Class Syllabus / Policy

MTH 129 Section 001: Concepts and Applications
Spring 2019

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Department: Mathematics & Statistics
Email: princes@sfasu.edu
Phone: 936-468-6262
Office: Mathematics Room 334
Office Hours: Anytime my door is open, by appointment or
Monday/Wednesday: 1:00pm-2:15pm
Tuesday/Thursday: 11:00am-12:15pm

Class meeting time and place: MTH 129 Section 001 meets in Math 208 at 12:30-1:45 TR

Course Prerequisites: MTH 127 and MTH 128

Course Description:
Problem solving and critical thinking skills applied to the study of a broad range of topics, including sequences and series, recursion, and mathematical modeling with families of functions, including connections to the classroom.

Text and Materials:
- A four-function calculator (ONLY-NO graphing or scientific calculators) will be allowed on exams but is not required.

Course Requirements:
- Three in-class exams scheduled on Tuesday, February 19; Thursday, March 14; and Thursday, April 25.
- Final Exam taken Thursday, May 16, 10:30am-12:30pm. The final exam is comprehensive
- Homework will be collected and graded. Assigned problems from the textbook can be found on the Tentative Calendar. Some assignments may be due during Dead Week. Read the homework grading policy available on D2L carefully
- Exam corrections, in which you work any exam questions for which you lost credit. Errors should also be classified according to the instructor’s criteria. These assignments will be returned to you for editing until they are completely correct. Credit for this assignment will not be awarded until all errors are completely corrected. These assignments are classified as “homework” and will not alter exam grades
- Reading the textbook is essential to the learning process and is expected
- Attendance and participation in class meetings are expected
- Use of cell phones in class is not permitted and may require completion of additional assignments. See the “Acceptable Student Behavior” section below
- Initiative to seek help outside of class, in the instructor’s office, the AARC, or other means may be necessary in order to be successful
- D2L access. You will be required to access SFA’s Learning Management Software (at http://d2l.sfasu.edu) periodically to access documents and surveys
- Additional assignments at the instructor’s discretion
- Late work will NOT be accepted.
- There is NO extra credit
Grading Policy:
- **NO LATE WORK IS ACCEPTED.** One homework grade will be dropped.
- There is NO extra credit.
- The final exam will NOT replace any other exam scores.

The Final Grade will be determined by the scale:
- 100%-90% A, 89%-80% B, 79%-70% C, 69%-60% D, and 59% and below is an F.

<table>
<thead>
<tr>
<th>Homework</th>
<th>From Text</th>
<th>10%</th>
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</thead>
<tbody>
<tr>
<td>Other Assignments</td>
<td>Throughout Semester</td>
<td>10%</td>
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<tr>
<td>Tests</td>
<td>3 Midterm Tests</td>
<td>20% each</td>
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<tr>
<td>Final Exam</td>
<td>Final Exam (Comprehensive)</td>
<td>20%</td>
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Attendance Policy:
- Attendance and participation in class are expected.
- Exam make-ups must be approved beforehand with documentation of a valid university sanctioned excuse; other make-ups are solely at the instructor’s discretion.
- Late work is NOT accepted.
- Bring your university ID card to all exams.
- Arrive on time (early) to class having done all homework from the previous section and having read the sections that will be covered in class.
- The university’s Attendance and Excused Absences Policy can be found at http://www.sfasu.edu/policies/class_attendance_excused_abs.asp

Writing Assignments:
In this course, you will be expected to complete some short writing assignments on topics that are in the intersection of mathematical content and mathematics teaching. Although these papers are short, they will be graded for content, organization, and format just as a longer paper in a humanities or social science class would be graded. A rubric will be provided. Please ask the instructor if you are unclear about the expectations for writing assignments.

In particular, all writing assignments ask you to elaborate on the question that was asked. Please do not merely cut-and-paste lists of standards or provide a summary of the content of a video clip. Add your own thoughts, and connect the question to the mathematical content we have covered in class.

Expected Student Behavior:
- **CELL PHONES are not permitted in this class. DO NOT** use your cell phone in class. There should be no cell phones in my, or your, sight during class. Using or monitoring a cell phone during class distracts you and keeps you from learning. Phones should be set to silent (not vibrate) mode and put away during class time. You may NOT use your cell phone as a clock or calculator on exams. If the instructor sees you use a cell phone during class, you will be required to place it in a basket kept at the front of the classroom. If you do not place the phone in the basket, you will be asked to take the phone out of the classroom.
- I will send email to the entire class during the course. Check your SFA email address or have SFA forward your email to an account you check at least daily.
- No eating in class.
- Any disrespectful or disruptive behavior – including, but not limited to: sleeping, reading, side discussions, overt disruptions, name calling, harassing behaviors, etc - will result in your dismissal from the class, and may result in a referral to the appropriate university office.
- The instructor reserves the right to amend these rules as necessary throughout the term.

**Acceptable Student Behavior (University Policy):** 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). Unacceptable 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.
## Course Calendar

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Activity</th>
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<tbody>
<tr>
<td>1</td>
<td>Course Orientation</td>
<td>3M, 3N</td>
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<td></td>
<td>Number Systems</td>
<td>2S, 2U</td>
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<td></td>
<td>2.5 Percent;</td>
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<td>2</td>
<td>3.5 Why We Add and Subtract with Negative Numbers</td>
<td>3U</td>
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<td></td>
<td>the Way We Do</td>
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<td></td>
<td>5.2 Making Sense of Decimal Multiplication</td>
<td>5G, 5H, 5I</td>
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<tr>
<td>3</td>
<td>6.1 Interpretations of Division</td>
<td>6C, 6R, 6S</td>
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<td></td>
<td>6.6. Dividing Decimals</td>
<td>16C, 16E, 16G</td>
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<td></td>
<td>16.1 Basic Principles of Probability</td>
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<td>16.2 Counting the Number of Outcomes: Independent</td>
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<td></td>
<td>Versus Dependent</td>
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<td>4</td>
<td>16.3 Calculating Probabilities in Multistage</td>
<td>16H, 16I, 16L, 16M</td>
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<td></td>
<td>Experiments</td>
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<td>16.4 Using Fraction Arithmetic to Calculate</td>
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<td>Probabilities</td>
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<tr>
<td>5</td>
<td>7.1 Motivating and Defining Ratio and Proportional</td>
<td>7A, 7B, 7C</td>
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<td></td>
<td>Relationships</td>
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<td>6</td>
<td>7.2 Solving Proportion Problems by Reasoning with</td>
<td>7E, 7G, 7L</td>
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<td></td>
<td>Multiplication and Division</td>
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<td>7.3 The Values of a Ratio: Unit Rates and Multipliers</td>
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<td>7.4 Proportional Relationships</td>
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<td>7.5 Proportional Relationships Versus Inversely</td>
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<td></td>
<td>Proportional Relationships</td>
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<td>7.6 Percent Revisited: Percent Increase and Decrease</td>
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<td></td>
<td>7M, 7N, 7O, 7P, 7Q, 7R, 7S</td>
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<td>8</td>
<td>Spring Break</td>
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<td>Exam 2: Chapter 7</td>
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<tr>
<td>9</td>
<td>9.1 Numerical Expressions</td>
<td>9A, 9B, 9F, 9G</td>
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<td>9.2 Expressions with Variables</td>
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<td>10</td>
<td>9.3 Equations</td>
<td>9H, 9I, 9J, 9K</td>
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<td>9.4 Solving Algebra Word Problems with Strip</td>
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<td></td>
<td>Diagrams and with Algebra</td>
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<td>11</td>
<td>9.5 Sequences</td>
<td>9J, 9O</td>
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<tr>
<td>12</td>
<td>9.6 Functions</td>
<td>9R, 9S, 9T</td>
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<td>Easter Break</td>
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<td>13</td>
<td>9.7 Linear and Other Relationships</td>
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<tr>
<td>14</td>
<td>5.3 Extending Multiplication to Negative Numbers</td>
<td>5J</td>
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<tr>
<td>15</td>
<td>8.6. Rational and Irrational Numbers</td>
<td>8O, 8P, 8Q</td>
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<tr>
<td>16</td>
<td>5.3 Extending Multiplication to Negative Numbers</td>
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<td>Final Exam</td>
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<td></td>
<td>Friday, December 14, 2018, 10:30-12:30</td>
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The following is an excerpt from SFA Policy 5.4:

The federal definition of a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates:

1. Not less than one hour of classroom or direct faculty instruction and a minimum of two hours out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or 10 to 12 weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time, or;
2. At least an equivalent amount of work as outlined in item 1 above for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

To this end, all students in courses offered by the Department of Mathematics and Statistics that wish to be successful should plan to spend a minimum of two hours outside of class for every credit hour associated with this course. Expected activities to be completed in the time outside of class include reviewing notes from previous class meetings, reading assigned course resources, completing all assigned exercises and projects, and performing periodic assessment preparation.

See [http://www2.sfasu.edu/math/docs/syllabi/MTH129Syllabus.pdf](http://www2.sfasu.edu/math/docs/syllabi/MTH129Syllabus.pdf) for elements common to all sections.
Course description: Problem solving and critical thinking skills applied to the study of a broad range of topics, including sequences and series, recursion, and mathematical modeling with families of functions, including connections to the classroom.

Credit hours: 3
The following is an excerpt from SFA Policy 5.4:

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Course Prerequisites and Corequisites: Math 127.

Course outline:

- The Real Number System
  - Common Subsets of the Real Numbers
  - Decimals and Real Numbers
  - Connections between Fractions and Decimals in the Context of Terminating and Nonterminating Decimals
  - Connections to the Classroom

- Algebraic Thinking
  - Sequences, Series, and Recursion (Including the Fibonacci Sequence)
  - Arithmetic and Geometric Progressions as Functions; Connections to Recursive and Closed Form Rules
  - Simulations as a Tool to Model and Solve Problems
  - Developing and Validating Conjectures about Patterns and Relationships in Data Presented in Tables, Sequences, or Graphs
  - Finite Differences
  - Interpreting and Using Graphs for Mathematical Modeling
  - Problem Solving Strategies
  - Connections to the Classroom

- Standards
  - National and state mathematics standards for grades EC-8
    - Reference: Texas Essential Knowledge and Skills (TEKS), Texas Education Agency
  - National and state mathematics standards for beginning teachers of grades EC-8

Approximate time spent:

- The Real Number System: 20%
- Algebraic Thinking: 65%
- Standards: 15%
Academic Integrity
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 (SFA policy 4.1):
Academic dishonesty includes both cheating and plagiarism. Cheating includes, but is not limited to:
- using or attempting to use unauthorized materials on any class assignment or exam;
- falsifying or inventing of any information, including citations, on an assignment;
- helping or attempting to help other student(s) in an act of cheating or plagiarism.

Plagiarism is presenting the words or ideas of another person as if they were one’s own. Examples of plagiarism include, but are not limited to:
- submitting an assignment as one’s own work when it is at least partly the work of another person;
- submitting a work that has been purchased or otherwise obtained from the Internet or another source;
- incorporating the words or ideas of an author into one’s paper or presentation without giving the author credit.

Withdraw Grades Semester Grades (SFA Policy 5.5)
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 Services (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 10.4). Unacceptable 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.

Student Learning Outcomes (SLO): At the end of MTH 129, a student who has studied and learned the material should be able to:
1. Identify the number sets. [SBEC: I]
2. Identify and define recursively and explicitly (when possible) arithmetic and geometric sequences. [SBEC: II, V]
3. Use finite differences to find the closed form rule for sequences defined by a polynomial. [SBEC: II]
4. Use geometric series to find the rational number representation of a repeating decimal. [SBEC: I, II, V]
5. Define relations and represent them in a variety of ways. [SBEC: II]
6. Determine whether a relation satisfies the reflexive, symmetric, and transitive properties. [SBEC: II, V]
7. Define functions and function properties. [SBEC: II]
8. Identify the function families. [SBEC: II]
9. Interpret graphs of functions. [SBEC: II, V]

There are no specific program learning outcomes for this major addressed in this course. It is a general education core curriculum course and/or a service course.

Texas State Board for Educator Certification (SBEC): Mathematics Standards: Standard I. Number Concepts: The mathematics teacher understands and uses numbers, number systems and their structure, operations and algorithms, quantitative reasoning, and technology appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in order to prepare students to use mathematics. Standard II. Patterns and Algebra: The mathematics teacher understands and uses patterns, relations, functions, algebraic reasoning, analysis, and technology appropriate to teach the statewide curriculum (Texas Essential Knowledge and Skills [TEKS]) in order to prepare students to use mathematics. Standard V. Mathematical Processes: The mathematics teacher understands and uses mathematical processes to reason mathematically, to solve mathematical problems, to make mathematical connections within and outside of mathematics, and to communicate mathematically.

Date of document: 01/11/2019