

Angelina College
Science & Mathematics Division
MATH 0325-Foundations of Mathematical Reasoning
Instructional Syllabus TR

I. BASIC COURSE INFORMATION:

A. Course Description

MATH 0325 – Fundamentals of Mathematical Reasoning.

This course surveys a variety of mathematical topics needed to prepare students for college level statistics or quantitative reasoning or for algebra-based courses. Topics include: numeracy with an emphasis on estimation and fluency with large numbers; evaluating expressions and formulas; rates, ratios, and proportions; percentages; solving equations; linear models; data interpretations including graphs and tables; verbal, algebraic and graphical representations of functions; exponential models. This course carries institutional credit but will not transfer and will not be used to meet degree requirements.

B. Intended Audience:

Students needing to strengthen their mathematics background before taking college level mathematics courses. (This course fulfills the prerequisite requirement for MATH1332 Contemporary Mathematics or MATH1342 Elementary Statistics only; it does **NOT** fulfill the requirement for MATH1314 College Algebra or MATH1324 Math for Business and Social Sciences.)

C. Instructor: Rich Geist

Office Location: S225

Office Hours: ----->

Phone: 936-633-3261

E-mail Address: rgeist@angelina.edu

Day	Office Hours
Monday	12:00 – 2:00
Tuesday	11:00 – 1:00, 3:00 – 3:30
Wednesday	11:00 – 2:00
Thursday	11:00 – 1:00, 3:00 – 3:30
Friday	By Appointment

II. INTENDED STUDENT OUTCOMES:

A. Core Objectives Required for this Course

1. **Critical Thinking:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
2. **Communication:** to include effective development, interpretation and expression of ideas through written, oral and visual communication
3. **Empirical and Quantitative Skills:** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

B. Learning Outcomes

Upon successful completion of this course, students will:

1. Use appropriate symbolic notation and vocabulary to communicate, interpret, and explain mathematical concepts.
2. Define, represent, and perform operations on real numbers, applying numeric reasoning to investigate and describe quantitative relationships and solve real world problems in a variety of contexts.
3. Use algebraic reasoning to solve problems that require ratios, rates, percentages, and proportions in a variety of contexts using multiple representations.
4. Apply algebraic reasoning to manipulate expressions and equations to solve real world problems.
5. Use graphs, tables, and technology to analyze, interpret, and compare data sets.
6. Construct and use mathematical models in verbal, algebraic, graphical, and tabular form to solve problems from a variety of contexts and to make predictions and decisions.

III. ASSESSMENT MEASURES

A. Assessments for the Core Objectives

The core objectives will be assessed with test questions during the semester. An appropriate rubric will be used as suitable for the objectives.

B. Assessments for Course Learning Outcomes

All course learning outcomes for this class will be assessed with homework and test questions during the semester. Appropriate rubrics will be used.

IV. INSTRUCTIONAL PROCEDURES:

This course is taught using a combination of lectures, discussions, and practice exercises. The amount of time spent using any one technique will vary from lesson to lesson as determined to be most appropriate by the instructor.

V. COURSE REQUIREMENTS AND POLICIES:

A. Required Textbooks and Recommended Readings, Materials and Equipment

1. **NMP workbook** – Math0325 Foundations Course (available in Angelina College bookstore)
If you are retaking this course, you are required to buy a new packet. You are not allowed to use a packet from a previous semester.
2. **MyLabsPlus Access Code**, an on-line, tutorial, homework and assessment tool.
3. A **calculator** (not part of a cellphone or similar device) is required. Recommended calculator is a TI-30XS MultiView Scientific Calculator.
4. One **three-ring binder**. (For this class only.)
5. **Loose-leaf paper**.

B. Course Policies – This course conforms to the policies of Angelina College as stated in the Angelina College Handbook.

1. **Educational Accommodations** – If you have a disability (as cited in Section 504 of the Rehabilitation Act of 1973 or Title II of the Americans with Disabilities Act of 1990) that may affect your participation in this class, you may fill out the Educational Accommodations application within your AC Portal, under the “Student Services” tab. A Student Success team member will contact you once the application is received. At a post-secondary institution, you must self-identify as a person with a disability in order to receive services; for questions regarding the application process you can visit the Office of Student Success and Inclusion in the Student Center (Room 200) or email access@angelina.edu. To report any complaints related to accommodations, you should contact Annie Allen, Director of Student Success & Inclusion, in Room 200 of the Student Center. You may also contact Ms. Allen by calling (936) 633-4509 or by emailing aallen@anglina.edu. To report discrimination of any type, contact Steve Hudman, Dean of Student Affairs, at (936) 633-5292 or shudman@angelina.edu.
2. **Attendance** – Attendance is required as per Angelina College Policy and will be recorded every day. Any student with three (3) consecutive absences or four (4) cumulative absences may be dropped from the class. Records will be turned in to the academic dean at the end of the semester. Do not assume that non-attendance in class will always result in an instructor drop. You must officially drop a class or risk receiving an F.

A student may be dropped due to lack of participation. Not working on assignments, including MyLabsPlus homework, is considered non-participation.

3. **Additional Policies**
 - a. Class participation, questions, and discussion are a requirement for this course.
 - b. Students must have their instructor's written permission to use any type of recording device.
 - c. **CELL PHONES OR OTHER ELECTRONIC DEVICES**

Pagers, cellular phones, earphones, smart watches and similar electronic devices should be silent or off and **out of sight** during the entire class period.

Note: Out of site means in your purse, backpack, or pocket.
 - d. No electronic devices, other than approved calculators, may be used during any quiz or test. These prohibited electronic devices may include, but not be limited to: cell phones or smart phones, smart watches or other electronic visual aids, audio players, recorders, tablets, notebooks, Google glass, or any other similar devices, any digital device that can be used to record, transmit, receive, or play back audio, photographic, text, or video content.

Failure to follow this rule may result in the student receiving a grade of zero on the quiz or test. If the student receives a test score of zero due to failure to follow this rule, the zero test score cannot be replaced by the final exam.

NOTE: Failure to follow the rules related to cell phones or other electronic devices may result in the student being asked to leave the classroom.
- e. Cheating on tests is not tolerated as per Angelina College policy and may result in expulsion from the course. Plagiarism is not tolerated and will result in a zero for any assignment in which it is detected.
- f. Visitors, including children, are not allowed in classrooms.
- g. Technical issues do not excuse late homework. Please contact Pearson on their 24/7 helpline (888)883-1299 for assistance with MyLabsPlus.

4. STUDENT CONDUCT

A positive environment for learning will be maintained by students being courteous to each other and to the instructor. Eating, drinking, sleeping, and distracting conversations during lecture will not be allowed.

VI. Course Outline

- **Numeracy:** *Students will develop number sense and the ability to apply concepts of numeracy to investigate and describe quantitative relationships and solve real-world problems in a variety of contexts.*
- **Proportional Reasoning:** *Students will use proportional reasoning to solve problems that require ratios, rates, proportions, and scaling.*
- **Algebraic Competence, Reasoning, Modeling:** *Students will transition from specific and numeric to general and abstract reasoning using the language and structure of algebra to investigate, represent, and solve problems.*
- **Assessing Risk (Probabilistic Reasoning):** *Students will understand and critically evaluate statements involving risk and arguments based on probability that appear in the popular media, especially in presenting medical information.*
- **Personal Finance:** *Students will understand, interpret and make decisions based on financial information that is commonly presented to consumers.*
- **Civic Life:** *Students will understand that quantitative information presented in the media and by other entities can sometimes be useful and sometimes be misleading.*

Homework Schedule may be altered depending on progress.

NOTE: Monday, April 1st is the last day to drop with a “W”.

VII. EVALUATION AND GRADING

1. The course grade will be determined by taking the total points earned dividing by the total possible number of points a student can earn, 750 points. Grades will be round to the nearest unit, and assigning a letter grade based on the following scale:

Average Grade	Letter Grade
90-100	A
80-89	B
70-79	C
69 & below	F or IP**

**IP" means *in progress* and the course must be repeated.

**For the instructor to consider whether or not to record a grade of IP, rather than an F, the student must show a consistent effort to pass the class with regular attendance, competing homework assignments, and taking exams (including the final exam).

2. The grade for this course will be based on:

Preview Assignments (100 pts.)

- Homework to prepare for tasks and activities during the next class. Due the next class day at 8:00 am, note, this is **before** class starts. **No additional time is given for these assignments. If not completed by 8:00 on the day of class the grade will be a zero.**

Practice Assignments (100 Pts)

- Homework over the lesson tasks and activities completed in class. Due the next class day by 11:59 pm. There will be a daily 10% penalty for

practice assignment work completed after the due date (up to 5 additional days). The practice assignment grade will be a zero if not completed within 5 days of the due date.

Actual due dates can be found in MyLabsPlus.

NOTE: Students must complete the preview assignment BEFORE having access to the corresponding practice assignment. Failure to complete a preview assignment within the allowed time will result in a grade of zero for both the preview assignment and its corresponding practice assignment.

No assignments will be accepted after the due date.

Four Unit Exams (100 points each)

Four comprehensive exams will be given this semester. You are required to show your work on exams. If you do not show your work, then you may not receive credit for an answer. Partial credit will be given; the more work you show, the more credit you may receive.

No make-up exams will be offered. The grade on the final exam can replace the lowest exam grade, including the grade from a missed exam.

Final Exam (150 points)

The final will be a comprehensive exam. A comprehensive final exam is mandatory for all students.

The instructor may modify the provisions of the syllabus to meet individual class needs by informing the class in advance as to the changes being made.

	Date	Lessons Covered	Homework Schedule Spring 2019 TR Section Titles	Homework Assignment
1	01/15	Lesson 1.A Lesson 1.C	Syllabus Lesson 1.A, "How Big is a Billion?" Lesson 1.C, "How Big is a Billion?" (continued)	Practice Assignment: 1.A, 1.C Preview Assignments: None
2	01/17	Lesson 1.B Lesson 1.D	Lesson 1.B, "Building a Learning Community" Lesson 1.D, "Building a Learning Community"(cont.)	Practice Assignments: 1.B Preview Assignments: 2.A, 2.B
3	01/22	Lesson 2.A Lesson 2.B	Lesson 2.A, "Doubling Population" Lesson 2.B, "Scientific Notation"	Practice Assignment: 2.A, 2.B Preview Assignment: 2.C, 2.D,
4	01/24	Lesson 2.C Lesson 2.D	Lesson 2.C, "Ratios in Water Use" Lesson 2.D, "Analyzing Water Footprints" (Preview 3.B will not have an in class lesson.)	Practice Assignments: 2.C, 2.D Preview Assignments: 3.A, 3.B, 3.C
5	01/29	Lesson 3.A Lesson 3.C	Lesson 3.A, "Large Numbers in the Media" Lesson 3.C, "Estimating Sale Prices"	Practice Assignments: 3.A, 3.C Preview Assignments: 3.D, 3.E
6	01/31	Lesson 3.D Lesson 3 E	Lesson 3.D, "Calculating sale prices" Lesson 3.E, "Developing Self-Regulation"	Practice Assignments: 3.D, 3.E Preview Assignments: 4.A, 4.B
7	02/05	Lesson 4.A Lesson 4.B	Lesson 4.A, "Budgeting Operations" Lesson 4.B, "Budgeting with Spreadsheets"	Practice Assignments: 4.A, 4.B Preview Assignments: 4.C, 4.D
8	02/07	Lesson 4.C Lesson 4.D	Lesson 4.C, "Graph Analysis" Lesson 4.D, "Using Graphs to Understand Change" Review for Exam 1	Practice Assignments: 4.C, 4.D Study for Exam 1
9	02/12		Review Exam 1	Preview Assignments: 5.A, 5.B
10	02/14	Lesson 5.A Lesson 5.B	Lesson 5.A, "Displaying Table Data" Lesson 5.B, "Relative Frequency Tables"	Practice Assignments: 5.A, 5.B Preview Assignments: 5.C, 5.D
11	02/19	Lesson 5.C Lesson 5.D	Lesson 5.C, "Displaying Data: Histograms" Lesson 5.D, "Shapes of Distributions"	Practice Assignments: 5.C, 5.D Preview Assignments: 6.A, 6.C
12	02/21	Lesson 6.A Lesson 6.C	Lesson 6.A, "Measures of Central Tendency" Lesson 6.C, "Making Decisions with Data"	Practice Assignments: 6.A, 6.C Preview Assignments: 6.D, 7.A
13	02/26	Lesson 6.D Lesson 7.A	Lesson 6.D, "Boxplots" Lesson 7.A, "The Credit Crunch"	Practice Assignments: 6.D, 7.A Preview Assignments: 7.B, 8.A
14	02/28	Lesson 7.B Lesson 8.A	Lesson 7.B, "More Credit Crunch" Lesson 8.A, "What's the Risk?"	Practice Assignments: 7.B, 8.A Preview Assignments: 8.C, 9A
15	03/05	Lesson 8.C Lesson 9.A	Lesson 8.C, "Reducing the Risk" Lesson 9.A, "Comparing Categorical Data"	Practice Assignments: 8.C, 9.A Preview Assignments:

				9.B, 9.C
16	03/07	Lesson 9.B Lesson 9.C	Lesson 9.B, "Interpreting Percentages" Lesson 9.C, "Do You Trust the Test?"	Practice Assignments: 9.B, 9.C Preview Assignments: 9.D
Spring Break				
17	03/19	Lesson 9.D	Lesson 9.D, "Do you trust the test?" (continued) Review	Practice Assignments: 9.D
18	03/21		Exam 2	Preview Assignments: 10.A, 10.B
19	03/26	Lesson 10.A Lesson 10.B	Lesson 10.A, "Population Density" Lesson 10.B, "Density Proportions"	Practice Assignments: 10.A, 10.B, Preview Assignments: 10.D, 11.A, 11.B
20	03/28*	Lesson 10.D Lesson 11.A Lesson 11.B	Lesson 10.D, "Apportionment" Lesson 11.A, "Formulating a Plan" Lesson 11.B, "The Costs of Geometry" * April 1st is the last day to withdraw with a W.	Practice Assignments: 10.D, 11.A, 11.B Preview Assignments: 12.A, 12.B
21	04/02	Lesson 12.A Lesson 12.B	Lesson 12.A, "Texting Distance" Lesson 12.B, "The Cost of Driving" Last day to drop with a W	Practice Assignments: 12.A, 12.B Preview Assignments: 13.B, 14.A, 14.B
22	04/04	Lesson 13.B Lesson 14.A Lesson 14.B	Lesson 13.B, "Breaking Down a Formula" Lesson 14.A, "Body Mass Index" Lesson 14.B, "Target Weight"	Practice Assignments: 13.B, 14.A, 14.B Preview Assignments: 14.C, 14.D
23	04/09	Lesson 14.C Lesson 14.D	Lesson 14.C, "Blood Alcohol Content" Lesson 14.D, "Balancing Blood Alcohol" Review	Practice Assignments: 14.C, 14.D Study for Exam 3
24	04/11		Review Exam 3	Preview Assignments: 15.A, 15.B, 15.C
25	04/16	Lesson 15.A Lesson 15.B Lesson 15.C	Lesson 15.A, "Proportional Reasoning in Art" Lesson 15.B, "Proportion Solutions" Lesson 15.C, "Solving Equations"	Practice Assignments: 15.A, 15.B, 15.C Preview Assignments: 16.A, 16.B, 16.D
26	04/18	Lesson 16.A Lesson 16.B Lesson 16.D	Lesson 16.A, "Describing Rates" Lesson 16.B, "Comparing Rates" Lesson 16.D, "Where Do We Start?"	Practice Assignments: 16.A, 16.B, 16.D Preview Assignments: 16.C, 18.B,
27	04/23	Lesson 16.C Lesson 18.B	Lesson 16.C, "Interpreting Change" Lesson 18.B, "Backing Out the Sales Tax"	Practice Assignments: 16.C, 18.B Preview Assignment: 18.C, 19.A
28	04/25	Lesson 18.C Lesson 19.A	Lesson 18.C, "Compound Interest Makes Cents" Lesson 19.A, "More Compounding" Review for Exam 4	Practice Assignment: 18.C, 19.A Study for Exam 4
29	04/30		Exam 4	
30	05/02		Review for Final Exam	
			Final Exam	