

MAYLAND COMMUNITY COLLEGE

Welcomes You To:

Mat 140A.11 – Survey of Mathematics Lab

1 credit hour - 2 contact hours

Fall 2005

Course Description

This course is a laboratory for Mat 140. Emphasis is placed on experiences that enhance the materials presented in class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively.

Pre-requisites: Mat 070

Co-requisites: Mat 140

Instructor Information

Instructor: Paula Schlesinger
Office Location: Room 258
Telephone Number: 828-765-7351, ext 265
Faculty fax number: 828-765-2327
E-mail Address: pschlesinger@mayland.edu
Office Hours: Monday – Friday Noon – 2

Course Information

Meeting days and place: August 18 – December 13, 2005
Meeting times: Tuesday/Thursday 5:00 pm to 5:50 pm, Room 239
Snow Schedule: Our meeting time will not change if Mayland is on a delay schedule.
Required Text(s): Blitzer, Robert. Thinking Mathematically. Third Edition. Upper Saddle River, New Jersey: Pearson/Prentice Hall., 2005.
Required supplies: Lab packet
A TI-83, TI-84 or TI-89 graphing calculator or a scientific calculator is suggested material for this class. A scientific calculator is required material for this class if a graphing calculator is not purchased.
Loose leaf notebook or folder

Mayland Community College's General Education core courses will provide the essential body of knowledge and skills that enable all degree-level students to perform competently as employees and as contributing members of society.

The Learning Outcomes for the General Ed core courses are for students to:

1. Improve communication in speaking and listening situations needed for college, personal, and work successes
2. Improve communication in writing and reading situations needed for college, personal, and work successes
3. Improve logical, critical, and creative thinking to evaluate evidence and reach a conclusion
4. Increase application of basic computer use skills
5. Increase application of fundamental math skills
6. Increase both independent and collaborative work skills
7. Increase exposure to the diversity of various world groups from both historical and contemporary contexts.

Course Objectives/Competencies

This course provides an introduction in a non-technical setting to selected topics in mathematics. Students will:

1. Solve practical problems → LO 3, 4, 5, 6
2. Reason and communicate with mathematics → LO 1, 2, 3, 4
3. Work confidently, collaboratively and independently → LO 3, 4, 5, 6
4. Use a calculator accurately and appropriately → LO 1, 4, 5
5. Develop the ability to critically analyze a problem and select the most appropriate method of solution → LO 3, 5, 6

Attendance Policy/Tardiness/Make-Up Work

Roll will be taken and you are expected to be in class each time it meets. If you must miss a class you are responsible for obtaining notes, arranging for help on any material that you do not understand, and for turning in any work due in a timely manner. If students must miss classes due to weather or for some other excused reason such as a doctor's appointment or sickness, I will trade documented tutoring time for class time. This must be time with an assigned tutor, the math lab, or me.

NOTE: Any student with 4 or more absences that have not been made up will receive a failing grade for the class. Any absences can be made up in the skills lab or with documented time spent with an assigned tutor.

MAYLAND POLICY: If a student misses class for two consecutive weeks without contacting the instructor, the instructor MUST initiate an administrative withdrawal. If this occurs before the end of unconditional withdrawal, the student will receive a W for the class. If this occurs after the end of unconditional withdrawal, the student will receive a WP or a WF depending on their current grade, including zeros for any material missed during their absence from class. The student will not be able to re-register for the class until next semester.

Grading Criteria/Tests/Projects

The final grade will be determined as follows:

Lab activities	100 points
Portfolio	<u>200 points</u>
Total	300 points

Grading Scale:

- A = (90-100%)
- B = (80-90%)
- C = (70-80%)
- D = (60-70%)
- F = (69% or less)

Inclement Weather Procedures:

Students must use wisdom and discretion in case of inclement weather considering the area in which we live. While this is college and students are expected to attend class, it is not advisable for students to risk bodily harm or property damage to attend. It is possible that day classes can be cancelled, but night classes will be held, or vice versa. It is necessary that you either call the school or listen to the radio stations that report school closings to determine whether or not class is being held on any days when the weather is uncertain.

Academic Standards/Student Expectations/Ethics:

Labs: Most labs will be taken from the packet. Some labs may be added and will be from the text or on a hand-out. Labs are designed to be completed as a group and most require assistance from the instructor. Students who fail to bring their lab packet to class will be penalized 5 points on each lab.

Portfolio: A portfolio is required material for this class. The portfolio is to be in formal presentation form and kept in a loose-leaf binder or folder. It **must** have a cover sheet with each student's name, class and section number, instructor and the semester (ex: Spring, 2005). Dress up the cover page with a graphic if you choose. Impress me! **The overall appearance of your portfolio counts 50 points.**

The portfolio is to contain the following items, separated by dividers:

1. All tests taken, with a **separate sheet of corrections** immediately following.
2. All graded labs.
3. Four graded essays (the list of essays, subject to editing, follows. Choose 4 of the 5.
4. A section for completed and graded homework is optional.

All essays are to be in narrative form, **complete sentence format**, and include the essay criteria, or there will be a reduction in grade. Essays are to be submitted according to the course outline and will be graded and returned for insertion into the portfolio. Whenever possible, lab time will be allotted to develop the essays.

The portfolio will be due for final grading on December 9. The final portfolio grade will be determined by content and overall appearance of the portfolio as well as the required materials.

Classwork: All late lab work/class work is due the class after the lab is assigned. I will not accept any late work for any reason after December 9.

Withdrawal Dates:

Fall 2005

End of Unconditional Withdrawal

Friday, September 23, 2005

End of Conditional Withdrawal

Tuesday, November 1, 2005

Disclaimer: While I have attempted to be as thorough as possible with this syllabus, course procedure may vary from this outline to meet the needs of this particular group. All dates contained in this syllabus are subject to change due to the weather and/or the discretion of the instructor.

Additional Information:

If a student has not been in contact with the instructor and has not attended class for a consecutive two-week period, an administrative withdrawal will be submitted by the instructor. The student will not be permitted to re-enroll in the class.

Any student requesting special accommodations for this course due to a disability should apply for services through the SOAR Office or the Counseling Center, which will document the disability. A counselor will then help determine which accommodations, if any, the student needs for success in this course.

Remember! Procrastination on your part does not constitute an emergency on my part!

Portfolio Essay

Remember: Your answers must be in narrative form and in complete sentences.

Essays shall be a **minimum** of 1 to 2 pages each. They are to be in narrative form, in complete sentences. Use examples when appropriate and include an explanation of the essay criteria.

Essay #1 - We have studied sets and logic. Compare and contrast sets and logic. Also, compare DeMorgan's laws for sets vs. DeMorgan's laws for logic. How are the sets and logic subjects similar? How are they different? Give one practical example of each.

Essay #2 –: Select 6 people of the same sex and measure and record each person's height and the length of the ulna bone in centimeters (the lower arm bone from the bump on the elbow to the bump on the wrist). The names of the people you measure are not important. Each measurement should be made to the nearest 0.5 cm. These measurements create an ordered pair for each person (bone length, height). Plot these ordered pairs in graph paper (x = bone length, y = height). Graph only in the first quadrant. (Why?) Draw a straight line that you feel best approximates the data. Determine the slope of this line and the equation that fits this line (see Mat 070, Section 3.7 in Elementary Algebra by Marvin Bittinger for the formulas and review) Then use your equation to approximate the height of a person of the same sex whose ulna bone is 25 cm long. Explain your data collection and your findings in essay (narrative) form in complete sentences. How accurate do you think your approximation is?

Essay #3 –You are purchasing a house valued at \$130,000. The bank is offering you a VA Loan with a 25-year mortgage with an interest rate of 7%, no down payment required. You have \$20,000 that you can use as a down payment. You want to use it as a down payment. Your spouse wants to use the \$20,000 to buy a pontoon boat and keep the rest.

1. Determine the payment amount and the total payments on the house, including principal and interest, with no down payment.
2. Determine the payment amount and the total payments on the house, including principal and interest, with the \$20,000 down payment.
3. If you could invest the \$20,000 at an annual interest rate of 5% compounded monthly, calculate the balance in the investment account after 25 years.
4. What scenario would you recommend to your spouse? No down payment and invest the money, or make the down payment and make lower mortgage payments? How much interest would you save using your scenario? Obviously, the boat is out of the question. Make sure you include all your computations.

Essay #4 –: Write a one to two page argument in business letter format in favor of converting the measurement system in the United States from the US Customary System to the SI System. Give at least 4 specific examples of how converting would be beneficial to our country. Address your letter to a member of the US Congress.

Essay #5 –: You are thinking about purchasing a circular Jacuzzi hot tub that is 12 feet in diameter, 4 feet deep and weighing 475 pounds. You are afraid your deck will not support the hot tub when it is full of water. The deck will support 11 000 kilograms.

1. Determine the volume of water in the hot tub in cubic meters.
2. Determine the number of liters of water the hot tub will hold. ($1 \text{ ft}^3 = 7.5 \text{ gal}$ and $1 \text{ gal} = 3.8 \text{ L}$)
3. Determine the weight of the water in the hot tub in kilograms. (water weighs about 52.4 lb/ft^3)
4. Will the deck support the weight of the hot tub and water?
5. Will the deck support the weight of the hot tub, water and four people whose average weight is 215 lbs. per person?

Describe your process and findings in essay (narrative) form, in complete sentences. Also, explain any difficulties you encountered and how they were overcome.

Portfolio is due in its entirety on December 9.

