I. IDENTIFYING INFORMATION

Course: MTH 113
Course Title: Mathematics - A Modeling Approach
EPN: 22312066
Term: Fall I
Location: Warren Center
Course Dates: 8/23, 8/30, 9/6, 9/13, 9/20, 9/27, 10/4, 10/11/2016
Course Days and Times: Tue 5:30PM-10:00PM;

Prerequisites: None.

Blackboard:
Blackboard is a web-based learning management system licensed by CMU. Within Blackboard, a course website, also known as a shell, is automatically created for every CMU course. Face-to-face courses may or may not incorporate Blackboard, whereas Blackboard course shells are always used for online courses and will be available to you prior to the course start date. Seeing the course shell listed in Blackboard with unavailable adjacent to its title is an indication that your instructor has not made it available and is in no way indicative of registration status. To access Blackboard, open a web browser and enter https://blackboard.cmich.edu/webapps/login/. After the site loads, enter your CMU Global ID and password in the respective spaces provided. Click the "login" button to enter Blackboard and then the link to the appropriate course to enter the course's Blackboard shell. If you need assistance, contact the IT Helpdesk at 989-774-3662 / 800-950-1144 x. 3662. Self-guided student tutorial resources are also available at https://blackboard.cmich.edu/webapps/login/.

Instructor: Jose Mabesa
Primary Phone Number: 586-306-0041
Secondary Phone Number: N/A
E-Mail Address: mabes1jr@cmich.edu
Availability: The day of class, typically 1 hr. before or after class.

Academic Biography:
Academically, Dr. Jose R. Mabesa, Jr. has served with CMU since 2006. Dr. Mabesa has taught countless courses for CMU in the subjects of Engineering, Mathematics and Physics. He earned his BS, MS and Ph.D. in Mechanical Engineering from Wayne State University in Detroit, MI. Professionally, Dr. Mabesa also currently serves as the Deputy Associate Director for the U.S. Army Tank-Automotive Research, Development and Engineering Center's Ground Vehicle Simulation Laboratory.

II. TEXTBOOKS AND INSTRUCTIONAL MATERIALS

Order books from MBS at http://bookstore.mbsdirect.net/cmu.htm

Textbooks and Course Materials:

Title: Excursions in Modern Mathematics
Author: Tannenbaum
Edition: 8th
Publisher: Pearson
Required: Yes

Course Reserves: N/A
III. COURSE DESCRIPTION

The role of mathematics in modeling real world phenomena is explored. Such mathematical areas as graph theory, linear programming, probability theory, and difference equations are developed as solution techniques for concrete problems from many disciplines. (University Program Group II-B: Quantitative and Mathematical Sciences)

IV. COURSE GOALS AND OBJECTIVES

After successful completion of this course, the student will be able to:

1. Describe mathematical modeling and relate it to the scientific method.
2. Demonstrate how mathematics is used to model real world phenomena.
3. Apply mathematical modeling techniques to voting, apportionment, scheduling and finances.
4. Analyze surveys and polling data, with regards to sampling error and other forms of bias.

V. METHODOLOGY

Class sessions will be divided into two main segments: Lecture and Discussion/Examples. Please come to each class session prepared to discuss the homework assignments and engage in classroom discussion.

VI. COURSE OUTLINE/ASSIGNMENTS

Pre-Class Assignment:
Acquire textbook and familiarize yourself with the content/layout.

Course Outline:

Week 1 - Mathematics of voting / Weighted voting systems
Week 2 - Fair division / Mathematics of apportionment
Week 3 - Euler paths and circuits
Week 4 - The traveling salesman problem / The mathematics of networks and scheduling
Week 5 - Fibonacci numbers and spiral growth
Week 6 - The mathematics of money
Week 7 - Censuses, surveys and clinical studies
Week 8 - Chances, probabilities and odds

Assignment Due Dates:
Assignments are due 5:30pm the following class session.

Post-Class Assignment:
None.

Student Involvement Hours:
Students can expect to spend 2 - 3 hours per week outside of class times dedicated to homework assignments, etc.
VII. CRITERIA FOR EVALUATION

Evaluation Criteria:

Exams (2 - 100) 200 points
Assignments 180
Attendance and participation 20
Total 400 points

Grading Scale:

93-100 A
90-92 A-
87-89 B+
84-86 B
80-82 B-
77-79 C+
70-76 C
67-69 D+
60-66 D
below 60 E

Late Assignments:
Late assignments are typically not accepted unless evaluated in advance on a case-by-case basis.

Make-ups and Rewrites:
Make-up assignments are typically not accepted unless evaluated in advance on a case-by-case basis.

VIII. EXPECTATIONS

Attendance and Participation:
Attendance and active participation are expected and is directly reflected on your Final Grade.

Academic Integrity:
Because academic integrity is a cornerstone of the University's commitment to the principles of free inquiry, students are responsible for learning and upholding professional standards of research, writing, assessment, and ethics in their areas of study. Written or other work which students submit must be the product of their own efforts and must be consistent with appropriate standards of professional ethics. Academic dishonesty, which includes cheating, plagiarism and other forms of dishonest or unethical behavior, is prohibited. A breakdown of behaviors that constitute academic dishonesty is presented in the CMU Bulletin (https://bulletins.cmich.edu/).

Student Rights and Responsibilities:
Each member of the Central Michigan University community assumes an obligation regarding self conduct to act in a manner consistent with a respect for the rights of others and with the University's function as an educational institution. As guides for individual and group actions within this community, the University affirms the general principles of conduct described in the Code of Student Rights, Responsibilities and Disciplinary Procedures at
IX. SUPPORT SERVICES AND OTHER REQUIREMENTS

Global Campus Library Services (GCLS)

CMU offers you a full suite of library services through its Global Campus Library Services (GCLS) department. Reference librarians will assist you in using research tools and locating information related to your research topic. The library's Documents on Demand office will help you obtain copies of the books and journal articles you need. Check out the GCLS website at http://gcls.cmich.edu for more information.

Reference librarian contact information:
1. By phone: (800) 544-1452.
2. By email: gclsrref@cmich.edu
3. By online form: http://www.cmich.edu/library/gcls/Pages/Ask-a-Librarian-Request-Form.aspx

Documents on Demand office contact information:
1. By phone: (800) 274-3838
2. By email: docreq@cmich.edu
3. By fax: (877) 329-6257
4. By online form: https://illiad.cmich.edu/

Writing Center

The CMU Writing Center is a free online service for all CMU students, providing help with grammar, citations, bibliographies, drafts, and editing of academic papers. Suggestions and feedback are typically provided within two business days. For additional information and to submit work, visit http://global.cmich.edu/student/writing-center.aspx

Mathematics Assistance Center

The CMU Mathematics Assistance Center provides free tutoring in mathematics and statistics to students enrolled in select courses. Tutoring is available online and via telephone. To see what courses qualify and to register with the Math Assistance Center, visit http://global.cmich.edu/mathcenter/tutoring-request.aspx.

ADA

CMU provides individuals with disabilities reasonable accommodations to participate in educational programs, activities and services. Students with disabilities requiring accommodations to participate in class activities or meet course requirements should contact Student Disability Services at (800) 950-1144, extension 3018 or email sds@cmich.edu, at least 4 weeks prior to registering for class. Students may find additional ADA information and forms at https://www.cmich.edu/ess/studentaffairs/SDS/Pages/default.aspx

Note to faculty: CMU Administration will notify you if applicable; otherwise, the student will provide a "Notification Letter to the Instructor" outlining the accommodations the student is approved to receive.

X. BIBLIOGRAPHY


Center Information

Welcome to the Warren Center where we always have the coffee ready when you arrive for classes!

Tracy N. Perry - Assistant Director of Enrollment
Darlene Heath-Meyers - Center Coordinator
28241 Mound Road, Suite C
Warren, MI 48092
Telephone: (586) 558-4300
e-mail: warren.center@cmich.edu

Hours: M-Tu-Th-F 9a - 6p; Wed 9a - 7p;
4th Saturday of each month 9a - 12p (except Jun-Aug)

We sometimes close for lunch or meetings.
Please call ahead if you are planning to visit the center.

Students may not bring their children to class or the resource center.

MAP http://goo.gl/maps/LE7ZY

- The center is located on the west side of Mound Road between I-696 and Twelve Mile Road. We share space with Cort Furniture in a red and white building, just south of the Warren Post Office.
- The center is a self-contained suite with three classrooms, a student resource area and lounge with computers, printer, snack and soda vending machines, coffee and tea, a microwave and refrigerator.
- Wireless internet access is available throughout the center using your global id and password.
- CMU has a no smoking policy. There is no smoking allowed in any area of the Warren Center. Smoking is permitted only in your vehicle.
- Classroom assignments and special announcements will be posted on the display monitor in the lobby.
- For the security of our students and faculty, our entrance locks at 6 p.m. weekdays and remains locked over the weekend. You will be provided with a student access code during the first class meeting that will enable you to enter the building during class times. The code is not active during hours outside of scheduled class times.
- There are many places to eat in the area including Qdoba, Potbelly, Chili’s, Buffalo Wild Wings, Oasis, Starbucks, Five Guys Burgers & Fries, Jimmy Johns, Kerby’s Koney Island, Parthenon, Chipotle, Beirut Palace, McDonalds and Burger King.
- If the weather appears questionable, visit http://cmich.edu/global for announcements. Weather-related closing decisions will be made by 3 p.m.