Syllabus: MTH 138 College Algebra

Spring 2018, Section .008

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Office: Math-332
Office Hours: Monday and Wednesday 10:00 – 11:30. Tuesday and Thursday 1:30 – 2:30.
Other times by appointment.

Class Time & Place: 9:30 – 10:45 TTH, Math-202
Final Exam: Thursday, May 10th, 8:00 – 10:00

Required Materials
Book: The required textbook for this course is *Modeling, Functions, and Graphs: Algebra for College Students* by Katherine Yoshiwara. The textbook is free and available online at https://yoshiwarabooks.org/mfg/.
Online: WeBWorK, the MTH 138 online homework system, is also free and available online at https://webwork.sfasu.edu/webwork2/MTH138-Spring18/.
Calculator: A scientific calculator is required. **Graphing calculators** (such as the Ti-84 or equivalent), and **calculators with solving capabilities** (such as the Ti-Nspire or equivalent) are not allowed.

Course Description
Mathematical models; solving equations; creating, interpreting, and graphing functions. Particular focus is given to polynomial, exponential, and logarithmic functions. Prerequisites: two years of high school algebra and one year of high school geometry and TSI complete/exempt status in mathematics.

Core Objectives (CO)
1. **Critical Thinking** [CO 1]: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. **Communication Skills** [CO 2]: to include effective development, interpretation and expression of ideas through written, oral and visual communication
3. **Empirical and Quantitative Skills** [CO 3]: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Course Requirements/Assignments: Overview
The core objective(s) satisfied by each assignment type are indicated in brackets

- Three in-class exams [CO 1, 2, 3]
- Online homework/quiz assignments [CO 1, 2, 3]
- Comprehensive final exam [CO 1, 2, 3]

Student Learning Outcomes (SLO)
At the end of MTH 138, a student who has studied and learned the material should be able to:
1. Employ independence of thought and innovation in order to obtain solutions to typical algebraic problems. [CO 1]
2. Create, manipulate, analyze and solve algebraic equations and expressions, especially linear, quadratic, polynomial, rational, exponential and logarithmic expressions. [CO 1,3]
3. Connect graphical properties with those of associated functions or equations, and use these connections to communicate graphical or physical properties in algebraic language. [CO 2,3]
4. Read, interpret, and communicate written mathematics, both in prose and in its graphical or visual forms. [CO 2]
5. Use functions to model and solve real-world problems. [CO 1,3]

Final Grade Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Grade Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework/quizzes/projects</td>
<td>20%</td>
<td>90% - 100% A</td>
</tr>
<tr>
<td>Tests (3 @ 20% each)</td>
<td>60%</td>
<td>80% - 89.9% B</td>
</tr>
<tr>
<td>Comprehensive Final Exam</td>
<td>20%</td>
<td>70% - 79.9% C</td>
</tr>
<tr>
<td>Final Course Grade</td>
<td>100%</td>
<td>60% - 69.9% D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0% - 59.9% F</td>
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</tbody>
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Grading Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Final Course Grade</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>90% - 100%</td>
</tr>
<tr>
<td>B</td>
<td>80% - 89.9%</td>
</tr>
<tr>
<td>C</td>
<td>70% - 79.9%</td>
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<tr>
<td>D</td>
<td>60% - 69.9%</td>
</tr>
<tr>
<td>F</td>
<td>0% - 59.9%</td>
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Test Dates

- #1: Thursday, Feb. 8
- #2: Thursday, Mar. 8
- #3: Thursday, Apr. 19
- Final: Thursday, May 10, 8:00 – 10:00
**Tentative Course Schedule**

<table>
<thead>
<tr>
<th>Week of</th>
<th>Tuesday</th>
<th>Thursday</th>
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<tbody>
<tr>
<td>Jan. 15</td>
<td>1.1 Linear Models</td>
<td>1.2 Functions</td>
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<tr>
<td>Jan. 22</td>
<td>1.3 Graphs of Functions</td>
<td>1.4 Slope and Rate of Change</td>
</tr>
<tr>
<td>Jan. 29</td>
<td>1.5 Linear Functions 2.1 Nonlinear Models</td>
<td>2.2 Some Basic Functions</td>
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<tr>
<td>Feb. 5</td>
<td>2.3 Transformations of Graphs</td>
<td>Exam 1</td>
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<tr>
<td>Feb. 12</td>
<td>2.4 Functions as Mathematical Models 2.5 Absolute Value Functions</td>
<td>2.6 Domain and Range</td>
</tr>
<tr>
<td>Feb. 19</td>
<td>3.1 Variation 3.2 Integer Exponents</td>
<td>3.3 Roots and Radicals</td>
</tr>
<tr>
<td>Feb. 26</td>
<td>3.4 Rational Exponents 4.1 Exponential Growth and Decay</td>
<td>4.2 Exponential Functions</td>
</tr>
<tr>
<td>Mar. 5</td>
<td>4.3 Logarithms</td>
<td>Exam 2</td>
</tr>
<tr>
<td>Mar. 19</td>
<td>Spring Break</td>
<td>Spring Break</td>
</tr>
<tr>
<td>Mar. 26</td>
<td>4.4 Properties of Logarithms 4.5 Exponential Models</td>
<td>5.1 Inverse Functions</td>
</tr>
<tr>
<td>Apr. 2</td>
<td>5.2 Logarithmic Functions</td>
<td>Easter Break</td>
</tr>
<tr>
<td>Apr. 9</td>
<td>5.3 The Natural Base 5.4 Logarithmic Scales</td>
<td>6.1 Factors and x-intercepts</td>
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<tr>
<td>Apr. 16</td>
<td>6.2 Solving Quadratic Equations 6.3 Graphing Parabolas</td>
<td>6.4 Problem Solving</td>
</tr>
<tr>
<td>Apr. 23</td>
<td>7.1 Polynomial Functions</td>
<td>Exam 3</td>
</tr>
<tr>
<td>Apr. 30</td>
<td>7.2 Graphing Polynomial Functions 7.4 Graphing Rational Functions</td>
<td>7.5 Equations that Include Algebraic Fractions</td>
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<tr>
<td>May 7</td>
<td>8.1 Systems of Equations in Two Variables 8.2 Systems of Equations in Three Variables</td>
<td>Review</td>
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<td></td>
<td>Final Exam 8:00 – 10:00</td>
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**Additional Help**

The AARC (Academic Assistance and Resource Center) provides tutoring and mentoring services including:

- **Walk-in tables** (available MTWR 1-8 and Sun. 4-8);
- **Power Hours** (Tues. 4:00 – 6:00 and Thurs. 2:00 – 4:00. These are walk-in table times just for MTH 138); and
- **Learning Teams** (4 students enrolled in this course and a tutor.) LT enrollment dates: 1/17, 1/18, 2/14, 2/15, 3/21, and 3/22.

For more information, visit the AARC (right side of the first floor of Steen Library) or the AARC webpage (http://library.sfasu.edu/aarc/).

**General Policies and Information**

- Online homework will be required using WeBWorK at [https://webwork.sfasu.edu/webwork2/MTH138-Spring18/](https://webwork.sfasu.edu/webwork2/MTH138-Spring18/).
- Your username is your mySFA username, and your password is also your mySFA username. For example, if your email address is austinsf@jacks.sfasu.edu, you use
  
  Username: austinsf
  Password: austinsf

- You should **change your password** after you login for the first time.
- WeBWorK assignments are generally due at 11:59 pm the next class day after we cover the material, but there may be exceptions to this rule. Check the WeBWorK course page frequently to keep on top of the due dates. **This is your responsibility!**
- Additional homework/projects may also be assigned, including possible writing assignments.
At the beginning of class, you may ask questions on material covered the previous class period, providing you have actually worked on the problems.

You earn your grade by communicating your understanding of the material through the assignments and tests. Clearly communicating mathematics will be essential in this course.

I may send e-mails to the entire class during the semester. Check your SFA e-mail account frequently.

To contact me, you may call my office, drop by my office, or e-mail me. I will do my best to reply quickly.

Students are expected to respect the learning environment of their fellow students. Texting, game playing, internet surfing, watching videos, etc. is forbidden during class. Please turn off and put away your cell phones!

**Testing, Grading, and Make-up Policies**

- If you miss a test and have a valid excuse, I will replace your missed test grade by your final exam grade. However, your final may only replace one other score. Be sure to communicate with me immediately if something unusual comes up.

- **Attendance Policy:** Over 2 unexcused absences may result in a grade reduction. Students leaving class early without prior notification will be counted absent. Students who are physically present, but who are not participating in class (sleeping, using personal electronics, etc) will be counted absent. Students who miss class for any reason are responsible for the material missed.

- You must show your SFASU Student ID before you will be given any exam grades. I must be able to recognize you from the photo on the ID.

- Since you have a full semester to arrange any travel plans, they are not an excuse for missing the final.

- Students are expected to attend every class meeting, and arrive on time. If you have no more than two absences and score a 70% or better on the final, that score will replace your lowest test grade.

- You may get help on work that is assigned to be done outside of class, unless otherwise instructed, but I expect any work that you turn in to reflect your understanding of the material. Note “getting help” does not include having someone do it for you, or copying someone else’s work. On in-class graded work, I expect you to only use your brains, pencil, paper, and, sometimes, a calculator.

**Tips for a Successful math class**

- Measure success as understanding and being able to do new problems, not as having completed the assignment.

- Try to understand definitions and problem solving approaches. See if you can find examples that work and examples that don’t.

- Take the time to read the book and review your notes before and after class.

- Practice homework problems until you can do them without referring to examples or getting other help.

- Practice explaining big ideas and problem solving procedures in your own words, using complete sentences.

- Have someone check your work after you have finished it to help eliminate mistakes that you do not know you are making.

- Treat mistakes as a learning experience.

- Realize that math is hard. Some parts are harder for some people than others. Professional mathematicians frequently find it hard to learn new things and sometimes make mistakes on things we already know. We have just learned to go back and review the basics, and keep working, even it takes hours, days, weeks, or years.

- Some people take longer to understand things than others. Evaluate how you study and seek to study smarter, not necessarily longer. If you are still stuck, get some help. The AARC and I are here for you!

**University Policies**

- **Academic Integrity (Policy A-9.1)**
  Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

  The penalty for a student found cheating on any part of an assignment, quiz, or exam in this class will range from a grade of zero on the work to a grade of F in the course, and may result in additional, more severe disciplinary measures. A student who allows another to copy his work and the student copying the work are both guilty of cheating. Do your own work. Do not show your completed work to others. Do not allow others to copy your work.
Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit. Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp.

- Withheld Grades Semester Grades Policy (A-54)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

- Students with Disabilities
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Service (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices.

- Acceptable Student Behavior
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1 http://www.sfasu.edu/policies/student_conduct_code.asp). Unacceptable dress or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.