Functions and Modeling (MATH 2325)

Meeting Times: 2:30-3:25 pm MWF in RBN 3039

Last day to withdraw: Monday, October 30, 2023

Instructor: Nathan Smith

Office: RBN 4007

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Office Hours: Tentatively 10:10-11:15 MWF, with other times available by appointment.

Text: None required

Course Topics: Functions (linear, exponential, quadratic), modeling, parametric and polar coordinates, vectors, complex numbers, all with an eye toward the middle and secondary classroom. It is expected that not all of the mathematics we will study in this class will be "new" to you, but the perspective from which it is approached may well be. You will engage in problem solving and inquiry based learning. Particular emphasis will be given to connections among University level mathematics topics and to connections between University level mathematics and the middle and secondary curricula.

In addition, part of what we are doing in this course is modeling a discovery learning classroom environment. Most of us come through our school experiences with little exposure to this type of learning, and many of you will be expected to at least partially implement this type of learning environment in your classrooms. Part of the point of this class is for you to have the experience of a discovery learning mathematics class.

Student Learning Outcomes: By the end of the course students should be able to:

1. demonstrate a depth of content knowledge with regard to important secondary mathematics topics such as linear, exponential, logarithmic, and quadratic functions, parametric relations, polar relations, vectors, and complex numbers.

2. generate or work with relevant lab or exploration data and use regression, function pattern, and systems methods to produce a model of the data.

3. present mathematical ideas and topics in a knowledgeable and effective manner.

4. identify mathematics content connections between the various levels of secondary mathematics curriculum and between secondary and university level curriculum.

Grading:

- Test1: $\frac{1}{4}$ of your semester grade (late September-ish);

- Test2: $\frac{1}{4}$ of your semester grade (late November-ish);

- Final: $\frac{1}{4}$ of your semester grade (Wednesday, December 6, 2:45 - 4:45);

- Written work (Class assignments, HW, Quizzes, etc.): $\frac{1}{4}$ of your semester grade.

Missed work: It is not expected that you will miss a test. If an emergency situation or university-sanctioned event forces your absence on the day of the test and if you have discussed the situation in advance with the instructor, your final exam grade will be used to replace your test. Because much of the learning in this class revolves around discovery learning activities undertaken during the class time attendance is extremely important. I am not responsible enough to handle late work (getting it on the same pile as other papers from the same assignment, grading it, recording the grade, etc.).

Student Academic Conduct: It is your responsibility to learn the material in this course for your own benefit. You should not let this discourage you from working together on your homework but in the end what you turn in should reflect your understanding, not just be copied from someone else. *During the tests and the final exam, a code of honor will apply under which students are to work alone and neither give help to others nor receive help from any sources.* Students are also expected to help enforce this code. Students are encouraged to obtain a copy of *A Student Guide to Conduct and Discipline at UT Tyler*, available in the Office of Student Affairs.

University Policies: For University policies concerning Students' Rights and Responsibilities, Grade Replacement/Forgiveness, State-Mandated Corse Drop Policy, Disability Services, Student Absence due to Religious Observance, Student Absence for University-Sponsored Events and Activities, and the Social Security and FERPA Statement please see: *http://www.uttyler.edu/academicaffairs/files/syllabuspolicy.pdf.*