



MTE 552.001 Math Modeling for Teachers

COURSE SYLLABUS: Fall 2022

Instructor: Rebecca Dibbs, PhD

Office Location: 318 Binnion

Office Hours: T 12-1 & 2-3 pm; W 10-11 am; R 12-1 & 7-8 pm or by appointment

Office Phone: 468-8660

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COURSE INFORMATION

Materials

Textbook(s) Required: All materials will be provided and free to students. You will need paper or plastic cups for one activity. You will be told when you need them.

Course Description: Hours: 3

Mathematical Modeling for Teachers - Three semester hours This course is specifically designed for teachers K-8. The National Council of Teachers of Mathematics (NCTM) explains in its Principles and Standards (2000) that all mathematical learning should be grounded in problem solving and mathematical reasoning. This course is designed to prepare the teachers to create learning environments conducive to meeting the national and state standards regarding problem solving, mathematical modeling, and the judicious use of technology.

COURSE REQUIREMENTS

Course Activities

Lab Reports: We will be writing up formal reports of some of the models we create in class. These will be graded on a 100 point scale using the template and rubric provided in the course materials

Lab Reflections: some models will require a less formal reflection. These will be out of 50 points and a template will be provided in the course materials.

Exams: There will be no exams this semester, but there will be end of module reflection papers. These are worth 75 points for Module 1 and 2 and 100 points for Module 3

Small Assignments: There are various assignments throughout the semester, mostly in Module 1, that require reading, reflection, and/or data collection outside of class. These assignments are worth varying levels of points, but are generally under 50 points/assignment.

Final Project: You will conduct a final modeling assignment with up to three people in a group for your final project in the course. The final project prompts can be found in the Appendix of Module 3. It is recommended that you start no later than the week after Spring Break

Discussion Sessions: We will have a weekly discussion session where we start each modeling activity together. We will do 1-2 models/week. These will be done on Zoom. These sessions will be recorded for you to watch if you can't make the Zoom meeting.

Simulation of Practice: These are a mix of written and video assignments where you are asked to respond to student work. These videos should be uploaded to YouTube as a private video and the link posted to D2L.

The key to success in this course is regularly working with other students in the class and asking questions when you have them!!! We will discuss lab problems in class, but there will often not be enough time to discuss all of them. Please come to office hours if you have additional questions about the problem set.

Workload and Assistance: You should expect to spend a **minimum of TWO HOURS every day**, outside of class, on the course material. This includes watching the videos, labs, and studying for quizzes and exams. Some weeks (those in which an exam is scheduled, for instance) may require more of your time, other weeks may require less, but *on average*, budget 8 to 12 hours each week. **I can't stress enough that in order to be successful in this class you should spend much of this time working with other students in the class!** Please ask questions and seek assistance

as needed. You may email me at any time, and I encourage you to make use of my office hours

GRADING

This class will be graded on a points system. There are 2,000 points possible.

All point totals will be rounded to the nearest percent before grades are assigned:

A: 90-100%

B: 80-89%

C: 70-79%

D: 60-69%

F: Below 60%

TECHNOLOGY REQUIREMENTS

Use of a graphing calculator having at least the capabilities of the TI-83 will be helpful throughout the course. TI-89 is highly recommended. A computer algebra system will be used for some problem exploration, enhanced conceptual understanding, and to engage students as active participants in the learning process.

We will also use several free web-based statistical software packages. Most have a relatively low learning curve.

COMMUNICATION AND SUPPORT

Interaction with Instructor Statement

My primary form of communication with the class will be through Email and Announcements. Any changes to the syllabus or other important information critical to the class will be disseminated to students in this way via your official University Email address available to me through MyLeo and in Announcements. It will be your responsibility to check your University Email and Announcements regularly.

Students who Email me outside of regular office hours can expect a reply within 24 hours M-F. Students who Email me during holidays or over the weekend should expect a reply by the end of the next regularly scheduled business day.

myLeo Support

Your myLeo email address is required to send and receive all student correspondence. Please email helpdesk@tamuc.edu or call us at 903-468-6000 with any questions about setting up your myLeo email account. You may also access information at <https://leo.tamuc.edu>.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

THE COUNSELING CENTER AT A&M-COMMERCE, LOCATED IN THE HALLADAY BUILDING, ROOM 203, OFFERS COUNSELING SERVICES, EDUCATIONAL PROGRAMMING, AND CONNECTION TO COMMUNITY RESOURCES FOR STUDENTS. STUDENTS HAVE 24/7 ACCESS TO THE COUNSELING CENTER'S CRISIS ASSESSMENT SERVICES BY CALLING 903-886-5145. FOR MORE INFORMATION REGARDING COUNSELING CENTER EVENTS AND CONFIDENTIAL SERVICES, PLEASE VISIT WWW.TAMUC.EDU/COUNSEL

Course Specific Procedures

Academic Honesty

Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including (but not limited to) receiving a failing grade on the assignment, the possibility of failure in the course and dismissal from the University. Since dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. In **ALL** instances, incidents of academic dishonesty will be reported to the Department Head. Please be aware that academic dishonesty includes (but is not limited to) cheating, plagiarism, and collusion.

Cheating is defined as:

- Copying another's test or assignment
- Communication with another during an exam or assignment (i.e. written, oral or otherwise)
- Giving or seeking aid from another when not permitted by the instructor
- Possessing or using unauthorized materials during the test
- Buying, using, stealing, transporting, or soliciting a test, draft of a test, or answer key

Plagiarism is defined as:

- Using someone else's work in your assignment without appropriate acknowledgement
- Making slight variations in the language and then failing to give credit to the source

Collusion is defined as:

- Collaborating with another, without authorization, when preparing an assignment

If you have any questions regarding academic dishonesty, ask. Otherwise, I will assume that you have full knowledge of the academic dishonesty policy and agree to the conditions as set forth in this syllabus.

Late Policy: Late work/Make-ups will not be accepted without a documentable and valid excuse, because the lowest grade(s) in each category is dropped. Examples of documentable and valid excuses include:

- *car accident w/ police report
- *illness w/ doctor's note (you or your child)
- *athletic or other mandatory extra-curricular travel
- *field trip for another class
- *being detained upon entering the country by Homeland Security

University Specific Procedures

ADA Statement

Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a

learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Gee Library- Room 132

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

StudentDisabilityServices@tamuc.edu

University Specific Policies

- The final exam time can be found at <http://www.tamuc.edu/admissions/registrar/academicCalendars/final-exam-schedule.aspx>
- Campus Concealed Carry (new): Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to (<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>) and/or consult your event organizer). Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.
- The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact: Office of Student Disability Resources and Services, Texas A&M University-Commerce, Gee Library, Room 132, Phone (903) 886-5150 or (903) 886-5835, Fax (903) 468-8148, email: StudentDisabilityServices@tamuc.edu
- Basic Tenets of Common Decency: "All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (Student's Guide Handbook, Policies and Procedures, Conduct.) This means that rude and/or disruptive behavior will not be tolerated.

- A&M-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.
- Tutoring services up to the level of Calculus I provided by the Math Skill Center (Binnion Room 328) with the following hours: MW, 8am–8pm; TR, 8am–6pm; and F 8am–12pm.
- “A&M-Commerce requires the use of face-coverings in all instructional and research classrooms/laboratories. Exceptions may be made by faculty where warranted. Faculty have management over their classrooms. Students not using face-coverings can be required to leave class. Repetitive refusal to comply can be reported to the Office of Students’ Rights and Responsibilities as a violation of the student Code of Conduct. “
- “Students should not attend class when ill or after exposure to anyone with a communicable illness. Communicate such instances directly with your instructor. Faculty will work to support the student getting access to missed content or completing missed assignments.”

COURSE OUTLINE / CALENDAR

Note: Everything in each Module will be accepted until the end of the Module, but it is strongly recommended that you try to turn in all of the work for a given week by the beginning of the discussion section for the next Module.

Week	Models Discussed	Assignments
8/29	1.1	Video Introduction Discussion Board Modeling Survey Current Event Discussion Board
9/5	1.2 & 1.3	Sandbags solution/reflection Readings & Reflection Discussion Board
9/12	1.4	STD Modeling Report
9/19	1.5	Water Report Module 1 Written SOP
9/26	1.6 & 1.7	Rolling Cups Reflection Module 1 Video SOP Baseball Reading & Reflection Module 1 Assessment/Reflection
10/3	2.1	Leaf Report
10/10	2.2 & 2.3	Newton's Law of Cooling Report Module 2 Written SOP 2.3 Data Collection Assigned
10/17	2.3	Memorization Report
10/24	2.4	Pain Med Report
10/31	2.5	Leaky Bucket Report
11/7	2.6	Lost Cell Phone Report Module 2 Video SOP
11/14	2.7	Pendulum Report Module 2 Assessment/Reflection
11/21	3.1	Sioux Report Module 3 Written SOP Choose Final Projects (See Module 3 Appendix)
11/28	3.3 & 3.4	3.3/3.4 Reflection Module 3 Video SOP Work on Final Projects
12/5	3.6 & 3.7	3.6 = Final Projects. 3.7 = Final Reflection
12/12	Finals Week	All Module 3 Assignments due by 11:59 pm on 12/16