

MATH 811 Assessment Plan

Objectives:

- Perform the four basic operations with whole numbers, decimals, fractions and signed numbers
- Estimate solutions without exact computation, round whole numbers, decimals and fractions, estimate addition, subtraction, multiplication and division of two or more numbers
- Apply “The Order of Operations Rules” to simplify expressions involving whole numbers, decimals, fractions and signed numbers
- Solve application problems involving whole numbers, fractions and decimals
- Calculate simple average as well as weighted average of a set of data
- Apply the concept of proportion to solve percent problems and their application, as well as converting units
- Solve application problems involving proportions
- Calculate the area and perimeter of basic geometric figures and solve related applications
- Apply the “Pythagorean theorem” to find any side of a right triangle given the other two sides
- Complete a group project involving (a) creating and writing a construction contract (b) analyzing and estimating the cost and present the project to the class
- Develop organizational skills by creating a binder/portfolio of all activities, homework, notes, and thoughts on their own progress and learning
- Develop group work skills by staying on task and sharing related knowledge
- Develop study skills by attending the learning center for a minimum of one hour per week

SLOS

By completing MATH 811 course students will be able to:

- 1) Correctly choose and apply the four basic arithmetic operations with whole numbers, decimals, fractions and signed numbers to estimate and solve application problems that are part of their daily lives. (Number Sense)
- 2) Apply “Proportional Reasoning” to solve related problems including ratios, rates, proportion, percent and conversions of units.
- 3) Compute the area and perimeter of geometric figures.

4) Learn to use the services available to improve study skills, test taking skills, problem solving skills and attitude toward learning mathematics.

**SLO Assessment Plan
Math 811**

Expected SLO	Approach, Major Assignment, Assessment Method & Criteria	Outcome Results	Analysis & Action
<p>Number Sense: Correctly choose and apply the four basic arithmetic operations with whole numbers, decimals, fractions and signed numbers to estimate and solve application problems that are part of their daily lives.</p>	<p>Approach: A representative sample of sections within Math 811 will be selected to evaluate SLO #1 as follows: Our focus of evaluation will be on estimation and application problems.</p> <p>1.1 Major assignment: Exam Assessment Method: Rubric Criteria: $\geq 5\%$ score 4, $\geq 30\%$ score at least 3, $\geq 70\%$ score at least 2.</p> <p>1.2 Major Assignment: Portfolio / Homework Assessment method: Rubric / Homework score Criteria: at least 70% of students will receive a score of at least 70%</p> <p>1.3 Major Assignment: Students' self-evaluation of group work or classroom discussion (3 times during the semester) Assessment Method: Rubric Criteria: Positive change in students' attitude of their own progress and understanding</p>		

<p>Proportional Reasoning: Apply “Proportional Reasoning” to solve related problems including ratios, rates, proportion, percent and conversions of units</p>	<p>Approach: A representative sample of sections within Math 811 will be selected to evaluate SLO #2 as follows:</p> <p>2.1 Major assignment: Exam Assessment Method: Rubric Criteria: : $\geq 5\%$ score 4, $\geq 30\%$ score at least 3, $\geq 70\%$ score at least 2.</p> <p>2.2 Major Assignment: Portfolio for completion and correction Assessment method: Points Criteria: 90% of students participating in assessment process will receive a score of $\geq 70\%$</p> <p>2.3 Major Assignment: Students’ self-evaluation of group work or classroom discussion Assessment Method: Rubric Criteria: Positive change in students’ attitude of their own progress and understanding</p>		
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<p>Geometry: Compute areas and perimeter of geometric figures</p>	<p>Approach: A representative sample of sections within Math 811 will be selected to evaluate SLO # 3 as follows:</p> <p>3.1 Major Assignment: Project & Presentation Assessment method: Rubric Criteria: 80% of students participating in assessment process will receive a score of $\geq 70\%$</p> <p>3.2 Major assignment: Exam Assessment Method: Rubric Criteria: 70% of students participating in assessment process will receive a score of $\geq 70\%$</p> <p>3.3 Major Assignment: Students' self-evaluation of group work or classroom discussion Assessment Method: Rubric Criteria: Positive change in students' attitude of their own progress and understanding</p>		
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<p>Using Services: Use the services available to improve study skills, test taking skills, problem solving skills and attitude toward learning mathematics.</p>	<p>4.1 Major Assignment: Learning Center Use Assessment Method: Count Hours Criteria: At least 70% or students will use LC at least 17 hour per semester.</p> <p>4.2 Major Assignment: Self Assessment Assessment Method: Pre and Post Math Resources Survey (question 5) Criteria: Average score increases from pre to post.</p>		
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Number Sense Rubric

	4	3	2	1
<p>Selecting Correct Operation: Apply correct operation as appropriate in the problem</p>	Selects correct operation(s), draws pictures, shows all necessary steps and performs the operations correctly.	Selects correct operation(s), shows all necessary steps but makes a small error in one or two digits in the solution.	Select correct operation(s), shows only part of the necessary steps and/or makes errors on three or four digits of the solution.	Does not select correct operation or does not show any steps and/or has a wrong solution.
<p>Performing Operations with fractions: Student can add, subtract, multiply or divide fractions</p>	Calculates the LCD and the equivalent fractions correctly and performs the operations correctly. Finds the factors and performs the operation correctly.	Student calculates the LCD and the equivalent fractions correctly, but there is a slight error in the answer after performing the operations. Finds the factors correctly, but there is a slight error in the final answer.	Calculates the LCD correctly, but the equivalent fractions and the solutions are incorrect. Factors the denominators correctly, but cancels the common factors incorrectly.	Doesn't calculate the LCD or the equivalent fractions correctly, and the algorithm is incorrect. Doesn't calculate the factors or reciprocal correctly, and the algorithm is incorrect
<p>Estimate: Student can round to the appropriate level and performs the operations</p>	Rounds all the numbers in the operation to an appropriate level and performs the operations to arrive to a correct solution.	Rounds each number correctly, but there is a slight error in the solution (one or two digits are incorrect).	Rounds one of the numbers correctly and the other incorrectly, but performs the operation correctly	Does not round the numbers correctly and also does not perform the operations correctly.

Portfolio Rubric

	4 Exceptional Achievement	3 Commendable Achievement	2 Adequate Achievement	1 Incomplete
Content	Activities and exercises are complete.	Activities and exercises are 80% completed.	Activities and exercises are 70% completed	Activities and exercises are completed less than $\leq 60\%$.
Analysis (Mechanics breakdown of problems)	Activities and Exercises are complete. Solutions go beyond what was expected. Explanations and convincing arguments in support of the solution are provided. Related notes are to summarize the concept.	Solutions are what are expected. Explanations and convincing arguments in support of the solution are somewhat provided. Related notes to summarize the concept are either not satisfying or are not provided for all activities and exercises. Or, The original problem is addressed. A solution is given and explained. Some effort is made to provide an argument supporting the solution.	The original problem is addressed. A reasonable solution is given but with little explanation. Little or no effort is made to provide an argument supporting the solution.	The original problem is not clearly addressed. Solution is incomplete and lacking any explanation. No supporting arguments.
Depth (Demonstration of Understanding)	Activities and exercises are completed thoroughly and thoughtfully. Insight and	Complete solutions of problems are given. Effort to check solutions for accuracy is apparent.	Conventional solution is given, but with no other explanation. Solution may be incomplete,	Vague attempt at a solution is given. Little evidence of effort is apparent.

	creativity are evident in the solutions. Related questions are suggested and addressed by the student.	Little effort to go beyond solving the original problem is apparent.	unclear, or poorly explained.	
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Note: To have the students participate and learn how they are being graded (what the teacher is looking for), create practice problems, homework or quizzes and have students grade each other's work by walking them through the grading rubric step by step. (You don't have to provide the rubric for them.)

Rubric to evaluate students' self-evaluation from their group work

	4	3	2	1	Scores
SLO#1					
Level Of Completion	I always complete all the problems given in the activities during the class time.	I complete most of the problems (90% of them) or all the problems 90% of the time during the class time.	I complete about 70% of the problems all the time or all the problems 70% of the time during the class time.	I complete about 50% of the problems all the time or all the problems 50% of the time during the class time.	
Level Of Correctness	<p>When I estimate I always;</p> <ul style="list-style-type: none"> • Round the numbers in the operation to the appropriate level • Perform the operations to arrive at a correct solution. <p>When I solve word problems, I always</p> <ul style="list-style-type: none"> • Draw a diagram, • Set up the problem, • Perform the operations, and • Arrive at the correct solution. 	<p>When I estimate I</p> <ul style="list-style-type: none"> • Round each number correctly • Make a slight error in applying the operation, so • Arrive at a solution that has one or two incorrect digits. <p>When I solve word problems, I</p> <ul style="list-style-type: none"> • Draw a correct diagram, • Set up the problem correctly, • Perform the operations but arrive at an incorrect solution. 	<p>When I estimate I</p> <ul style="list-style-type: none"> • Round one of the numbers correctly • Round the other number incorrectly, • Perform the operation correctly. <p>When solving word problems, I</p> <ul style="list-style-type: none"> • Draw a correct diagram, • Set up the problem partially incorrect, • Arrive at an incorrect solution. 	<p>When I estimate I</p> <ul style="list-style-type: none"> • Do not round the numbers correctly • Do not perform the operations correctly. <p>When solving word problems I</p> <ul style="list-style-type: none"> • Draw no diagram or draw a wrong one • Set up the solution incorrectly and • Arrive at an incorrect solution. 	

Level Of Comprehension	I can explain all my solutions to a group member very clearly so he or she can understand well enough to solve the problem independently.	I can explain most of my solutions to a group member somewhat clearly.	I can explain about half of my solutions to a group member.	I can't explain my work to a group member clearly.	
SLO#4					
Inclusion	I always include every group member in our discussion.	Most of the time, I include every group member in our discussion.	Half of the time, I include every group member in our discussion.	Rarely, I include every group member in our discussion.	
Persistence	I never give up until I understand the problem clearly and can solve the problem correctly. I always confirm my solutions with a teacher or a tutor.	Most of the time, I don't give up until I understand the problem clearly and can solve the problem correctly. Most of the time, I confirm my solutions with a teacher or a tutor.	Sometimes, I don't give up until I understand the problem clearly and can solve the problem correctly. Sometimes, I confirm my solutions with a teacher or a tutor.	I usually give up before I understand the problem clearly so I can't solve the problem correctly. I rarely confirm my solutions with a teacher or a tutor.	
Preparedness	Prior to coming to class, I always • Complete and understand my homework assignments	Prior to coming to class, most of the time, I • Complete and understand my homework	Prior to coming to class, I sometimes complete and understand my homework assignments. Sometimes I read the	Prior to coming to class, I rarely complete and understand my homework assignments, read the assigned reading	

	<ul style="list-style-type: none"> • Read the assigned reading materials • Solve the examples on my own • Seek help if I don't understand. 	<p>assignments</p> <ul style="list-style-type: none"> • Read the assigned reading materials • Solve the examples on my own <p>Seek help if I don't understand.</p>	<p>assigned reading materials and try to solve the examples on my own.</p> <p>I sometimes seek help if I don't understand.</p>	<p>materials or try to solve the examples on my own.</p> <p>I rarely seek help if I don't understand.</p>	
Contribution	<p>I always</p> <ul style="list-style-type: none"> • Read the problem carefully, • Draw a diagram to understand the problem • Make suggestions toward solving the problem. 	<p>I most of the time</p> <ul style="list-style-type: none"> • Read the problem carefully, • Draw a diagram to understand the problem • Make suggestions toward solving the problem. 	<p>I sometimes</p> <ul style="list-style-type: none"> • Read the problem carefully, • Draw a diagram to understand the problem • Make suggestions toward solving the problem. 	<p>I rarely</p> <ul style="list-style-type: none"> • Read the problem carefully, • Draw a diagram to understand the problem • Make suggestions toward solving the problem. 	
Creativity and Variety Of Approach	<p>I always suggest to my group members that we solve the problems</p> <ul style="list-style-type: none"> • Verbally (with words), • Graphically with pictures), • Numerically (with numbers), • Action (by acting it out), • Using approximation and 	<p>Most of the times I suggest to my group members that we solve the problems</p> <ul style="list-style-type: none"> • Verbally (with words), • Graphically with pictures), • Numerically (with numbers), • Action (by acting it out), • Using approximation 	<p>Sometimes I suggest to my group members that we solve the problems</p> <ul style="list-style-type: none"> • Verbally (with words), • Graphically with pictures), • Numerically (with numbers), • Action (by acting it out), • Using approximation and 	<p>I rarely suggest to my group members that we solve the problems</p> <ul style="list-style-type: none"> • Verbally (with words), • Graphically with pictures), • Numerically (with numbers), • Action (by acting it out), • Using 	

	<ul style="list-style-type: none">• Using exact-values.• Check our answers for correctness.	and <ul style="list-style-type: none">• Using exact-values.• Check our answers for correctness.	<ul style="list-style-type: none">• Using exact-values.• Check our answers for correctness.	approximation and <ul style="list-style-type: none">• Using exact-values.• Check our answers for correctness.	
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