

Fall 9-1-2018

M 301.01: Math w/ Tech. for Teachers

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TEACHING MATHEMATICS WITH TECHNOLOGY
MATHEMATICS 301 SECTION 1
CRN 70656

| | |
|------------|--|
| INSTRUCTOR | Matt Roscoe Office: Math 213 Phone: (406) 243-6689 or (406) 203-2112 Email: matt.roscoe@umontana.edu |
| WEBPAGE | https://moodle.umd.edu/ |
| OUTCOMES | Upon completion of this course, a student will be able to: <ol style="list-style-type: none">1. Explain and engage in the mathematical modeling process;2. Use technology to graph, compute, organize and investigate;3. Use technology to model continuous and discrete settings;4. Use technology to model probabilistic settings using simulation;5. Evaluate models using goodness of fit measures;6. Discover, share and communicate mathematical ideas using information and communication technology (ICT).7. Use a variety of technologies to facilitate and enhance the teaching and learning of mathematics; |
| TEXTS | National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010). <i>Common core state standards for mathematics</i> . Washington D.C.: National Governors Association Center for Best Practices, Council of Chief State School Officers. http://www.corestandards.org/wp-content/uploads/Math_Standards.pdf . Consortium for Mathematics and its Applications (COMAP) & Society for Industrial and Applied Mathematics (SIAM). (2016). <i>GAIMME: Guidelines for Assessment & Instruction in Mathematical Modeling Education</i> . Bedford, MA: COMAP http://www.siam.org/reports/gaimme.php . |
| GRADING | 30% Technology Exercises 20% Readings 30% Modeling Projects 20% Final Exam |

GRADE SCALE

Let S be your final score in the course then,

| | | | | | | |
|----|--------|-----|-----|-----|---------------|----|
| 93 | \leq | S | $<$ | 100 | \Rightarrow | A |
| 90 | \leq | S | $<$ | 93 | \Rightarrow | A- |
| 87 | \leq | S | $<$ | 90 | \Rightarrow | B+ |
| 83 | \leq | S | $<$ | 87 | \Rightarrow | B |
| 80 | \leq | S | $<$ | 83 | \Rightarrow | B- |
| 75 | \leq | S | $<$ | 80 | \Rightarrow | C+ |
| 70 | \leq | S | $<$ | 75 | \Rightarrow | C |
| 65 | \leq | S | $<$ | 70 | \Rightarrow | C- |
| 62 | \leq | S | $<$ | 65 | \Rightarrow | D+ |
| 58 | \leq | S | $<$ | 62 | \Rightarrow | D |
| 55 | \leq | S | $<$ | 58 | \Rightarrow | D- |
| 0 | \leq | S | $<$ | 55 | \Rightarrow | F |

TECHNOLOGY EXERCISES

Generally, every week over the semester I will present the class with an exercise that will provide a basis for mathematical investigation aided by a particular technology. Each of these investigations will provide you the opportunity to learn how to use technology in the classroom to facilitate the construction of mathematical content knowledge. Exercises will generally be due one week after their introduction. Each student's collection of technology exercises will serve as a resource for the final exam.

READINGS

Each Monday of the semester you will be provided with a reading. Readings are meant to complement the active learning carried out in both the technology exercises and modeling projects by providing the student with an opportunity to reflect upon teaching and learning of mathematics with technology. Each student will be asked to complete an annotated bibliography for each reading due one week after the reading has been assigned. Each student's collection of annotated bibliographies will serve as a resource for the final exam.

MODELING PROJECTS

There will be three modeling projects in the course. These projects will provide you the opportunity to apply your mathematical instincts to empirical settings to gain understanding and/or improve decision-making. Each project will be announced in class and will be due three to four weeks later.

FINAL EXAM

There will be a final exam in the course to assess student progress towards the course's learning outcomes. Students will be allowed to use any self-authored materials (i.e. reading reflections, technology exercises, modeling projects) as resources for the completion of the exam.

- HONESTY** All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review at <http://www.umt.edu/student-affairs/dean-of-students/default.php>.
- ACCOMMODATION** The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors and Disability Services for Students (DSS). If you think that you may have a disability adversely affecting your academic performance, and you have not already registered with DSS, please contact DSS in Lommassen 154. I will work with you and DSS to provide an appropriate accommodation.
- IMPORTANT DATES**
- September 17 - Last day to drop a course or change the grading option via CyberBear.
- October 29 - Last day to drop/add a course, change sections, change your grading option from Credit/No Credit to a letter grade (or vice versa), or change credit in a variable credit course. After this date a student is allowed to make these changes only by petition.
- December 7 - Last day to petition to drop/add a course, change sections, change your grading option from Credit/No Credit to a letter grade (or vice versa), or change credit in a variable credit course. Petitions require signature and recommendation of instructor. Grounds for recommending late drops and changes of grading options are detailed in the university catalog.
- December 13 - Final Exam held in M306 from 8:00-10:00AM

SEMESTER SCHEDULE

| Monday | Wednesday | Friday |
|---|------------------------|------------------------|
| Aug 27 Statistics | Aug 29 Statistics | Aug 31 Statistics |
| Sep 3 Labor Day | Sep 5 Statistics | Sep 7 Statistics |
| Sep 10 Statistics | Sep 12 Statistics | Sep 14 Statistics |
| Sep 17 Probability | Sep 19 Probability | Sep 21 Probability |
| Sep 24 Probability | Sep 26 Probability | Sep 28 Probability |
| Oct 1 Geometry | Oct 3 Geometry | Oct 5 Geometry |
| Oct 8 Geometry | Oct 10 Geometry | Oct 12 Geometry |
| Oct 15 Geometry | Oct 17 Geometry | Oct 19 Geometry |
| Oct 22 Algebra | Oct 24 Algebra | Oct 26 Algebra |
| Oct 29 Algebra | Oct 31 Algebra | Nov 2 Algebra |
| Nov 5 Algebra | Nov 7 Algebra | Nov 9 Algebra |
| Nov 12 Veteran's Day | Nov 14 Algebra | Nov 16 Algebra |
| Nov 19 Functions | Nov 21 Thanksgiving | Nov 23 Thanksgiving |
| Nov 26 Functions | Nov 28 Functions | Nov 30 Functions |
| Dec 3 Functions | Dec 5 Functions | Dec 7 Functions |
| Final Exam Thursday, December 13, 8:00-10:00AM | | |