Course Description: Elementary concepts of sets, numeration systems, number theory, and properties of the natural numbers, integers, rational, and real number systems with an emphasis on problem solving and critical thinking.

Course Prerequisites
Two years of high school algebra and one year of high school geometry.

Course Time and Meeting Place
- Online at https://d2l.sfasu.edu

Instructor
- Danielle Johnson, Department of Mathematics and Statistics
- Office: Math 349
- TEL: (936) 468-1521, 936 468 3805 (Math department main office)
- Email: drjohnson@sfasu.edu

Office Hours:  **MW: 2:30-4PM    TR: 2pm - 3pm**    Other hours by appointment.
Expect to receive response to email within 24 hours on weekdays and 60 hours on the weekends.

Current Text and Materials
The textbook for this course is:
Mathematics for Elementary Teachers, Beckmann 0321901231 Pearson 5th
- *** You will need a collection of approximately 1000 toothpicks and 30 rubber bands to complete required activities.

Course Goals
- To understand the mathematics essential to successful teaching in the elementary school classroom.
- To acquire a foundation in numeration systems, number theory and properties of the natural numbers, integers, rational, and the real number system.
- To gain skill in problem solving and critical thinking.

Calculators: Calculators will not be used in this course.

Course Requirements:
- Final exam (lasting 2 1/2 hours)
- Three in-class exams, dates listed below
- D2L access. You will be required to access SFA’s Learning management Software(at https://d2l.sfasu.edu) daily.
- Homework from the textbook will be collected and graded. Read the homework grading policy as found on D2L carefully. Some assignments may be returned to you for additional effort before a grade is entered.
- Reading the textbook is essential to the learning process and is expected. You should read the section to be covered carefully before attempting investigations, discussions, or homework problems. It will likely be necessary to read each section more than once.
- Additional assignments at the instructor’s discretion
- There is no extra credit
- Initiative to seek help outside of class, in the professor’s office or the AARC may be necessary in order to succeed in the course

**Attendance policy:** Attendance and participation are expected. This course is taught with an emphasis on inquiry rather than lecture. You will be required to participate in discussion posts and other activities online as part of your grade.

**Grading and Exams**
There will be three 75 minute exams during the semester and a 2 1/2 hr. comprehensive final exam. Your course grade will be determined as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Date</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>Written homework problems submitted online, discussion posts, d2L quizzes, Other graded D2l assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Exam I</td>
<td>Feb. 10-12</td>
<td>20%</td>
</tr>
<tr>
<td>Exam II</td>
<td>Mar. 16-18</td>
<td>20%</td>
</tr>
<tr>
<td>Exam III</td>
<td>Apr. 20-22</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td><strong>May 4-6</strong></td>
<td>20%</td>
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</tbody>
</table>

Semester numerical scores will be converted into letter grades according to the following method.

<table>
<thead>
<tr>
<th>Range of numerical values</th>
<th>Corresponding Letter</th>
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</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>80-89</td>
<td>B</td>
</tr>
<tr>
<td>70-79</td>
<td>C</td>
</tr>
<tr>
<td>60-69</td>
<td>D</td>
</tr>
<tr>
<td>0-59</td>
<td>F</td>
</tr>
</tbody>
</table>

When I calculate your final grade at the end of the course, I will calculate a score on a 0-100 point scale using the scores that you have obtained during the course, and the grade breakdown given above. Your course grade will then be obtained using this table.

**Resurrection Policy.** If you score better on the final exam than your lowest midterm exam, we will replace your midterm grade with your final exam grade. The resurrection policy only applies to exams.

**Exam Policy**
Exams in this course must be proctored. You may take exams at the SFA campus with a proctor (time and location are given in Tentative course timeline in the Getting Started module). Realize that you will only be given 75 minutes to take the exam, or you may elect to take exams with an approved proctor at another location. If you choose to take exams at another location, it is YOUR responsibility to secure a proctor and submit contact information to the instructor. Please see the “Exam Proctoring Instructions” document provided on D2L for more information.

Exams must be taken within the range of dates listed above. Exams may be taken at other locations (other than SFA) anytime during the given date range. There should be no reason to miss an exam other than:

1. A medical excuse. Please provide proper documentation according to university rules.
2. A University sponsored event such as an athletic tournament, a play, or a musical performance. Your coach or
director must contact us in advance. Athletic practices and rehearsals do not fall into this category.

3. A religious holiday. Please send a short email explaining the situation.

4. Extreme hardship such as a family emergency. Please have the proper university office notify us.

The above are the only allowable excuses for taking the exam before the scheduled time. Under no circumstances do we
give late exams. Since we can only accommodate a limited number of students taking the exam at an earlier time, please
make sure that you fall into one of the above categories before you contact us. If you miss an exam due to illness or a
family emergency, you will not be penalized. The missed exam will be replaced with the final exam grade. If you have a
conflict with the final exam (other than another exam at the same time), you must contact the Registrar. Only the Registrar
can schedule an out-of-sequence final exam.

**The Class Environment:** The format for this course will probably be different from your previous math classes. Students
spend time working, discussing, and explaining problems. You should not expect that the instructor will lecture, or that
you will have a clearly defined set of notes or PowerPoint-type slides. Getting used to this format requires some time, so
be patient. I will send emails to the entire class during the course. Check your D2L email daily.

**Making Your Homework Easy to Read and Easy to Grade**

- Make sure your handwriting is legible.
- In the upper right-hand corner you should write (in this order)
  - Your name
  - MTH 127.500
  - The homework set number
  - The due date of the homework
- Problems should be clearly labeled and numbered on the left side of the page. There should also be a visible
  separation between problems..
- To ensure that each problem is graded, problems and solutions should be written in the order that they are
  assigned.
- It is good practice to first work out the solutions to homework problems on scratch paper, and then to neatly write
  up your solutions. This will help you turn in a clean finished product.
- You should write up your solutions by yourself. You should always acknowledge any help received at the top of
  the assignment or in the right-hand margin.
- Individual and group help is available at the Academic Assistance and Resource Center, which is located on the
  first floor of the Steen Library.
- Take advantage of office hours.

**General Education Core Curriculum**

The Texas Higher Education Coordinating Board has identified six core learning objectives: Critical Thinking
Skills, Communication Skills, Empirical and Quantitative Skills, Teamwork, Personal Responsibility, and Social
Responsibility. SFA is committed to the improvement of its general education core curriculum by regular
assessment of student performance on these six objectives.

By enrolling in Introduction to MTH 127: Mathematics for Elementary Teachers you are also enrolling in a Core
Curriculum Course that fulfills the Communication Skills requirement. You will see this course on your D2L list.

At one point during the semester, you will receive an assignment that fulfills both the requirements of this course and the
needs of Stephen F. Austin State University's Core Curriculum Assessment Plan with the Texas Higher Education
Coordinating Board. When you complete this one assignment, you need to upload the assignment to both your standard
course dropbox determined by your Instructor and the “Core Curriculum” dropbox. The Core Curriculum dropbox will be
identified by the Objective for which work is being collected. (Examples: Critical Thinking, Teamwork, Social
Responsibility Empirical & Quantitative Skills, Personal Responsibility, Communication Skills-Written, Communication
Skills-Written & Visual, and Communication Skills- Oral & Visual.) Please note that this only applies to the approved
assignment. All other assignments should be submitted according to regular class operations. If you have any questions,
please see your Instructor or the Office of Student Learning and Institutional Assessment.
When you complete the assignment mentioned above, you will upload the assignment to both the MTH 127: Mathematics for Elementary Teachers dropbox and the Communication Skills dropbox. Please note that this only applies to the specific assignment listed in the matrix below. All other assignments should be submitted according to regular class operations. If you have any questions, please see your instructor or contact the Institutional Effectiveness Office at (936) 468-1130.

The chart below indicates the core objectives addressed by this course, the assignment(s) that will be used to assess the objectives in this course and uploaded to the D2L Communication Skills dropbox this semester, and the date the assignment(s) should be uploaded to the D2L Communication Skills dropbox. Not every assignment will be submitted for core assessment every semester. Your instructor will notify you which assignment(s) must be submitted for assessment in the Communication Skills dropbox.

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment Title</th>
<th>Date Due in D2L</th>
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<tbody>
<tr>
<td>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Communication Skills</td>
<td>To include effective development, interpretation and expression of ideas though written, oral, and visual communication.</td>
<td>Core Curriculum Assignment: Fraction Addition</td>
<td>N/A</td>
</tr>
<tr>
<td>Empirical and Quantitative Skills</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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/MTH127Syllabus.pdf](http://www2.sfasu.edu/math/docs/syllabi/MTH127Syllabus.pdf) for elements common to all sections.

**Tentative Course Timeline:** Spring 2020 (on next few pages)
<table>
<thead>
<tr>
<th>Due Date</th>
<th>Module Description</th>
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</table>
| **Friday, January 17th, 11:30PM** | - Getting Started Module  
  - All remaining items on [Checklist](#)  
  - Complete [Course Structure Quiz](#) with 100% score to move on to Introduction module  
- Introduction Module  
  - All remaining items on [Checklist](#)  
- Problem Solving Module  
  - Read textbook section 2.1  
  - All remaining items on [Checklist](#) |
| **Wednesday, January 22nd, 11:30PM** | - Numbers and the Base-10 System Module  
  - Read textbook sections:  
    - 1.1. The Counting Numbers  
    - 1.2 Decimals  
    - 1.4 Reasoning about Rounding  
  - Class Activities:  
    - 1C  
    - 1F  
    - 1J  
    - 1N  
    - 1O  
  - Homework from textbook (turned in via [D2L dropbox](#)):  
    - Section 1.1: p. 12 #3  
    - Section 1.2: p. 26 #8  
    - Section 1.4: pp. 37-38 #4  
  - All remaining items on [Checklist](#) |
| **Wednesday, January 29th, 11:30PM** | - Fractions Module, Part 1  
  - Read textbook sections  
    - 2.2 Defining and Reasoning about Fractions  
  - Class Activities:  
    - 2A  
    - 2C  
    - 2D  
  - Homework from textbook (turned in via [D2L dropbox](#)):  
    - Section 2.2: p. 57 #5  
  - All remaining items on [Checklist](#) |
| **Wednesday, February 5th, 11:30PM** | - Fractions Module, Part 2  
  - Read textbook sections  
    - 2.3 Reasoning about Equivalent Fractions  
    - 2.4 Reasoning to Comparing Fractions  
  - Class Activities:  
    - 2G  
    - 2I  
    - 2K  
    - 2L  
    - 2M  
    - 2O  
    - 2P  
    - 2Q  
  - Homework from textbook (turned in via [D2L dropbox](#)):  
    - Section 2.3: pp. 67,69 #3, 22  
    - Section 2.4: p. 77 #1, 7  
  - All remaining items on [Checklist](#) |
On Campus Proctoring

Wednesday, February 12th
4:00-8:00PM

- EXAM 1, covers Problem Solving Module, Numbers and Base 10 System Module, and Fraction Modules 1 and 2 (Chapters 1 and 2 except section 1.3)
- Must be completed by Feb. 10-12
  - On campus opportunity: Wednesday, Feb. 12th, 4-8 pm, TBA

Due FRIDAY, February 14th, 11:30PM

- Addition and Subtraction Module, Part 1
  - Read textbook sections
    - 3.1 Interpretations of Addition and Subtraction
  - Class Activities:
    - 3D
  - Homework from textbook (turned in via D2L dropbox):
    - Section 3.1: p. 101: #1
  - All remaining items on Checklist

Due Wednesday, February 19th, 11:30PM

- Addition and Subtraction Module, Part 2
  - Read textbook sections
    - 3.2 The Commutative and Associative Properties of Addition, Mental Math, and Single-Digit Facts
    - 3.3 Why the Standard Algorithms for Addition and Subtraction in Base Ten Work,
    - 3.4 Reasoning About Fraction Addition and Subtraction
  - Class Activities:
    - 3E
    - 3F
    - 3G
    - 3I
    - 3J
    - 3K
    - 3O
    - 3P
  - Homework from textbook (turned in via D2L dropbox):
    - Section 3.2: p. 112 #3
    - Section 3.3: pp. 120-122: #2, 3 (revised instructions)
    - Section 3.4: pp. 131-134: #10
  - All remaining items on Checklist

Due Wednesday, February 26th, 11:30PM

- Multiplication Module, Part 1
  - Read textbook sections
    - 4.1 Interpretations of Multiplication
    - 4.2 Why Multiplying by 10 is Special in Base Ten
  - Class Activities:
    - 4A
    - 4B
    - 4C
  - Homework from textbook (turned in via D2L dropbox):
    - Section 4.1: p. 149: #5ab
    - Section 4.2: p. 152: #2
  - All remaining items on Checklist
<table>
<thead>
<tr>
<th>Date</th>
<th>Assignment Details</th>
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</table>
| Due Wednesday, March 4th, 11:30PM | - Multiplication Module, Part 2  
  - Read textbook sections  
    - 4.3 The Commutative and Associative Properties of Multiplication, Areas of Rectangles and Volumes of Boxes  
    - 4.4 The Distributive Property  
    - 4.5 Properties of Arithmetic, Mental Math, and Single-Digit Multiplication Facts  
  - Class Activities:  
    - 4D  
    - 4E  
    - 4G  
    - 4H  
    - 4J  
    - 4K  
    - 4M  
  - Homework from textbook (turned in via D2L dropbox):  
    - Section 4.3: p. 163 #10  
    - Section 4.4: p. 174: #6  
    - Section 4.5: p. 183: #4  
  - All remaining items on Checklist |
| On Campus Proctoring | - EXAM 2, Addition and Subtraction Modules 1 and 2, and Multiplication Modules 1 and 2. (Chapters 3 and 4 except sections 3.2 and 4.6)  
  - Must be completed by March 16-18  
  - On campus opportunity:  
    - Wednesday, March 18th, 4-8 pm, TBA |
| Due FRIDAY, March 20th, 11:30PM | - Multiplication Module, Part 3  
  - Read textbook sections  
    - 4.6 Why the Standard Algorithm for Multiplying Whole Numbers Works  
  - Class Activities:  
    - 4N  
  - Homework from textbook (turned in via D2L dropbox):  
    - Section 4.6: pp.191-193: #10  
  - All remaining items on Checklist |
| Due Wednesday, March 25th, 11:30PM | - Fraction Multiplication Module, Part  
  - Read textbook sections  
    - 5.1 Making Sense of Fraction Multiplication  
  - Class Activities:  
    - 5A  
    - 5C  
    - 5D  
    - 5E  
  - Homework from textbook (turned in via D2L dropbox):  
    - Section 5.1: pp. 203-205: #3, 11  
  - All remaining items on Checklist |
<table>
<thead>
<tr>
<th>Due Wednesday, April 1st, 11:30PM</th>
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<tbody>
<tr>
<td><strong>Decimal Multiplication Module</strong></td>
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<td>o Read textbook section</td>
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<td>o Class Activities:</td>
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<td>o Homework from textbook (turned in via D2L dropbox):</td>
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<td>o All remaining items on Checklist</td>
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<tr>
<th>Due Wednesday, April 8th, 11:30PM</th>
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<tbody>
<tr>
<td><strong>Division Module, Part 1</strong></td>
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<tr>
<td>o Read textbook sections:</td>
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<td>o All remaining items on Checklist</td>
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<table>
<thead>
<tr>
<th>Due Wednesday, April 15th, 11:30PM</th>
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<tbody>
<tr>
<td><strong>Division Module, Part 2</strong></td>
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<tr>
<td>o Read textbook sections:</td>
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<td>o Class Activities:</td>
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<td>o Homework from textbook (turned in via D2L dropbox):</td>
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<td>o All remaining items on Checklist</td>
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<thead>
<tr>
<th>On Campus Proctoring Wednesday, April 22nd 4:00-8:00PM</th>
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<tbody>
<tr>
<td><strong>Exam 3 covers:</strong> Multiplication Module, Part 3; Fraction Multiplication Module; Decimal Multiplication Module and Division Modules 1 and 2 (Sections 4.6, 5.1, 5.2, 6.1, 6.2 and 6.3)</td>
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<tr>
<td><strong>Must be completed April 20-22</strong></td>
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<tr>
<td><strong>On campus opportunity:</strong></td>
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<td>o Wednesday, April 22, 4-8 pm, TBA</td>
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</table>
Due Wednesday, Apr. 29nd, 11:30PM

- **Dividing Decimal Module**
  - Read textbook sections:
    - 6.6 Dividing Decimals
  - Class Activities:
    - 6C
    - 6R
    - 6S
  - Homework from textbook (turned in via [D2L dropbox](#)):
    - Section 6.6: pp. 276-278: #3, 13
  - All remaining items on Checklist

- **Number Theory Module**
  - Read textbook sections:
    - 8.1 Factors and Multiples
    - 8.4 Prime Numbers
  - Class Activities:
    - 8A
    - 8B
    - 8G
    - 8H
  - Homework from textbook (turned in via [D2L dropbox](#)):
    - Section 8.1: pp. 340-341: #6
  - All remaining items on Checklist

On Campus Proctoring

- **Final Exam, comprehensive (including Section 6.6, 8.1 and 8.4)**
- **Must be completed May 4th - 6th**
- **On campus opportunity:**
  - Wednesday, May 6th, 4-8 pm, TBA