

MATH FOR EDUCATION MAJORS I

The University of Toledo
Mathematics & Statistics Department, College of Natural Sciences and Mathematics
MATH1210-0XX, CRN XXXXX

| | | | |
|------------------|---------------------------------|-----------------|------------------------|
| Instructor: | (Insert Name] | Class Location: | (Insert Building/Room) |
| Email: | (Insert E-mail Address) | Class Day/Time: | (Insert Days/Time) |
| Office Hours: | (Insert Days/Time) | Credit Hours: | 3 |
| Office Location: | (Insert Building/Office Number) | | |
| Office Phone: | (Insert Phone Number) | | |
| Term: | (Insert Semester and Year) | | |

COURSE DESCRIPTION

Material covered includes problem solving techniques, set theory, number systems, foundations of arithmetic operations, basic number theory, algebraic structures of the integers, fractions and decimals.

STUDENT LEARNING OUTCOMES

The basic objective is to provide a general math course to satisfy the minimum math requirement for elementary mathematics educators to help them succeed in their teaching careers. A more detailed list of learning objectives is given below.

- **Number, Number Sense and Operations:**
 - **Number and Number Systems:** Work with sets as a basis for whole numbers; Work with whole numbers and numerations; Learn about the Hindu-Arabic system; work based on ordering and exponents; work with primes, composites, and tests for divisibility; find factors, greatest common factor and least common multiple; recognize the set of fractions; recognize the set of decimals;
 - **Meaning of Operations:** Add, subtract, multiply and divide whole numbers; add, subtract, multiply and divide fractions; work with percent
 - **Computation and Estimation:** Mental math and estimation; work written algorithms of whole-number operations; work with algorithms in other bases; Work with ratio and proportion problems; perform operations with decimals;
- **Mathematical Processes:** Work with Problem-Solving Process and Strategies

PREREQUISITES

The prerequisite for this course is Intermediate Algebra. You can demonstrate that you have met this prerequisite in one of 3 ways.

1. ACT math score of 20 or higher
2. Sufficient score on the Math Placement Exam
3. Minimum Grade of C- in Math 1200

TEXTBOOK:

- *Mathematics for Elementary Teachers: A Conceptual Approach*, Bennett/Burton/Nelson/Ediger, 10th Ed., McGraw-Hill 2016, (Includes Connect Plus access) ISBN: 9781260023688, Connect Plus Access only ISBN: 9781259293436.

- Connect Plus online access. Online access is provided with the text or may be purchased with a credit card the first time you sign in through Blackboard. The textbook is recommended, but not required. An e-book is included with access to Connect Plus.
- Access to a PC or Mac connected to the web and on which you have privileges to install browser plug-ins.

CALCULATOR

No calculators may be used during quizzes or exams.

UNIVERSITY POLICIES:

POLICY STATEMENT ON NON-DISCRIMINATION ON THE BASIS OF DISABILITY (ADA)

The University is an equal opportunity educational institution. Please read The University's Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance.

ACADEMIC ACCOMMODATIONS

The University of Toledo is committed to providing equal access to education for all students. If you have a documented disability or you believe you have a disability and would like information regarding academic accommodations/adjustments in this course please contact the Student Disability Services Office (Rocket Hall 1820; 419.530.4981; studentdisabilitysvs@utoledo.edu) as soon as possible for more information and/or to initiate the process for accessing academic accommodations. For the full policy see:

<http://www.utoledo.edu/offices/student-disability-services/sam/index.html>

ACADEMIC POLICIES:

STUDENT PRIVACY

Federal law and university policy prohibits instructors from discussing a student's grade or class performance with anyone outside of university faculty/staff without the student's written and signed consent. This includes parents and spouses. For details, see the "Confidentiality of Student Records (FERPA)" section of the University Policy Page at <http://www.utoledo.edu/policies/academic/undergraduate/index.html>.

MISSED CLASS POLICY

If circumstances occur in accordance with "The University of Toledo Missed Class Policy" (found at <http://www.utoledo.edu/policies/academic/undergraduate/index.html>) result in a student missing a quiz, test, exam or other graded item, the student must contact the instructor in advance by phone, e-mail or in person, provide official documentation to back up his or her absence, and arrange to make up the missed item as soon as possible.

ACADEMIC DISHONESTY

Any act of academic dishonesty as defined by the University of Toledo policy on academic dishonesty (found at <http://www.utoledo.edu/dl/students/dishonesty.html>) will result in an F in the course or an F on the item in question, subject to the determination of the instructor.

COURSE EXPECTATIONS:

ATTENDANCE AND MISSED WORK POLICY

You are expected to attend each class session. Be on time for class. The class will consist of two activities on most days: review of homework problems and PRESENTATION OF NEW IDEAS. The class will generally begin with a call for questions. This is your chance to clarify any problems that you may have. In addition to class, you will also have to complete section homework and chapter quiz. More information will be given the first day of class.

If you attend class, it is assumed that you will participate actively by asking questions and participating in discussions. It is your responsibility to be aware of any announcements or calendar changes made during lecture. If you have an excused absence (based on UT's missed class policy <http://www.utoledo.edu/policies/academic/undergraduate/index.html>), the work you missed must be made up by the next class, unless you have made other arrangements with the instructor. You may communicate any expected or unexpected absences via written communication, email, and/or by voice mail. In the event of an emergency or an unavoidably short notice of absence, you must present an approved written excuse upon your return to class. Approved written excuses include, but are not limited to, doctor's notice, funeral programs, court summons, and other. Otherwise any missed exams will be recorded as "0%". Daily quizzes may not be made up for any reason.

CELL PHONES

All cell phones must be turned to silent/vibrate during class and must be put out of sight. Any visible/audible cell phone will be confiscated until the end of class or student will be asked to leave. Cell Phones will be collected during Exam times.

GRADING POLICY

The categories used for evaluation in this course and the percent weights associated with them are:

| | |
|---------------|-----|
| Participation | 5% |
| Homework | 14% |
| Quizzes | 14% |
| Exam 1 | 17% |
| Exam2 | 17% |
| Exam 3 | 17% |
| Final Exam | 20% |

| Overall % | Grade |
|------------|-------|
| 90 – 100% | A |
| 80 – 89.9% | B |
| 70 – 79.9% | C |
| 60 – 69.9% | D |
| 0 – 59.9% | F |

Plus/minus grades are assigned within 2% of the grade boundary

PREPARATION FOR CLASS

You are expected to prepare for class, to have read the indicated sections prior to the class session and have your homework completed by the indicated due date. This is a three credit hour course and you should expect to spend 5 to 8 hours outside of class reading, studying and doing homework problems. The syllabus schedule indicates the order in which the sections will be discussed.

HOMEWORK

Homework assignments are available on Blackboard and are due the day after the section is complete.

Homework problems allow you to test your knowledge and improve your skills. It is a very important part of this course, since you learn the material by doing the problems. Working together is allowed, even encouraged, however, be sure to do your own work. Homework is graded on completeness and correctness (with more emphasis on the completeness).

QUIZZES

Quizzes are done on Blackboard and consist of questions that will help you think like a teacher. Each chapter will have a quiz to complete. Quizzes remain available until the day the next chapter is taught. The best way to study for quizzes is to attend class regularly and participate in any activities done in class.

INCOMPLETES, EXTRA CREDIT, ETC.

University and departmental policy stipulate that incompletes will be granted only in cases where a *substantial portion* (usually at least 3/4) of the class has been completed *successfully* and unavoidable circumstances prevent completing the course by the end of the semester. Incompletes are not intended to rescue students who have performed poorly, or those who have not participated in the class. Students often come to me at the end of the semester after realizing that they are not likely to pass wanting an incomplete or extra credit or some other way of avoiding disaster. Generally, the end of the semester is too late. I don't usually allow extra credit, and particularly not for individual students. You need to keep up with the class, participate in the labs, get the homework done on time and prepare for the exams.

IMPORTANT DATES

- Final Exam: _____
- The last day to ADD/DROP classes: _____
- The last day to WITHDRAW from classes: _____

**Note: Instructors cannot withdraw students from class. Any student who has not withdrawn from class by _____ will receive a letter grade for the class!

STUDENT SUPPORT SERVICES

I have office hours every day from [_:_] to [_:_]. If this conflicts with your schedule, be sure to see me before/after class or contact me to arrange an alternate time. See me at the first sign of confusion.

Mathematics tutoring is provided by the Mathematics Learning and Resource Center and is located in the basement of Carlson Library - phone ext. 2176. It operates on a walk-in basis. MLRC hours can be found at <http://www.math.utoledo.edu/mlrc/MLRC.pdf>. Be sure to bring your book, notes from class, and specific problems you want help with. Tutors are not teachers. They are there only to help with *specific problems*.

TENTATIVE SCHEDULE

| | | | |
|------------|---------|-----|--|
| | Chapter | 1 | Introduction to Problem Solving |
| Week 1 | | 1.1 | Problem-Solving Process and Strategies <i>Mathematical Processes</i> |
| Week 1 | | 1.2 | Three Additional Strategies <i>Mathematical Processes</i> |
| | Chapter | 2 | Sets, Whole Numbers and Numeration |
| Week 2 | | 2.1 | Sets as a Basis for Whole Numbers <i>Number and Number Systems</i> |
| Week 2 | | 2.2 | Whole Numbers and Numeration <i>Number and Number Systems</i> |
| Week 3 | | 2.3 | The Hindu-Arabic System <i>Number and Number Systems</i> |
| | Chapter | 3 | Whole Numbers: Operations and Properties |
| Week 4 | | 3.1 | Addition and Subtraction <i>Meaning of Operations</i> |
| Week 4,5 | | 3.2 | Multiplication and Division <i>Meaning of Operations</i> |
| Week 5 | | 3.3 | Ordering and Exponents <i>Number and Number Systems</i> |
| | Chapter | 4 | Whole Number Computation – Mental, Electronic and Written |
| Week 6 | | 4.1 | Mental Math, Estimation, and Calculators <i>Computation Estimation</i> |
| Week 6 | | 4.2 | Written Algorithms for Whole-Number Operations <i>Computation Estimation</i> |
| Week 7,8 | | 4.3 | Algorithms in Other Bases <i>Computation Estimation</i> |
| | Chapter | 5 | Number Theory |
| Week 9 | | 5.1 | Primes, Composites and Tests for Divisibility <i>Number and Number Systems</i> |
| Week 10 | | 5.2 | Counting Factors, GCF, and LCM <i>Number and Number Systems</i> |
| | Chapter | 6 | Fractions |
| Week 11 | | 6.1 | The Set of Fractions <i>Number and Number Systems</i> |
| Week 12 | | 6.2 | Fractions: Addition and Subtraction <i>Meaning of Operations</i> |
| Week 13 | | 6.3 | Fractions: Multiplication and Division <i>Meaning of Operations</i> |
| | Chapter | 7 | Decimals, Ratio, Proportion, and Percent |
| Week 14 | | 7.1 | Decimals <i>Number and Number Systems</i> |
| Week 14,15 | | 7.2 | Operations with Decimals <i>Computation Estimation</i> |
| Week 15 | | 7.3 | Ratio and Proportion <i>Computation Estimation</i> |
| Week 16 | | 7.4 | Percent <i>Meaning of Operations</i> |