MA 098 Basic Mathematics

Thomas Spring, SM
Chaminade University
Honolulu, Hawaii

Fall Semester, 1998; Day Session

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Course Expectations

<u>Goal</u>: To review arithmetic and get a start on algebra. To do some mathematical thinking. To **learn**.

<u>Strategy</u>:   Cooperative learning – **all** assume responsibility for learning and teaching. Each one can contribute **something**. Much work and study will be done in groups. Writing in the book to answer its questions is highly recommended. Successful learning by each member of the group depends on the regular attendance of each group member. I encourage groups to work together also outside of class time.

<u>Journal</u>:   Each week I will provide an opportunity to journal on your own time. I will collect and peruse these, responding to your questions and comments.

<u>Assessment</u>: We will make efforts to keep track of how well we are learning. Means will include my classroom observations of your participation in group work; journaling, class work, some group quizzes and a group final exam. See the **Assessment Rubric** attached herewith.

<u>Final Exam</u>: This is a group effort. It will be on 16 December at 12:45 p.m. in our usual classroom.

<u>Grade</u>:   Your grade for the course is determined jointly by you and me. We base our judgments on the **Assessment Rubric** which accompanies this packet.

<u>Assistance</u>: I am able and eager to assist you. The various ways of contacting me are given in the masthead of this sheet. My office hours are posted and I can easily make appointments.

        You can also receive assistance in the **Math Lab** in HH 20. It will be open around 21 September. No appointment is needed.

        The **Learning Center** will provide you with a tutor. You must make an appointment. The LC is on the bottom floor of Eiben Hall.

<u>Walter Paddington</u>:   His mission in life is to witness to such attitudes as: there is more to life than mathematics, success is more than high grades, each of us is unconditionally loved, each of us is a wonderful mystery. Walter is available for consultation at any time. Consultation generally takes the form of hugging and holding.

Assessment Rubric

Excellent:

- Student's work is complete and demonstrates understanding of concepts.
- Student's choice of algorithm is appropriate and efficient.
- Student's responses are clear, coherent and unambiguous.
- Student communicates effectively.
- Student demonstrates a firm grasp of mathematical ideas and processes.
- Student presents strong supporting arguments.

Very Good:

- Student's work is mostly complete and usually demonstrates understanding.
- Student exhibits a few minor flaws in content knowledge and understanding.
- Student uses appropriate, efficient algorithms most of the time.
- Most of the student's responses are clear and coherent.
- Student's communication is clear, with few uses of incorrect notation.
- Student demonstrates, with minor exceptions, a grasp of mathematical ideas and processes.
- Student presents supporting arguments that may contain minor flaws.

Good:

- Majority of work is complete but often reflects procedural thinking and understanding.
- Some flaws, mostly minor, in content knowledge.
- Student's responses are based on rote procedures with incomplete justification.
- Student's communication is sometimes vague or includes incorrect notation.
- Student demonstrates a partial grasp of mathematical ideas and processes.
- Student presents supporting arguments that may contain major flaws.

Fair:

- Student's work is incomplete or unorganized and demonstrates little understanding.
- Student exhibits some major flaws in content knowledge.
- Many of the student's responses are incoherent and do not justify the work.
- Student communication is often vague and uses incorrect notation.
- Student demonstrates little understanding of the mathematical ideas and processes.
- Student seldom presents supporting arguments or those presented have major flaws.

Poor:

- Majority of work is incomplete and not thoughtfully done.
- Student exhibits many major flaws in content knowledge.
- Most, if not all, of the student's responses are vague and fail to justify work.
- Student communication is always vague.
- Student shows little or no understanding of the mathematical ideas and processes.

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Course Syllabus

Text: Mathematical Investigations
           First Edition
           By: DeMarois, McGowen and Whitkanack
           Addison Wesley Longmans 1998

Course Content:

Doing mathematics
Variables
Arithmetic and algebraic expressions
Exponents, properties of exponents
Whole numbers
Domain
Prime numbers
Prime factorization
Order of operations
Function machines
Polynomials
The commutative, associative and distributive properties
Patterns
Using tables to predict outcomes
Algebraic representation of functions
Function notation
Graphing functions
Power and factorial functions
Opposites of whole numbers
Operations with signed numbers
Order of operations, revisited
Absolute value function
Integer graphs on the HP 38G
Functions over the integers
Rational numbers
Reciprocal and power functions
Integer exponents
Real numbers
Square root function
Classifications of basic functions
Linear functions
Quadratic functions