MATH 361-01S/41R/71R
Mathematical Modeling of Science for Middle School I
COURSE SYLLABUS: Fall 2019
TR 11:00a-12:15 BA338 / MPLX120 / Navarro BC322

INSTRUCTOR INFORMATION

Instructor: Dr. R. Cavender Campbell

Office Location: Binion 303B

Office Hours: MTWR 9:15a-10:30a & TR 2:00p-3:00p, others by appointment

Office Phone: 903-468-8660

University Email Address: robert.campbell@tamuc.edu

Preferred Form of Communication**: Email**

Communication Response Time: Same or Next Business Day

COURSE INFORMATION

Textbook

Stewart, J., Redlin, L., & Watson, S. (2009). Precalculus: Mathematics for calculus.
    Belmont, CA: Brooks/Cole Cengage Learning.

Course Description

MATH 361 – Mathematical Modeling of Science for Middle School I – Hours: 3

Mathematics will serve as the basis of the course and the following topics will be covered: Mathematical modeling, transformation of functions, data analysis skills, linear models, exponential growth and decay, logarithmic functions, logistic models, power and polynomial models, inverse and direct variation, periodic models and trigonometric functions. Prerequisites: "C" or better in MATH 1351 or 351.

Student Learning Outcomes
1. Students will demonstrate proficiency in the use of mathematics to structure their understanding of and investigate questions in the world around them.

The syllabus/schedule are subject to change.

2. Students will demonstrate proficiency in treating mathematical content at an appropriate level.
3. Students will demonstrate competence in the use of numerical, graphical, and algebraic representations.
4. Students will demonstrate the ability to interpret data, analyze graphical information, and communicate solutions in written and oral form.
5. Students will demonstrate proficiency in the use of mathematics to formulate and solve problems.
6. Students will demonstrate proficiency in using technology such as handheld calculators and computers to support their use of mathematics.

Student Assessment Outcomes

1. Critical Thinking: The above learning objectives will be assessed for critical thinking in labs and other classroom activities.
2. Written, Oral, & Visual Communication: Students will be assessed on written, oral, and visual communication skills on their quizzes, exams, labs, and lab jigsaw activities.
3. Empirical and quantitative reasoning: All assessments in this course will contain a quantitative reasoning and empirical computation component.

Course Learning Outcomes

1. Demonstrate an understanding of the connections between the geometric, graphic, numeric, and symbolic representations of various functions.
2. Recognize, analyze, describe, and represent data in various functions.
3. Understand the effects of transformations on graphs of functions.
4. Understand rates of change and how they apply to different physical scenarios and data.
5. Judiciously use appropriate technology to achieve these outcomes.

COURSE REQUIREMENTS

Students should complete assignments by the due dates and clearly communicate any mathematical ideas necessary to demonstrate understanding of the topics.

Instruction will include lectures and demonstrations along with group assignments and discovery style activities. Students should attend all class meetings and communicate with the instructor should difficulty with the material arise.

Daily attendance is expected and will be tracked by the instructor. The student is responsible for ensuring they are counted present for the day by arriving punctually to the start of class.

A graphing calculator (e.g.,TI-84) or a computer algebra system (e.g. Mathematica) is useful but not required for this course.

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GRADING

Final grades in this course will be based on a total points system:

A: 750 – 671   B: 670 – 591   C: 590 – 511   D: 510 – 431   F: 430 – 0

The grade will be composed of:

Teaching Unit – 100 points

Homework and Formative Assessments – 150 points

Quizzes – 100 points

Unit Tests (2) – 100 points each

Final Exam – 200 points

Assessments

Teaching Unit: You will be assigned a topic within the course to teach to the rest of the class. This teaching should target deepening the understanding of the class in the given topic. An example unit will be demonstrated by the instructor. Grading rubrics and instructions will be distributed. The unit will count up to 100 points in the final grade.

Homework: Homework assignments will be for practice and an opportunity to demonstrate understanding of the material. I encourage you to discuss homework assignments with your classmates, but all work that you turn in must be your own. Any work violating the university's guidelines for academic honesty (e.g. plagiarism, cheating, copying, etc.) will receive a grade of zero. Assignments may be in a pencil and paper format or online. Due dates will be announced with a minimum of one week notice.

Formative Assessments: There will be additional assignments given during the semester. Group assignments may be completed with group collaboration. The assignments will provide greater depth for certain concepts and techniques in Algebra. Individual assignments may also be included to help the instructor determine the direction of further instruction.

Homework and Formative assessments will count up to 150 points in the final grade.

Quizzes: Quizzes will be given approximately weekly and worth 10-points each. These problems will be similar to those seen on the unit tests, but the shorter format will allow the professor to see the students' progress on individual concepts. The best 10 scores will count up to a total of 100 points in the final grade.

Unit Tests: You will take two unit exams each worth 100 points each. Each exam combines material from several sections in the textbook. The exams will have objective, short answer, and free response style questions.

Final Exam: You will take a <u>comprehensive</u> final exam worth 200 points. The format will be substantially the same as the unit exams.

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TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:
https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Please use email or visit the instructor during office hours. The instructor will make every effort to respond by the next business day at the latest. You can also visit with the instructor before or after class, but meetings during this time may be cut short to help all students.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here: https://community.brightspace.com/support/s/contactsupport

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COURSE POLICIES

Missed tests will not be made up, but documented absences will be accommodated through other means agreed upon. Tests may be taken early if an approved absence is anticipated and a time agreed upon with the instructor.

Since there are more than 10 available quizzes a missed quiz will be counted as one of the dropped quizzes. Should a documented need arise due to multiple absences it will be considered on a case-by-case basis.

Personal electronic devices and laptops will not be allowed during exams or quizzes. Causing a distraction or creating a barrier to learning for other students will be grounds for banning of device use, but typically devices will be allowed during classes.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook. http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: https://www.britannica.com/topic/netiquette

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpages.

http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

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Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

Nondiscrimination Notice

Texas A&M University-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.

Campus Concealed Carry Statement

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 the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

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.

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Students with Disabilities-- ADA Statement

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 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu

Website: Office of Student Disability Resources and Services

http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

COURSE OUTLINE / CALENDAR

8/27	Syllabus & Functions	
9/3	Polynomial & Rational Functions	
9/10	Exponential & Logarithmic Functions	
9/17	Trigonometry: Unit Circle & Right Triangle	
9/24	Student Teaching Units	
10/1	Student Teaching Units	
10/8	Student Teaching Units	
10/15	Test 1 & Polar Coordinates	**October 15 Test 1**
10/22	Polar Coordinates & Parametric Equations	
10/29	Parametric Equations & Vectors	
11/5	Conic Sections	
11/12	Student Teaching Units	
11/19	Student Teaching Units	
11/26	Student Teaching Units & Test 2	**November 26 Test 2**
12/3	Remaining Topics & Final Review	**November 28 Thanksgiving**
12/10	Final Exam	

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