Elementary School Teachers, 10th edition, Billstein/Libeskind/Lott, Pearson Addison-Wesley Publisher (required)

Calculator (instructor's discretion)

IV. Suggested Course Maximum - 35

V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course.

Students must have computer access to the WCJC website, their WCJC student email and online accounts. WCJC has open computer labs, with internet access, on all campuses for students to use.

VI. Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course

a. Average of four or more one hour exams	65-85%
b. Homework grade	0-10%
c. Comprehensive Final	15-25%

Grading as specified by the instructor.

A= 90-100 B= 80-89 C= 70-79 D= 60-69 F= 59 and below

VII. Curriculum Checklist

☐ - **Academic General Education Course** (from ACGM – but not in WCJC Core)
No additional documentation needed

☒ - **Academic WCJC Core Course**
Attach the Core Curriculum Review Forms

- ☒ Critical Thinking
- ☒ Communication
- ☒ Empirical & Quantitative Skills
- ☐ Teamwork
- ☐ Social Responsibility
- ☐ Personal Responsibility

☐ - **WECM Courses**
If needed, revise the Program SCANS Matrix & Competencies Checklist.

Wharton County Junior College

Core Curriculum Review Form

Foundational Component Area: **Mathematics**

Course Prefix & Suffix: Math 1350

Core Objective: **Critical Thinking Skills—**to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

Student Learning Outcome supporting core objective: *For each core objective, there must be at least two different methods of assessment.*

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
The SLO is:	Insert SLO (from Administrative Master Syllabi(AMS)) below	Provide a brief name and description of the sample learning activity:	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective:
■ Existing ☐ Revised ☐ New ☐ State Mandated	Be able to use basic deductive reasoning. (AMS SLO #6)	A word problem (application) where the student demonstrates deductive reasoning. Including a brief paragraph explaining what was done.	A quiz, test or discussion board artifact showing the student's written answer. Grading for correctness and the rubric for critical thinking will assess this.
■ Existing ☐ Revised ☐ New ☐ State Mandated	Be able to solve algebra and logic problems. (AMS SLO #2)	A word problem (application) where the student must identify variables, assemble the correct formulas and solve for the desired result. Including a brief paragraph explaining what was done.	A quiz, test or discussion board artifact showing the student's written answer. Grading for correctness and the rubric for critical thinking will assess this.
■ Existing ☐ Revised ☐ New ☐ State Mandated	Be able to do basic operations of set theory (AMS SLO #4)	Have the student grade an incorrect Venn diagram involving intersection, union and complements of two sets. The student should write a brief paragraph stating what was done incorrectly and what must be done to correct the solution.	A quiz, test or scanned artifact showing the student's written answer. Grading for correctness and the rubric for critical thinking will assess this.

Wharton County Junior College

Core Curriculum Review Form

Foundational Component Area: **Mathematics**

Course Prefix & Suffix: Math 1350

Core Objective: **Communication Skills—**to include effective development, interpretation and expression of ideas through written, oral and visual communication

Student Learning Outcome supporting core objective: *For each core objective, there must be at least two different methods of assessment.*

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
The SLO is:	Insert SLO (from Administrative Master Syllabi(AMS)) below	Provide a brief name and description of the sample learning activity:	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective:
■ Existing ☐ Revised ☐ New ☐ State Mandated	Be able to use basic deductive reasoning. (AMS SLO #6)	A word problem (application) where the student demonstrates deductive reasoning. Including a brief paragraph explaining what was done.	A quiz, test or discussion board artifact showing the student's written answer. Grading for correctness and the rubric for communication will assess this.
■ Existing ☐ Revised ☐ New ☐ State Mandated	Be able to solve algebra and logic problems. (AMS SLO #2)	A word problem (application) where the student must identify variables, assemble the correct formulas and solve for the desired result. Including a brief paragraph explaining what was done.	A quiz, test or discussion board artifact showing the student's written answer. Grading for correctness and the rubric for communication will assess this.
■ Existing ☐ Revised ☐ New ☐ State Mandated	Be able to do basic operations of set theory (AMS SLO #4)	Have the student grade an incorrect Venn diagram involving intersection, union and complements of two sets. The student should write a brief paragraph stating what was done incorrectly and what must be done to correct the solution.	A quiz, test or scanned artifact showing the student's written answer. Grading for correctness and the rubric for communication will assess this.

Wharton County Junior College

Core Curriculum Review Form

Foundational Component Area: **Mathematics**

Course Prefix & Suffix: Math 1350

Core Objective: **Empirical and Quantitative Skills—**to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Student Learning Outcome supporting core objective: *For each core objective, there must be at least two different methods of assessment.*

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
The SLO is:	Insert SLO (from Administrative Master Syllabi) below	Provide a brief name and description of the sample learning activity:	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective:
■ Existing ☐ Revised ☐ New ☐ State Mandated	Be able to do fundamental operations on numeric expressions such as simplify, add, subtract, multiply, divide, or factor: 1) expressions with both integer and rational numbers (AMS SLO #1.1)	A problem where the student computes the numerical result of an expression demonstrating their knowledge of the order of operations. Work for each step should be shown. This is not a calculator problem.	A quiz, test or discussion board artifact showing the student's written steps and answer. Grading for correctness and the rubric for EQS will assess this.
■ Existing ☐ Revised ☐ New ☐ State Mandated	Understand, model and use integers, fractions, percentages, irrational, and scientific notation. (AMS SLO #5)	A problem where the student computes a numerical result using scientific notation. Addition/subtraction as well as multiplication/division should be involved. This can be a calculator problem.	A quiz, test or discussion board artifact showing the student's written steps and answer. Grading for correctness and the rubric for EQS will assess this.
■ Existing ☐ Revised ☐ New ☐ State Mandated	Be able to do basic graphing techniques such as listed in the topical outline of major areas of coverage (AMS SLO #3)	The student should be able to graph a linear function properly labeling the x and y intercepts.	A quiz, test or scanned artifact showing the student's written steps and answer. Grading for correctness and the rubric for EQS will assess this.